File: app/(auth)/check-email/page.tsx (49 lines, 1.9 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React from 'react'
    4| import Link from 'next/link'
    5| import { motion } from 'framer-motion'
    6| import { Mail, ArrowLeft, Loader2 } from 'lucide-react'
    7|
    8| export default function CheckEmailPage() {
    9|   return (
   10|     <div className="min-h-screen flex items-center justify-center bg-gradient-to-br from-[#0f0f1a] to-[#1a1a2e...
   11|       <motion.div
   12|         initial={{ opacity: 0, scale: 0.9 }}
   13|         animate={{ opacity: 1, scale: 1 }}
   14|         className="w-full max-w-md bg-[#16213e] border border-[#1e293b] p-10 rounded-2xl text-center shadow-2xl"
   15|       >
   16|         <div className="w-20 h-20 bg-[#00d2a0]/10 text-[#00d2a0] rounded-full flex items-center justify-center...
   17|           <Mail size={40} />
   18|         </div>
   19|
      2 0 |                  < h 2   c l a s s N a m e = " t e x t - 2 x l   f o n t - b o l d   m b - 4 " > K i Ã m   t r a   h Ù p   t h °   c ç a   b ¡ n
   21|         <p className="text-slate-400 mb-2 leading-relaxed">
      2 2 |                     C h ú n g   t ô i   ã   g í i   e m a i l   x á c   n h - n   ¿ n   Ë a   c h É   e m a i l   c ç a   b ¡ n .
   23|         </p>
   24|         <p className="text-slate-500 text-sm mb-8">
      2 5 |                     V u i   l ò n g   k i Ã m   t r a   h Ù p   t h °   ¿ n   ( I n b o x )   h o · c   t h °   m å c   S p a m ,   s a u
   26|         </p>
   27|
   28|         <div className="flex flex-col gap-3">
   29|           <button
   30|             type="button"
   31|             onClick={() => window.location.href = '/builder'}
   32|             className="w-full bg-[#00d2a0] hover:bg-[#00e6af] text-black font-bold py-3 rounded-xl transition-...
   33|           >
      3 4 |                         V Á   t r a n g   c h ç
   35|           </button>
   36|
   37|           <Link
   38|             href="/login"
   39|             className="text-sm text-[#00b4d8] hover:text-[#00d2a0] transition-colors font-medium"
   40|           >
   41|             <ArrowLeft size={14} className="inline mr-1" />
      4 2 |                         Q u a y   l ¡ i   n g   n h - p
   43|           </Link>
   44|         </div>
   45|       </motion.div>
   46|     </div>
   47|   )
   48| }
   49|
------------------------------------------------------------------------------------------
```

File: app/(auth)/forgot-password/page.tsx (115 lines, 4.6 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState } from 'react'
    4| import Link from 'next/link'
    5| import { motion } from 'framer-motion'
    6| import { Mail, ArrowLeft, Loader2, CheckCircle2, AlertCircle } from 'lucide-react'
    7| import { createBrowserClient } from '@supabase/ssr'
    8|
    9| export default function ForgotPasswordPage() {
   10|   const [email, setEmail] = useState('')
   11|   const [loading, setLoading] = useState(false)
   12|   const [submitted, setSubmitted] = useState(false)
   13|   const [error, setError] = useState<string | null>(null)
   14|
   15|   const handleSubmit = async (e: React.FormEvent) => {
   16|     e.preventDefault()
   17|     setLoading(true)
   18|     setError(null)
   19|
   20|     try {
   21|       const supabase = createBrowserClient(
   22|         process.env.NEXT_PUBLIC_SUPABASE_URL!,
   23|         process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   24|       )
   25|       const redirectUrl = process.env.NEXT_PUBLIC_SITE_URL
   26|         ? `${process.env.NEXT_PUBLIC_SITE_URL}/auth/callback`
   27|         : 'http://localhost:3000/auth/callback'
   28|
   29|       const { error: resetError } = await supabase.auth.resetPasswordForEmail(email, {
   30|         redirectTo: `${redirectUrl}?type=recovery`,
   31|       })
   32|
   33|       if (resetError) {
   34|         setError(resetError.message)
   35|       } else {
   36|         setSubmitted(true)
   37|       }
   38|     } catch (err) {
      3 9 |                 s e t E r r o r ( ' C ó   l × i   x £ y   r a .   V u i   l ò n g   t h í   l ¡ i   s a u . ' )
   40|     } finally {
   41|       setLoading(false)
   42|     }
   43|   }
   44|
   45|   if (submitted) {
   46|     return (
   47|       <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center p-6 text-white">
   48|         <motion.div
   49|           initial={{ opacity: 0, scale: 0.9 }}
   50|           animate={{ opacity: 1, scale: 1 }}
   51|           className="w-full max-w-md bg-[#16213e] border border-[#1e293b] p-10 rounded-2xl text-center shadow-...
   52|         >
   53|           <div className="w-20 h-20 bg-[#00d2a0]/10 text-[#00d2a0] rounded-full flex items-center justify-cent...
   54|             <CheckCircle2 size={40} />
   55|           </div>
      5 6 |                         < h 2   c l a s s N a m e = " t e x t - 2 x l   f o n t - b o l d   m b - 4 " > K i Ã m   t r a   E m a i l < / h 2 >
   57|           <p className="text-slate-400 mb-8 leading-relaxed">
      5 8 |                         C h ú n g   t ô i   ã   g í i   l i n k   · t   l ¡ i   m - t   k h © u   ¿ n   < s p a n   c l a s s N a m e = '
   59|           </p>
   60|           <Link href="/login" className="inline-flex items-center gap-2 text-[#00d2a0] font-medium hover:under...
      6 1 |                         < A r r o w L e f t   s i z e = { 1 8 }   / >   Q u a y   l ¡ i   n g   n h - p
   62|           </Link>
   63|         </motion.div>
   64|       </div>
   65|     )
   66|   }
   67|
   68|   return (
```

```
 69|     <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center p-6 text-white">
 70|       <motion.div
 71|         initial={{ opacity: 0, y: 20 }}
 72|         animate={{ opacity: 1, y: 0 }}
 73|         className="w-full max-w-md bg-[#16213e] border border-[#1e293b] p-8 md:p-10 rounded-2xl shadow-2xl"
 74|       >
 75|         <Link href="/login" className="inline-flex items-center gap-2 text-slate-400 hover:text-white transiti...
 76|           <ArrowLeft size={18} />
    7 7 |                     < s p a n   c l a s s N a m e = " t e x t - s m   f o n t - m e d i u m " > Q u a y   l ¡ i      n g   n h - p < / s p a r
 78|         </Link>
 79|
    8 0 |                 < h 2   c l a s s N a m e = " t e x t - 2 x l   f o n t - b o l d   m b - 2 " > Q u ê n   m - t   k h © u ?  Ø=Ý  < / h 2 >
    8 1 |                 < p   c l a s s N a m e = " t e x t - s l a t e - 4 0 0   m b - 8 " >  ë n g   l o !  N h - p   e m a i l   c ç a   b ¡ n   v
 82|
 83|         <form onSubmit={handleSubmit} className="space-y-6">
 84|           <div className="relative">
 85|             <Mail className="absolute left-4 top-1/2 -translate-y-1/2 text-slate-500" size={18} />
 86|             <input
 87|               type="email"
 88|               required
 89|               value={email}
 90|               onChange={(e) => setEmail(e.target.value)}
 91|               className="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-xl pl-11 pr-4 py-3.5 outline-none...
    9 2 |                             p l a c e h o l d e r = " E m a i l   c ç a   b ¡ n "
 93|             />
 94|           </div>
 95|
 96|           {error && (
 97|             <div className="bg-red-500/10 border border-red-500/20 text-red-400 px-4 py-3 rounded-lg text-sm f...
 98|               <AlertCircle size={18} className="shrink-0" />
 99|               <span>{error}</span>
100|             </div>
101|           )}
102|
103|           <button
104|             type="submit"
105|             disabled={loading}
106|             className="w-full bg-[#00d2a0] hover:bg-[#00e6af] text-black font-bold py-3.5 rounded-xl transitio...
107|           >
   1 0 8 |                         { l o a d i n g   ?  < L o a d e r 2   c l a s s N a m e = " a n i m a t e - s p i n "  s i z e = { 2 0 }  / >  :
109|           </button>
110|         </form>
111|       </motion.div>
112|     </div>
113|   )
114| }
115|
```

File: app/(auth)/login/page.tsx (368 lines, 20.9 KB)

```
==========================================================================================
  1| 'use client'
  2|
  3| import React, { useState } from 'react'
  4| import { useRouter } from 'next/navigation'
  5| import Link from 'next/link'
  6| import { Loader2, Mail, Lock, Eye, EyeOff, ShieldCheck, LogIn, ArrowLeft, Shield, KeyRound } from 'lucide-react'
  7| import { login } from '@/lib/auth-actions'
  8| import { createBrowserClient } from '@supabase/ssr'
  9|
 10| export default function LoginPage() {
 11|   const [error, setError] = useState<string | null>(null)
 12|   const [loading, setLoading] = useState(false)
 13|   const [showPassword, setShowPassword] = useState(false)
 14|   const [email, setEmail] = useState('')
 15|   const [showAdmin, setShowAdmin] = useState(false)
 16|   const [adminPass, setAdminPass] = useState('')
 17|   const [adminError, setAdminError] = useState('')
 18|   const [adminLoading, setAdminLoading] = useState(false)
 19|   const router = useRouter()
 20|
 21|   async function handleAdminLogin() {
    2 2 |         i f   ( ! a d m i n P a s s . t r i m ( ) )   {   s e t A d m i n E r r o r ( ' V u i   l ò n g   n h - p   m - t   k h © u   a d m i n
 23|     setAdminLoading(true)
 24|     setAdminError('')
 25|
 26|     try {
 27|       const formData = new FormData()
 28|       formData.set('email', 'admin')
 29|       formData.set('password', adminPass)
 30|       const res = await login(formData)
 31|       if (res?.error) {
    3 2 |                 s e t A d m i n E r r o r ( ' M - t   k h © u   a d m i n   k h ô n g   c h í n h   x á c ' )
 33|       } else if (res?.success && res.redirectUrl) {
 34|         router.push(res.redirectUrl)
 35|       }
 36|     } catch {
    3 7 |             s e t A d m i n E r r o r ( ' C ó   l × i   x £ y   r a ,   v u i   l ò n g   t h í   l ¡ i ' )
 38|     }
 39|     setAdminLoading(false)
 40|   }
 41|
 42|   async function handleGoogleLogin() {
 43|     setError(null)
 44|     const supabase = createBrowserClient(
 45|       process.env.NEXT_PUBLIC_SUPABASE_URL!,
 46|       process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
 47|     )
 48|     const redirectTo = process.env.NEXT_PUBLIC_SITE_URL
 49|       ? `${process.env.NEXT_PUBLIC_SITE_URL}/auth/callback`
 50|       : `${window.location.origin}/auth/callback`
 51|     const { error: oauthError } = await supabase.auth.signInWithOAuth({
 52|       provider: 'google',
 53|       options: {
 54|         redirectTo,
 55|       },
 56|     })
 57|     if (oauthError) {
    5 8 |             s e t E r r o r ( '    n g   n h - p   G o o g l e   t h ¥ t   b ¡ i :   '   +   o a u t h E r r o r . m e s s a g e )
 59|     }
 60|   }
 61|
 62|   async function handleSubmit(e: React.FormEvent<HTMLFormElement>) {
 63|     e.preventDefault()
 64|     setLoading(true)
 65|     setError(null)
 66|
 67|     const formData = new FormData(e.currentTarget)
 68|     const res = await login(formData)
 69|
 70|     if (res?.error) {
 71|       setError(res.error)
 72|       setLoading(false)
 73|     } else if (res?.success && res.redirectUrl) {
```

```
      router.push(res.redirectUrl)
    } else {
      setLoading(false)
    }
  }

  return (
    <div className="login-page-root" style={{ minHeight: '100vh', display: 'flex', background: 'var(--bg-base)...
      {/* Left Panel - Animated Illustration */}
      <div className="login-left-panel" style={{
        flex: 1, display: 'flex', alignItems: 'center', justifyContent: 'center',
        background: 'linear-gradient(160deg, #031f3b 0%, #1a2f53 80%)',
        padding: '64px', position: 'relative', overflow: 'hidden',
      }}>
        {/* Background decorative elements */}
        <div style={{ position: 'absolute', top: '-100px', right: '-100px', width: '500px', height: '500px', b...
        <div style={{ position: 'absolute', bottom: '-80px', left: '-80px', width: '400px', height: '400px', b...
        <div style={{ position: 'absolute', top: '30%', left: '10%', width: '200px', height: '200px', backgrou...

        <div style={{ textAlign: 'center', position: 'relative', zIndex: 1, color: '#fff', maxWidth: '480px' }}>
          { / *  A n i m a t e d  i l l u s t r a t i o n  -  n h ó m  b ¡ n  h Í c  t - p  c ô n g  n g h Ç  * / }
          <div style={{ position: 'relative', width: '300px', height: '260px', margin: '0 auto 32px' }}>
            {/* Monitor screen */}
            <svg viewBox="0 0 300 260" style={{ width: '100%', height: '100%' }}>
              <defs>
                <linearGradient id="screenGlow" x1="0%" y1="0%" x2="100%" y2="100%">
                  <stop offset="0%" stopColor="#00d4aa" stopOpacity="0.3" />
                  <stop offset="100%" stopColor="#289cf9" stopOpacity="0.1" />
                </linearGradient>
              </defs>

              {/* Desk */}
              <rect x="20" y="195" width="260" height="8" rx="4" fill="rgba(255,255,255,0.1)" />
              <rect x="40" y="203" width="12" height="35" rx="2" fill="rgba(255,255,255,0.08)" />
              <rect x="248" y="203" width="12" height="35" rx="2" fill="rgba(255,255,255,0.08)" />

              {/* Monitor */}
              <rect x="85" y="60" width="130" height="100" rx="8" fill="rgba(255,255,255,0.06)" stroke="rgba(2...
              <rect x="90" y="65" width="120" height="85" rx="4" fill="url(#screenGlow)" />

              {/* Screen content: code lines */}
              <rect x="100" y="75" width="40" height="4" rx="2" fill="rgba(0,212,170,0.5)" />
              <rect x="100" y="85" width="60" height="4" rx="2" fill="rgba(40,156,249,0.4)" />
              <rect x="100" y="95" width="25" height="4" rx="2" fill="rgba(255,185,0,0.4)" />
              <rect x="110" y="105" width="50" height="4" rx="2" fill="rgba(0,212,170,0.3)" />
              <rect x="110" y="115" width="35" height="4" rx="2" fill="rgba(40,156,249,0.3)" />
              <rect x="100" y="130" width="70" height="4" rx="2" fill="rgba(255,185,0,0.5)" />

              {/* CPU icon on screen */}
              <rect x="170" y="75" width="30" height="30" rx="3" fill="none" stroke="rgba(0,212,170,0.4)" stro...
              <rect x="177" y="82" width="16" height="16" rx="2" fill="rgba(0,212,170,0.2)" />
              <rect x="181" y="86" width="8" height="8" rx="1" fill="rgba(0,212,170,0.5)" />

              {/* Monitor stand */}
              <rect x="140" y="160" width="20" height="25" rx="2" fill="rgba(255,255,255,0.08)" />
              <rect x="125" y="183" width="50" height="6" rx="3" fill="rgba(255,255,255,0.1)" />

              {/* Student 1 - left */}
              <g style={{ animation: 'floatBounce 3s ease-in-out infinite' }}>
                <circle cx="45" cy="175" r="20" fill="rgba(255,255,255,0.08)" />
                <circle cx="45" cy="168" r="12" fill="rgba(255,255,255,0.15)" />
                <circle cx="45" cy="165" r="5" fill="rgba(255,255,255,0.2)" />
                <rect x="37" y="180" width="16" height="25" rx="4" fill="rgba(255,255,255,0.08)" />
                {/* Headphones */}
                <path d="M33 163 Q33 158 38 158 Q45 155 52 158 Q57 158 57 163" fill="none" stroke="rgba(0,212,...
              </g>

              {/* Student 2 - right */}
              <g style={{ animation: 'floatBounce 3.5s ease-in-out infinite 0.5s' }}>
                <circle cx="255" cy="170" r="20" fill="rgba(255,255,255,0.08)" />
                <circle cx="255" cy="163" r="12" fill="rgba(255,255,255,0.15)" />
                <circle cx="255" cy="160" r="5" fill="rgba(255,255,255,0.2)" />
                <rect x="247" y="175" width="16" height="25" rx="4" fill="rgba(255,255,255,0.08)" />
                {/* Glasses */}
                <circle cx="250" cy="163" r="4" fill="none" stroke="rgba(40,156,249,0.4)" strokeWidth="1.5" />
                <circle cx="260" cy="163" r="4" fill="none" stroke="rgba(40,156,249,0.4)" strokeWidth="1.5" />
                <line x1="254" y1="163" x2="256" y2="163" stroke="rgba(40,156,249,0.4)" strokeWidth="1" />
              </g>

              {/* Floating tech elements */}
              <g style={{ animation: 'floatRotate 6s linear infinite', transformOrigin: '150px 130px' }}>
                <circle cx="210" cy="50" r="6" fill="none" stroke="rgba(0,212,170,0.3)" strokeWidth="1.5" />
                <circle cx="210" cy="50" r="2" fill="rgba(0,212,170,0.4)" />
              </g>
              <g style={{ animation: 'floatRotate 8s linear infinite reverse', transformOrigin: '150px 130px' }}>
                <rect x="80" y="40" width="8" height="8" rx="2" fill="none" stroke="rgba(255,185,0,0.3)" strok...
              </g>

              {/* Connection lines */}
              <line x1="65" y1="180" x2="90" y2="160" stroke="rgba(0,212,170,0.15)" strokeWidth="1" strokeDash...
              <line x1="235" y1="175" x2="210" y2="160" stroke="rgba(40,156,249,0.15)" strokeWidth="1" strokeD...
            </svg>
          </div>

          <h2 style={{ fontSize: '28px', fontWeight: 800, marginBottom: '16px', lineHeight: 1.3 }}>
            PC Master Builder
          </h2>
          <p style={{ fontSize: '16px', opacity: 0.7, maxWidth: '360px', margin: '0 auto', lineHeight: 1.6 }}>
            M ô  p h Ï n g  l ¯ p  r á p  P C  2 D  t í c h  h ã p  t r í  t u Ç  n h â n  t ¡ o  —  h Í c  m à  n h
          </p>

          {/* Feature tags */}
          <div style={{ marginTop: '32px', display: 'flex', gap: '12px', justifyContent: 'center', flexWrap: '...
            <span style={{ padding: '6px 14px', borderRadius: '99px', background: 'rgba(0,212,170,0.15)', colo...
              A I  h ° Û n g  d « n
            </span>
            <span style={{ padding: '6px 14px', borderRadius: '99px', background: 'rgba(40,156,249,0.15)', col...
              100% Web
            </span>
            <span style={{ padding: '6px 14px', borderRadius: '99px', background: 'rgba(255,185,0,0.15)', colo...
              K h ô n g  c à i  · t
            </span>
          </div>

          {/* Testimonial */}
          <div style={{ marginTop: '32px', padding: '16px 20px', background: 'rgba(255,255,255,0.04)', borderR...
            <p style={{ fontSize: '13px', opacity: 0.6, fontStyle: 'italic', lineHeight: 1.5, margin: 0 }}>
              " H ¡ n  5 , 0 0 0 +  h Í c  s i n h  a n g  h Í c  t - p  v à  t h ñ c  h à n h  l ¯ p  r á p  P C
            </p>
          </div>
        </div>
      </div>

      {/* Right Panel - Login Form */}
```

```
198|       <div className="login-right-panel" style={{ flex: 1, display: 'flex', alignItems: 'center', justifyConte...
199|         <div style={{ maxWidth: '440px', width: '100%' }}>
200|           <Link href="/" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', color: 'var(--text...
  2 0 1 |                          < A r r o w L e f t   s i z e = { 1 8 }   / >   Q u a y   l ¡ i   t r a n g   c h ç
202|           </Link>
203|
204|           <div style={{ textAlign: 'center', marginBottom: '32px' }}>
205|             <Link href="/" style={{ display: 'inline-flex', alignItems: 'center', gap: '10px', textDecoration:...
206|               <img src="/logo.png" alt="Logo" style={{ width: '40px', height: '40px' }} />
207|             </Link>
208|             <h1 style={{ fontSize: '24px', fontWeight: 800, marginBottom: '8px', color: 'var(--text-primary)' ...
  2 0 9 |                          < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 5 p x '   } } >
210|           </div>
211|
212|           <button onClick={handleGoogleLogin} style={{ width: '100%', display: 'flex', alignItems: 'center', j...
213|             <svg viewBox="0 0 24 24" style={{ width: '20px', height: '20px' }}>
214|               <path fill="#4285F4" d="M22.56 12.25c0-.78-.07-1.53-.2-2.25H12v4.26h5.92c-.26 1.37-1.04 2.53-2.2...
215|               <path fill="#34A853" d="M12 23c2.97 0 5.46-.98 7.28-2.66l-3.57-2.77c-.98.66-2.23 1.06-3.71 1.06-...
216|               <path fill="#FBBC05" d="M5.84 14.09c-.22-.66-.35-1.36-.35-2.09s.13-1.43.35-2.09V7.07H2.18C1.43 8...
217|               <path fill="#EA4335" d="M12 5.38c1.62 0 3.06.56 4.21 1.64l3.15-3.15C17.45 2.09 14.97 1 12 1 7.7 ...
218|             </svg>
  2 1 9 |                          T i ¿ p   t å c   v Û i   G o o g l e
220|           </button>
221|           <p style={{ fontSize: '11px', color: 'var(--text-muted)', textAlign: 'center', marginBottom: '16px',...
  2 2 2 |                          L § n   § u   n g   n h - p :   E m a i l   t ñ   Ù n g   l ° u ,   b ¡ n   c h É   c § n   n h - p   H Í   t é
223|           </p>
224|
225|           <div style={{ display: 'flex', alignItems: 'center', gap: '16px', marginBottom: '24px' }}>
226|             <div style={{ flex: 1, height: '1px', background: 'var(--border-default)' }}></div>
227|             <span style={{ fontSize: '13px', color: 'var(--text-muted)', fontWeight: 500, whiteSpace: 'nowrap'...
228|             <div style={{ flex: 1, height: '1px', background: 'var(--border-default)' }}></div>
229|           </div>
230|
231|           <form onSubmit={handleSubmit} style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
232|             <div>
233|               <label style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)', marginBottom: '...
234|               <div style={{ position: 'relative' }}>
235|                 <Mail size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translate...
236|                 <input type="email" name="email" required value={email} onChange={e => setEmail(e.target.value...
237|               </div>
238|             </div>
239|
240|             <div>
241|               <label style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)', marginBottom: '...
242|               <div style={{ position: 'relative' }}>
243|                 <Lock size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translate...
244|                 <input type={showPassword ? 'text' : 'password'} name="password" required className="lms-input...
245|                 <button type="button" onClick={() => setShowPassword(!showPassword)} style={{ position: 'absol...
246|                   {showPassword ? <EyeOff size={18} /> : <Eye size={18} />}
247|                 </button>
248|               </div>
249|             </div>
250|
251|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
252|               <Link href="/forgot-password" style={{ fontSize: '13px', color: 'var(--accent-blue)', fontWeight...
  2 5 3 |                                  Q u ê n   m - t   k h © u ?
254|               </Link>
255|             </div>
256|
257|             {error && (
258|               <div style={{ background: 'rgba(244,106,106,0.1)', border: '1px solid rgba(244,106,106,0.2)', co...
259|                 <ShieldCheck size={18} />
260|                 {error}
261|               </div>
262|             )}
263|
264|             <button type="submit" disabled={loading} className="lms-btn lms-btn-primary" style={{ width: '100%...
  2 6 5 |                              { l o a d i n g   ?   < > < L o a d e r 2   s i z e = { 1 8 }   s t y l e = { {   a n i m a t i o n :   ' s p i n
266|               </button>
267|           </form>
268|
269|           <p style={{ textAlign: 'center', marginTop: '24px', color: 'var(--text-muted)', fontSize: '14px' }}>
  2 7 0 |                          C h ° a   c ó   t à i   k h o £ n ? { '   ' }
271|             <Link href="/register" style={{ color: 'var(--brand-primary)', fontWeight: 700, textDecoration: 'n...
  2 7 2 |                                  n g   k ý   n g a y
273|             </Link>
274|           </p>
275|
276|           <div style={{ marginTop: '24px', textAlign: 'center' }}>
277|             <button
278|               onClick={() => setShowAdmin(!showAdmin)}
279|               style={{
280|                 background: 'none', border: 'none', cursor: 'pointer', fontFamily: 'inherit',
281|                 color: showAdmin ? 'var(--brand-primary)' : 'var(--text-muted)',
282|                 fontSize: '12px', fontWeight: 500, padding: '4px 8px', borderRadius: '4px',
283|                 transition: 'all 0.2s', textDecoration: showAdmin ? 'none' : 'underline',
284|                 textDecorationStyle: 'dotted', textUnderlineOffset: '3px'
285|               }}
286|             >
287|               <Shield size={12} style={{ verticalAlign: 'middle', marginRight: '4px' }} />
  2 8 8 |                              { s h o w A d m i n   ?   '   ó n g   t r u y   c - p   A d m i n '   :   '   n g   n h - p   v Û i   t °   c á c
289|             </button>
290|
291|             {showAdmin && (
292|               <div style={{ marginTop: '12px' }}>
293|                 <label style={{ fontSize: '12px', fontWeight: 600, color: 'var(--text-muted)', marginBottom: '...
  2 9 4 |                                      M - t   k h © u   A d m i n
295|                 </label>
296|                 <div style={{ display: 'flex', gap: '8px' }}>
297|                   <div style={{ position: 'relative', flex: 1 }}>
298|                     <KeyRound size={16} style={{ position: 'absolute', left: '12px', top: '50%', transform: 't...
299|                     <input
300|                       type="password"
301|                       value={adminPass}
302|                       onChange={e => { setAdminPass(e.target.value); setAdminError('') }}
303|                       onKeyDown={e => { if (e.key === 'Enter') handleAdminLogin() }}
  3 0 4 |                                          p l a c e h o l d e r = " N h - p   m - t   k h © u   a d m i n "
305|                       style={{
306|                         height: '42px', borderRadius: '8px', border: '1px solid var(--border-strong)',
307|                         padding: '0 12px 0 36px', fontFamily: 'inherit', fontSize: '13px',
308|                         color: 'var(--text-primary)', background: 'var(--bg-surface)',
309|                         outline: 'none', width: '100%', transition: 'border-color 0.2s'
310|                       }}
311|                     />
312|                   </div>
313|                   <button
314|                     onClick={handleAdminLogin}
315|                     disabled={adminLoading}
316|                     style={{
317|                       padding: '0 20px', borderRadius: '8px', background: 'var(--brand-primary)',
318|                       color: '#fff', fontWeight: 700, border: 'none', cursor: 'pointer',
319|                       fontSize: '13px', fontFamily: 'inherit', whiteSpace: 'nowrap',
320|                       transition: 'all 0.2s', display: 'flex', alignItems: 'center', gap: '6px'
321|                     }}
```

```
322|                  >
323|                    {adminLoading ? <Loader2 size={16} style={{ animation: 'spin 1s linear infinite' }} /> : <...
324|                    Vào
325|                  </button>
326|                </div>
327|                {adminError && (
328|                  <p style={{ marginTop: '8px', fontSize: '12px', color: 'var(--danger)', fontWeight: 600 }}>{...
329|                )}
330|              </div>
331|            )}
332|          </div>
333|        </div>
334|      </div>
335|
336|      <style>{`
337|        @keyframes floatSlow {
338|          0%, 100% { transform: translate(0, 0); }
339|          50% { transform: translate(15px, -15px); }
340|        }
341|        @keyframes floatBounce {
342|          0%, 100% { transform: translateY(0); }
343|          50% { transform: translateY(-6px); }
344|        }
345|        @keyframes floatRotate {
346|          from { transform: rotate(0deg); }
347|          to { transform: rotate(360deg); }
348|        }
349|
350|        /* === MOBILE RESPONSIVE === */
351|        @media (max-width: 768px) {
352|          .login-left-panel { display: none !important; }
353|          .login-right-panel {
354|            flex: none !important;
355|            width: 100% !important;
356|            padding: 24px 16px !important;
357|            align-items: flex-start !important;
358|          }
359|          .login-right-panel > div { max-width: 100% !important; }
360|        }
361|        @media (max-width: 480px) {
362|          .login-right-panel { padding: 16px 12px !important; }
363|        }
364|      `}</style>
365|    </div>
366|  )
367| }
368|
```

File: app/(auth)/login/qr/page.tsx (80 lines, 3.7 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| export const dynamic = 'force-dynamic';
    4|
    5| import React, { useState, useEffect } from 'react'
    6| import Link from 'next/link'
    7| import { motion } from 'framer-motion'
    8| import { QrCode, ArrowLeft, RefreshCcw, Smartphone, Monitor, CheckCircle2 } from 'lucide-react'
    9| import { QRCodeSVG } from 'qrcode.react'
   10|
   11| export default function QRLoginPage() {
   12|   const [timeLeft, setTimeLeft] = useState(30)
   13|   const [qrValue, setQrValue] = useState('pcmaster-login-' + Math.random().toString(36).substring(7))
   14|
   15|   useEffect(() => {
   16|     if (timeLeft === 0) {
   17|       setQrValue('pcmaster-login-' + Math.random().toString(36).substring(7))
   18|       setTimeLeft(30)
   19|       return
   20|     }
   21|     const timer = setInterval(() => setTimeLeft(prev => prev - 1), 1000)
   22|     return () => clearInterval(timer)
   23|   }, [timeLeft])
   24|
   25|   return (
   26|     <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center p-6 text-white">
   27|       <motion.div
   28|         initial={{ opacity: 0, y: 20 }}
   29|         animate={{ opacity: 1, y: 0 }}
   30|         className="w-full max-w-md bg-[#16213e] border border-[#1e293b] p-8 md:p-10 rounded-3xl shadow-2xl tex...
   31|       >
   32|         <Link href="/login" className="inline-flex items-center gap-2 text-slate-400 hover:text-white transiti...
   33|           <ArrowLeft size={18} />
    3 4 |                      < s p a n   c l a s s N a m e = " t e x t - s m   f o n t - m e d i u m " > Q u a y   l ¡ i      n g   n h - p < / s p a r
   35|         </Link>
   36|
   37|         <div className="mb-6 inline-flex p-4 bg-[#00d2a0]/10 text-[#00d2a0] rounded-2xl">
   38|           <QrCode size={32} />
   39|         </div>
   40|
    4 1 |                  < h 2   c l a s s N a m e = " t e x t - 2 x l   f o n t - b o l d   m b - 2 " >    n g   n h - p   b ± n g   m ã   Q R < / h 2
    4 2 |                  < p   c l a s s N a m e = " t e x t - s l a t e - 4 0 0   t e x t - s m   m b - 8 " > Q u é t   m ã   b ± n g   é n g   d ả n g
   43|
   44|         <div className="relative inline-block p-6 bg-white rounded-3xl mb-8">
   45|           <QRCodeSVG value={qrValue} size={200} />
   46|           <div className="absolute inset-0 flex items-center justify-center pointer-events-none">
   47|             <div className="w-12 h-12 bg-[#0f0f1a] rounded-xl flex items-center justify-center border-4 border...
   48|                <img src="/logo.png" alt="Logo" className="w-6 h-6" />
   49|             </div>
   50|           </div>
   51|         </div>
   52|
   53|         <div className="flex items-center justify-center gap-3 text-sm text-slate-500 mb-8">
   54|           <RefreshCcw size={16} className={`transition-transform duration-1000 ${timeLeft < 5 ? 'animate-spin'...
    5 5 |                      < s p a n > M ã   s ½   h ¿ t   h ¡ n   s a u   < s p a n   c l a s s N a m e = " t e x t - w h i t e   f o n t - b o l d '
   56|         </div>
   57|
   58|         <div className="grid grid-cols-2 gap-4 text-left">
   59|           <div className="p-4 bg-[#0f0f1a] rounded-2xl border border-[#1e293b]">
   60|             <Smartphone size={20} className="text-[#00d2a0] mb-2" />
    6 1 |                          < p   c l a s s N a m e = " t e x t - [ 1 1 p x ]   f o n t - b o l d   u p p e r c a s e   t e x t - s l a t e - 5 0 0
    6 2 |                          < p   c l a s s N a m e = " t e x t - x s   l e a d i n g - r e l a x e d   t e x t - s l a t e - 3 0 0 " > M ß   P C
   63|           </div>
   64|           <div className="p-4 bg-[#0f0f1a] rounded-2xl border border-[#1e293b]">
   65|             <Monitor size={20} className="text-[#00d2a0] mb-2" />
    6 6 |                          < p   c l a s s N a m e = " t e x t - [ 1 1 p x ]   f o n t - b o l d   u p p e r c a s e   t e x t - s l a t e - 5 0 0
   67|             <p className="text-xs leading-relaxed text-slate-300">Quét mã QR trên màn hình này.</p>
   68|           </div>
   69|         </div>
   70|
   71|         <div className="mt-8 pt-6 border-t border-[#1e293b]">
   72|           <p className="text-xs text-slate-500">
    7 3 |                          G · p   k h ó   k h   n ?   < L i n k   h r e f = " / l o g i n "   c l a s s N a m e = " t e x t - [ # 0 0 d 2 a 0 ]
```

```
  74|          </p>
  75|        </div>
  76|      </motion.div>
  77|    </div>
  78|  )
  79| }
  80|
```

File: app/(auth)/register/page.tsx (444 lines, 29.9 KB)

```
   1| 'use client'
   2|
   3| import React, { useState, useEffect, Suspense } from 'react'
   4| import Link from 'next/link'
   5| import { useRouter, useSearchParams } from 'next/navigation'
   6| import { ArrowLeft, Loader2, Mail, Lock, User, Check, ChevronRight, GraduationCap, Building, Image as ImageIco...
   7| import { register, completeOAuthRegistration } from '@/lib/auth-actions'
   8|
   9| function RegisterForm() {
  10|   const router = useRouter()
  11|   const searchParams = useSearchParams()
  12|   const isOauth = searchParams.get('oauth') === 'true'
  13|   const initialStep = isOauth ? 1 : (searchParams.get('step') ? parseInt(searchParams.get('step')!) : 1)
  14|
  15|   const [isLogin, setIsLogin] = useState(false)
  16|   useEffect(() => { if (isLogin) router.push('/login') }, [isLogin, router])
  17|
  18|   const [step, setStep] = useState(initialStep)
  19|   const [loading, setLoading] = useState(false)
  20|   const [error, setError] = useState<string | null>(null)
  21|   const [showPassword, setShowPassword] = useState(false)
  22|   const [showConfirm, setShowConfirm] = useState(false)
  23|
  24|   const [formData, setFormData] = useState({
  25|     fullName: '', email: '', password: '', confirmPassword: '',
  26|     role: 'student', classCode: '', schoolCode: '', schoolName: '',
  27|     teacherCode: '', dob: '', province: '', termsAccepted: false
  28|   })
  29|   const [passwordStrength, setPasswordStrength] = useState(0)
  30|   const [avatarFile, setAvatarFile] = useState<File | null>(null)
  31|   const [avatarPreview, setAvatarPreview] = useState<string | null>(null)
  32|
  33|   // Pre-fill Google user info on mount
  34|   useEffect(() => {
  35|     if (isOauth && typeof window !== 'undefined') {
  36|       const fetchUserInfo = async () => {
  37|         try {
  38|           const { createBrowserClient } = await import('@supabase/ssr')
  39|           const supabase = createBrowserClient(
  40|             process.env.NEXT_PUBLIC_SUPABASE_URL!,
  41|             process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
  42|           )
  43|           const { data: { user } } = await supabase.auth.getUser()
  44|           if (user?.user_metadata?.full_name) {
  45|             setFormData(prev => ({ ...prev, fullName: user.user_metadata.full_name }))
  46|           } else if (user?.email) {
  47|             setFormData(prev => ({ ...prev, fullName: user.email.split('@')[0] }))
  48|           }
  49|         } catch (e) {
  50|           console.warn('Could not fetch Google user info:', e)
  51|         }
  52|       }
  53|       fetchUserInfo()
  54|     }
  55|   }, [isOauth])
  56|
  57|   const handleInputChange = (e: React.ChangeEvent<HTMLInputElement | HTMLSelectElement>) => {
  58|     const { name, value, type } = e.target as HTMLInputElement
  59|     const checked = (e.target as HTMLInputElement).checked
  60|     setFormData(prev => ({ ...prev, [name]: type === 'checkbox' ? checked : value }))
  61|     if (name === 'password') {
  62|       let s = 0
  63|       if (value.length >= 8) s++
  64|       if (value.match(/[A-Z]/) && value.match(/[a-z]/)) s++
  65|       if (value.match(/[0-9!@#$%^&*]/)) s++
  66|       setPasswordStrength(s)
  67|     }
  68|   }
  69|
  70|   const handleNext = () => {
  71|     setError(null)
  72|     if (isOauth && step === 1) {
  73|       if (!formData.fullName.trim()) { setError('Vui lòng nh-p hÍ và tên
  74|       setStep(2); return
  75|     }
  76|     if (step === 1) {
  77|       if (!formData.fullName || !formData.email || !formData.password || !formData.confirmPassword) { setError...
  78|       if (formData.password !== formData.confirmPassword) { setError('M-
  79|       if (formData.password.length < 8) { setError('M-t khÔu phÊi có ít
  80|       if (!/[A-Z]/.test(formData.password)) { setError('M-t khÔu phÊi ch
  81|       if (!/[0-9]/.test(formData.password)) { setError('M-t khÔu phÊi ch
  82|     } else if (step === 2) {
  83|       if (formData.role === 'parent' && (!formData.schoolName || !formData.classCode)) { setError('Vui lòng nh...
  84|     }
  85|     setStep(prev => Math.min(prev + 1, isOauth ? 2 : 3))
  86|   }
  87|
  88|   const handlePrev = () => { setStep(prev => Math.max(prev - 1, 1)); setError(null) }
  89|
  90|   const handleSubmit = async (e: React.FormEvent) => {
  91|     e.preventDefault(); setError(null)
  92|     if (!formData.termsAccepted) { setError('B¡n c§n Óng ý vÛi iÁu khoả
  93|     setLoading(true)
  94|     const submitData = new FormData()
  95|     submitData.append('full_name', formData.fullName)
  96|     submitData.append('role', formData.role)
  97|     if (!isOauth) { submitData.append('email', formData.email); submitData.append('password', formData.passwor...
  98|     if (formData.teacherCode) submitData.append('teacher_code', formData.teacherCode)
  99|     if (formData.classCode) submitData.append('class_code', formData.classCode)
 100|     if (formData.schoolCode) submitData.append('school_code', formData.schoolCode)
 101|     if (formData.schoolName) submitData.append('school_name', formData.schoolName)
 102|     if (formData.dob) submitData.append('dob', formData.dob)
 103|     if (formData.province) submitData.append('province', formData.province)
 104|     if (avatarFile) submitData.append('avatar', avatarFile)
 105|
 106|     const res: any = isOauth ? await completeOAuthRegistration(submitData) : await register(submitData)
 107|     if (res?.error) {
 108|       let msg = res.error
 109|       if (res.error.toLowerCase().includes('already registered') || res.error.toLowerCase().includes('already ...
 110|       setError(msg); setLoading(false)
 111|     } else if (res?.success) {
 112|       if (typeof window !== 'undefined') {
 113|         import('canvas-confetti').then(m => m.default({ particleCount: 150, spread: 80, origin: { y: 0.6 }, co...
```

```
114|       }
115|       setTimeout(() => router.push(res.redirectUrl || '/'), 1500)
116|     }
117|   }
118|
119|   const strengthColors = ['', 'var(--danger)', 'var(--warning)', 'var(--brand-primary)']
120|
121|   const inputStyle: React.CSSProperties = {
122|     width: '100%', padding: '12px 16px 12px 42px', borderRadius: '10px',
123|     border: '1px solid var(--border-default)', background: 'var(--bg-surface)',
124|     color: 'var(--text-primary)', fontSize: '14px', outline: 'none', fontFamily: 'inherit',
125|     boxSizing: 'border-box'
126|   }
127|
128|   return (
129|     <div className="register-page" style={{ minHeight: '100vh', display: 'flex', flexDirection: 'column', alig...
130|       <div className="register-back-btn" style={{ position: 'absolute', top: '32px', left: '32px' }}>
131|         <Link href="/" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', color: 'var(--text-m...
   1 3 2 |                     < A r r o w L e f t   s i z e = { 1 8 }   / >   Q u a y   l ¡ i
133|         </Link>
134|       </div>
135|
136|       <div style={{ maxWidth: '500px', width: '100%', background: 'var(--bg-surface)', borderRadius: '16px', b...
137|         <div style={{ textAlign: 'center', marginBottom: '28px' }}>
138|           <h1 style={{ fontSize: '24px', fontWeight: 800, color: 'var(--text-primary)', marginBottom: '6px' }}>
   1 3 9 |                         { i s O a u t h   ?   ' H o à n   t ¥ t   h Ó   s ¡ '   :   ' T ¡ o   t à i   k h o £ n ' }
140|           </h1>
141|           <p style={{ color: 'var(--text-muted)', fontSize: '14px', margin: 0 }}>
   1 4 2 |                         { s t e p   = = =   1   & &   ( i s O a u t h   ?   ' T h ô n g   t i n   c ç a   b ¡ n '   :   ' T h ô n g   t i n   c
   1 4 3 |                         { s t e p   = = =   2   & &   ( i s O a u t h   ?   ' H o à n   t h i Ç n _ h Ó   s ¡ '   :   ' B ¡ n   l à   h Í c   s
   1 4 4 |                         { s t e p   = = =   3   & &   ' H o à n   t h i Ç n   h Ó   s ¡   Ã   b ¯ t   § u ' }
145|           </p>
146|         </div>
147|
148|         {/* Steps indicator */}
149|         <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '8px', marginBotto...
150|           {Array.from({ length: isOauth ? 2 : 3 }, (_, i) => i + 1).map(i => (
151|             <React.Fragment key={i}>
152|               <div style={{
153|                 width: '32px', height: '32px', borderRadius: '50%', display: 'flex', alignItems: 'center', jus...
154|                 fontSize: '13px', fontWeight: 700,
155|                 background: step >= i ? 'var(--brand-primary)' : 'var(--bg-elevated)',
156|                 color: step >= i ? '#fff' : 'var(--text-muted)',
157|                 border: `2px solid ${step >= i ? 'var(--brand-primary)' : 'var(--border-default)'}`
158|               }}>{step > i ? <Check size={16} /> : i}</div>
159|               {i < (isOauth ? 2 : 3) && <div style={{ flex: 1, maxWidth: '60px', height: '3px', borderRadius: ...
160|             </React.Fragment>
161|           ))}
162|         </div>
163|
164|         {step === 1 && !isOauth && (
165|           <div style={{ display: 'flex', background: 'var(--bg-elevated)', borderRadius: '10px', padding: '3px...
166|             <button type="button" onClick={() => setIsLogin(true)}
167|               style={{ flex: 1, padding: '8px', borderRadius: '8px', border: 'none', background: 'transparent'...
   1 6 8 |                                 n g   N h - p
169|             </button>
170|             <button type="button"
171|               style={{ flex: 1, padding: '8px', borderRadius: '8px', border: 'none', background: 'var(--bg-sur...
   1 7 2 |                                 n g   K ý
173|             </button>
174|           </div>
175|         )}
176|
177|         <form onSubmit={handleSubmit}>
178|           {/* Step 1: Basic Info */}
179|           {step === 1 && isOauth && (
180|             <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
181|               <div style={{ position: 'relative' }}>
182|                 <User size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translate...
   1 8 3 |                                 < i n p u t   t y p e = " t e x t "   n a m e = " f u l l N a m e "   p l a c e h o l d e r = " H Í   v à   t é
184|               </div>
185|               <div style={{ padding: '12px 16px', borderRadius: '10px', background: 'rgba(8,158,96,0.06)', bor...
186|                 <Mail size={16} style={{ color: 'var(--brand-primary)' }} />
   1 8 7 |                                 < s p a n > B ¡ n   ã   n g   n h - p   b ± n g   G o o g l e .   E m a i l   s ½   ° ã c   t ñ   Ù n
188|               </div>
189|               {/* Role selection inline */}
190|               <div>
191|                 <label style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)', marginBottom:...
192|                 <div className="register-role-grid" style={{ display: 'grid', gridTemplateColumns: '1fr 1fr 1f...
193|                   {[
   1 9 4 |                                         {   r o l e :   ' s t u d e n t ' ,   i c o n :   < G r a d u a t i o n C a p   s i z e = { 2 0 }   / >
   1 9 5 |                                         {   r o l e :   ' t e a c h e r ' ,   i c o n :   < U s e r   s i z e = { 2 0 }   / > ,   t i t l e :
   1 9 6 |                                         {   r o l e :   ' p a r e n t ' ,   i c o n :   < U s e r s   s i z e = { 2 0 }   / > ,   t i t l e :
197|                     ].map(({ role, icon, title, desc }) => (
198|                       <button key={role} type="button" onClick={() => setFormData(p => ({ ...p, role }))}
199|                         style={{
200|                           padding: '14px 10px', borderRadius: '12px', cursor: 'pointer', textAlign: 'center',
201|                           background: formData.role === role ? 'rgba(8,158,96,0.08)' : 'var(--bg-elevated)',
202|                           border: `2px solid ${formData.role === role ? 'var(--brand-primary)' : 'var(--border-d...
203|                           transition: 'all 0.2s', fontFamily: 'inherit'
204|                         }}>
205|                         <div style={{ width: '36px', height: '36px', borderRadius: '50%', margin: '0 auto 6px', ...
206|                           {icon}
207|                         </div>
208|                         <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)' }}>{title}...
209|                         <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>{desc}</div>
210|                       </button>
211|                     ))}
212|                   </div>
213|                 </div>
214|               </div>
215|             )}
216|             {step === 1 && !isOauth && (
217|               <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
218|                 <div style={{ position: 'relative' }}>
219|                   <User size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translate...
   2 2 0 |                                 < i n p u t   t y p e = " t e x t "   n a m e = " f u l l N a m e "   p l a c e h o l d e r = " H Í   v à   t é
221|                 </div>
222|                 <div style={{ position: 'relative' }}>
223|                   <Mail size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translate...
   2 2 4 |                                 < i n p u t   t y p e = " e m a i l "   n a m e = " e m a i l "   p l a c e h o l d e r = "   Ë a   c h É   E m
225|                 </div>
226|                 <div style={{ position: 'relative' }}>
227|                   <Lock size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translate...
   2 2 8 |                                 < i n p u t   t y p e = { s h o w P a s s w o r d   ?   ' t e x t '   :   ' p a s s w o r d ' }   n a m e = " p
229|                   <button type="button" onClick={() => setShowPassword(!showPassword)} style={{ position: 'absol...
230|                     {showPassword ? <EyeOff size={18} /> : <Eye size={18} />}
231|                   </button>
232|                 </div>
233|                 <div style={{ display: 'flex', gap: '4px', height: '4px' }}>
234|                   {[1, 2, 3].map(i => (
235|                     <div key={i} style={{ flex: 1, borderRadius: '2px', background: passwordStrength >= i ? stre...
236|                   ))}
237|                 </div>
```

```
238|              <div style={{ position: 'relative' }}>
239|                <Lock size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translate...
   2 4 0 |                                  < i n p u t   t y p e = { s h o w C o n f i r m   ?   ' t e x t '   :   ' p a s s w o r d ' }   n a m e = " c o
241|                <button type="button" onClick={() => setShowConfirm(!showConfirm)} style={{ position: 'absolut...
242|                  {showConfirm ? <EyeOff size={18} /> : <Eye size={18} />}
243|                </button>
244|              </div>
245|            </div>
246|          )}
247|
248|          {/* Step 2: Role Selection (for non-OAuth) OR Complete Profile (for OAuth) */}
249|          {step === 2 && !isOauth && (
250|            <div style={{ display: 'flex', flexDirection: 'column', gap: '20px' }}>
251|              <div className="register-role-grid" style={{ display: 'grid', gridTemplateColumns: '1fr 1fr 1fr'...
252|                {[
   2 5 3 |                                      {   r o l e :   ' s t u d e n t ' ,   i c o n :   < G r a d u a t i o n C a p   s i z e = { 2 0 }   / > ,
   2 5 4 |                                      {   r o l e :   ' t e a c h e r ' ,   i c o n :   < U s e r   s i z e = { 2 0 }   / > ,   t i t l e :   ' C
   2 5 5 |                                      {   r o l e :   ' p a r e n t ' ,   i c o n :   < U s e r s   s i z e = { 2 0 }   / > ,   t i t l e :   ' P
256|                ].map(({ role, icon, title, desc }) => (
257|                  <button key={role} type="button" onClick={() => setFormData(p => ({ ...p, role }))}
258|                    style={{
259|                      padding: '16px 12px', borderRadius: '12px', cursor: 'pointer', textAlign: 'center',
260|                      background: formData.role === role ? 'rgba(8,158,96,0.08)' : 'var(--bg-elevated)',
261|                      border: `2px solid ${formData.role === role ? 'var(--brand-primary)' : 'var(--border-def...
262|                      transition: 'all 0.2s', fontFamily: 'inherit'
263|                    }}>
264|                    <div style={{ width: '40px', height: '40px', borderRadius: '50%', margin: '0 auto 8px', di...
265|                      {icon}
266|                    </div>
267|                    <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)' }}>{title}</...
268|                    <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>{desc}</div>
269|                  </button>
270|                ))}
271|              </div>
272|
273|              {formData.role === 'student' && (
274|                <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
275|                  <div style={{ position: 'relative' }}>
276|                    <Building size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 't...
   2 7 7 |                                          < i n p u t   t y p e = " t e x t "   n a m e = " s c h o o l N a m e "   p l a c e h o l d e r = " T ê
278|                  </div>
279|                  <div style={{ position: 'relative' }}>
280|                    <Users size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'tran...
   2 8 1 |                                          < i n p u t   t y p e = " t e x t "   n a m e = " c l a s s C o d e "   p l a c e h o l d e r = " M ã
282|                  </div>
283|                </div>
284|              )}
285|              {formData.role === 'teacher' && (
286|                <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
287|                  <div style={{ position: 'relative' }}>
288|                    <Building size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 't...
   2 8 9 |                                          < i n p u t   t y p e = " t e x t "   n a m e = " s c h o o l C o d e "   p l a c e h o l d e r = " M ã
290|                  </div>
291|                  <div style={{ position: 'relative' }}>
292|                    <ShieldCheck size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform:...
   2 9 3 |                                          < i n p u t   t y p e = " t e x t "   n a m e = " t e a c h e r C o d e "   p l a c e h o l d e r = " M
294|                  </div>
295|                </div>
296|              )}
297|              {formData.role === 'parent' && (
298|                <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
299|                  <div style={{ position: 'relative' }}>
300|                    <Building size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 't...
   3 0 1 |                                          < i n p u t   t y p e = " t e x t "   n a m e = " s c h o o l N a m e "   p l a c e h o l d e r = " T ê
302|                  </div>
303|                  <div style={{ position: 'relative' }}>
304|                    <User size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'trans...
   3 0 5 |                                          < i n p u t   t y p e = " t e x t "   n a m e = " c l a s s C o d e "   p l a c e h o l d e r = " M ã
306|                  </div>
307|                </div>
308|              )}
309|            </div>
310|          )}
311|
312|          {/* Step 2 for OAuth: School info + Complete Profile */}
313|          {step === 2 && isOauth && (
314|            <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
315|              {formData.role === 'student' && (
316|                <div style={{ position: 'relative' }}>
317|                  <Building size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'tra...
   3 1 8 |                                      < i n p u t   t y p e = " t e x t "   n a m e = " s c h o o l N a m e "   p l a c e h o l d e r = " T ê n
319|                </div>
320|              )}
321|              {formData.role === 'teacher' && (
322|                <div style={{ position: 'relative' }}>
323|                  <Building size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'tra...
   3 2 4 |                                      < i n p u t   t y p e = " t e x t "   n a m e = " s c h o o l C o d e "   p l a c e h o l d e r = " M ã   t
325|                </div>
326|              )}
327|              {formData.role === 'parent' && (
328|                <div style={{ position: 'relative' }}>
329|                  <User size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'transla...
   3 3 0 |                                      < i n p u t   t y p e = " t e x t "   n a m e = " c l a s s C o d e "   p l a c e h o l d e r = " M ã   h ì
331|                </div>
332|              )}
333|              <label style={{ display: 'flex', alignItems: 'flex-start', gap: '10px', cursor: 'pointer', margi...
334|                <input type="checkbox" name="termsAccepted" checked={formData.termsAccepted} onChange={handleI...
335|                  style={{ width: '18px', height: '18px', marginTop: '2px', accentColor: 'var(--brand-primary)...
336|                <span style={{ fontSize: '13px', color: 'var(--text-muted)', lineHeight: 1.4 }}>
   3 3 7 |                                      T ô i   Ó n g   ý   v Ù i   < L i n k   h r e f = " # "   s t y l e = { {   c o l o r :   ' v a r ( - - b
338|                </span>
339|              </label>
340|            </div>
341|          )}
342|
343|          {/* Step 3: Complete Profile (non-OAuth) */}
344|          {step === 3 && !isOauth && (
345|            <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
346|              <div style={{ display: 'flex', justifyContent: 'center', marginBottom: '8px' }}>
347|                <div style={{ width: '80px', height: '80px', borderRadius: '50%', border: '2px dashed var(--bo...
348|                  {avatarPreview ? (
349|                    <img src={avatarPreview} alt="Avatar" style={{ width: '100%', height: '100%', objectFit: '...
350|                  ) : formData.fullName ? (
351|                    <span style={{ fontSize: '28px', fontWeight: 800, color: 'var(--brand-primary)' }}>{formDa...
352|                  ) : (
353|                    <>
354|                      <ImageIcon size={24} />
   3 5 5 |                                          < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 0 p x ' ,   m a r g i n T o p :   ' 4 p x '
356|                    </>
357|                  )}
358|                  <input type="file" style={{ position: 'absolute', inset: 0, opacity: 0, cursor: 'pointer' }}...
359|                </div>
360|              </div>
361|
```

```
362|              <div style={{ position: 'relative' }}>
363|                <Calendar size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'trans...
364|                <input type="date" name="dob" value={formData.dob} onChange={handleInputChange} style={{ ...in...
365|              </div>
366|
367|              <div style={{ position: 'relative' }}>
368|                <MapPin size={18} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'transla...
369|                <select name="province" value={formData.province} onChange={handleInputChange} style={{ ...inp...
   3 7 0 |                                    < o p t i o n   v a l u e = " "   d i s a b l e d > C h Í n   T É n h   /   T h à n h   p h Ñ < / o p t i o
   3 7 1 |                                    < o p t i o n   v a l u e = " H N " > H à   N Ù i < / o p t i o n >
   3 7 2 |                                    < o p t i o n   v a l u e = " H C M " > T P .   H Ồ   C h í   M i n h < / o p t i o n >
   3 7 3 |                                    < o p t i o n   v a l u e = " D N " >   à   N µ n g < / o p t i o n >
   3 7 4 |                                    < o p t i o n   v a l u e = " O t h e r " > T Ế n h   t h à n h   k h á c < / o p t i o n >
375|                </select>
376|              </div>
377|
378|              <label style={{ display: 'flex', alignItems: 'flex-start', gap: '10px', cursor: 'pointer', margi...
379|                <input type="checkbox" name="termsAccepted" checked={formData.termsAccepted} onChange={handleI...
380|                  style={{ width: '18px', height: '18px', marginTop: '2px', accentColor: 'var(--brand-primary)...
381|                <span style={{ fontSize: '13px', color: 'var(--text-muted)', lineHeight: 1.4 }}>
   3 8 2 |                                    T ô i   Ó n g   ý   v Ù i   < L i n k   h r e f = " # "   s t y l e = { {   c o l o r :   ' v a r ( - - t
383|                </span>
384|              </label>
385|            </div>
386|          )}
387|
388|          {error && (
389|            <div style={{ marginTop: '16px', padding: '10px 14px', borderRadius: '10px', background: 'rgba(244...
390|              {error}
391|            </div>
392|          )}
393|
394|          {/* Navigation Buttons */}
395|          <div style={{ display: 'flex', gap: '12px', marginTop: '32px' }}>
396|            {step > 1 && (
397|              <button type="button" onClick={handlePrev} disabled={loading}
398|                style={{ flex: 1, padding: '12px', borderRadius: '10px', fontWeight: 700, border: '1px solid v...
   3 9 9 |                                  Q u a y   l ¡ i
400|              </button>
401|            )}
402|            {step < (isOauth ? 2 : 3) ? (
403|              <button type="button" onClick={handleNext}
404|                style={{ flex: 2, padding: '12px', borderRadius: '10px', fontWeight: 700, border: 'none', back...
   4 0 5 |                                  T i ¿ p   t å c   < C h e v r o n R i g h t   s i z e = { 1 8 }   / >
406|              </button>
407|            ) : (
408|              <button type="button" onClick={handleSubmit} disabled={loading || !formData.termsAccepted}
409|                style={{ flex: 2, padding: '12px', borderRadius: '10px', fontWeight: 700, border: 'none', back...
   4 1 0 |                                  { l o a d i n g   ?   < L o a d e r 2   s i z e = { 1 8 }   s t y l e = { {   a n i m a t i o n :   ' s p i n
411|              </button>
412|            )}
413|          </div>
414|        </form>
415|
416|                <p style={{ textAlign: 'center', marginTop: '20px', color: 'var(--text-muted)', fontSize: '13p...
   4 1 7 |                          ã   c ó   t à i   k h o £ n ?   < L i n k   h r e f = " / l o g i n "   s t y l e = { {   c o l o r :   ' v a r ( - - b r
418|        </p>
419|      </div>
420|
421|      <style>{`
422|        @media (max-width: 640px) {
423|          .register-page { padding: 12px !important; }
424|          .register-page > div { padding: 20px 16px !important; }
425|          .register-role-grid { grid-template-columns: 1fr !important; }
426|          .register-back-btn { top: 12px !important; left: 12px !important; }
427|        }
428|      `}</style>
429|    </div>
430|  )
431| }
432|
433| export default function RegisterPage() {
434|   return (
435|     <Suspense fallback={
436|       <div style={{ minHeight: '100vh', display: 'flex', alignItems: 'center', justifyContent: 'center', backg...
437|         <Loader2 size={48} style={{ color: 'var(--brand-primary)', animation: 'spin 1s linear infinite' }} />
438|       </div>
439|     }>
440|       <RegisterForm />
441|     </Suspense>
442|   )
443| }
444|
```

File: app/(dashboard)/admin/activity/page.tsx (177 lines, 8.6 KB)

```
==========================================================================================
   1| 'use client';
   2|
   3| import React, { useEffect, useState, useRef } from 'react';
   4| import { supabase } from '@/lib/supabase';
   5| import { Activity, Search, Clock, Users, BookOpen, FileText, RefreshCw, Radio, Loader2 } from 'lucide-react';
   6|
   7| interface LogEntry {
   8|   id: string;
   9|   action: string;
  10|   user_name: string;
  11|   role: string;
  12|   created_at: string;
  13|   detail?: string;
  14| }
  15|
  16| export default function AdminActivityPage() {
  17|   const [logs, setLogs] = useState<LogEntry[]>([]);
  18|   const [loading, setLoading] = useState(true);
  19|   const [connected, setConnected] = useState(false);
  20|   const [search, setSearch] = useState('');
  21|
  22|   useEffect(() => {
  23|     fetchLogs();
  24|     const channel = supabase.channel('admin-activity-realtime')
  25|       .on('postgres_changes', { event: 'INSERT', schema: 'public', table: 'profiles' }, (payload) => {
  26|         const u = payload.new as any;
  27|         setLogs(prev => [{
  28|           id: `profile-${u.id}`,
     2 9 |                          a c t i o n :   '     n g   k ý   m Ù i ' ,
  30|           user_name: u.full_name || 'Unknown',
  31|           role: u.role || 'student',
  32|           created_at: new Date().toISOString(),
  33|           detail: `Email: ${u.email}`,
  34|         }, ...prev].slice(0, 100));
  35|       })
  36|       .on('postgres_changes', { event: 'INSERT', schema: 'public', table: 'lessons' }, (payload) => {
  37|         const l = payload.new as any;
```

```
38|         setLogs(prev => [{
39|           id: `lesson-${l.id}`,
    4 0 |                     a c t i o n :   ' T ¡ o   b à i   g i £ n g ' ,
41|           user_name: l.teacher_id?.slice(0, 8) || 'System',
42|           role: 'teacher',
43|           created_at: new Date().toISOString(),
    4 4 |                     d e t a i l :   l . t i t l e   | |   ' B à i   g i £ n g   m Û i ' ,
45|         }, ...prev].slice(0, 100));
46|       })
47|       .on('postgres_changes', { event: 'INSERT', schema: 'public', table: 'exams' }, (payload) => {
48|         const e = payload.new as any;
49|         setLogs(prev => [{
50|           id: `exam-${e.id}`,
    5 1 |                     a c t i o n :   ' T ¡ o   b à i   k i Ã m   t r a ' ,
52|           user_name: 'System',
53|           role: 'teacher',
54|           created_at: new Date().toISOString(),
    5 5 |                     d e t a i l :   e . t i t l e   | |   ' K i Ã m   t r a   m Û i ' ,
56|         }, ...prev].slice(0, 100));
57|       })
58|       .subscribe((status) => setConnected(status === 'SUBSCRIBED'));
59|     return () => { supabase.removeChannel(channel) };
60|   }, []);
61|
62|   async function fetchLogs() {
63|     const { data: profiles } = await supabase.from('profiles').select('id, full_name, role, email, created_at'...
64|     if (profiles) {
65|       const mapped: LogEntry[] = profiles.map(p => ({
66|         id: `profile-${p.id}`,
    6 7 |                     a c t i o n :   p . r o l e   = = =   ' a d m i n '   ?   '    n g   n h - p   A d m i n '   :   '    n g   k ý   m Û i ' ,
68|         user_name: p.full_name || 'Unknown',
69|         role: p.role || 'student',
70|         created_at: p.created_at,
71|         detail: `Email: ${p.email}`,
72|       }));
73|       setLogs(mapped);
74|     }
75|     setLoading(false);
76|   }
77|
78|   function timeAgo(ts: string) {
79|     const diff = Date.now() - new Date(ts).getTime();
80|     const mins = Math.floor(diff / 60000);
    8 1 |           i f   ( m i n s   <   1 )   r e t u r n   ' V à i   g i â y   t r º Û c ' ;
    8 2 |           i f   ( m i n s   <   6 0 )   r e t u r n   ` $ { m i n s }   p h ú t   t r º Û c ` ;
83|     const hrs = Math.floor(mins / 60);
    8 4 |           i f   ( h r s   <   2 4 )   r e t u r n   ` $ { h r s }   g i Ý   t r º Û c ` ;
    8 5 |           r e t u r n   ` $ { M a t h . f l o o r ( h r s   /   2 4 ) }   n g à y   t r º Û c ` ;
86|   }
87|
88|   const filtered = logs.filter(l =>
89|     l.action.toLowerCase().includes(search.toLowerCase()) ||
90|     l.user_name.toLowerCase().includes(search.toLowerCase())
91|   );
92|
93|   if (loading) return (
94|     <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
95|       <Loader2 size={48} style={{ color: 'var(--brand-primary)', animation: 'spin 1s linear infinite' }} />
96|     </div>
97|   );
98|
99|   return (
100|     <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
101|       <header style={{ marginBottom: '28px' }}>
102|         <div style={{ display: '1ex', alignItems: 'center', gap: '10px', marginBottom: '4px' }}>
  1 0 3 |                     < h 1   s t y l e = { {   f o n t S i z e :   ' 2 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n :   0 ,   c o l
104|           <span style={{
105|             display: 'inline-flex', alignItems: 'center', gap: '4px', padding: '3px 10px',
106|             borderRadius: '99px', fontSize: '10px', fontWeight: 700,
107|             background: connected ? 'rgba(8,158,96,0.1)' : 'rgba(244,106,106,0.1)',
108|             color: connected ? 'var(--brand-primary)' : 'var(--danger)',
109|           }}>
110|             <Radio size={10} /> {connected ? 'Live' : 'Off'}
111|           </span>
112|         </div>
  1 1 3 |                 < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   0 ,   f o n t S i z e :   ' 1 4
114|       </header>
115|
116|       <div className="lms-card" style={{ padding: '0', overflow: 'hidden' }}>
117|         <div style={{ padding: '20px 24px', borderBottom: '1px solid var(--border-default)', display: 'flex', ...
118|           <div style={{ position: 'relative', flex: 1 }}>
119|             <Search size={16} style={{ position: 'absolute', left: '12px', top: '50%', transform: 'translateY(...
  1 2 0 |                         < i n p u t   v a l u e = { s e a r c h }   o n C h a n g e = { e   = >   s e t S e a r c h ( e . t a r g e t . v a l u
121|               padding: '8px 12px 8px 36px', borderRadius: '8px', background: 'var(--bg-elevated)',
122|               border: '1px solid var(--border-default)', color: 'var(--text-primary)', fontSize: '13px', outli...
123|             }} />
124|           </div>
125|           <button onClick={fetchLogs} style={{
126|             padding: '8px 14px', borderRadius: '8px', background: 'var(--bg-elevated)',
127|             border: '1px solid var(--border-default)', color: 'var(--text-primary)',
128|             display: 'flex', alignItems: 'center', gap: '6px', cursor: 'pointer', fontSize: '13px', fontFamily...
129|           }}>
  1 3 0 |                         < R e f r e s h C w   s i z e = { 1 6 }   / >   L à m   m Û i
131|           </button>
132|         </div>
133|
134|         <div style={{ overflowX: 'auto' }}>
135|           <table style={{ width: '100%', borderCollapse: 'collapse' }}>
136|             <thead>
137|               <tr style={{ borderBottom: '1px solid var(--border-default)' }}>
  1 3 8 |                         { [ ' H o ¡ t   Ù n g ' ,   ' N g º Ý i   d ù n g ' ,   ' C h i   t i ¿ t ' ,   ' V a i   t r ò ' ,   ' T h Y
139|                 <th key={h} style={{ padding: '12px 20px', color: 'var(--text-muted)', fontSize: '11px', fon...
140|                 ))}
141|               </tr>
142|             </thead>
143|             <tbody>
144|               {filtered.map((log, i) => (
145|                 <tr key={log.id} style={{ borderBottom: '1px solid var(--border-default)', animation: i < 3 ? ...
146|                   <td style={{ padding: '14px 20px' }}>
147|                     <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
148|                       <div style={{
149|                         width: '32px', height: '32px', borderRadius: '8px',
150|                         background: log.role === 'admin' ? 'rgba(244,106,106,0.1)' : log.role === 'teacher' ? ...
151|                         display: 'flex', alignItems: 'center', justifyContent: 'center'
152|                       }}>
153|                         {log.role === 'admin' ? <Activity size={14} color="var(--danger)" /> : log.role === 't...
154|                       </div>
155|                       <span style={{ color: 'var(--text-primary)', fontWeight: 600, fontSize: '14px' }}>{log.a...
156|                     </div>
157|                   </td>
158|                   <td style={{ padding: '14px 20px', color: 'var(--text-primary)', fontSize: '13px' }}>{log.us...
159|                   <td style={{ padding: '14px 20px', color: 'var(--text-muted)', fontSize: '12px' }}>{log.deta...
160|                   <td style={{ padding: '14px 20px' }}>
161|                     <span className="lms-tag" style={{ fontSize: '10px' }}>{log.role}</span>
```

```
162|                  </td>
163|                  <td style={{ padding: '14px 20px', color: 'var(--text-muted)', fontSize: '12px', display: 'f...
164|                    <Clock size={12} /> {timeAgo(log.created_at)}
165|                  </td>
166|                </tr>
167|              ))}
168|            </tbody>
169|          </table>
170|        </div>
171|      </div>
172|
173|      <style>{`@keyframes fadeIn { from { opacity: 0; background: rgba(var(--brand-primary-rgb),0.04); } to { ...
174|    </div>
175|  );
176| }
177|
```

File: app/(dashboard)/admin/analytics/page.tsx (127 lines, 7.5 KB)

```
  1| 'use client';
  2|
  3| import React, { useEffect, useState } from 'react';
  4| import { supabase } from '@/lib/supabase';
  5| import { BarChart3, TrendingUp, Users, BookOpen, FileText, Activity, Monitor, Clock, Radio, Loader2 } from 'lu...
  6| import { LineChart, AreaChart, Area, XAxis, YAxis, CartesianGrid, Tooltip, ResponsiveContainer, BarChart, Bar,...
  7|
  8| export default function AdminAnalyticsPage() {
  9|   const [stats, setStats] = useState({ users: 0, lessons: 0, exams: 0, classes: 0 });
 10|   const [loading, setLoading] = useState(true);
 11|
 12|   useEffect(() => {
 13|     fetchStats();
 14|     const channel = supabase.channel('admin-analytics-realtime')
 15|       .on('postgres_changes', { event: '*', schema: 'public', table: 'profiles' }, () => fetchStats())
 16|       .on('postgres_changes', { event: '*', schema: 'public', table: 'lessons' }, () => fetchStats())
 17|       .on('postgres_changes', { event: '*', schema: 'public', table: 'exams' }, () => fetchStats())
 18|       .on('postgres_changes', { event: '*', schema: 'public', table: 'classes' }, () => fetchStats())
 19|       .subscribe();
 20|     return () => { supabase.removeChannel(channel) };
 21|   }, []);
 22|
 23|   async function fetchStats() {
 24|     const { count: users } = await supabase.from('profiles').select('*', { count: 'exact', head: true });
 25|     const { count: lessons } = await supabase.from('lessons').select('*', { count: 'exact', head: true });
 26|     const { count: exams } = await supabase.from('exams').select('*', { count: 'exact', head: true });
 27|     const { count: classes } = await supabase.from('classes').select('*', { count: 'exact', head: true });
 28|     setStats({ users: users || 0, lessons: lessons || 0, exams: exams || 0, classes: classes || 0 });
 29|     setLoading(false);
 30|   }
 31|
 32|   const monthlyData = [
 33|     { month: 'T1', users: 0, lessons: 0, exams: 0 },
 34|     { month: 'T2', users: 0, lessons: 0, exams: 0 },
 35|     { month: 'T3', users: 0, lessons: 0, exams: 0 },
 36|     { month: 'T4', users: 0, lessons: 0, exams: 0 },
 37|     { month: 'T5', users: 0, lessons: 0, exams: 0 },
 38|     { month: 'T6', users: stats.users, lessons: stats.lessons, exams: stats.exams },
 39|   ];
 40|
 41|   const categoryData = [
    4 2 |          {  n a m e :  ' B à i  g i £ n g ' ,  v a l u e :  s t a t s . l e s s o n s ,  c o l o r :  ' v a r ( - - b r a n d - p r i m a
    4 3 |          {  n a m e :  ' B à i  k i Ã m  t r a ' ,  v a l u e :  s t a t s . e x a m s ,  c o l o r :  ' v a r ( - - a c c e n t - a m b
    4 4 |          {  n a m e :  ' L Ũ p  h Í c ' ,  v a l u e :  s t a t s . c l a s s e s ,  c o l o r :  ' v a r ( - - a c c e n t - b l u e ) '
    4 5 |          {  n a m e :  ' N g ° Ý i  d ù n g ' ,  v a l u e :  s t a t s . u s e r s ,  c o l o r :  ' # 6 3 6 6 f 1 '  } ,
 46|   ];
 47|
 48|   if (loading) return (
 49|     <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
 50|       <Loader2 size={48} style={{ color: 'var(--brand-primary)', animation: 'spin 1s linear infinite' }} />
 51|     </div>
 52|   );
 53|
 54|   return (
 55|     <div style={{ maxWidth: '1400px', margin: '0 auto' }}>
 56|       <header style={{ marginBottom: '28px' }}>
 57|         <h1 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 4px 0', color: 'var(--text-primary)' }}>P...
 58|         <p style={{ color: 'var(--text-muted)', margin: 0, fontSize: '14px' }}>
    5 9 |                    T h Ñ n g  k ê  t r ñ c  t i ¿ p  t ë  d a t a b a s e  ·  < R a d i o  s i z e = { 1 2 }  s t y l e = { {  v e r
 60|         </p>
 61|       </header>
 62|
 63|       <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(180px, 1fr))', gap: '16px',...
 64|         {[
    6 5 |                    {  l a b e l :  ' N g ° Ý i  d ù n g ' ,  v a l u e :  s t a t s . u s e r s ,  i c o n :  U s e r s ,  c o l o r :
    6 6 |                    {  l a b e l :  ' B à i  g i £ n g ' ,  v a l u e :  s t a t s . l e s s o n s ,  i c o n :  B o o k O p e n ,  c o
    6 7 |                    {  l a b e l :  ' B à i  k i Ã m  t r a ' ,  v a l u e :  s t a t s . e x a m s ,  i c o n :  F i l e T e x t ,  c
    6 8 |                    {  l a b e l :  ' L Ũ p  h Í c ' ,  v a l u e :  s t a t s . c l a s s e s ,  i c o n :  M o n i t o r ,  c o l o r
 69|         ].map((s, i) => (
 70|           <div key={i} className="lms-card" style={{ padding: '20px' }}>
 71|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom...
 72|               <div style={{ width: '36px', height: '36px', borderRadius: '8px', background: `${s.color}15`, co...
 73|                 <s.icon size={16} />
 74|               </div>
 75|             </div>
 76|             <div style={{ fontSize: '22px', fontWeight: 900, color: 'var(--text-primary)' }}>{s.value.toLocale...
 77|             <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 600 }}>{s.label}</div>
 78|           </div>
 79|         ))}
 80|       </div>
 81|
 82|       <div style={{ display: 'grid', gridTemplateColumns: '2fr 1fr', gap: '20px', marginBottom: '28px' }}>
 83|         <div className="lms-card" style={{ padding: '24px' }}>
 84|           <h3 style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)', margin: '0 0 16px 0' }...
 85|           <div style={{ height: '280px' }}>
 86|             <ResponsiveContainer width="100%" height="100%">
 87|               <AreaChart data={monthlyData}>
 88|                 <defs>
 89|                   <linearGradient id="colorUsers" x1="0" y1="0" x2="0" y2="1"><stop offset="5%" stopColor="var...
 90|                 </defs>
 91|                 <CartesianGrid strokeDasharray="3 3" stroke="var(--border-default)" />
 92|                 <XAxis dataKey="month" tick={{ fill: 'var(--text-muted)', fontSize: 11 }} />
 93|                 <YAxis tick={{ fill: 'var(--text-muted)', fontSize: 11 }} />
 94|                 <Tooltip contentStyle={{ background: 'var(--bg-surface)', border: '1px solid var(--border-defa...
 95|                 <Area type="monotone" dataKey="users" stroke="var(--brand-primary)" fill="url(#colorUsers)" st...
 96|                 <Area type="monotone" dataKey="lessons" stroke="var(--accent-blue)" fill="url(#colorUsers)" st...
 97|               </AreaChart>
 98|             </ResponsiveContainer>
 99|           </div>
100|         </div>
101|         <div className="lms-card" style={{ padding: '24px' }}>
102|           <h3 style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)', margin: '0 0 16px 0' }...
103|           <div style={{ height: '200px' }}>
104|             <ResponsiveContainer width="100%" height="100%">
```

```
105|              <PieChart>
106|                <Pie data={categoryData} cx="50%" cy="50%" innerRadius={55} outerRadius={80} dataKey="value" s...
107|                  {categoryData.map((entry, i) => (<Cell key={i} fill={entry.color} />))}
108|                </Pie>
109|                <Tooltip contentStyle={{ background: 'var(--bg-surface)', border: '1px solid var(--border-defa...
110|              </PieChart>
111|            </ResponsiveContainer>
112|          </div>
113|          <div style={{ display: 'flex', flexDirection: 'column', gap: '8px', marginTop: '8px' }}>
114|            {categoryData.map((item, i) => (
115|              <div key={i} style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '12px' }}>
116|                <div style={{ width: '10px', height: '10px', borderRadius: '3px', background: item.color }} />
117|                <span style={{ color: 'var(--text-muted)', flex: 1 }}>{item.name}</span>
118|                <span style={{ color: 'var(--text-primary)', fontWeight: 700 }}>{item.value}</span>
119|              </div>
120|            ))}
121|          </div>
122|        </div>
123|      </div>
124|    </div>
125|  );
126| }
127|
```

File: app/(dashboard)/admin/content/page.tsx (137 lines, 7.5 KB)

```
==========================================================================================
  1| 'use client';
  2|
  3| import React, { useEffect, useState } from 'react';
  4| import { supabase } from '@/lib/supabase';
  5| import { FileText, BookOpen, Monitor, Plus, Edit, Trash2, Eye, Clock, CheckCircle, XCircle, Loader2, Radio } f...
  6| import Link from 'next/link';
  7|
  8| export default function AdminContentPage() {
  9|   const [lessons, setLessons] = useState<any[]>([]);
 10|   const [exams, setExams] = useState<any[]>([]);
 11|   const [loading, setLoading] = useState(true);
 12|   const [tab, setTab] = useState('all');
 13|
 14|   useEffect(() => {
 15|     fetchData();
 16|     const channel = supabase.channel('admin-content-realtime')
 17|       .on('postgres_changes', { event: '*', schema: 'public', table: 'lessons' }, () => fetchData())
 18|       .on('postgres_changes', { event: '*', schema: 'public', table: 'exams' }, () => fetchData())
 19|       .subscribe();
 20|     return () => { supabase.removeChannel(channel) };
 21|   }, []);
 22|
 23|   async function fetchData() {
 24|     const { data: l } = await supabase.from('lessons').select('*, profiles(full_name)').order('created_at', { ...
 25|     if (l) setLessons(l);
 26|     const { data: e } = await supabase.from('exams').select('*, profiles(full_name)').order('created_at', { as...
 27|     if (e) setExams(e);
 28|     setLoading(false);
 29|   }
 30|
 31|   const allContent = [
 32|     ...lessons.map(l => ({ ...l, contentType: 'lesson' })),
 33|     ...exams.map(e => ({ ...e, contentType: 'exam' })),
 34|   ].sort((a: any, b: any) => new Date(b.created_at).getTime() - new Date(a.created_at).getTime());
 35|
 36|   const filtered = tab === 'all' ? allContent : tab === 'lesson' ? allContent.filter((c: any) => c.contentType...
 37|
 38|   if (loading) return (
 39|     <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
 40|       <Loader2 size={48} style={{ color: 'var(--brand-primary)', animation: 'spin 1s linear infinite' }} />
 41|     </div>
 42|   );
 43|
 44|   return (
 45|     <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
 46|       <header style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: '...
 47|         <div>
 48|           <h1 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 4px 0', color: 'var(--text-primary)' }}...
 49|           <p style={{ color: 'var(--text-muted)', margin: 0, fontSize: '14px' }}>
    50 |                                Q u £ n   l ý   b à i   g i £ n g   v à   b à i   k i Ã m   t r a   ·   < R a d i o   s i z e = { 1 2 }   s t y l e = {
 51|           </p>
 52|         </div>
 53|       </header>
 54|
 55|       <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(180px, 1fr))', gap: '16px',...
 56|         {[
    57 |                                {   l a b e l :   ' B à i   g i £ n g ' ,   v a l u e :   l e s s o n s . l e n g t h ,   i c o n :   B o o k O p e n ,   c
    58 |                                {   l a b e l :   ' B à i   k i Ã m   t r a ' ,   v a l u e :   e x a m s . l e n g t h ,   i c o n :   F i l e T e x t ,
 59|         ].map((s, i) => (
 60|           <div key={i} className="lms-card" style={{ padding: '20px', display: 'flex', alignItems: 'center', g...
 61|             <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: `${s.color}15`, col...
 62|               <s.icon size={18} />
 63|             </div>
 64|             <div>
 65|               <div style={{ fontSize: '22px', fontWeight: 900, color: 'var(--text-primary)' }}>{s.value}</div>
 66|               <div style={{ fontSize: '12px', color: 'var(--text-muted)', fontWeight: 600 }}>{s.label}</div>
 67|             </div>
 68|           </div>
 69|         ))}
 70|       </div>
 71|
 72|       <div className="lms-card" style={{ overflow: 'hidden', padding: '0' }}>
 73|         <div style={{ padding: '20px 24px', borderBottom: '1px solid var(--border-default)', display: 'flex', ...
 74|           {[
    75 |                                {   k e y :   ' a l l ' ,   l a b e l :   ' T ¥ t   c £ '   } ,
    76 |                                {   k e y :   ' l e s s o n ' ,   l a b e l :   ' B à i   g i £ n g '   } ,
    77 |                                {   k e y :   ' e x a m ' ,   l a b e l :   ' B à i   k i Ã m   t r a '   } ,
 78|           ].map(t => (
 79|             <button key={t.key} onClick={() => setTab(t.key)} style={{
 80|               padding: '6px 16px', borderRadius: '8px', border: '1px solid var(--border-default)',
 81|               background: tab === t.key ? 'var(--brand-primary)' : 'transparent',
 82|               color: tab === t.key ? '#fff' : 'var(--text-muted)',
 83|               fontWeight: 600, cursor: 'pointer', fontSize: '12px', fontFamily: 'inherit'
 84|             }}>{t.label}</button>
 85|           ))}
 86|         </div>
 87|
 88|         <div style={{ overflowX: 'auto' }}>
 89|           <table style={{ width: '100%', borderCollapse: 'collapse' }}>
 90|             <thead>
 91|               <tr style={{ borderBottom: '1px solid var(--border-default)' }}>
    92 |                                  { [ ' T i ê u   Á ' ,   ' L o ¡ i ' ,   ' T á c   g i £ ' ,   ' T r ¡ n g   t h á i ' ,   ' C - p   n h - t
 93|                 <th key={h} style={{ padding: '12px 20px', color: 'var(--text-muted)', fontSize: '11px', fon...
 94|               ))}
 95|               </tr>
 96|             </thead>
 97|             <tbody>
```

```
  98|              {filtered.map((item: any) => (
  99|                <tr key={`${item.contentType}-${item.id}`} style={{ borderBottom: '1px solid var(--border-defa...
 100|                  <td style={{ padding: '14px 20px' }}>
 101|                    <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
 102|                      <div style={{
 103|                        width: '32px', height: '32px', borderRadius: '8px',
 104|                        background: item.contentType === 'lesson' ? 'rgba(8,158,96,0.1)' : 'rgba(255,163,0,0.1)',
 105|                        display: 'flex', alignItems: 'center', justifyContent: 'center'
 106|                      }}>
 107|                        {item.contentType === 'lesson' ? <BookOpen size={14} color="var(--brand-primary)" /> :...
 108|                      </div>
 109|                      <div>
 110|                        <div style={{ color: 'var(--text-primary)', fontWeight: 600, fontSize: '14px' }}>{item...
 111|                        <div style={{ color: 'var(--text-muted)', fontSize: '11px' }}>ID: {item.id?.slice(0, 8...
 112|                      </div>
 113|                    </div>
 114|                  </td>
 115|                  <td style={{ padding: '14px 20px' }}>
 116|                    <span className="lms-tag" style={{ fontSize: '10px' }}>{item.contentType === 'lesson' ? 'B...
 117|                  </td>
 118|                  <td style={{ padding: '14px 20px', color: 'var(--text-muted)', fontSize: '13px' }}>{item.pro...
 119|                  <td style={{ padding: '14px 20px' }}>
 120|                    <div style={{ display: 'flex', alignItems: 'center', gap: '6px', color: item.is_published ...
 121|                      {item.is_published ? <CheckCircle size={12} /> : <XCircle size={12} />}
   1 2 2 |                                                { i t e m . i s _ p u b l i s h e d   ?   '   ã   x u ¥ t   b £ n '   :   ' B £ n   n h á p ' }
 123|                    </div>
 124|                  </td>
 125|                  <td style={{ padding: '14px 20px', color: 'var(--text-muted)', fontSize: '12px', display: 'f...
 126|                    <Clock size={12} /> {new Date(item.created_at).toLocaleDateString('vi-VN')}
 127|                  </td>
 128|                </tr>
 129|              ))}
 130|            </tbody>
 131|          </table>
 132|        </div>
 133|      </div>
 134|    </div>
 135|  );
 136| }
 137|
```

File: app/(dashboard)/admin/error.tsx (26 lines, 0.9 KB)

```
   1| // Path: app/(dashboard)/admin/error.tsx
   2| 'use client'
   3| import { useEffect } from 'react'
   4|
   5| export default function Error({
   6|   error, reset
   7| }: { error: Error & { digest?: string }; reset: () => void }) {
   8|   useEffect(() => { console.error(error) }, [error])
   9|   return (
  10|     <div className="flex flex-col items-center justify-center h-full gap-6 p-8">
     1 1 |               < d i v   c l a s s N a m e = " t e x t - 4 x l " >& þ  < / d i v >
  12|       <div className="text-center">
     1 3 |                  < h 2   c l a s s N a m e = " t e x t - l g   f o n t - s e m i b o l d   t e x t - [ # d 8 d b e 8 ]   m b - 2 " > C ó   l x i
     1 4 |                  < p   c l a s s N a m e = " t e x t - s m   t e x t - [ # 5 a 5 d 7 2 ]   m b - 4 " > { e r r o r . m e s s a g e   | |   ' V u
  15|         <button
  16|           onClick={reset}
  17|           className="px-4 py-2 bg-[#00d4aa]/15 border border-[#00d4aa]/30
  18|                        text-[#00d4aa] rounded-lg text-sm font-medium hover:bg-[#00d4aa]/25 transition-colors"
  19|         >
     2 0 |                     T h í   l ¡ i
  21|         </button>
  22|       </div>
  23|     </div>
  24|   )
  25| }
  26|
```

File: app/(dashboard)/admin/layout.tsx (130 lines, 6.7 KB)

```
   1| 'use client'
   2|
   3| import React, { useState, useEffect, useCallback, useRef } from 'react'
   4| import Link from 'next/link'
   5| import { usePathname, useRouter } from 'next/navigation'
   6| import { LayoutDashboard, Users, Settings, LogOut, Book, ShieldAlert, GraduationCap, Sun, Moon, BarChart3, Act...
   7| import PageTransition from '@/components/PageTransition'
   8|
   9| function ThemeToggle() {
  10|   const [theme, setThemeState] = useState<'light' | 'dark'>('dark')
  11|   useEffect(() => {
  12|     const saved = (localStorage.getItem('theme') as 'light' | 'dark') || 'dark'
  13|     setThemeState(saved)
  14|     document.documentElement.setAttribute('data-theme', saved)
  15|   }, [])
  16|   const toggle = useCallback(() => {
  17|     const next = theme === 'light' ? 'dark' : 'light'
  18|     setThemeState(next)
  19|     document.documentElement.setAttribute('data-theme', next)
  20|     localStorage.setItem('theme', next)
  21|   }, [theme])
  22|   return (
  23|     <button onClick={toggle} style={{ display: 'flex', alignItems: 'center', gap: '12px', padding: '12px 16px'...
  24|       {theme === 'light' ? <Moon size={16} /> : <Sun size={16} />}
     2 5 |               { t h e m e   = = =   ' l i g h t '   ?   ' G i a o   d i Ç n   t Ñ i '   :   ' G i a o   d i Ç n   s á n g ' }
  26|     </button>
  27|   )
  28| }
  29|
  30| export default function AdminLayout({ children }: { children: React.ReactNode }) {
  31|   const pathname = usePathname()
  32|   const router = useRouter()
  33|   const [connected, setConnected] = useState(true)
  34|   const [onlineCount, setOnlineCount] = useState(0)
  35|   const [currentTime, setCurrentTime] = useState('')
  36|
  37|   useEffect(() => {
  38|     const auth = localStorage.getItem('admin_auth')
  39|     if (auth !== 'true') { router.push('/login') }
  40|
  41|     const timeInt = setInterval(() => {
  42|       setCurrentTime(new Date().toLocaleTimeString('vi-VN', { hour: '2-digit', minute: '2-digit', second: '2-d...
  43|     }, 1000)
  44|
  45|     const onlineInt = setInterval(() => {
  46|       setOnlineCount(Math.floor(Math.random() * 12 + 3))
  47|     }, 5000)
  48|
  49|     const connInt = setInterval(() => {
```

```
  50|       setConnected(navigator.onLine)
  51|     }, 3000)
  52|
  53|     return () => { clearInterval(timeInt); clearInterval(onlineInt); clearInterval(connInt) }
  54|   }, [])
  55|
  56|   function handleLogout() {
  57|     localStorage.removeItem('admin_auth')
  58|     localStorage.removeItem('admin_login_time')
  59|     router.push('/login')
  60|   }
  61|
  62|   const isActive = (href: string) => pathname === href || pathname?.startsWith(href + '/')
  63|
  64|   const NavItem = ({ href, icon: Icon, label }: { href: string; icon: any; label: string }) => {
  65|     const active = isActive(href)
  66|     return (
  67|       <Link href={href} style={{
  68|         display: 'flex', alignItems: 'center', gap: '10px', padding: '10px 14px', borderRadius: '8px', textDec...
  69|         background: active ? 'rgba(8,158,96,0.15)' : 'transparent',
  70|         color: active ? '#fff' : 'rgba(255,255,255,0.55)',
  71|         fontWeight: active ? 700 : 500,
  72|         transition: 'all 0.2s'
  73|       }}>
  74|         <Icon size={18} /> {label}
  75|       </Link>
  76|     )
  77|   }
  78|
  79|   return (
  80|     <div style={{ display: 'flex', minHeight: '100vh', background: 'var(--bg-base)' }}>
  81|       <aside style={{ width: '260px', background: 'linear-gradient(180deg, #031f3b 0%, #1a2f53 100%)', display...
  82|         <div style={{ padding: '20px 20px 16px', display: 'flex', alignItems: 'center', gap: '10px', borderBot...
  83|           <div style={{ width: '36px', height: '36px', borderRadius: '8px', background: 'var(--accent-blue)', ...
  84|             <ShieldAlert size={18} color="#fff" />
  85|           </div>
  86|           <div>
  87|             <div style={{ fontWeight: 800, fontSize: '16px', color: '#fff', letterSpacing: '-0.3px' }}>PC Mast...
     8 8 |                         < d i v   s t y l e = { {   f o n t S i z e :   ' 1 0 p x ' ,   c o l o r :   ' v a r ( - - a c c e n t - b l u e ) ' ,
  89|           </div>
  90|         </div>
  91|
  92|         <div style={{ padding: '12px 16px', borderBottom: '1px solid rgba(255,255,255,0.06)', display: 'flex',...
  93|           <div style={{ display: 'flex', alignItems: 'center', gap: '6px' }}>
  94|             <span style={{ width: '6px', height: '6px', borderRadius: '50%', background: connected ? '#30c080'...
  95|             <span style={{ fontSize: '10px', color: 'rgba(255,255,255,0.45)', fontWeight: 500 }}>Realtime</span>
  96|           </div>
  97|           <div style={{ fontSize: '10px', color: 'rgba(255,255,255,0.35)' }}>
  98|             <Wifi size={10} style={{ verticalAlign: 'middle', marginRight: '3px' }} />
  99|             {onlineCount} online
 100|           </div>
 101|         </div>
 102|
 103|         <nav style={{ padding: '16px 12px', display: 'flex', flexDirection: 'column', gap: '2px', flex: 1 }}>
     1 0 4 |                     < N a v I t e m   h r e f = " / a d m i n "   i c o n = { L a y o u t D a s h b o a r d }   l a b e l = " T Õ n g   q u a n
     1 0 5 |                     < N a v I t e m   h r e f = " / a d m i n / u s e r s "   i c o n = { U s e r s }   l a b e l = " Q u £ n   l ý   n g ° Ý i
     1 0 6 |                     < N a v I t e m   h r e f = " / a d m i n / s c h o o l s "   i c o n = { B o o k }   l a b e l = " Q u £ n   l ý   t r ° Ì
     1 0 7 |                     < N a v I t e m   h r e f = " / a d m i n / s e t t i n g s "   i c o n = { S e t t i n g s }   l a b e l = " C à i   · t
 108|           <div style={{ height: '1px', background: 'rgba(255,255,255,0.06)', margin: '6px 0' }} />
     1 0 9 |                     < N a v I t e m   h r e f = " / a d m i n / a n a l y t i c s "   i c o n = { B a r C h a r t 3 }   l a b e l = " P h â n
     1 1 0 |                     < N a v I t e m   h r e f = " / a d m i n / a c t i v i t y "   i c o n = { A c t i v i t y }   l a b e l = " N h - t   k y
 111|           <NavItem href="/admin/notifications-admin" icon={Bell} label="Thông báo" />
     1 1 2 |                     < N a v I t e m   h r e f = " / a d m i n / c o n t e n t "   i c o n = { F i l e T e x t }   l a b e l = " Q u £ n   l ý
 113|         </nav>
 114|
 115|         <div style={{ padding: '12px 16px', borderTop: '1px solid rgba(255,255,255,0.06)', display: 'flex', fl...
 116|           <div style={{ fontSize: '10px', color: 'rgba(255,255,255,0.3)', textAlign: 'center', marginBottom: '...
 117|           <ThemeToggle />
 118|           <button onClick={handleLogout} style={{ display: 'flex', alignItems: 'center', gap: '10px', padding:...
     1 1 9 |                         < L o g O u t   s i z e = { 1 6 }   / >       n g   x u ¥ t
 120|           </button>
 121|         </div>
 122|       </aside>
 123|
 124|       <main style={{ flex: 1, padding: '28px 32px', overflowY: 'auto', minWidth: 0 }}>
 125|         <PageTransition>{children}</PageTransition>
 126|       </main>
 127|     </div>
 128|   )
 129| }
 130|
```

File: app/(dashboard)/admin/loading.tsx (15 lines, 0.5 KB)

```
   1| // Path: app/(dashboard)/admin/loading.tsx
   2| export default function Loading() {
   3|   return (
   4|     <div className="p-6 space-y-4 animate-pulse">
   5|       <div className="h-8 bg-[#1d1f2a] rounded-lg w-48" />
   6|       <div className="grid grid-cols-1 md:grid-cols-4 gap-4">
   7|         {[...Array(4)].map((_, i) => (
   8|           <div key={i} className="h-24 bg-[#1d1f2a] rounded-xl" />
   9|         ))}
  10|       </div>
  11|       <div className="h-64 bg-[#1d1f2a] rounded-xl" />
  12|     </div>
  13|   )
  14| }
  15|
```

File: app/(dashboard)/admin/notifications-admin/page.tsx (90 lines, 6.0 KB)

```
   1| 'use client';
   2|
   3| import React, { useState } from 'react';
   4| import { Bell, Send, Users, BookOpen, Megaphone, Clock, CheckCircle, AlertTriangle, Info } from 'lucide-react';
   5|
   6| export default function AdminNotificationsPage() {
   7|   const [title, setTitle] = useState('');
   8|   const [content, setContent] = useState('');
   9|   const [target, setTarget] = useState('all');
  10|
  11|   return (
  12|     <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
  13|       <header style={{ marginBottom: '28px' }}>
  14|         <h1 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 4px 0', color: 'var(--text-primary)' }}>T...
     1 5 |                 < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   0 ,   f o n t S i z e :   ' 1 4
  16|       </header>
  17|
  18|       <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '20px' }}>
  19|         <div className="lms-card" style={{ padding: '24px' }}>
```

```
  20|          <h3 style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)', margin: '0 0 20px 0', ...
    2 1 |                          < M e g a p h o n e   s i z e = { 1 8 }   c o l o r = " v a r ( - - b r a n d - p r i m a r y ) "   / >   T ¡ o   t h ô
  22|          </h3>
  23|
  24|          <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
  25|            <div>
  26|              <label style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)', marginBottom: '...
  27|              <input value={title} onChange={e => setTitle(e.target.value)} className="lms-input" placeholder=...
  28|            </div>
  29|            <div>
  30|              <label style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)', marginBottom: '...
  31|              <textarea value={content} onChange={e => setContent(e.target.value)} rows={4} className="lms-inp...
  32|            </div>
  33|            <div>
  34|              <label style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)', marginBottom: '...
  35|              <div style={{ display: 'flex', gap: '8px', flexWrap: 'wrap' }}>
  36|                {[
    3 7 |                                    {   v a l u e :   ' a l l ' ,   l a b e l :   ' T ¥ t   c £ ' ,   i c o n :   U s e r s   } ,
    3 8 |                                    {   v a l u e :   ' s t u d e n t s ' ,   l a b e l :   ' H Í c   s i n h ' ,   i c o n :   U s e r s   } ,
  39|                  { value: 'teachers', label: 'Giáo viên', icon: BookOpen },
  40|                ].map(opt => (
  41|                  <button key={opt.value} onClick={() => setTarget(opt.value)} style={{
  42|                    padding: '8px 16px', borderRadius: '8px', border: `2px solid ${target === opt.value ? 'var...
  43|                    background: target === opt.value ? 'var(--brand-subtle)' : 'transparent',
  44|                    color: target === opt.value ? 'var(--brand-primary)' : 'var(--text-muted)',
  45|                    fontWeight: 600, cursor: 'pointer', fontSize: '12px', fontFamily: 'inherit',
  46|                    display: 'flex', alignItems: 'center', gap: '6px', transition: 'all 0.2s'
  47|                  }}>
  48|                    <opt.icon size={14} /> {opt.label}
  49|                  </button>
  50|                ))}
  51|              </div>
  52|            </div>
  53|            <button style={{ padding: '12px 24px', borderRadius: '10px', background: 'var(--brand-primary)', c...
    5 4 |                          < S e n d   s i z e = { 1 8 }   / >   G í i   t h ô n g   b á o
  55|            </button>
  56|          </div>
  57|        </div>
  58|
  59|        <div>
  60|          <h3 style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)', margin: '0 0 16px 0', ...
    6 1 |                          < B e l l   s i z e = { 1 8 }   c o l o r = " v a r ( - - a c c e n t - a m b e r ) "   / >   T h ô n g   b á o   ã
  62|          </h3>
  63|          <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
  64|            {[
    6 5 |                              {   t i t l e :   ' L Ë c h   t h i   g i ï a   k ó ' ,   t i m e :   ' 2   g i Ý   t r ° Û c ' ,   s t a t u s :
    6 6 |                              {   t i t l e :   ' B £ o   t r ì   h Ç   t h Ñ n g ' ,   t i m e :   ' 1   n g à y   t r ° Û c ' ,   s t a t u s
    6 7 |                              {   t i t l e :   ' B à i   g i £ n g   m Û i ' ,   t i m e :   ' 2   n g à y   t r ° Û c ' ,   s t a t u s :   '
    6 8 |                              {   t i t l e :   ' K ¿ t   q u £   t h i   h Í c   k ó ' ,   t i m e :   ' 3   n g à y   t r ° Û c ' ,   s t a t u
  69|            ].map((notif, i) => (
  70|              <div key={i} className="lms-card" style={{ padding: '16px 20px', display: 'flex', alignItems: 'c...
  71|                <div style={{ width: '36px', height: '36px', borderRadius: '8px', background: notif.type === '...
  72|                  {notif.type === 'success' ? <CheckCircle size={16} color="var(--brand-primary)" /> : notif.t...
  73|                </div>
  74|                <div style={{ flex: 1 }}>
  75|                  <div style={{ fontSize: '14px', fontWeight: 700, color: 'var(--text-primary)' }}>{notif.titl...
  76|                  <div style={{ fontSize: '11px', color: 'var(--text-muted)', display: 'flex', gap: '12px', ma...
  77|                    <span><Clock size={10} /> {notif.time}</span>
  78|                    <span>{notif.target}</span>
  79|                  </div>
  80|                </div>
  81|                <span className="lms-tag lms-tag-green" style={{ fontSize: '10px' }}>{notif.status}</span>
  82|              </div>
  83|            ))}
  84|          </div>
  85|        </div>
  86|      </div>
  87|    </div>
  88|  );
  89| }
  90|
```

File: app/(dashboard)/admin/page.tsx (502 lines, 27.0 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useEffect, useState, useCallback, useRef } from 'react'
    4| import { useRouter } from 'next/navigation'
    5| import { supabase } from '@/lib/supabase'
    6| import {
    7|   Users, Shield, Activity, Database, Settings, Search, Filter,
    8|   Loader2, AlertCircle, BarChart3, TrendingUp, Award, Clock,
    9|   BookOpen, GraduationCap, Monitor, Bell, FileText, MessageSquare,
   10|   Cpu, Wifi, HardDrive, Globe, ChevronRight, Plus, RefreshCw,
   11|   Zap, Download, Upload, CheckCircle, XCircle, Radio, HeartPulse, UserPlus
   12| } from 'lucide-react'
   13| import { LineChart, Line, AreaChart, Area, XAxis, YAxis, CartesianGrid, Tooltip, ResponsiveContainer, BarChart...
   14|
   15| const SYSTEM_START = Date.now()
   16|
   17| function formatUptime(ms: number) {
   18|   const d = Math.floor(ms / 86400000)
   19|   const h = Math.floor((ms % 86400000) / 3600000)
   20|   const m = Math.floor((ms % 3600000) / 60000)
   21|   return d > 0 ? `${d}d ${h}h ${m}m` : `${h}h ${m}m`
   22| }
   23|
   24| function formatTime(ts: string | number) {
   25|   const d = new Date(ts)
   26|   return d.toLocaleTimeString('vi-VN', { hour: '2-digit', minute: '2-digit', second: '2-digit' })
   27| }
   28|
   29| function timeAgo(ts: string | number) {
   30|   const diff = Date.now() - new Date(ts).getTime()
   31|   const mins = Math.floor(diff / 60000)
    3 2 |       i f   ( m i n s   <   1 )   r e t u r n   ' v à i   g i â y   t r ° Û c '
    3 3 |       i f   ( m i n s   <   6 0 )   r e t u r n   ` $ { m i n s }   p h ú t   t r ° Û c `
   34|   const hrs = Math.floor(mins / 60)
    3 5 |       i f   ( h r s   <   2 4 )   r e t u r n   ` $ { h r s }   g i Ý   t r ° Û c `
    3 6 |       r e t u r n   ` $ { M a t h . f l o o r ( h r s   /   2 4 ) }   n g à y   t r ° Û c `
   37| }
   38|
   39| type RealtimeEvent = {
   40|   id: string
   41|   type: 'user_created' | 'lesson_created' | 'exam_completed' | 'submission' | 'system'
   42|   label: string
   43|   detail: string
   44|   time: string
   45| }
   46|
   47| export default function AdminDashboard() {
   48|   const router = useRouter()
   49|   const [users, setUsers] = useState<any[]>([])
```

```
  50|   const [stats, setStats] = useState({ totalUsers: 0, teachers: 0, students: 0, activeClasses: 0, totalLessons...
  51|   const [loading, setLoading] = useState(true)
  52|   const [realtimeEvents, setRealtimeEvents] = useState<RealtimeEvent[]>([])
  53|   const [connected, setConnected] = useState(false)
  54|   const [latency, setLatency] = useState<number | null>(null)
  55|   const [uptime, setUptime] = useState('')
  56|   const [autoRefresh, setAutoRefresh] = useState(true)
  57|   const [weeklyData, setWeeklyData] = useState([
  58|     { day: 'T2', users: 0, lessons: 0, exams: 0 },
  59|     { day: 'T3', users: 0, lessons: 0, exams: 0 },
  60|     { day: 'T4', users: 0, lessons: 0, exams: 0 },
  61|     { day: 'T5', users: 0, lessons: 0, exams: 0 },
  62|     { day: 'T6', users: 0, lessons: 0, exams: 0 },
  63|     { day: 'T7', users: 0, lessons: 0, exams: 0 },
  64|     { day: 'CN', users: 0, lessons: 0, exams: 0 },
  65|   ])
  66|   const pollRef = useRef<NodeJS.Timeout | null>(null)
  67|   const latencyRef = useRef<number[]>([])
  68|   const eventsRef = useRef<HTMLDivElement>(null)
  69|
  70|   useEffect(() => {
  71|     const auth = localStorage.getItem('admin_auth')
  72|     if (auth !== 'true') { router.push('/login'); return }
  73|     fetchAdminData()
  74|
  75|     const uptimeInt = setInterval(() => {
  76|       setUptime(formatUptime(Date.now() - SYSTEM_START))
  77|     }, 1000)
  78|
  79|     return () => {
  80|       clearInterval(uptimeInt)
  81|       if (pollRef.current) clearInterval(pollRef.current)
  82|     }
  83|   }, [])
  84|
  85|   useEffect(() => {
  86|     if (!autoRefresh) return
  87|     pollRef.current = setInterval(fetchAdminData, 30000)
  88|     return () => { if (pollRef.current) clearInterval(pollRef.current) }
  89|   }, [autoRefresh])
  90|
  91|   useEffect(() => {
  92|     const channel = supabase.channel('admin-dashboard-realtime', {
  93|       config: { broadcast: { self: true } },
  94|     })
  95|
  96|     channel
  97|       .on('postgres_changes', {
  98|         event: 'INSERT',
  99|         schema: 'public',
 100|         table: 'profiles',
 101|       }, (payload) => {
 102|         const newUser = payload.new as any
 103|         setStats(prev => ({ ...prev, totalUsers: prev.totalUsers + 1 }))
 104|         const evt: RealtimeEvent = {
 105|           id: `user-${payload.commit_timestamp}`,
 106|           type: 'user_created',
   1 0 7 |                        l a b e l :   'Ø=Üd   N g ° Ý i   d ù n g   m Û i ' ,
 108|           detail: `${newUser.full_name || 'Unknown'} (${newUser.role || 'student'})`,
 109|           time: formatTime(payload.commit_timestamp || Date.now()),
 110|         }
 111|         setRealtimeEvents(prev => [evt, ...prev].slice(0, 50))
 112|         setUsers(prev => [newUser, ...prev])
 113|       })
 114|       .on('postgres_changes', {
 115|         event: 'INSERT',
 116|         schema: 'public',
 117|         table: 'lessons',
 118|       }, (payload) => {
 119|         const newLesson = payload.new as any
 120|         setStats(prev => ({ ...prev, totalLessons: prev.totalLessons + 1 }))
 121|         const evt: RealtimeEvent = {
 122|           id: `lesson-${payload.commit_timestamp}`,
 123|           type: 'lesson_created',
   1 2 4 |                        l a b e l :   'Ø=ÜÚ   B à i   g i £ n g   m Û i ' ,
   1 2 5 |                        d e t a i l :   n e w L e s s o n . t i t l e   | |   ' B à i   g i £ n g   k h ô n g   t i ê u    Á ' ,
 126|           time: formatTime(payload.commit_timestamp || Date.now()),
 127|         }
 128|         setRealtimeEvents(prev => [evt, ...prev].slice(0, 50))
 129|       })
 130|       .on('postgres_changes', {
 131|         event: 'INSERT',
 132|         schema: 'public',
 133|         table: 'exams',
 134|       }, (payload) => {
 135|         setStats(prev => ({ ...prev, totalExams: prev.totalExams + 1 }))
 136|         const evt: RealtimeEvent = {
 137|           id: `exam-${payload.commit_timestamp}`,
 138|           type: 'exam_completed',
   1 3 9 |                        l a b e l :   'Ø=ÜÝ   B à i   k i Ã m   t r a   m Û i ' ,
   1 4 0 |                        d e t a i l :   ( p a y l o a d . n e w   a s   a n y ) . t i t l e   | |   ' K i Ã m   t r a   k h ô n g   t i ê u    Á '
 141|           time: formatTime(payload.commit_timestamp || Date.now()),
 142|         }
 143|         setRealtimeEvents(prev => [evt, ...prev].slice(0, 50))
 144|       })
 145|       .subscribe((status) => {
 146|         setConnected(status === 'SUBSCRIBED')
 147|       })
 148|
 149|     const latInt = setInterval(async () => {
 150|       const start = Date.now()
 151|       try {
 152|         const { error } = await supabase.from('profiles').select('id', { count: 'exact', head: true })
 153|         if (!error) {
 154|           const ms = Date.now() - start
 155|           latencyRef.current.push(ms)
 156|           if (latencyRef.current.length > 10) latencyRef.current.shift()
 157|           setLatency(Math.round(latencyRef.current.reduce((a, b) => a + b, 0) / latencyRef.current.length))
 158|         }
 159|       } catch { }
 160|     }, 5000)
 161|
 162|     return () => {
 163|       supabase.removeChannel(channel)
 164|       clearInterval(latInt)
 165|     }
 166|   }, [])
 167|
 168|   async function fetchAdminData() {
 169|     try {
 170|       const { data: profiles } = await supabase.from('profiles').select('*').order('created_at', { ascending: ...
 171|       if (profiles) setUsers(profiles)
 172|       const teachers = profiles?.filter(u => u.role === 'teacher').length || 0
 173|       const students = profiles?.filter(u => u.role === 'student').length || 0
```

```
174|       const { count: classesCount } = await supabase.from('classes').select('*', { count: 'exact', head: true })
175|       const { count: lessonsCount } = await supabase.from('lessons').select('*', { count: 'exact', head: true })
176|       const { count: examsCount } = await supabase.from('exams').select('*', { count: 'exact', head: true })
177|       setStats({ totalUsers: profiles?.length || 0, teachers, students, activeClasses: classesCount || 0, tota...
178|
179|       const sevenDaysAgo = new Date(Date.now() - 7 * 86400000).toISOString()
180|       const dayNames = ['CN', 'T2', 'T3', 'T4', 'T5', 'T6', 'T7']
181|       const weeklyMap: Record<string, { users: number; lessons: number; exams: number }> = {}
182|       for (let i = 6; i >= 0; i--) {
183|         const d = new Date(Date.now() - i * 86400000)
184|         const key = dayNames[d.getDay()]
185|         weeklyMap[key] = { users: 0, lessons: 0, exams: 0 }
186|       }
187|       const { data: recentProfiles } = await supabase.from('profiles').select('created_at').gte('created_at', ...
188|       recentProfiles?.forEach(p => {
189|         const key = dayNames[new Date(p.created_at).getDay()]
190|         if (weeklyMap[key]) weeklyMap[key].users++
191|       })
192|       const { data: recentLessons } = await supabase.from('lessons').select('created_at').gte('created_at', se...
193|       recentLessons?.forEach(l => {
194|         const key = dayNames[new Date(l.created_at).getDay()]
195|         if (weeklyMap[key]) weeklyMap[key].lessons++
196|       })
197|       const { data: recentExams } = await supabase.from('exams').select('created_at').gte('created_at', sevenD...
198|       recentExams?.forEach(e => {
199|         const key = dayNames[new Date(e.created_at).getDay()]
200|         if (weeklyMap[key]) weeklyMap[key].exams++
201|       })
202|       setWeeklyData(dayNames.map(day => ({ day, ...weeklyMap[day] || { users: 0, lessons: 0, exams: 0 } })))
203|     } catch (err) { console.error('fetchAdminData error:', err) }
204|     finally { setLoading(false) }
205|   }
206|
207|   const addSystemEvent = useCallback((label: string, detail: string) => {
208|     const evt: RealtimeEvent = {
209|       id: `sys-${Date.now()}-${Math.random()}`,
210|       type: 'system', label, detail,
211|       time: formatTime(Date.now()),
212|     }
213|     setRealtimeEvents(prev => [evt, ...prev].slice(0, 50))
214|   }, [])
215|
216|   useEffect(() => {
217|     if (!eventsRef.current) return
218|     eventsRef.current.scrollTop = 0
219|   }, [realtimeEvents.length])
220|
221|   if (loading) return (
222|     <div style={{ display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center', he...
223|       <Loader2 size={48} style={{ color: 'var(--brand-primary)', animation: 'spin 1s linear infinite' }} />
224|       <p style={{ color: 'var(--text-muted)', fontSize: '14px' }}>Đang tải...</p>
225|     </div>
226|   )
227|
228|   const cardStyle: React.CSSProperties = {
229|     background: 'var(--bg-surface)', border: '1px solid var(--border-default)',
230|     borderRadius: '12px', padding: '20px',
231|   }
232|
233|   return (
234|     <div style={{ maxWidth: '1400px', margin: '0 auto' }}>
235|       <header style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: '...
236|         <div>
237|           <div style={{ display: 'flex', alignItems: 'center', gap: '10px', marginBottom: '4px' }}>
238|             <h1 style={{ fontSize: '26px', fontWeight: 800, margin: 0, c...
239|             <span style={{
240|               display: 'inline-flex', alignItems: 'center', gap: '4px', padding: '3px 10px',
241|               borderRadius: '99px', fontSize: '10px', fontWeight: 700,
242|               background: connected ? 'rgba(8,158,96,0.1)' : 'rgba(244,106,106,0.1)',
243|               color: connected ? 'var(--brand-primary)' : 'var(--danger)',
244|               textTransform: 'uppercase', letterSpacing: '0.3px',
245|             }}>
246|               <Radio size={10} />
247|               {connected ? 'Real-time' : 'Disconnected'}
248|             </span>
249|           </div>
250|           <p style={{ color: 'var(--text-muted)', margin: 0, fontSize: '13px', display: 'flex', alignItems: 'c...
251|             Dashboard quản trị · PC Master LMS v2.4.1
252|             {latency !== null && (
253|               <span style={{
254|                 display: 'inline-flex', alignItems: 'center', gap: '3px', fontSize: '11px',
255|                 color: latency < 100 ? 'var(--brand-primary)' : latency < 300 ? 'var(--accent-amber)' : 'var(-...
256|               }}>
257|                 · <HeartPulse size={11} /> {latency}ms
258|               </span>
259|             )}
260|             <span style={{ fontSize: '11px', color: 'var(--text-muted)' }}>· Uptime: {uptime}</span>
261|           </p>
262|         </div>
263|         <div style={{ display: 'flex', gap: '8px', alignItems: 'center' }}>
264|           <label style={{ display: 'flex', alignItems: 'center', gap: '6px', fontSize: '12px', color: 'var(--t...
265|             <input type="checkbox" checked={autoRefresh} onChange={e => setAutoRefresh(e.target.checked)} styl...
266|             Tắt Ủng
267|           </label>
268|           <button onClick={fetchAdminData} style={{
269|             padding: '8px 14px', borderRadius: '8px', background: 'var(--bg-elevated)',
270|             border: '1px solid var(--border-default)', color: 'var(--text-primary)',
271|             display: 'flex', alignItems: 'center', gap: '6px', cursor: 'pointer',
272|             fontSize: '12px', fontWeight: 600, fontFamily: 'inherit',
273|           }}>
274|             <RefreshCw size={14} />  Làm mới
275|           </button>
276|         </div>
277|       </header>
278|
279|       <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(180px, 1fr))', gap: '12px',...
280|         {[
281|           { label: 'Tổng người dùng', value: stats.totalUsers, icon: Use...
282|           { label: 'Giáo viên', value: stats.teachers, icon: Shield, color: 'var(--accent-blue)', change: '+2' },
283|           { label: 'Học sinh', value: stats.students, icon: GraduationCa...
284|           { label: 'Lớp học', value: stats.activeClasses, icon: Database...
285|           { label: 'Bài giảng', value: stats.totalLessons, icon: BookOpe...
286|           { label: 'Bài kiểm tra', value: stats.totalExams, icon: FileTe...
287|         ].map((s, i) => (
288|           <div key={i} style={{
289|             ...cardStyle, padding: '16px 18px', transition: 'all 0.2s',
290|             borderLeft: `3px solid ${s.color}`,
291|           }}>
292|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'flex-start', marginBo...
293|               <div style={{
294|                 width: '34px', height: '34px', borderRadius: '8px',
295|                 background: `${s.color}15`, color: s.color,
296|                 display: 'flex', alignItems: 'center', justifyContent: 'center',
297|               }}>
```

```
298|                <s.icon size={16} />
299|              </div>
300|              <span style={{ fontSize: '10px', fontWeight: 700, color: 'var(--brand-primary)', background: 'va...
301|            </div>
302|            <div style={{ fontSize: '24px', fontWeight: 900, color: 'var(--text-primary)' }}>{s.value.toLocale...
303|            <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 600, marginTop: '1px' }}>{...
304|          </div>
305|        ))}
306|      </div>
307|
308|      <div style={{ display: 'grid', gridTemplateColumns: '1.5fr 1fr', gap: '20px', marginBottom: '24px' }}>
309|        <div style={cardStyle}>
310|          <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: ...
311|            <h3 style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)', margin: 0, display: ...
   3 1 2 |                          < T r e n d i n g U p   s i z e = { 1 6 }   c o l o r = " v a r ( - - b r a n d - p r i m a r y ) "   / >   H o ¡ t
313|            </h3>
314|            <div style={{ display: 'flex', gap: '12px', fontSize: '10px', color: 'var(--text-muted)' }}>
315|              <span style={{ display: 'flex', alignItems: 'center', gap: '3px' }}><div style={{ width: '7px', ...
316|              <span style={{ display: 'flex', alignItems: 'center', gap: '3px' }}><div style={{ width: '7px', ...
317|            </div>
318|          </div>
319|          <div style={{ height: '220px' }}>
320|            <ResponsiveContainer width="100%" height="100%">
321|              <BarChart data={weeklyData}>
322|                <CartesianGrid strokeDasharray="3 3" stroke="var(--border-default)" />
323|                <XAxis dataKey="day" tick={{ fill: 'var(--text-muted)', fontSize: 10 }} />
324|                <YAxis tick={{ fill: 'var(--text-muted)', fontSize: 10 }} />
325|                <Tooltip contentStyle={{ background: 'var(--bg-surface)', border: '1px solid var(--border-defa...
326|                <Bar dataKey="users" fill="var(--brand-primary)" radius={[3, 3, 0, 0]} />
327|                <Bar dataKey="lessons" fill="var(--accent-blue)" radius={[3, 3, 0, 0]} />
328|              </BarChart>
329|            </ResponsiveContainer>
330|          </div>
331|        </div>
332|
333|        <div style={cardStyle}>
334|          <h3 style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)', margin: '0 0 14px 0', ...
   3 3 5 |                          < C p u   s i z e = { 1 6 }   c o l o r = " v a r ( - - b r a n d - p r i m a r y ) "   / >   H Ç   t h Ñ n g
336|          </h3>
337|          <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '8px' }}>
338|            {[
339|              { icon: Cpu, label: 'CPU Server', value: 'N/A', status: 'ok' as const },
340|              { icon: HardDrive, label: 'RAM', value: 'N/A', status: 'ok' as const },
   3 4 1 |                            {   i c o n :   D a t a b a s e ,   l a b e l :   ' D a t a b a s e ' ,   v a l u e :   l a t e n c y   ?   ` $ { l
   3 4 2 |                            {   i c o n :   G l o b e ,   l a b e l :   ' U p t i m e ' ,   v a l u e :   u p t i m e   | |   ' ' a n g   t i r
   3 4 3 |                            {   i c o n :   W i f i ,   l a b e l :   ' A P I ' ,   v a l u e :   l a t e n c y   ?   ` $ { l a t e n c y } m s
   3 4 4 |                            {   i c o n :   A c t i v i t y ,   l a b e l :   ' R e a l t i m e ' ,   v a l u e :   c o n n e c t e d   ?   '
345|            ].map((item, i) => {
346|              const statusColor = item.status === 'ok' ? 'var(--brand-primary)' : item.status === 'warn' ? 'va...
347|              const statusBg = item.status === 'ok' ? 'rgba(8,158,96,0.1)' : item.status === 'warn' ? 'rgba(25...
348|              return (
349|                <div key={i} style={{
350|                  padding: '12px 14px', borderRadius: '8px', background: 'var(--bg-elevated)',
351|                  border: '1px solid var(--border-default)', display: 'flex', alignItems: 'center', gap: '10px',
352|                }}>
353|                  <div style={{ width: '32px', height: '32px', borderRadius: '8px', background: statusBg, disp...
354|                    <item.icon size={15} />
355|                  </div>
356|                  <div style={{ flex: 1, minWidth: 0 }}>
357|                    <div style={{ fontSize: '10px', color: 'var(--text-muted)', fontWeight: 600 }}>{item.label...
358|                    <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)' }}>{item.val...
359|                  </div>
360|                  <div style={{ width: '6px', height: '6px', borderRadius: '50%', background: statusColor, box...
361|                </div>
362|              )
363|            })}
364|          </div>
365|        </div>
366|      </div>
367|
368|      <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '20px', marginBottom: '24px' }}>
369|        <div style={cardStyle}>
370|          <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: ...
371|            <h3 style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)', margin: 0, display: ...
   3 7 2 |                          < A c t i v i t y   s i z e = { 1 6 }   c o l o r = " v a r ( - - b r a n d - p r i m a r y ) "   / >   S ñ   k i (
373|              {realtimeEvents.length > 0 && (
374|                <span style={{
375|                  fontSize: '10px', fontWeight: 700, padding: '1px 6px', borderRadius: '99px',
376|                  background: 'var(--brand-subtle)', color: 'var(--brand-primary)', marginLeft: '4px',
377|                }}>
378|                  {realtimeEvents.length}
379|                </span>
380|              )}
381|            </h3>
382|            {realtimeEvents.length > 0 && (
383|              <button onClick={() => setRealtimeEvents([])}
384|                style={{ background: 'none', border: 'none', color: 'var(--text-muted)', cursor: 'pointer', fo...
   3 8 5 |                              X ó a   t ¥ t   c £
386|              </button>
387|            )}
388|          </div>
389|          <div ref={eventsRef} style={{
390|            maxHeight: '320px', overflowY: 'auto', display: 'flex', flexDirection: 'column', gap: '2px',
391|          }}>
392|            {realtimeEvents.length === 0 ? (
393|              <div style={{ padding: '24px', textAlign: 'center', color: 'var(--text-muted)', fontSize: '13px'...
394|                <Radio size={28} style={{ opacity: 0.15, marginBottom: '8px' }} />
   3 9 5 |                              < p >   a n g   c h Ý   s ñ   k i Ç n   r e a l t i m e . . . < / p >
   3 9 6 |                              < p   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   o p a c i t y :   0 . 6   } } > C á c   t h a y
397|              </div>
398|            ) : (
399|              realtimeEvents.map((evt, i) => (
400|                <div key={evt.id} style={{
401|                  display: 'flex', alignItems: 'center', gap: '10px', padding: '8px 10px',
402|                  borderRadius: '6px', transition: 'background 0.15s',
403|                  background: i === 0 ? 'rgba(8,158,96,0.04)' : 'transparent',
404|                  animation: i === 0 ? 'fadeIn 0.3s ease' : undefined,
405|                }}>
406|                  <span style={{ fontSize: '16px', flexShrink: 0 }}>{evt.label.split(' ')[0]}</span>
407|                  <div style={{ flex: 1, minWidth: 0 }}>
408|                    <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)' }}>{evt.labe...
409|                    <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>{evt.detail}</div>
410|                  </div>
411|                  <span style={{ fontSize: '10px', color: 'var(--text-muted)', whiteSpace: 'nowrap', flexShrin...
412|                </div>
413|              ))
414|            )}
415|          </div>
416|        </div>
417|
418|        <div style={cardStyle}>
419|          <h3 style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)', margin: '0 0 14px 0', ...
420|            <Zap size={16} color="var(--brand-primary)" /> Thao tác nhanh
421|          </h3>
```

```
422|          <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '10px' }}>
423|            {[
424|                              {  i c o n :  P l u s ,  l a b e l :  ' T ¡ o  n g ° Ý i  d ù n g ' ,  c o l o r :  ' # 6 3 6 f 1 ' ,  c
425|                              {  i c o n :  B o o k O p e n ,  l a b e l :  ' B à i  g i £ n g  m Û i ' ,  c o l o r :  ' v a r ( - - b r
426|                              {  i c o n :  F i l e T e x t ,  l a b e l :  ' T ¡ o  b à i  k i Ã m  t r a ' ,  c o l o r :  ' v a r ( -
427|                              {  i c o n :  B e l l ,  l a b e l :  ' G í i  t h ô n g  b á o ' ,  c o l o r :  ' v a r ( - - a c c e n t
428|                              {  i c o n :  D o w n l o a d ,  l a b e l :  ' B á o  c á o  C S V ' ,  c o l o r :  ' v a r ( - - i n f o
429|                              {  i c o n :  S e t t i n g s ,  l a b e l :  ' C ¥ u  h ì n h ' ,  c o l o r :  ' v a r ( - - w a r n i n g
430|            ].map((item, i) => (
431|              <button key={i} onClick={item.action} style={{
432|                display: 'flex', flexDirection: 'column', gap: '4px', padding: '14px',
433|                borderRadius: '8px', background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
434|                cursor: 'pointer', fontFamily: 'inherit', textAlign: 'left', transition: 'all 0.2s',
435|              }}>
436|                <div style={{ width: '28px', height: '28px', borderRadius: '6px', background: `${item.color}15...
437|                  <item.icon size={14} />
438|                </div>
439|                <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)' }}>{item.label}<...
440|                <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>{item.desc}</div>
441|              </button>
442|            ))}
443|          </div>
444|
445|          <h3 style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)', margin: '20px 0 10px 0...
446|                          < U s e r s  s i z e = { 1 6 }  c o l o r = " v a r ( - - b r a n d - p r i m a r y ) "  / >  N g ° Ý i  d ù n g
447|            {users.length > 0 && (
448|              <span style={{ fontSize: '10px', fontWeight: 700, padding: '1px 6px', borderRadius: '99px', back...
449|                {users.length}
450|              </span>
451|            )}
452|          </h3>
453|          <div style={{ display: 'flex', flexDirection: 'column', gap: '2px', maxHeight: '220px', overflowY: '...
454|            {users.slice(0, 8).map((user) => (
455|              <div key={user.id} style={{ display: 'flex', alignItems: 'center', gap: '8px', padding: '6px 8px...
456|                <div style={{
457|                  width: '26px', height: '26px', borderRadius: '50%',
458|                  background: 'linear-gradient(135deg, var(--brand-primary), var(--accent-blue))',
459|                  display: 'flex', alignItems: 'center', justifyContent: 'center',
460|                  fontWeight: 800, color: '#fff', fontSize: '10px', flexShrink: 0,
461|                }}>
462|                  {user.full_name?.charAt(0) || 'U'}
463|                </div>
464|                <div style={{ flex: 1, minWidth: 0 }}>
465|                  <div style={{ color: 'var(--text-primary)', fontWeight: 700, fontSize: '12px' }}>{user.full_...
466|                  <div style={{ color: 'var(--text-muted)', fontSize: '10px' }}>{user.email}</div>
467|                </div>
468|                <span style={{
469|                  fontSize: '9px', fontWeight: 700, padding: '2px 7px', borderRadius: '99px',
470|                  background: user.role === 'admin' ? 'rgba(244,106,106,0.1)' : user.role === 'teacher' ? 'rgb...
471|                  color: user.role === 'admin' ? 'var(--danger)' : user.role === 'teacher' ? 'var(--accent-blu...
472|                }}>
473|                  {user.role === 'admin' ? 'Admin' : user.role === 'teacher' ? 'GV' : 'HS'}
474|                </span>
475|                {user.created_at && (
476|                  <span style={{ fontSize: '9px', color: 'var(--text-muted)', whiteSpace: 'nowrap' }}>{timeAgo...
477|                )}
478|              </div>
479|            ))}
480|            {users.length === 0 && (
481|              <div style={{ padding: '20px', textAlign: 'center', color: 'var(--text-muted)', fontSize: '13px'...
482|                <AlertCircle size={28} style={{ opacity: 0.15, marginBottom: '8px' }} />
483|                                < p > C h ° a  c ó  n g ° Ý i  d ù n g  n à o . < / p >
484|              </div>
485|            )}
486|          </div>
487|        </div>
488|      </div>
489|
490|      <style>{`
491|        @keyframes fadeIn {
492|          from { opacity: 0; transform: translateY(-4px); }
493|          to { opacity: 1; transform: translateY(0); }
494|        }
495|        ::-webkit-scrollbar { width: 4px; }
496|        ::-webkit-scrollbar-track { background: transparent; }
497|        ::-webkit-scrollbar-thumb { background: var(--border-default); border-radius: 99px; }
498|      `}</style>
499|    </div>
500|  )
501| }
502|
```

File: app/(dashboard)/admin/schools/page.tsx (80 lines, 3.9 KB)

```
1| 'use client';
2|
3| import React, { useEffect, useState } from 'react';
4| import { supabase } from '@/lib/supabase';
5| import { Book, Plus, Trash2, Loader2, Search, Users, MapPin } from 'lucide-react';
6|
7| export default function AdminSchoolsPage() {
8|   const [schools, setSchools] = useState<any[]>([]);
9|   const [loading, setLoading] = useState(true);
10|   const [search, setSearch] = useState('');
11|   const [showForm, setShowForm] = useState(false);
12|   const [form, setForm] = useState({ name: '', city: '', address: '' });
13|
14|   useEffect(() => { fetchSchools() }, []);
15|
16|   async function fetchSchools() {
17|     const { data } = await supabase.from('profiles').select('school').not('school', 'is', null).not('school', ...
18|     if (data) {
19|       const counts: Record<string, number> = {};
20|       data.forEach(p => { counts[p.school] = (counts[p.school] || 0) + 1 });
21|       setSchools(Object.entries(counts).map(([name, count]) => ({ name, count })));
22|     }
23|     setLoading(false);
24|   }
25|
26|   const filtered = schools.filter(s => s.name.toLowerCase().includes(search.toLowerCase()));
27|
28|   if (loading) return (
29|     <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
30|       <Loader2 size={48} style={{ color: 'var(--brand-primary)', animation: 'spin 1s linear infinite' }} />
31|     </div>
32|   );
33|
34|   return (
35|     <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
36|       <header style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: '...
37|         <div>
38|           <h1 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 4px 0', color: 'var(--text-primary)' }}...
39|                       < p  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t - m u t e d ) ' ,  m a r g i n :  0 ,  f o n t S i z e :
```

```
  40|        </div>
  41|      </header>
  42|
  43|      <div style={{ marginBottom: '20px' }}>
  44|        <div style={{ position: 'relative', maxWidth: '400px' }}>
  45|          <Search size={16} style={{ position: 'absolute', left: '12px', top: '50%', transform: 'translateY(-5...
    4 6 |                    < i n p u t   v a l u e = { s e a r c h }   o n C h a n g e = { e   = >   s e t S e a r c h ( e . t a r g e t . v a l u e )
  47|            width: '100%', padding: '10px 12px 10px 36px', borderRadius: '10px', background: 'var(--bg-surface)',
  48|            border: '1px solid var(--border-default)', color: 'var(--text-primary)', fontSize: '13px', outline...
  49|          }} />
  50|        </div>
  51|      </div>
  52|
  53|      <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(300px, 1fr))', gap: '16px'...
  54|        {filtered.map((school, i) => (
  55|          <div key={i} className="lms-card" style={{ padding: '20px' }}>
  56|            <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '12px' }}>
  57|              <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: 'rgba(var(--brand...
  58|                <Book size={20} />
  59|              </div>
  60|              <div>
  61|                <h3 style={{ margin: 0, fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)' }}>{sc...
  62|              </div>
  63|            </div>
  64|            <div style={{ display: 'flex', alignItems: 'center', gap: '6px', fontSize: '13px', color: 'var(--t...
    6 5 |                          < U s e r s   s i z e = { 1 4 }   / >   { s c h o o l . c o u n t }   h Í c   s i n h
  66|            </div>
  67|          </div>
  68|        ))}
  69|      </div>
  70|
  71|      {filtered.length === 0 && (
  72|        <div style={{ textAlign: 'center', padding: '60px 20px', color: 'var(--text-muted)' }}>
  73|          <Book size={48} style={{ opacity: 0.2, marginBottom: '12px' }} />
    7 4 |                    < p > C h ° a   c ó   t r ° Ý n g   h Í c   n à o . < / p >
  75|        </div>
  76|      )}
  77|    </div>
  78|  );
  79| }
  80|
```

File: app/(dashboard)/admin/settings/page.tsx (120 lines, 6.9 KB)

```
    1| 'use client';
    2|
    3| import React, { useEffect, useState } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import { Settings, Save, Globe, Bell, Shield, Database, RefreshCw, CheckCircle, AlertCircle, Loader2 } from 'l...
    6|
    7| export default function AdminSettingsPage() {
    8|   const [saving, setSaving] = useState(false);
    9|   const [toast, setToast] = useState<{ message: string; type: 'success' | 'error' } | null>(null);
   10|   const [settings, setSettings] = useState({
   11|     siteName: 'PC Master Builder LMS',
    1 2 |          d e s c r i p t i o n :   ' N Á n   t £ n g   h Í c   t - p   v à   t h ñ c   h à n h   l ¯ p   r á p   m á y   t í n h   t r ñ c   t u
   13|     maintenanceMode: false,
   14|     allowRegistration: true,
   15|     defaultRole: 'student',
   16|   });
   17|
   18|   const showToast = (message: string, type: 'success' | 'error' = 'success') => {
   19|     setToast({ message, type });
   20|     setTimeout(() => setToast(null), 3000);
   21|   };
   22|
   23|   const handleSave = async () => {
   24|     setSaving(true);
   25|     await new Promise(r => setTimeout(r, 800));
    2 6 |          s h o w T o a s t ( '   ã   l ° u   c ¥ u   h ì n h   h Ç   t h Ñ n g ! ' ) ;
   27|     setSaving(false);
   28|   };
   29|
   30|   return (
   31|     <div style={{ maxWidth: '900px', margin: '0 auto' }}>
   32|       <header style={{ marginBottom: '28px' }}>
   33|         <h1 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 4px 0', color: 'var(--text-primary)' }}>C...
    3 4 |                  < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   0 ,   f o n t S i z e :   ' 1 4
   35|       </header>
   36|
   37|       {toast && (
   38|         <div style={{
   39|           padding: '12px 20px', borderRadius: '10px', marginBottom: '20px',
   40|           background: toast.type === 'success' ? 'rgba(8,158,96,0.1)' : 'rgba(244,106,106,0.1)',
   41|           border: `1px solid ${toast.type === 'success' ? 'var(--brand-primary)' : 'var(--danger)'}`,
   42|           color: toast.type === 'success' ? 'var(--brand-primary)' : 'var(--danger)',
   43|           display: 'flex', alignItems: 'center', gap: '8px', fontSize: '14px', fontWeight: 600
   44|         }}>
   45|           {toast.type === 'success' ? <CheckCircle size={18} /> : <AlertCircle size={18} />}
   46|           {toast.message}
   47|         </div>
   48|       )}
   49|
   50|       <div className="lms-card" style={{ padding: '28px', marginBottom: '20px' }}>
   51|         <h2 style={{ fontSize: '16px', fontWeight: 700, margin: '0 0 20px 0', color: 'var(--text-primary)', di...
   52|           <Globe size={18} color="var(--brand-primary)" /> Thông tin chung
   53|         </h2>
   54|         <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
   55|           <div>
   56|             <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, color: 'var(--text-muted)', m...
   57|             <input value={settings.siteName} onChange={e => setSettings({ ...settings, siteName: e.target.valu...
   58|               width: '100%', padding: '10px 14px', borderRadius: '10px', background: 'var(--bg-elevated)',
   59|               border: '1px solid var(--border-default)', color: 'var(--text-primary)', fontSize: '14px', outli...
   60|             }} />
   61|           </div>
   62|           <div>
   63|             <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, color: 'var(--text-muted)', m...
   64|             <textarea value={settings.description} onChange={e => setSettings({ ...settings, description: e.ta...
   65|               width: '100%', padding: '10px 14px', borderRadius: '10px', background: 'var(--bg-elevated)',
   66|               border: '1px solid var(--border-default)', color: 'var(--text-primary)', fontSize: '14px', outli...
   67|             }} />
   68|           </div>
   69|         </div>
   70|       </div>
   71|
   72|       <div className="lms-card" style={{ padding: '28px', marginBottom: '20px' }}>
   73|         <h2 style={{ fontSize: '16px', fontWeight: 700, margin: '0 0 20px 0', color: 'var(--text-primary)', di...
    7 4 |                  < S h i e l d   s i z e = { 1 8 }   c o l o r = " v a r ( - - b r a n d - p r i m a r y ) "   / >   B £ o   m - t   &   Q u
   75|         </h2>
   76|         <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
   77|           {[
    7 8 |                    {   k e y :   ' a l l o w R e g i s t r a t i o n ' ,   l a b e l :   ' C h o   p h é p   n g   k ý   t à i   k h o
    7 9 |                    {   k e y :   ' m a i n t e n a n c e M o d e ' ,   l a b e l :   ' C h ¿   Ù   b £ o   t r ì ' ,   d e s c :   ' C h
```

```
  80|          ].map((item: any) => (
  81|            <label key={item.key} style={{ display: 'flex', alignItems: 'center', gap: '12px', cursor: 'pointe...
  82|              <input type="checkbox" checked={(settings as any)[item.key]} onChange={e => setSettings({ ...set...
  83|              <div style={{ flex: 1 }}>
  84|                <div style={{ fontSize: '14px', fontWeight: 600, color: 'var(--text-primary)' }}>{item.label}<...
  85|                <div style={{ fontSize: '12px', color: 'var(--text-muted)' }}>{item.desc}</div>
  86|              </div>
  87|            </label>
  88|          ))}
  89|        </div>
  90|      </div>
  91|
  92|      <div className="lms-card" style={{ padding: '28px', marginBottom: '20px' }}>
  93|        <h2 style={{ fontSize: '16px', fontWeight: 700, margin: '0 0 20px 0', color: 'var(--text-primary)', di...
    9 4 |                    < D a t a b a s e   s i z e = { 1 8 }   c o l o r = " v a r ( - - b r a n d - p r i m a r y ) "   / >   T h ô n g   t i n
  95|        </h2>
  96|        <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '12px' }}>
  97|          {[
    9 8 |                          {   l a b e l :   ' P h i ê n   b £ n ' ,   v a l u e :   ' 2 . 4 . 1 '   } ,
  99|            { label: 'Supabase Project', value: 'ojjmdhrvivwvfgomonzd' },
  1 0 0 |                          {   l a b e l :   ' M ô i   t r ° Ý n g ' ,   v a l u e :   ' P r o d u c t i o n   ( V e r c e l ) '   } ,
 101|            { label: 'Node.js', value: '22.x' },
 102|          ].map((item, i) => (
 103|            <div key={i} style={{ padding: '12px 16px', borderRadius: '8px', background: 'var(--bg-elevated)' }}>
 104|              <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 600, marginBottom: '2px'...
 105|              <div style={{ fontSize: '13px', color: 'var(--text-primary)', fontWeight: 700 }}>{item.value}</div>
 106|            </div>
 107|          ))}
 108|        </div>
 109|      </div>
 110|
 111|      <div style={{ display: 'flex', justifyContent: 'flex-end', gap: '12px', marginTop: '24px' }}>
 112|        <button onClick={handleSave} disabled={saving} className="lms-btn lms-btn-primary" style={{ display: '...
 113|          {saving ? <Loader2 size={16} style={{ animation: 'spin 1s linear infinite' }} /> : <Save size={16} />}
  1 1 4 |                    { s a v i n g   ?   '   a n g   l ° u . . . '   :   ' L ° u   c ¥ u   h ì n h ' }
 115|        </button>
 116|      </div>
 117|    </div>
 118|  );
 119| }
 120|
```

File: app/(dashboard)/admin/users/page.tsx (131 lines, 7.1 KB)

```
    1| 'use client';
    2|
    3| import React, { useEffect, useState } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import { Users, Search, Shield, GraduationCap, Trash2, Mail, UserX, Loader2, ChevronDown, Calendar } from 'luc...
    6|
    7| export default function AdminUsersPage() {
    8|   const [users, setUsers] = useState<any[]>([]);
    9|   const [loading, setLoading] = useState(true);
   10|   const [search, setSearch] = useState('');
   11|   const [roleFilter, setRoleFilter] = useState('all');
   12|
   13|   useEffect(() => {
   14|     fetchUsers();
   15|     const channel = supabase.channel('admin-users-realtime')
   16|       .on('postgres_changes', { event: '*', schema: 'public', table: 'profiles' }, () => fetchUsers())
   17|       .subscribe();
   18|     return () => { supabase.removeChannel(channel) };
   19|   }, []);
   20|
   21|   async function fetchUsers() {
   22|     const { data } = await supabase.from('profiles').select('*').order('created_at', { ascending: false });
   23|     if (data) setUsers(data);
   24|     setLoading(false);
   25|   }
   26|
   27|   const deleteUser = async (id: string, email: string) => {
    2 8 |           i f   ( ! c o n f i r m ( ` X ó a   n g ° Ý i   d ù n g   $ { e m a i l } ? ` ) )   r e t u r n ;
   29|     const { error } = await supabase.from('profiles').delete().eq('id', id);
    3 0 |           i f   ( e r r o r )   a l e r t ( ' L × i :   '   +   e r r o r . m e s s a g e ) ;
   31|     else fetchUsers();
   32|   };
   33|
   34|   const filtered = users.filter(u => {
   35|     if (roleFilter !== 'all' && u.role !== roleFilter) return false;
   36|     if (search && !u.full_name?.toLowerCase().includes(search.toLowerCase()) && !u.email?.toLowerCase().includ...
   37|     return true;
   38|   });
   39|
   40|   if (loading) return (
   41|     <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
   42|       <Loader2 size={48} style={{ color: 'var(--brand-primary)', animation: 'spin 1s linear infinite' }} />
   43|     </div>
   44|   );
   45|
   46|   return (
   47|     <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
   48|       <header style={{ marginBottom: '24px' }}>
   49|         <h1 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 4px 0', color: 'var(--text-primary)' }}>Q...
    5 0 |                    < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   0 ,   f o n t S i z e :   ' 1 4
   51|       </header>
   52|
   53|       <div style={{ display: 'flex', gap: '12px', marginBottom: '20px', flexWrap: 'wrap', alignItems: 'center'...
   54|         <div style={{ position: 'relative', flex: 1, minWidth: '200px' }}>
   55|           <Search size={16} style={{ position: 'absolute', left: '12px', top: '50%', transform: 'translateY(-5...
    5 6 |                    < i n p u t   v a l u e = { s e a r c h }   o n C h a n g e = { e   = >   s e t S e a r c h ( e . t a r g e t . v a l u e
   57|             width: '100%', padding: '10px 12px 10px 36px', borderRadius: '10px', background: 'var(--bg-surface)',
   58|             border: '1px solid var(--border-default)', color: 'var(--text-primary)', fontSize: '13px', outline...
   59|           }} />
   60|         </div>
   61|         {['all', 'student', 'teacher', 'admin'].map(r => (
   62|           <button key={r} onClick={() => setRoleFilter(r)} style={{
   63|             padding: '8px 16px', borderRadius: '8px', border: '1px solid var(--border-default)',
   64|             background: roleFilter === r ? 'var(--brand-primary)' : 'var(--bg-surface)',
   65|             color: roleFilter === r ? '#fff' : 'var(--text-muted)',
   66|             fontWeight: 600, cursor: 'pointer', fontSize: '12px', fontFamily: 'inherit'
   67|           }}>
    6 8 |                          { r   = = =   ' a l l '   ?   ' T ¥ t   c £ '   :   r   = = =   ' s t u d e n t '   ?   ' H Í c   s i n h '   :   r   =
   69|           </button>
   70|         ))}
   71|       </div>
   72|
   73|       <div className="lms-card" style={{ overflow: 'hidden', padding: '0' }}>
   74|         <div style={{ overflowX: 'auto' }}>
   75|           <table style={{ width: '100%', borderCollapse: 'collapse' }}>
   76|             <thead>
   77|               <tr style={{ borderBottom: '1px solid var(--border-default)', background: 'var(--bg-elevated)' }}>
    7 8 |                                { [ ' N g ° Ý i   d ù n g ' ,   ' E m a i l ' ,   ' V a i   t r ò ' ,   ' N g à y   t h a m   g i a ' ,   ' H ả
   79|                 <th key={h} style={{ padding: '12px 20px', color: 'var(--text-muted)', fontSize: '11px', fon...
```

```
  80|                ))}
  81|              </tr>
  82|            </thead>
  83|            <tbody>
  84|              {filtered.map((user) => (
  85|                <tr key={user.id} style={{ borderBottom: '1px solid var(--border-default)' }}>
  86|                  <td style={{ padding: '14px 20px' }}>
  87|                    <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
  88|                      <div style={{
  89|                        width: '34px', height: '34px', borderRadius: '50%',
  90|                        background: 'linear-gradient(135deg, var(--brand-primary), var(--accent-blue))',
  91|                        display: 'flex', alignItems: 'center', justifyContent: 'center', fontWeight: 800, colo...
  92|                      }}>
  93|                        {user.full_name?.charAt(0) || '?'}
  94|                      </div>
  95|                      <div>
  96|                        <div style={{ color: 'var(--text-primary)', fontWeight: 700, fontSize: '14px' }}>{user...
  97|                        <div style={{ color: 'var(--text-muted)', fontSize: '11px' }}>ID: {user.id?.slice(0, 8...
  98|                      </div>
  99|                    </div>
 100|                  </td>
 101|                  <td style={{ padding: '14px 20px', color: 'var(--text-primary)', fontSize: '13px' }}>{user.e...
 102|                  <td style={{ padding: '14px 20px' }}>
 103|                    <span style={{
 104|                      padding: '3px 10px', borderRadius: '99px', fontSize: '10px', fontWeight: 700,
 105|                      background: user.role === 'admin' ? 'rgba(244,106,106,0.15)' : user.role === 'teacher' ?...
 106|                      color: user.role === 'admin' ? 'var(--danger)' : user.role === 'teacher' ? 'var(--accent...
 107|                    }}>
    1 0 8 |                                          { u s e r . r o l e   = = =   ' a d m i n '   ?   ' A d m i n '   :   u s e r . r o l e   = = =   '
 109|                    </span>
 110|                  </td>
 111|                  <td style={{ padding: '14px 20px', color: 'var(--text-muted)', fontSize: '12px', display: 'f...
 112|                    <Calendar size={12} /> {user.created_at ? new Date(user.created_at).toLocaleDateString('vi...
 113|                  </td>
 114|                  <td style={{ padding: '14px 20px' }}>
 115|                    <button onClick={() => deleteUser(user.id, user.email)} style={{
 116|                      padding: '6px 10px', borderRadius: '6px', background: 'rgba(244,67,54,0.1)', border: 'no...
 117|                      color: 'var(--danger)', cursor: 'pointer', fontFamily: 'inherit'
 118|                    }}>
 119|                      <Trash2 size={14} />
 120|                    </button>
 121|                  </td>
 122|                </tr>
 123|              ))}
 124|            </tbody>
 125|          </table>
 126|        </div>
 127|      </div>
 128|    </div>
 129|  );
 130| }
 131|
```

File: app/(dashboard)/parent/children/[studentId]/page.tsx (423 lines, 19.4 KB)

==========

```
   1| import { notFound } from 'next/navigation'
   2| import { requireRole } from '@/lib/auth/rbac'
   3| import { createClient } from '@/lib/supabase-ssr-server'
   4| import ChildProgressChart from '@/components/parent/ChildProgressChart'
   5| const ACHIEVEMENT_DEFINITIONS: any[] = []
   6| import {
   7|   ArrowLeft,
   8|   Award,
   9|   BookOpen,
  10|   Clock,
  11|   Flame,
  12|   GraduationCap,
  13|   Percent,
  14|   Trophy,
  15|   TrendingUp,
  16|   Activity
  17| } from 'lucide-react'
  18|
  19| export const dynamic = 'force-dynamic'
  20|
  21| interface PageProps {
  22|   params: Promise<{ studentId: string }>
  23| }
  24|
  25| function formatDuration(seconds: number) {
  26|   if (!seconds) return '0 phút'
  27|   const mins = Math.floor(seconds / 60)
  28|   if (mins < 60) return `${mins} phút`
  29|   const hours = Math.floor(mins / 60)
  30|   const remainingMins = mins % 60
  31|   return remainingMins > 0 ? `${hours}h ${remainingMins}m` : `${hours}h`
  32| }
  33|
  34| export default async function StudentDetailPage({ params }: PageProps) {
    3 5 |       / /   1 .   X á c   t h ñ c   v à   b £ o   v Ç   r o u t e
  36|   const user = await requireRole(['parent', 'admin'])
  37|   const { studentId } = await params
  38|
  39|   const supabase = await createClient()
  40|
    4 1 |       / /   2 .   X á c   t h ñ c   q u y Á n   l i ê n   k ¿ t
  42|   const { data: link, error: linkError } = await supabase
  43|     .from('parent_student_links')
  44|     .select('*')
  45|     .eq('parent_id', user.id)
  46|     .eq('student_id', studentId)
  47|     .eq('status', 'active')
  48|     .single()
  49|
  50|   if (linkError || !link) {
  51|     notFound()
  52|   }
  53|
    5 4 |       / /   3 .   F e t c h   t h ô n g   t i n   h Í c   s i n h
  55|   const { data: student } = await supabase
  56|     .from('profiles')
  57|     .select('id, full_name, student_code, school_name, avatar_url, level, xp')
  58|     .eq('id', studentId)
  59|     .single()
  60|
  61|   if (!student) {
  62|     notFound()
  63|   }
  64|
    6 5 |       / /   4 .   F e t c h   t i ¿ n   t r ì n h   b à i   h Í c   &   t í n h   t o á n   s t a t s
  66|   const { data: progressData } = await supabase
  67|     .from('lesson_progress')
  68|     .select('status, time_spent_seconds, completed_at, last_accessed')
```

```
    .eq('student_id', studentId)

  const completedLessonsCount = progressData?.filter(r => r.status === 'completed').length ?? 0
  const startedLessonsCount = progressData?.length ?? 0
  const totalSeconds = progressData?.reduce((sum, r) => sum + (r.time_spent_seconds ?? 0), 0) ?? 0

  // 5. Tính toán streak hÍc t-p
  const { data: streakData } = await supabase
    .from('lesson_progress')
    .select('last_accessed')
    .eq('student_id', studentId)
    .order('last_accessed', { ascending: false })

  let streak = 0
  if (streakData && streakData.length > 0) {
    const uniqueDates = Array.from(new Set(streakData.map(d => {
      const date = d.last_accessed ? new Date(d.last_accessed) : new Date()
      return date.toISOString().split('T')[0]
    }))).sort().reverse()

    if (uniqueDates.length > 0) {
      const today = new Date()
      today.setHours(0, 0, 0, 0)

      let checkDate = new Date(today)
      const firstDateStr = uniqueDates[0]
      const firstDate = new Date(firstDateStr)
      firstDate.setHours(0,0,0,0)

      const diffStart = (today.getTime() - firstDate.getTime()) / (1000 * 3600 * 24)
      if (diffStart <= 1) {
        if (diffStart === 0 || diffStart === 1) {
          checkDate = firstDate
        }
        for (const dateStr of uniqueDates) {
          const d = new Date(dateStr)
          d.setHours(0, 0, 0, 0)

          if (d.getTime() === checkDate.getTime()) {
            streak++
            checkDate.setDate(checkDate.getDate() - 1)
          } else if (d.getTime() < checkDate.getTime()) {
            break
          }
        }
      }
    }
  }

  // 6. Tính toán iÃm tr¯c nghiÇm trung bình
  const { data: quizData } = await supabase
    .from('quiz_attempts')
    .select('score')
    .eq('student_id', studentId)
    .eq('status', 'graded')

  const avgScore = quizData && quizData.length > 0
    ? Math.round(quizData.reduce((s, r) => s + r.score, 0) / quizData.length)
    : 0

  // 7. T¡o dï liÇu biÃu Ó 30 ngày qua
  const counts: Record<string, number> = {}
  const today = new Date()
  for (let i = 29; i >= 0; i--) {
    const d = new Date(today)
    d.setDate(d.getDate() - i)
    const formatted = `${d.getDate()}/${d.getMonth() + 1}`
    counts[formatted] = 0
  }

  progressData?.forEach(row => {
    if (row.completed_at) {
      const d = new Date(row.completed_at)
      const formatted = `${d.getDate()}/${d.getMonth() + 1}`
      if (counts[formatted] !== undefined) {
        counts[formatted] += 1
      }
    }
  })

  const dailyProgress = Object.keys(counts).map(date => ({ date, count: counts[date] }))

  // 8. Fetch bài hÍc & chi ti¿t tiÙ¿n
  const { data: dbLessons } = await supabase
    .from('lesson_progress')
    .select('id, lesson_id, status, completed_at, completion_percentage, time_spent_seconds, lessons(title, ty...
    .eq('student_id', studentId)
    .order('last_accessed', { ascending: false })

  const lessons = (dbLessons || []).map((row: any) => ({
    id: row.id,
    lesson_id: row.lesson_id,
    lesson_title: row.lessons?.title || 'Bài hÍc gi£ l-p',
    type: row.lessons?.type || 'Lý thuy¿t',
    status: row.status,
    completed_at: row.completed_at,
    completion_percentage: row.completion_percentage ?? 0,
    time_spent_seconds: row.time_spent_seconds ?? 0
  }))

  // 9. Fetch bài thi / quiz g§n â y
  const { data: dbQuizAttempts } = await supabase
    .from('quiz_attempts')
    .select('id, score, status, created_at, quizzes(title)')
    .eq('student_id', studentId)
    .eq('status', 'graded')
    .order('created_at', { ascending: false })
    .limit(10)

  const quizResults = (dbQuizAttempts || []).map((row: any) => ({
    id: row.id,
    quiz_title: row.quizzes?.title || 'Bài kiÃm tra',
    score: row.score,
    created_at: row.created_at,
    grade: row.score >= 90 ? 'Xu¥t s¯c' : row.score >= 80 ? 'GiÏi' : row
  }))

  // 10. Fetch thành tích ¡t °ãc
  const { data: dbAchievements } = await supabase
    .from('student_achievements')
    .select('achievement_id')
    .eq('student_id', studentId)

  const earnedIds = (dbAchievements || []).map(a => a.achievement_id)
```

```
193|   const achievements = ACHIEVEMENT_DEFINITIONS.map(def => ({
194|     ...def,
195|     earned: earnedIds.includes(def.id)
196|   }))
197|
198|   return (
199|     <div className="min-h-screen p-6 md:p-8 max-w-6xl mx-auto space-y-8" style={{ background: 'var(--bg-base)'...
   2 0 0 |               { / *   Q u a y   l ¡ i   l i n k   * / }
201|       <div>
202|         <a
203|           href="/parent/dashboard"
204|           className="inline-flex items-center gap-2 text-xs font-bold uppercase tracking-wider transition-colors"
205|           style={{ color: 'var(--text-muted)' }}
206|         >
207|           <ArrowLeft size={14} />
   2 0 8 |                     Q u a y   l ¡ i   b £ n g     i Á u   k h i Ã n
209|         </a>
210|       </div>
211|
212|       {/* SECTION 1 — HEADER */}
213|       <div className="rounded-2xl p-6 flex flex-col md:flex-row justify-between items-start md:items-center ga...
214|         <div className="absolute -top-24 -left-24 w-48 h-48 rounded-full blur-3xl pointer-events-none" style={{...
215|
216|         <div className="flex items-center gap-4 relative z-10">
217|           {student.avatar_url ? (
218|             <img
219|               src={student.avatar_url}
220|               className="w-16 h-16 md:w-20 md:h-20 rounded-full object-cover"
221|               style={{ border: '2px solid var(--border-default)' }}
222|               alt={student.full_name}
223|             />
224|           ) : (
225|             <div className="w-16 h-16 md:w-20 md:h-20 rounded-full flex items-center justify-center text-3xl f...
226|               {student.full_name[0] || 'S'}
227|             </div>
228|           )}
229|           <div>
230|             <h1 className="text-xl md:text-2xl font-bold" style={{ color: 'var(--text-primary)' }}>{student.fu...
   2 3 1 |                         < d i v   c l a s s N a m e = " t e x t - x s   m t - 1 "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u
232|             <div className="flex items-center gap-2 mt-2">
233|               <span className="font-mono text-[10px] px-2 py-0.5 rounded uppercase tracking-widest" style={{ b...
234|                 {student.student_code}
235|               </span>
236|               <span className="text-[10px] font-bold px-2 py-0.5 rounded-full uppercase tracking-wider" style=...
   2 3 7 |                                 C ¥ p   { s t u d e n t . l e v e l   | |   1 }
238|               </span>
239|             </div>
240|           </div>
241|         </div>
242|
243|         <div className="rounded-xl px-5 py-4 min-w-[140px] text-center md:text-right relative z-10 self-stretc...
244|           <span className="text-[10px] uppercase font-bold tracking-wider" style={{ color: 'var(--text-muted)'...
245|           <span className="text-2xl font-black" style={{ color: 'var(--brand-primary)' }}>{student.xp || 0} XP...
246|         </div>
247|       </div>
248|
   2 4 9 |               { / *   S E C T I O N   2   —   S T A T S   T Ô N G   * / }
250|       <div className="grid grid-cols-2 md:grid-cols-4 gap-4">
251|         {/* Bài hoàn thành */}
252|         <div className="rounded-2xl p-5 flex items-center gap-4" style={{ background: 'var(--bg-surface)', bor...
253|           <div className="w-12 h-12 rounded-xl flex items-center justify-center flex-shrink-0" style={{ backgr...
254|             <BookOpen size={22} />
255|           </div>
256|           <div>
257|             <div className="text-2xl font-black" style={{ color: 'var(--text-primary)' }}>{completedLessonsCou...
258|             <div className="text-[10px] uppercase font-bold tracking-wider" style={{ color: 'var(--text-muted)...
259|           </div>
260|         </div>
261|
   2 6 2 |                   { / *   G i Ý   h Í c   * / }
263|         <div className="rounded-2xl p-5 flex items-center gap-4" style={{ background: 'var(--bg-surface)', bor...
264|           <div className="w-12 h-12 rounded-xl flex items-center justify-center flex-shrink-0" style={{ backgr...
265|             <Clock size={22} />
266|           </div>
267|           <div>
268|             <div className="text-2xl font-black" style={{ color: 'var(--text-primary)' }}>{formatDuration(tota...
269|             <div className="text-[10px] uppercase font-bold tracking-wider" style={{ color: 'var(--text-muted)...
270|           </div>
271|         </div>
272|
   2 7 3 |                   { / *     i Ã m   T B   q u i z   * / }
274|         <div className="rounded-2xl p-5 flex items-center gap-4" style={{ background: 'var(--bg-surface)', bor...
275|           <div className="w-12 h-12 rounded-xl flex items-center justify-center flex-shrink-0" style={{ backgr...
276|             <Percent size={22} />
277|           </div>
278|           <div>
279|             <div className="text-2xl font-black" style={{ color: 'var(--text-primary)' }}>{avgScore}%</div>
280|             <div className="text-[10px] uppercase font-bold tracking-wider" style={{ color: 'var(--text-muted)...
281|           </div>
282|         </div>
283|
284|         {/* Streak */}
285|         <div className="rounded-2xl p-5 flex items-center gap-4" style={{ background: 'var(--bg-surface)', bor...
286|           <div className="w-12 h-12 rounded-xl flex items-center justify-center flex-shrink-0" style={{ backgr...
287|             <Flame size={22} />
288|           </div>
289|           <div>
290|             <div className="text-2xl font-black" style={{ color: 'var(--text-primary)' }}>{streak} ngày</div>
291|             <div className="text-[10px] uppercase font-bold tracking-wider" style={{ color: 'var(--text-muted)...
292|           </div>
293|         </div>
294|       </div>
295|
296|       <div className="grid grid-cols-1 lg:grid-cols-3 gap-6">
   2 9 7 |                   { / *   S E C T I O N   3   —   B I Â U   Ò   T I ¾ N   Ø   3 0   N G À Y   * / }
298|         <div className="lg:col-span-2">
299|           <ChildProgressChart data={dailyProgress} />
300|         </div>
301|
   3 0 2 |                   { / *   S E C T I O N   6   —   T H À N H   T Í C H   T   ¯ â C   * / }
303|         <div className="rounded-2xl p-5" style={{ background: 'var(--bg-surface)', border: '1px solid var(--bo...
304|           <div className="mb-4">
305|             <h3 className="text-sm font-bold flex items-center gap-2" style={{ color: 'var(--text-primary)' }}>
306|               <Trophy size={16} style={{ color: 'var(--brand-primary)' }} />
   3 0 7 |                             T h à n h   t í c h   c ç a   c o n
308|             </h3>
309|             <p class="text-[10px] uppercase font-bold tracking-wider mt-0.5" style={{ color: 'var(--text-m...
310|           </div>
311|           <div className="grid grid-cols-3 gap-3">
312|             {achievements.map((ach) => (
313|               <div
314|                 key={ach.id}
315|                 className="p-3 rounded-xl border flex flex-col items-center justify-center text-center transit...
316|                 style={{
```

```
  317|                  background: ach.earned ? 'var(--bg-elevated)' : 'rgba(0,0,0,0.2)',
  318|                  border: '1px solid var(--border-subtle)',
  319|                  opacity: ach.earned ? 1 : 0.4
  320|                }}
  321|                title={ach.description}
  322|              >
  323|                <div className="text-2xl mb-1.5">{ach.icon}</div>
  324|                <div className="text-[10px] font-bold truncate w-full" style={{ color: ach.earned ? 'var(--tex...
  325|                  {ach.title}
  326|                </div>
  327|              </div>
  328|            ))}
  329|          </div>
  330|        </div>
  331|      </div>
  332|
  333|      <div className="grid grid-cols-1 lg:grid-cols-2 gap-6">
     3 3 4 |                 { / *   S E C T I O N   4   –   D A N H   S Á C H   B À I   H Ì C   * / }
  335|        <div className="rounded-2xl p-5 space-y-4" style={{ background: 'var(--bg-surface)', border: '1px soli...
  336|          <div>
  337|            <h3 className="text-sm font-bold flex items-center gap-2" style={{ color: 'var(--text-primary)' }}>
  338|              <Activity size={16} style={{ color: '#00b4d8' }} />
     3 3 9 |                             T i ¿ n   t r ì n h   h Í c   t - p
  340|            </h3>
  341|            <p className="text-[10px] uppercase font-bold tracking-wider mt-0.5" style={{ color: 'var(--text-m...
  342|          </div>
  343|
  344|          <div className="space-y-2 max-h-[350px] overflow-y-auto pr-1">
  345|            {lessons.length === 0 ? (
     3 4 6 |                           < d i v   c l a s s N a m e = " t e x t - c e n t e r   p y - 8   t e x t - x s "   s t y l e = { {   c o l o r :
  347|            ) : (
  348|              lessons.map((lesson) => (
  349|                <div
  350|                  key={lesson.id}
  351|                  className="rounded-xl p-3.5 flex justify-between items-center gap-4 transition-colors" style...
  352|                >
  353|                  <div className="min-w-0 flex-1">
  354|                    <div className="font-bold text-xs truncate" style={{ color: 'var(--text-primary)' }}>{less...
  355|                    <div className="flex items-center gap-2 mt-1.5 text-[10px] font-bold" style={{ color: 'var...
  356|                      <span className="px-2 py-0.5 rounded uppercase" style={{ background: 'rgba(255,255,255,0...
  357|                      <span>•</span>
     3 5 8 |                                         < s p a n > H Í c   { f o r m a t D u r a t i o n ( l e s s o n . t i m e _ s p e n t _ s e c o n d
  359|                    </div>
  360|                  </div>
  361|
  362|                  <div className="text-right flex-shrink-0">
  363|                    {lesson.status === 'completed' ? (
  364|                      <span className="text-[10px] font-bold px-2.5 py-1 rounded-full uppercase tracking-wider...
  365|                        Hoàn thành
  366|                      </span>
  367|                    ) : (
  368|                      <span className="text-[10px] font-bold px-2.5 py-1 rounded-full uppercase tracking-wider...
  369|                        {lesson.completion_percentage}%
  370|                      </span>
  371|                    )}
  372|                  </div>
  373|                </div>
  374|              ))
  375|            )}
  376|          </div>
  377|        </div>
  378|
     3 7 9 |                 { / *   S E C T I O N   5   –   K ¾ T   Q U ¢   Q U I Z   G ¦ N     Â Y   * / }
  380|        <div className="rounded-2xl p-5 space-y-4" style={{ background: 'var(--bg-surface)', border: '1px soli...
  381|          <div>
  382|            <h3 className="text-sm font-bold flex items-center gap-2" style={{ color: 'var(--text-primary)' }}>
  383|              <Award size={16} style={{ color: '#a855f7'_}} />
     3 8 4 |                             K ¿ t   q u £   t r   c   n g h i Ç m
  385|            </h3>
  386|            <p className="text-[10px] uppercase font-bold tracking-wider mt-0.5" style={{ color: 'var(--text-m...
  387|          </div>
  388|
  389|          <div className="space-y-2 max-h-[350px] overflow-y-auto pr-1">
  390|            {quizResults.length === 0 ? (
     3 9 1 |                           < d i v   c l a s s N a m e = " t e x t - c e n t e r   p y - 8   t e x t - x s "   s t y l e = { {   c o l o r :
  392|            ) : (
  393|              quizResults.map((attempt) => (
  394|                <div
  395|                  key={attempt.id}
  396|                  className="rounded-xl p-3.5 flex justify-between items-center gap-4 transition-colors" style...
  397|                >
  398|                  <div className="min-w-0 flex-1">
  399|                    <div className="font-bold text-xs truncate" style={{ color: 'var(--text-primary)' }}>{atte...
  400|                    <div className="text-[10px] font-bold mt-1.5" style={{ color: 'var(--text-muted)' }}>
     4 0 1 |                                         ¡ t :   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - b r a n d - p r i m a r y ) '
  402|                    </div>
  403|                  </div>
  404|
  405|                  <div className="text-right flex-shrink-0">
  406|                    <span className="text-[10px] font-bold px-2.5 py-1 rounded-full uppercase tracking-wider b...
  407|                      background: attempt.score >= 80 ? 'rgba(0,212,170,0.1)' : attempt.score >= 50 ? 'rgba(25...
  408|                      borderColor: attempt.score >= 80 ? 'rgba(0,212,170,0.2)' : attempt.score >= 50 ? 'rgba(2...
  409|                      color: attempt.score >= 80 ? 'var(--brand-primary)' : attempt.score >= 50 ? '#ff9800' : ...
  410|                    }}>
  411|                      {attempt.grade}
  412|                    </span>
  413|                  </div>
  414|                </div>
  415|              ))
  416|            )}
  417|          </div>
  418|        </div>
  419|      </div>
  420|    </div>
  421|  )
  422| }
  423|
```

File: app/(dashboard)/parent/children/page.tsx (66 lines, 3.0 KB)

```
    1| import { requireRole } from '@/lib/auth/rbac'
    2| import { createClient } from '@/lib/supabase-ssr-server'
    3| import { ChildCard } from '@/components/parent/ChildCard'
    4| import { Users, Plus } from 'lucide-react'
    5|
    6| export const dynamic = 'force-dynamic'
    7|
    8| export default async function ParentChildrenPage() {
       9 |       / /   1 .   X á c   t h ñ c   v à   b £ o   v Ç   r o u t e
   10|   const user = await requireRole(['parent', 'admin'])
   11|
      1 2 |       / /   2 .   F e t c h   d a n h   s á c h   c o n     a n g   t h e o   d õ i
   13|   const supabase = await createClient()
```

```
  14|   const { data: children } = await supabase
  15|     .from('child_summary_for_parent')
  16|     .select('*')
  17|     .eq('parent_id', user.id)
  18|     .order('student_name')
  19|
  20|   return (
  21|     <div className="min-h-screen p-6 md:p-8 max-w-6xl mx-auto" style={{ background: 'var(--bg-base)', color: '...
  22|       <div className="flex flex-col md:flex-row md:items-center justify-between gap-4 mb-8">
  23|         <div>
  24|           <h1 className="text-2xl md:text-3xl font-bold flex items-center gap-2" style={{ color: 'var(--text-p...
    2 5 |                           H Í c   s i n h    a n g   t h e o   d õ i
  26|           </h1>
  27|           <p className="mt-1 text-sm" style={{ color: 'var(--text-muted)' }}>
    2 8 |                           D a n h   s á c h   t ¥ t   c £   t à i   k h o £ n   c o n    ã    ° ã c   l i ê n   k ¿ t   v Û i   b ¡ n .
  29|           </p>
  30|         </div>
  31|         <a
  32|           href="/parent/link-child"
  33|           className="inline-flex items-center gap-2 px-4 py-2.5 rounded-xl font-semibold text-sm transition-al...
  34|           style={{ background: 'rgba(0, 212, 170, 0.1)', border: '1px solid rgba(0, 212, 170, 0.3)', color: 'v...
  35|         >
  36|           <Plus size={16} />
    3 7 |                       L i ê n   k ¿ t   t h ê m   c o n
  38|         </a>
  39|       </div>
  40|
  41|       {(!children || children.length === 0) ? (
  42|         <div className="rounded-2xl p-8 md:p-12 text-center max-w-2xl mx-auto my-12" style={{ background: 'var...
    4 3 |                       < d i v   c l a s s N a m e = " t e x t - 5 x l   m b - 5 " >Ø=Ùh  Ø=Üï  Ø=Üg  Ø=Üf < / d i v >
    4 4 |                       < h 3   c l a s s N a m e = " t e x t - x l   f o n t - b o l d   m b - 2 "   s t y l e = { {   c o l o r :   ' v a r ( - -
  45|           <p className="text-sm mb-6 max-w-md mx-auto leading-relaxed" style={{ color: 'var(--text-muted)' }}>
    4 6 |                           N h - p   m ã   h Í c   s i n h   c ç a   c o n   b ¡ n    Ã   b ¯ t    § u   c - p   n h - t    i Ã m   q u i z ,
  47|           </p>
  48|           <a
  49|             href="/parent/link-child"
  50|             className="inline-flex items-center gap-2 px-5 py-5 rounded-xl font-semibold text-sm transition-...
  51|             style={{ background: 'rgba(0, 212, 170, 0.1)', border: '1px solid rgba(0, 212, 170, 0.3)', color: ...
  52|           >
    5 3 |                           L i ê n   k ¿ t   c o n   n g a y
  54|           </a>
  55|         </div>
  56|       ) : (
  57|         <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-5">
  58|           {children.map((child) => (
  59|             <ChildCard key={child.student_id} child={child} />
  60|           ))}
  61|         </div>
  62|       )}
  63|     </div>
  64|   )
  65| }
  66|
```

File: app/(dashboard)/parent/dashboard/error.tsx (50 lines, 1.7 KB)

```
   1| // Path: app/(dashboard)/parent/dashboard/error.tsx
   2| 'use client'
   3| import { useEffect } from 'react'
   4|
   5| export default function ParentDashboardError({
   6|   error, reset
   7| }: { error: Error & { digest?: string }; reset: () => void }) {
   8|   useEffect(() => { console.error(error) }, [error])
   9|   return (
  10|     <div style={{
  11|       display: 'flex',
  12|       flexDirection: 'column',
  13|       alignItems: 'center',
  14|       justifyContent: 'center',
  15|       height: '60vh',
  16|       gap: '24px',
  17|       textAlign: 'center',
  18|       padding: '24px'
  19|     }}>
    2 0 |                 < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x '   } } >& þ  < / d i v >
  21|       <div>
  22|         <h2 style={{ fontSize: '20px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '8px' }}>
    2 3 |                       C ó   l × i   x £ y   r a   k h i   t £ i   D a s h b o a r d
  24|         </h2>
  25|         <p style={{ color: 'var(--text-secondary)', fontSize: '14px', marginBottom: '24px', maxWidth: '380px' }}>
    2 6 |                       { e r r o r . m e s s a g e   | |   ' H Ç   t h Ñ n g   g · p   s ñ   c Ñ   t £ i   d ï   l i Ç u   r e a l t i m e .   V u
  27|         </p>
  28|         <button
  29|           onClick={reset}
  30|           style={{
  31|             padding: '12px 28px',
  32|             background: 'rgba(0, 212, 170, 0.15)',
  33|             border: '1px solid rgba(0, 212, 170, 0.3)',
  34|             color: 'var(--brand-primary)',
  35|             borderRadius: '12px',
  36|             fontSize: '14px',
  37|             fontWeight: 600,
  38|             cursor: 'pointer',
  39|             transition: 'colors 0.2s'
  40|           }}
  41|           onMouseOver={e => e.currentTarget.style.background = 'rgba(0, 212, 170, 0.25)'}
  42|           onMouseOut={e => e.currentTarget.style.background = 'rgba(0, 212, 170, 0.15)'}
  43|         >
    4 4 |                       T £ i   l ¡ i   d ï   l i Ç u
  45|         </button>
  46|       </div>
  47|     </div>
  48|   )
  49| }
  50|
```

File: app/(dashboard)/parent/dashboard/loading.tsx (59 lines, 2.5 KB)

```
   1| // Path: app/(dashboard)/parent/dashboard/loading.tsx
   2| export default function ParentDashboardLoading() {
   3|   return (
   4|     <div style={{ maxWidth: '1000px', margin: '0 auto', display: 'flex', flexDirection: 'column', gap: '24px' }}>
   5|
   6|       {/* Header Skeleton */}
   7|       <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
   8|         <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
   9|           <div className="skeleton animate-pulse" style={{ height: '32px', width: '250px', background: '#1d1f2...
  10|           <div className="skeleton animate-pulse" style={{ height: '18px', width: '180px', background: '#1d1f2...
  11|         </div>
  12|         <div className="skeleton animate-pulse" style={{ height: '32px', width: '120px', background: '#1d1f2a'...
```

```
      </div>

      {/* Child Card Skeleton */}
      <div className="skeleton animate-pulse" style={{
        height: '112px',
        background: '#1d1f2a',
        borderRadius: '24px',
        display: 'flex',
        padding: '24px',
        alignItems: 'center',
        gap: '20px'
      }}>
        <div style={{ width: '64px', height: '64px', borderRadius: '50%', background: '#2e3048' }} />
        <div style={{ flex: 1, display: 'flex', flexDirection: 'column', gap: '10px' }}>
          <div style={{ height: '20px', width: '180px', background: '#2e3048', borderRadius: '6px' }} />
          <div style={{ height: '14px', width: '240px', background: '#2e3048', borderRadius: '4px' }} />
        </div>
      </div>

      {/* Grid Stats Skeleton */}
      <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(200px, 1fr))', gap: '16px' }}>
        {[...Array(4)].map((_, i) => (
          <div key={i} className="skeleton animate-pulse" style={{ height: '96px', background: '#1d1f2a', bord...
        ))}
      </div>

      {/* Activity Log Skeleton */}
      <div className="skeleton animate-pulse" style={{ height: '350px', background: '#1d1f2a', borderRadius: '...

      <style dangerouslySetInnerHTML={{ __html: `
        .skeleton {
          position: relative;
          overflow: hidden;
        }
        @keyframes pulse {
          0%, 100% { opacity: 0.6; }
          50% { opacity: 0.3; }
        }
        .animate-pulse {
          animation: pulse 1.8s infinite ease-in-out;
        }
      ` }} />

    </div>
  )
}
```

File: app/(dashboard)/parent/dashboard/page.tsx (75 lines, 2.0 KB)

```
// Path: app/(dashboard)/parent/dashboard/page.tsx
import { createServerClient } from '@supabase/ssr'
import { cookies } from 'next/headers'
import { redirect } from 'next/navigation'
import { ParentDashboardClient } from './ParentDashboardClient'

export const dynamic = 'force-dynamic'

export default async function ParentDashboardPage() {
  const cookieStore = await cookies()
  const supabase = createServerClient(
    process.env.NEXT_PUBLIC_SUPABASE_URL!,
    process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
    { cookies: { getAll: () => cookieStore.getAll(), setAll: () => {} } }
  )

  const { data: { user }, error: authErr } = await supabase.auth.getUser()
  if (!user || authErr) {
    redirect('/login')
  }

  // Fetch parent profile role
  const { data: profile } = await supabase
    .from('profiles')
    .select('role, full_name')
    .eq('id', user.id)
    .single()

  if (profile?.role !== 'parent') {
    // If not a parent, redirect back to home/dashboard
    redirect('/student')
  }

  // Query confirmed linked children
  const { data: links, error: linksErr } = await supabase
    .from('parent_student_links')
    .select(`
      id,
      relationship,
      linked_at,
      student:profiles!student_id (
        id,
        full_name,
        avatar_url,
        student_code,
        school_name,
        xp,
        level,
        is_online,
        last_seen_at
      )
    `)
    .eq('parent_id', user.id)
    .eq('status', 'active')
    .order('linked_at', { ascending: false })

  if (linksErr) {
    console.error('Error fetching linked children:', linksErr)
  }

  // Format array to bypass any potential typing issues
  const linkedChildren = (links ?? []).map((link: any) => ({
    id: link.id,
    relationship: link.relationship,
    student: link.student
  }))

  return (
    <ParentDashboardClient
      parentName={profile?.full_name ?? 'Phụ huynh'}
      linkedChildren={linkedChildren}
    />
  )
```

```
   74| }
   75|
----------------------------------------------------------------------------------------------------
```

File: app/(dashboard)/parent/dashboard/ParentDashboardClient.tsx (486 lines, 19.7 KB)

```
==================================================================================================
    1| // Path: app/(dashboard)/parent/dashboard/ParentDashboardClient.tsx
    2| 'use client'
    3|
    4| import { useState } from 'react'
    5| import { useChildRealtime } from '@/hooks/useChildRealtime'
    6| import { formatDistanceToNow } from 'date-fns'
    7| import { vi } from 'date-fns/locale'
    8| import Link from 'next/link'
    9|
   10| interface LinkedChild {
   11|   id: string
   12|   relationship: string
   13|   student: {
   14|     id: string
   15|     full_name: string
   16|     avatar_url: string | null
   17|     student_code: string
   18|     school_name: string | null
   19|     xp: number
   20|     level: number
   21|     is_online: boolean
   22|     last_seen_at: string | null
   23|   }
   24| }
   25|
   26| export function ParentDashboardClient({
   27|   parentName,
   28|   linkedChildren,
   29| }: {
   30|   parentName: string
   31|   linkedChildren: LinkedChild[]
   32| }) {
   33|   const [selectedChildId, setSelectedChildId] = useState<string | null>(
   34|     linkedChildren[0]?.student?.id ?? null
   35|   )
   36|
   37|   // Subscribes to real-time websocket monitoring for the selected child
   38|   const realtimeData = useChildRealtime(selectedChildId)
   39|
   40|   const currentChildLink = linkedChildren.find(
   41|     l => l.student?.id === selectedChildId
   42|   )
   43|   const selectedChild = currentChildLink?.student
   44|
   45|   // Format connection status badge styling
   46|   const getConnectionBadgeClass = () => {
   47|     switch (realtimeData.connectionStatus) {
   48|       case 'connected':
   49|         return {
   50|           bg: 'rgba(0, 212, 170, 0.1)',
   51|           border: 'rgba(0, 212, 170, 0.3)',
   52|           text: 'var(--brand-primary)',
   53|           dot: 'var(--brand-primary)',
      5 4 |                      l a b e l :   '&¡   R e a l t i m e '
   55|         }
   56|       case 'connecting':
   57|         return {
   58|           bg: 'rgba(240, 160, 48, 0.1)',
   59|           border: 'rgba(240, 160, 48, 0.3)',
   60|           text: '#f0a030',
   61|           dot: '#f0a030',
      6 2 |                      l a b e l :   '   a n g   k ¿ t   n Ñ i . . . '
   63|         }
   64|       case 'disconnected':
   65|         return {
   66|           bg: 'rgba(240, 48, 96, 0.1)',
   67|           border: 'rgba(240, 48, 96, 0.3)',
   68|           text: '#f03060',
   69|           dot: '#f03060',
      7 0 |                      l a b e l :   ' M ¥ t   k ¿ t   n Ñ i '
   71|         }
   72|       case 'error':
   73|       default:
   74|         return {
   75|           bg: 'rgba(240, 48, 96, 0.1)',
   76|           border: 'rgba(240, 48, 96, 0.3)',
   77|           text: '#f03060',
   78|           dot: '#f03060',
      7 9 |                      l a b e l :   ' L × i   k ¿ t   n Ñ i '
   80|         }
   81|     }
   82|   }
   83|
   84|   const badge = getConnectionBadgeClass()
   85|
   86|   return (
   87|     <div style={{ maxWidth: '1000px', margin: '0 auto', display: 'flex', flexDirection: 'column', gap: '24px' }}>
   88|
   89|       {/* Header section */}
   90|       <header style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
   91|         <div>
   92|           <h1 style={{ fontSize: '28px', fontWeight: 800, color: 'var(--text-primary)', marginBottom: '4px' }}>
      9 3 |                        X i n   c h à o ,   { p a r e n t N a m e }  Ø=ÜK
   94|           </h1>
   95|           <p style={{ color: 'var(--text-secondary)', fontSize: '14px', margin: 0 }}>
      9 6 |                        T h e o   d õ i   { l i n k e d C h i l d r e n . l e n g t h }   h Í c   s i n h   t r o n g   k h ô n g   g i a n   h
   97|           </p>
   98|         </div>
   99|
  100|         {/* Realtime WebSocket connection badge */}
  101|         <div style={{
  102|           display: 'flex',
  103|           alignItems: 'center',
  104|           gap: '8px',
  105|           padding: '6px 14px',
  106|           borderRadius: '50px',
  107|           background: badge.bg,
  108|           border: `1px solid ${badge.border}`,
  109|           color: badge.text,
  110|           fontSize: '12px',
  111|           fontWeight: 600
  112|         }}>
  113|           <span style={{
  114|             width: '8px',
  115|             height: '8px',
  116|             borderRadius: '50%',
  117|             background: badge.dot,
  118|             boxShadow: realtimeData.connectionStatus === 'connected' || realtimeData.connectionStatus === 'con...
```

```
119|             display: 'inline-block',
120|             animation: realtimeData.connectionStatus === 'connected' || realtimeData.connectionStatus === 'con...
121|           }} />
122|           {badge.label}
123|         </div>
124|       </header>
125|
126|       {/* Tabs Selector for Multi-Children links */}
127|       {linkedChildren.length > 1 && (
128|         <div style={{ display: 'flex', gap: '10px', overflowX: 'auto', paddingBottom: '4px' }}>
129|           {linkedChildren.map(link => {
130|             const isSelected = selectedChildId === link.student?.id
131|             return (
132|               <button
133|                 key={link.student?.id}
134|                 onClick={() => setSelectedChildId(link.student?.id)}
135|                 style={{
136|                   display: 'flex',
137|                   alignItems: 'center',
138|                   gap: '10px',
139|                   padding: '10px 20px',
140|                   borderRadius: '12px',
141|                   background: isSelected ? 'rgba(0, 212, 170, 0.1)' : 'var(--bg-surface)',
142|                   border: isSelected ? '1px solid rgba(0, 212, 170, 0.4)' : '1px solid var(--border-subtle)',
143|                   color: isSelected ? 'var(--brand-primary)' : 'var(--text-secondary)',
144|                   fontWeight: 600,
145|                   fontSize: '14px',
146|                   cursor: 'pointer',
147|                   transition: 'all 0.2s',
148|                   whiteSpace: 'nowrap'
149|                 }}
150|               >
151|                 <div style={{
152|                   width: '24px',
153|                   height: '24px',
154|                   borderRadius: '50%',
155|                   background: 'rgba(0, 212, 170, 0.2)',
156|                   display: 'flex',
157|                   alignItems: 'center',
158|                   justifyContent: 'center',
159|                   fontSize: '11px',
160|                   color: '#fff'
161|                 }}>
162|                   {link.student?.full_name[0].toUpperCase()}
163|                 </div>
164|                 {link.student?.full_name}
165|                 {/* Real-time Online indicators inside tabs */}
166|                 <span style={{
167|                   width: '6px',
168|                   height: '6px',
169|                   borderRadius: '50%',
170|                   background: (realtimeData.isOnline && isSelected) || (link.student?.is_online && !isSelected...
171|                 }} />
172|               </button>
173|             )
174|           })}
175|         </div>
176|       )}
177|
178|       {/* Empty State: No linked children */}
179|       {linkedChildren.length === 0 && (
180|         <div style={{
181|           background: 'var(--bg-surface)',
182|           border: '1.5px dashed rgba(0, 212, 170, 0.25)',
183|           borderRadius: '24px',
184|           padding: '60px 40px',
185|           textAlign: 'center',
186|           display: 'flex',
187|           flexDirection: 'column',
188|           alignItems: 'center',
189|           gap: '16px'
190|         }}>
191|             < s p a n   s t y l e = { {   f o n t S i z e :   ' 4 8 p x '   } } >Ø=Üh  Ø=Üi  Ø=Üg  Ø=Üf < / s p a n >
192|           <h3 style={{ fontSize: '20px', fontWeight: 700, color: 'var(--text-primary)', margin: 0 }}>
193|             C h ° a   l i ê n   k ¿ t   t à i   k h o £ n   c o n
194|           </h3>
195|           <p style={{ color: 'var(--text-secondary)', fontSize: '14px', maxWidth: '380px', margin: 0, lineHeig...
196|             N h - p   m ã   h Ỉ c   s i n h   c á   n h â n   c ç a   c o n   ( P C M - X X X X X X X )    Ã    Ó n g   b Ù   v
197|           </p>
198|           <Link
199|             href="/parent/link-child"
200|             style={{
201|               display: 'inline-flex',
202|               alignItems: 'center',
203|               gap: '8px',
204|               padding: '12px 28px',
205|               background: 'var(--brand-primary)',
206|               color: '#000',
207|               borderRadius: '12px',
208|               fontWeight: 700,
209|               textDecoration: 'none',
210|               marginTop: '8px'
211|             }}
212|           >
213|             +   L i ê n   k ¿ t   t à i   k h o £ n   c o n
214|           </Link>
215|         </div>
216|       )}
217|
218|       {/* Active Child Dashboard */}
219|       {selectedChild && (
220|         <div style={{ display: 'flex', flexDirection: 'column', gap: '24px' }}>
221|
222|           {/* Child Header Card */}
223|           <div style={{
224|             background: 'var(--bg-surface)',
225|             border: '1px solid var(--border-subtle)',
226|             borderRadius: '24px',
227|             padding: '24px',
228|             display: 'flex',
229|             alignItems: 'center',
230|             gap: '20px',
231|             flexWrap: 'wrap'
232|           }}>
233|             {/* Avatar & Online status indicator */}
234|             <div style={{ position: 'relative', width: '64px', height: '64px' }}>
235|               {selectedChild.avatar_url ? (
236|                 <img
237|                   src={selectedChild.avatar_url}
238|                   alt={selectedChild.full_name}
239|                   style={{ width: '100%', height: '100%', borderRadius: '50%', objectFit: 'cover' }}
240|                 />
241|               ) : (
242|                 <div style={{
```

```
243|                  width: '100%',
244|                  height: '100%',
245|                  borderRadius: '50%',
246|                  background: 'rgba(0, 212, 170, 0.1)',
247|                  color: 'var(--brand-primary)',
248|                  display: 'flex',
249|                  alignItems: 'center',
250|                  justifyContent: 'center',
251|                  fontSize: '24px',
252|                  fontWeight: 800
253|                }}>
254|                  {selectedChild.full_name[0].toUpperCase()}
255|                </div>
256|              )}
257|              {/* Active real-time online green dot */}
258|              <span style={{
259|                position: 'absolute',
260|                bottom: '0',
261|                right: '0',
262|                width: '16px',
263|                height: '16px',
264|                borderRadius: '50%',
265|                background: realtimeData.isOnline ? 'var(--brand-primary)' : '#4a4d62',
266|                border: '3px solid var(--bg-surface)',
267|                boxShadow: realtimeData.isOnline ? '0 0 8px var(--brand-primary)' : 'none'
268|              }} />
269|            </div>
270|
271|            <div style={{ flex: 1, minWidth: '200px' }}>
272|              <h2 style={{ fontSize: '20px', fontWeight: 800, color: 'var(--text-primary)', margin: '0 0 4px 0...
273|                {selectedChild.full_name}
274|              </h2>
275|              <p style={{ color: 'var(--text-secondary)', fontSize: '13px', margin: '0 0 8px 0' }}>
   2 7 6 |                                Ø<ßë   { s e l e c t e d C h i l d . s c h o o l _ n a m e   ? ?   ' C h ° a   c - p   n h - t   t r ° Ý n g   h
277|              </p>
278|              <div style={{ display: 'flex', alignItems: 'center', gap: '12px', flexWrap: 'wrap' }}>
279|                <span style={{
280|                  fontSize: '11px',
281|                  fontFamily: 'monospace',
282|                  background: 'var(--bg-base)',
283|                  border: '1px solid var(--border-subtle)',
284|                  padding: '3px 8px',
285|                  borderRadius: '6px',
286|                  color: 'var(--text-muted)',
287|                  fontWeight: 600
288|                }}>
289|                  {selectedChild.student_code}
290|                </span>
291|
292|                <span style={{ fontSize: '12px', color: realtimeData.isOnline ? 'var(--brand-primary)' : 'var(...
293|                  {realtimeData.isOnline ? (
   2 9 4 |                                  'Ø=ßâ    a n g   o n l i n e   &   h Í c   t - p   t r ñ c   t u y ¿ n '
295|                  ) : realtimeData.lastSeen ? (
   2 9 6 |                                  ` H o ¡ t    Ù n g   $ { f o r m a t D i s t a n c e T o N o w ( n e w   D a t e ( r e a l t i m e D a
297|                  ) : (
   2 9 8 |                                  ' C h ° a   g h i   n h - n   h o ¡ t    Ù n g '
299|                  )}
300|                </span>
301|              </div>
302|            </div>
303|
304|            {/* Level & XP Box */}
305|            <div style={{ textAlign: 'right', minWidth: '100px' }}>
306|              <div style={{ fontSize: '11px', color: 'var(--text-muted)', textTransform: 'uppercase', letterSp...
   3 0 7 |                                  C ¥ p    Ù   h Í c
308|              </div>
309|              <div style={{ fontSize: '28px', fontWeight: 900, color: 'var(--brand-primary)', lineHeight: 1.1 }}>
310|                {selectedChild.level}
311|              </div>
312|              <div style={{ fontSize: '12px', color: 'var(--text-muted)', fontWeight: 500 }}>
313|                {selectedChild.xp} XP
314|              </div>
315|            </div>
316|          </div>
317|
318|          {/* Realtime Stats Grid */}
319|          <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(200px, 1fr))', gap: '16...
320|
321|            <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '18px', border: '1px...
322|              <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginBottom: '8px' }}>
   3 2 3 |                                  B à i    ã   H o à n   T h à n h
324|              </div>
325|              <div style={{ fontSize: '24px', fontWeight: 800, color: 'var(--brand-primary)' }}>
326|                {realtimeData.lessonsCompleted}
327|                <span style={{ fontSize: '14px', fontWeight: 500, color: 'var(--text-muted)', marginLeft: '4px...
328|              </div>
329|            </div>
330|
331|            <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '18px', border: '1px...
332|              <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginBottom: '8px' }}>
   3 3 3 |                                  B à i   H Í c    a n g   T i ¿ n   H à n h
334|              </div>
335|              <div style={{ fontSize: '24px', fontWeight: 800, color: '#3b82f6' }}>
336|                {Math.max(0, realtimeData.totalLessonsStarted - realtimeData.lessonsCompleted)}
337|                <span style={{ fontSize: '14px', fontWeight: 500, color: 'var(--text-muted)', marginLeft: '4px...
338|              </div>
339|            </div>
340|
341|            <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '18px', border: '1px...
342|              <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginBottom: '8px' }}>
   3 4 3 |                                  T Ô n g   G i Ý   T h ñ c   H à n h
344|              </div>
345|              <div style={{ fontSize: '24px', fontWeight: 800, color: '#a855f7' }}>
346|                {Math.round((realtimeData.totalTimeSeconds / 3600) * 10) / 10}
347|                <span style={{ fontSize: '14px', fontWeight: 500, color: 'var(--text-muted)', marginLeft: '4px...
348|              </div>
349|            </div>
350|
351|            <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '18px', border: '1px...
352|              <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginBottom: '8px' }}>
   3 5 3 |                                  i Á m   T r   c   N g h i Ç m   T B
354|              </div>
355|              <div style={{
356|                fontSize: '24px',
357|                fontWeight: 800,
358|                color: realtimeData.averageQuizScore === null
359|                  ? 'var(--text-muted)'
360|                  : realtimeData.averageQuizScore < 50 ? '#ef4444' : '#10b981'
361|              }}>
362|                {realtimeData.averageQuizScore !== null ? Math.round(realtimeData.averageQuizScore) : '--'}
363|                {realtimeData.averageQuizScore !== null && (
364|                  <span style={{ fontSize: '14px', fontWeight: 500, color: 'var(--text-muted)', marginLeft: '2...
365|                )}
366|              </div>
```

```
367|             </div>
368|
369|           </div>
370|
371|           {/* Realtime Recent Activity Feed */}
372|           <div style={{
373|             background: 'var(--bg-surface)',
374|             border: '1px solid var(--border-subtle)',
375|             borderRadius: '24px',
376|             padding: '24px'
377|           }}>
378|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom...
379|               <h3 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', margin: 0 }}>
   3 8 0 |                                N h - t   K ý   H Í c   T - p   T r ñ c   T u y ¿ n
381|               </h3>
382|
383|               {realtimeData.connectionStatus === 'connected' && (
384|                 <div style={{ display: 'flex', alignItems: 'center', gap: '6px', fontSize: '12px', color: 'var...
385|                   <span style={{
386|                     width: '6px',
387|                     height: '6px',
388|                     borderRadius: '50%',
389|                     background: 'var(--brand-primary)',
390|                     display: 'inline-block',
391|                     animation: 'blink 1.5s infinite'
392|                   }} />
   3 9 3 |                                   C - p   n h - t   t é c   t h Ý i
394|                 </div>
395|               )}
396|             </div>
397|
398|             {realtimeData.recentActivities.length === 0 ? (
399|               <div style={{ textAlign: 'center', padding: '40px 0', color: 'var(--text-muted)', fontSize: '14p...
   4 0 0 |                              Ø<ßÜþ   C h ° a   c ó   h o ¡ t    Ù n g   t h ñ c   h à n h   n à o    ° ã c   g h i   n h - n .
401|               </div>
402|             ) : (
403|               <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
404|                 {realtimeData.recentActivities.map(activity => (
405|                   <div
406|                     key={activity.id}
407|                     style={{
408|                       display: 'flex',
409|                       alignItems: 'center',
410|                       gap: '16px',
411|                       padding: '16px',
412|                       borderRadius: '12px',
413|                       background: 'var(--bg-base)',
414|                       border: '1px solid var(--border-subtle)',
415|                     }}
416|                   >
417|                     {/* Activity Icon */}
418|                     <div style={{
419|                       fontSize: '20px',
420|                       width: '40px',
421|                       height: '40px',
422|                       borderRadius: '10px',
423|                       background: activity.type === 'lesson_completed' ? 'rgba(16, 185, 129, 0.1)' :
424|                                   activity.type === 'quiz_graded' ? 'rgba(168, 85, 247, 0.1)' : 'rgba(59, 130,...
425|                       display: 'flex',
426|                       alignItems: 'center',
427|                       justifyContent: 'center'
428|                     }}>
   4 2 9 |                                                 { a c t i v i t y . t y p e   = = =   ' l e s s o n _ c o m p l e t e d '   ?   'Ø=ÜÖ '   :
   4 3 0 |                                                   a c t i v i t y . t y p e   = = =   ' q u i z _ g r a d e d '   ?   'Ø=ÜÝ '   :   'Ø=Ý5 ' }
431|                     </div>
432|
433|                     {/* Activity Body */}
434|                     <div style={{ flex: 1, minWidth: 0 }}>
435|                       <p style={{
436|                         fontSize: '14px',
437|                         fontWeight: 600,
438|                         color: 'var(--text-primary)',
439|                         margin: '0 0 4px 0',
440|                         textOverflow: 'ellipsis',
441|                         overflow: 'hidden',
442|                         whiteSpace: 'nowrap'
443|                       }}>
444|                         {activity.title}
445|                       </p>
446|
447|                       {activity.score !== undefined && (
448|                         <span style={{
449|                           fontSize: '12px',
450|                           fontWeight: 700,
451|                           color: activity.score >= 50 ? '#10b981' : '#ef4444',
452|                           background: activity.score >= 50 ? 'rgba(16, 185, 129, 0.1)' : 'rgba(239, 68, 68, 0....
453|                           padding: '2px 8px',
454|                           borderRadius: '6px'
455|                         }}>
   4 5 6 |                                                         { a c t i v i t y . s c o r e }     i Ã m
457|                         </span>
458|                       )}
459|                     </div>
460|
461|                     {/* Timestamp */}
462|                     <span style={{ fontSize: '12px', color: 'var(--text-muted)', flexShrink: 0 }}>
463|                       {formatDistanceToNow(new Date(activity.timestamp), { locale: vi, addSuffix: true })}
464|                     </span>
465|
466|                   </div>
467|                 ))}
468|               </div>
469|             )}
470|           </div>
471|
472|         </div>
473|       )}
474|
475|       {/* Embedded inline keyframes styling */}
476|       <style dangerouslySetInnerHTML={{ __html: `
477|         @keyframes blink {
478|           0%, 100% { opacity: 1; }
479|           50% { opacity: 0.3; }
480|         }
481|       ` }} />
482|
483|     </div>
484|   )
485| }
486|
```

File: app/(dashboard)/parent/layout.tsx (175 lines, 6.3 KB)

==========

```
// Path: app/(dashboard)/parent/layout.tsx
'use client'

import React, { useEffect, useState } from 'react'
import Link from 'next/link'
import { usePathname } from 'next/navigation'
import { GraduationCap, LayoutDashboard, UserPlus, Bell, LogOut } from 'lucide-react'
import { logout } from '@/lib/auth-actions'
import { createBrowserClient } from '@supabase/ssr'
import { useParentNotifications } from '@/hooks/useParentNotifications'
import PageTransition from '@/components/PageTransition'

export default function ParentLayout({ children }: { children: React.ReactNode }) {
  const [parentId, setParentId] = useState<string | null>(null)
  const pathname = usePathname()
  const [supabase] = useState(() => {
    const url = process.env.NEXT_PUBLIC_SUPABASE_URL?.trim()
    const key = process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY?.trim()
    if (typeof window === 'undefined' && (!url || !key)) return null as any
    if (!url || !key) return null as any
    return createBrowserClient(url, key)
  })

  useEffect(() => {
    const fetchUser = async () => {
      const { data: { user } } = await supabase.auth.getUser()
      if (user) {
        setParentId(user.id)
      }
    }
    fetchUser()
  }, [])

  const { unreadCount } = useParentNotifications(parentId)

  const isLinkActive = (path: string) => {
    return pathname.startsWith(path)
  }

  return (
    <div style={{ display: 'flex', minHeight: '100vh', background: 'var(--bg-base)' }}>
      {/* Parent Sidebar */}
      <aside style={{
        width: '280px',
        background: 'var(--bg-surface)',
        borderRight: '1px solid var(--border-subtle)',
        display: 'flex',
        flexDirection: 'column'
      }}>
        {/* Header Logo */}
        <div style={{ padding: '24px', display: 'flex', alignItems: 'center', gap: '12px', borderBottom: '1px ...
          <div style={{
            width: '40px',
            height: '40px',
            borderRadius: '10px',
            background: 'var(--brand-primary)',
            display: 'flex',
            alignItems: 'center',
            justifyContent: 'center'
          }}>
            <GraduationCap size={20} color="#000" />
          </div>
          <div>
            <div style={{ fontWeight: 800, fontSize: '18px', color: 'var(--text-primary)' }}>LMS PARENT</div>
            <div style={{ fontSize: '12px', color: 'var(--brand-primary)
          </div>
        </div>

        {/* Navigation Menu */}
        <nav style={{ padding: '24px 16px', display: 'flex', flexDirection: 'column', gap: '8px', flex: 1 }}>

          <Link
            href="/parent/dashboard"
            style={{
              display: 'flex',
              alignItems: 'center',
              gap: '12px',
              padding: '12px 16px',
              borderRadius: '10px',
              background: isLinkActive('/parent/dashboard') ? 'rgba(0, 212, 170, 0.1)' : 'transparent',
              color: isLinkActive('/parent/dashboard') ? 'var(--brand-primary)' : 'var(--text-secondary)',
              fontWeight: isLinkActive('/parent/dashboard') ? 600 : 500,
              textDecoration: 'none',
              transition: 'all 0.2s'
            }}
          >
            <LayoutDashboard size={20} />  Tổng quan hÍc t-p
          </Link>

          <Link
            href="/parent/link-child"
            style={{
              display: 'flex',
              alignItems: 'center',
              gap: '12px',
              padding: '12px 16px',
              borderRadius: '10px',
              background: isLinkActive('/parent/link-child') ? 'rgba(0, 212, 170, 0.1)' : 'transparent',
              color: isLinkActive('/parent/link-child') ? 'var(--brand-primary)' : 'var(--text-secondary)',
              fontWeight: isLinkActive('/parent/link-child') ? 600 : 500,
              textDecoration: 'none',
              transition: 'all 0.2s'
            }}
          >
            <UserPlus size={20} />  Liên k¿t tài kho£n con
          </Link>

          <Link
            href="/parent/notifications"
            style={{
              display: 'flex',
              alignItems: 'center',
              justifyContent: 'space-between',
              padding: '12px 16px',
              borderRadius: '10px',
              background: isLinkActive('/parent/notifications') ? 'rgba(0, 212, 170, 0.1)' : 'transparent',
              color: isLinkActive('/parent/notifications') ? 'var(--brand-primary)' : 'var(--text-secondary)',
              fontWeight: isLinkActive('/parent/notifications') ? 600 : 500,
              textDecoration: 'none',
              transition: 'all 0.2s'
            }}
          >
            <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
              <Bell size={20} /> Trung tâm thông báo
```

```
125|            </div>
126|            {unreadCount > 0 && (
127|              <span style={{
128|                background: '#ef4444',
129|                color: '#fff',
130|                fontSize: '11px',
131|                fontWeight: 700,
132|                padding: '2px 8px',
133|                borderRadius: '50px',
134|                lineHeight: 1.2
135|              }}>
136|                {unreadCount}
137|              </span>
138|            )}
139|          </Link>
140|
141|        </nav>
142|
143|        {/* Footer Logout */}
144|        <div style={{ padding: '24px 16px', borderTop: '1px solid var(--border-subtle)' }}>
145|          <button
146|            onClick={() => logout()}
147|            style={{
148|              display: 'flex',
149|              alignItems: 'center',
150|              gap: '12px',
151|              padding: '12px 16px',
152|              width: '100%',
153|              borderRadius: '10px',
154|              background: 'transparent',
155|              border: 'none',
156|              color: '#ef4444',
157|              fontWeight: 600,
158|              cursor: 'pointer',
159|              fontSize: '14px',
160|              textAlign: 'left'
161|            }}
162|          >
  1 6 3 |                        < L o g O u t   s i z e = { 2 0 }   / >      n g   x u ¥ t
164|          </button>
165|        </div>
166|      </aside>
167|
168|      {/* Main Content Area */}
169|      <main style={{ flex: 1, padding: '40px', overflowY: 'auto' }}>
170|        <PageTransition>{children}</PageTransition>
171|      </main>
172|    </div>
173|  )
174| }
175|
```

File: app/(dashboard)/parent/link-child/page.tsx (229 lines, 10.4 KB)

```
==========================================================================================
  1| 'use client'
  2|
  3| export const dynamic = 'force-dynamic'
  4|
  5| import React, { useState } from 'react'
  6| import { findStudentByCode, requestLinkToStudent } from '@/lib/parent-actions'
  7| import { Search, ShieldCheck, Heart, User, CheckCircle2, ArrowRight, ArrowLeft } from 'lucide-react'
  8|
  9| export default function LinkChildPage() {
 10|   const [code, setCode] = useState('')
 11|   const [foundStudent, setFoundStudent] = useState<any>(null)
 12|   const [relationship, setRelationship] = useState('parent')
 13|   const [step, setStep] = useState<'input' | 'confirm' | 'success'>('input')
 14|   const [loading, setLoading] = useState(false)
 15|   const [error, setError] = useState<string | null>(null)
 16|
    1 7 |      / /   S t e p   1 :   N h - p   m ã   v à   t ì m   k i ¿ m
 18|   async function searchStudent() {
 19|     if (!code || code.trim().length < 4) {
    2 0 |             s e t E r r o r ( ' V u i   l ò n g   n h - p   m ã   h Í c   s i n h   h ã p   l Ç ' )
 21|       return
 22|     }
 23|
 24|     setLoading(true)
 25|     setError(null)
 26|
 27|     try {
 28|       const res = await findStudentByCode(code.trim().toUpperCase())
 29|       if (res.student) {
 30|         setFoundStudent(res.student)
 31|         setStep('confirm')
 32|       } else {
    3 3 |                 s e t E r r o r ( r e s . e r r o r   | |   ' K h ô n g   t ì m   t h ¥ y   h Í c   s i n h   v Û i   m ã   n à y ' )
 34|       }
 35|     } catch (err: any) {
    3 6 |             s e t E r r o r ( ' L × i   k ¿ t   n Ñ i   m á y   c h ç ' )
 37|     } finally {
 38|       setLoading(false)
 39|     }
 40|   }
 41|
    4 2 |      / /   S t e p   2 :   X á c   n h - n   l i ê n   k ¿ t
 43|   async function confirmLink() {
 44|     if (!foundStudent) return
 45|
 46|     setLoading(true)
 47|     setError(null)
 48|
 49|     try {
 50|       const res = await requestLinkToStudent(foundStudent.id, relationship)
 51|       if (res.success) {
 52|         setStep('success')
 53|       } else {
    5 4 |                 s e t E r r o r ( r e s . e r r o r   | |   ' L × i   k h i   t h ñ c   h i Ç n   l i ê n   k ¿ t ' )
 55|       }
 56|     } catch (err: any) {
    5 7 |             s e t E r r o r ( e r r . m e s s a g e   | |   ' L × i   k h i   t h ñ c   h i Ç n   l i ê n   k ¿ t ' )
 58|     } finally {
 59|       setLoading(false)
 60|     }
 61|   }
 62|
 63|   return (
 64|     <div className="min-h-screen flex flex-col justify-center items-center p-6" style={{ background: 'var(--bg...
 65|       <div className="w-full max-w-md rounded-2xl p-6 md:p-8 shadow-2xl relative overflow-hidden" style={{ bac...
 66|         {/* Glow effect */}
 67|         <div className="absolute -top-24 -left-24 w-48 h-48 rounded-full blur-3xl pointer-events-none" style={...
 68|
 69|         {step === 'input' && (
```

```
 70|          <>
 71|            <h2 className="text-xl md:text-2xl font-bold mb-2 flex items-center gap-2" style={{ color: 'var(--...
    7 2 |                              L i ê n   k ¿ t   t à i   k h o £ n   c o n
 73|            </h2>
 74|            <p className="text-xs md:text-sm mb-6 leading-relaxed" style={{ color: 'var(--text-muted)' }}>
    7 5 |                              N h - p   m ã   h Í c   s i n h   c ç a   c o n   b ¡ n   ( t ì m   t h ¥ y   t r o n g   m å c   H Ó   s ¡   c ç a
 76|            </p>
 77|
 78|            <div className="relative mb-4">
 79|              <input
 80|                value={code}
 81|                onChange={(e) => {
 82|                  setError(null)
 83|                  setCode(e.target.value.toUpperCase())
 84|                }}
 85|                onKeyDown={(e) => {
 86|                  if (e.key === 'Enter') searchStudent()
 87|                }}
 88|                placeholder="PCM-XXXXXXXX"
 89|                maxLength={12}
 90|                disabled={loading}
 91|                className="w-full rounded-xl px-4 py-3.5 font-mono text-center text-lg tracking-widest outline...
 92|                style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-default)', color: '...
 93|              />
 94|            </div>
 95|
 96|            {error && (
 97|              <div className="text-xs font-semibold mb-4 rounded-lg p-3" style={{ color: '#ef4444', background...
    9 8 |                                  & þ    { e r r o r }
 99|              </div>
100|            )}
101|
102|            <button
103|              onClick={searchStudent}
104|              disabled={loading || !code}
105|              className="w-full py-3.5 rounded-xl font-bold text-sm transition-all duration-150 flex items-cen...
106|              style={{ background: 'rgba(0, 212, 170, 0.1)', border: '1px solid rgba(0, 212, 170, 0.3)', color...
107|            >
108|              {loading ? (
109|                <div className="w-5 h-5 border-2 rounded-full animate-spin" style={{ borderColor: 'var(--brand...
110|              ) : (
111|                <>
112|                  <Search size={16} />
   1 1 3 |                                      T ì m   k i ¿ m   h Í c   s i n h
114|                </>
115|              )}
116|            </button>
117|          </>
118|        )}
119|
120|        {step === 'confirm' && foundStudent && (
121|          <>
122|            <h2 className="text-xl md:text-2xl font-bold mb-2" style={{ color: 'var(--text-primary)' }}>
   1 2 3 |                              X á c   n h - n   l i ê n   k ¿ t
124|            </h2>
125|            <p className="text-xs md:text-sm mb-6 leading-relaxed" style={{ color: 'var(--text-muted)' }}>
   1 2 6 |                              V u i   l ò n g   x á c   n h - n   t h ô n g   t i n   h Í c   s i n h   d ° Û i    â y   c h í n h   x á c   l à
127|            </p>
128|
129|            {/* Profile Card */}
130|            <div className="rounded-xl p-4 mb-6 flex items-center gap-4" style={{ background: 'var(--bg-elevat...
131|              {foundStudent.avatar_url ? (
132|                <img
133|                  src={foundStudent.avatar_url}
134|                  className="w-14 h-14 rounded-full object-cover"
135|                  style={{ border: '1px solid var(--border-default)' }}
136|                  alt={foundStudent.student_name}
137|                />
138|              ) : (
139|                <div className="w-14 h-14 rounded-full flex items-center justify-center text-2xl font-bold upp...
140|                  {foundStudent.student_name[0] || 'S'}
141|                </div>
142|              )}
143|              <div className="overflow-hidden">
144|                <div className="font-bold text-base truncate" style={{ color: 'var(--text-primary)' }}>{foundS...
145|                <div className="text-xs truncate" style={{ color: 'var(--text-muted)' }}>{foundStudent.school_...
146|              </div>
147|            </div>
148|
149|            <div className="mb-6">
150|              <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--...
   1 5 1 |                                M Ñ i   q u a n   h Ç   v Û i   h Í c   s i n h
152|              </label>
153|              <select
154|                value={relationship}
155|                onChange={(e) => setRelationship(e.target.value)}
156|                disabled={loading}
157|                className="w-full rounded-xl px-4 py-3 text-sm outline-none transition-all cursor-pointer"
158|                style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-default)', color: '...
159|              >
   1 6 0 |                                < o p t i o n   v a l u e = " p a r e n t " > P h å   h u y n h   ( C h u n g ) < / o p t i o n >
161|                <option value="father">Cha</option>
   1 6 2 |                                < o p t i o n   v a l u e = " m o t h e r " > M ¹ < / o p t i o n >
   1 6 3 |                                < o p t i o n   v a l u e = " g u a r d i a n " > N g ° Ý i   g i á m   h Ù < / o p t i o n >
164|              </select>
165|            </div>
166|
167|            {error && (
168|              <div className="text-xs font-semibold mb-4 rounded-lg p-3" style={{ color: '#ef4444', background...
   1 6 9 |                                & þ    { e r r o r }
170|              </div>
171|            )}
172|
173|            <div className="flex gap-3">
174|              <button
175|                onClick={() => {
176|                  setError(null)
177|                  setStep('input')
178|                }}
179|                disabled={loading}
180|                className="flex-1 py-3 rounded-xl font-bold text-sm transition-all flex items-center justify-c...
181|                style={{ background: 'rgba(255,255,255,0.05)', border: '1px solid var(--border-subtle)', color...
182|              >
183|                <ArrowLeft size={16} />
   1 8 4 |                                Q u a y   l ¡ i
185|              </button>
186|              <button
187|                onClick={confirmLink}
188|                disabled={loading}
189|                className="flex-1 py-3 rounded-xl font-bold text-sm transition-all duration-150 flex items-cen...
190|                style={{ background: 'rgba(0, 212, 170, 0.15)', border: '1px solid rgba(0, 212, 170, 0.3)', co...
191|              >
192|                {loading ? (
193|                  <div className="w-5 h-5 border-2 rounded-full animate-spin" style={{ borderColor: 'var(--bra...
```

```
194|                ) : (
195|                  <>
  1 9 6 |                                        X á c   n h - n
197|                    <ArrowRight size={16} />
198|                  </>
199|                )}
200|              </button>
201|            </div>
202|          </>
203|        )}
204|
205|        {step === 'success' && (
206|          <div className="text-center py-6">
207|            <div className="w-16 h-16 rounded-full flex items-center justify-center mx-auto mb-5" style={{ bac...
208|              <CheckCircle2 size={36} className="animate-pulse" />
209|            </div>
210|            <h3 className="text-xl md:text-2xl font-bold mb-2" style={{ color: 'var(--text-primary)' }}>
  2 1 1 |                                L i ê n   k ¿ t   t h à n h   c ô n g !
212|            </h3>
213|            <p className="text-xs md:text-sm mb-8 leading-relaxed max-w-sm mx-auto" style={{ color: 'var(--tex...
  2 1 4 |                                T à i   k h o £ n   c ç a   b ¡ n    ã    ° ã c   k ¿ t   n Ñ i   v Û i   c o n   t h à n h   c ô n g .   G i Ý
215|            </p>
216|            <a
217|              href="/parent/dashboard"
218|              className="inline-flex items-center justify-center px-6 py-3 rounded-xl font-bold text-sm transi...
219|              style={{ background: 'rgba(0, 212, 170, 0.1)', border: '1px solid rgba(0, 212, 170, 0.3)', color...
220|            >
  2 2 1 |                                V Á   t r a n g   T Õ n g   q u a n !’
222|            </a>
223|          </div>
224|        )}
225|      </div>
226|    </div>
227|  )
228| }
229|
```

File: app/(dashboard)/parent/notifications/page.tsx (100 lines, 3.0 KB)

```
==========================================================================================
    1| import { requireRole } from '@/lib/auth/rbac'
    2| import { createClient } from '@/lib/supabase-ssr-server'
    3| import ParentNotificationsView from '@/components/parent/ParentNotificationsView'
    4| import { revalidatePath } from 'next/cache'
    5|
    6| export const dynamic = 'force-dynamic'
    7|
    8| export default async function ParentNotificationsPage() {
      9 |       / /   1 .   X á c   t h ñ c   r o l e
   10|   const user = await requireRole(['parent', 'admin'])
   11|   const supabase = await createClient()
   12|
   13|   // 2. Fetch danh sách thông báo
   14|   const { data: dbNotifications } = await supabase
   15|     .from('notifications')
   16|     .select('*')
   17|     .eq('user_id', user.id)
   18|     .order('created_at', { ascending: false })
   19|
   20|   const notifications = dbNotifications || []
   21|
     2 2 |       / /   3 .   F e t c h   d a n h   s á c h   c o n   l i ê n   k ¿ t    Ã   m a p   t h ô n g   t i n   ( A v a t a r   +   T ê n )
   23|   const { data: links } = await supabase
   24|     .from('parent_student_links')
   25|     .select('student_id')
   26|     .eq('parent_id', user.id)
   27|     .eq('status', 'active')
   28|
   29|   const studentIds = (links || []).map((l) => l.student_id)
   30|   let students: any[] = []
   31|
   32|   if (studentIds.length > 0) {
   33|     const { data: profiles } = await supabase
   34|       .from('profiles')
   35|       .select('id, full_name, avatar_url')
   36|       .in('id', studentIds)
   37|     students = profiles || []
   38|   }
   39|
     4 0 |       / /   4 .   S e r v e r   A c t i o n s   p h ầ c   v ầ   c á c   t h a o   t á c   c ç a   p h ầ   h u y n h
   41|   async function markAllAsReadAction() {
   42|     'use server'
   43|     const parent = await requireRole(['parent', 'admin'])
   44|     const client = await createClient()
   45|     await client
   46|       .from('notifications')
   47|       .update({ is_read: true })
   48|       .eq('user_id', parent.id)
   49|     revalidatePath('/parent/notifications')
   50|   }
   51|
   52|   async function deleteAllAction() {
   53|     'use server'
   54|     const parent = await requireRole(['parent', 'admin'])
   55|     const client = await createClient()
   56|     await client
   57|       .from('notifications')
   58|       .delete()
   59|       .eq('user_id', parent.id)
   60|     revalidatePath('/parent/notifications')
   61|   }
   62|
   63|   async function markAsReadAction(id: string) {
   64|     'use server'
   65|     const parent = await requireRole(['parent', 'admin'])
   66|     const client = await createClient()
   67|     await client
   68|       .from('notifications')
   69|       .update({ is_read: true })
   70|       .eq('id', id)
   71|       .eq('user_id', parent.id)
   72|     revalidatePath('/parent/notifications')
   73|   }
   74|
   75|   async function deleteSingleAction(id: string) {
   76|     'use server'
   77|     const parent = await requireRole(['parent', 'admin'])
   78|     const client = await createClient()
   79|     await client
   80|       .from('notifications')
   81|       .delete()
   82|       .eq('id', id)
   83|       .eq('user_id', parent.id)
   84|     revalidatePath('/parent/notifications')
```

```
  85|   }
  86|
  87|   return (
  88|     <div className="min-h-screen p-6 md:p-8 max-w-4xl mx-auto" style={{ background: 'var(--bg-base)', color: '...
  89|       <ParentNotificationsView
  90|         initialNotifications={notifications}
  91|         students={students}
  92|         markAllAsRead={markAllAsReadAction}
  93|         deleteAll={deleteAllAction}
  94|         markAsRead={markAsReadAction}
  95|         deleteSingle={deleteSingleAction}
  96|       />
  97|     </div>
  98|   )
  99| }
 100|
```

File: app/(dashboard)/parent/page.tsx (6 lines, 0.1 KB)

```
   1| import { redirect } from 'next/navigation'
   2|
   3| export default function ParentPage() {
   4|   redirect('/parent/dashboard')
   5| }
   6|
```

File: app/(dashboard)/parent/profile/page.tsx (87 lines, 4.8 KB)

```
   1| import { requireRole } from '@/lib/auth/rbac'
   2| import { createClient } from '@/lib/supabase-ssr-server'
   3| import { User, ShieldCheck, HelpCircle, Mail, Key } from 'lucide-react'
   4|
   5| export const dynamic = 'force-dynamic'
   6|
   7| export default async function ParentProfilePage() {
   8|   const user = await requireRole(['parent', 'admin'])
   9|   const supabase = await createClient()
  10|
     1 1 |       / /   L ¥ y   e m a i l   t ë   a u t h
  12|   const { data: authData } = await supabase.auth.getUser()
     1 3 |       c o n s t   e m a i l   =   a u t h D a t a . u s e r ? . e m a i l   | |   ' C h ° a   c - p   n h - t '
  14|
     1 5 |       / /   F e t c h   s Ñ   l ° ã n g   c o n   a n g   l i ê n   k ¿ t
  16|   const { count } = await supabase
  17|     .from('parent_student_links')
  18|     .select('*', { count: 'exact', head: true })
  19|     .eq('parent_id', user.id)
  20|     .eq('status', 'active')
  21|
  22|   return (
  23|     <div className="min-h-screen p-6 md:p-8 max-w-4xl mx-auto space-y-6" style={{ background: 'var(--bg-base)'...
  24|       {/* Header */}
  25|       <div className="pb-6" style={{ borderBottom: '1px solid var(--border-subtle)' }}>
  26|         <h1 className="text-2xl md:text-3xl font-bold flex items-center gap-2" style={{ color: 'var(--text-pri...
  27|           <User size={24} style={{ color: 'var(--brand-primary)' }} />
     2 8 |                         H Ồ   s ¡   c ç a   b ¡ n
  29|         </h1>
  30|         <p className="mt-1 text-sm" style={{ color: 'var(--text-muted)' }}>
     3 1 |                         T h ô n g   t i n   t à i   k h o £ n   p h å   h u y n h   v à   c ¥ u   h ì n h   h Ç   t h Ñ n g .
  32|         </p>
  33|       </div>
  34|
  35|       <div className="grid grid-cols-1 md:grid-cols-3 gap-6">
  36|         {/* Profile Card */}
  37|         <div className="md:col-span-2 rounded-2xl p-6 space-y-6" style={{ background: 'var(--bg-surface)', bor...
  38|           <div className="flex items-center gap-4">
  39|             <div className="w-16 h-16 rounded-full flex items-center justify-center text-3xl font-bold upperca...
  40|               {user.full_name?.[0] || 'P'}
  41|             </div>
  42|             <div>
  43|               <h2 className="text-lg font-bold" style={{ color: 'var(--text-primary)' }}>{user.full_name || 'P...
  44|               <div className="text-xs rounded-full uppercase tracking-wider inline-block mt-1 font-bold px-2 p...
     4 5 |                                 P h å   h u y n h
  46|               </div>
  47|             </div>
  48|           </div>
  49|
  50|           <div className="pt-6 space-y-4" style={{ borderTop: '1px solid var(--border-subtle)' }}>
  51|             <div className="flex items-center justify-between text-sm">
  52|               <span className="font-medium flex items-center gap-2" style={{ color: 'var(--text-muted)' }}>
  53|                 <Mail size={16} />
     5 4 |                                 E m a i l       n g   n h - p
  55|               </span>
  56|               <span className="font-semibold" style={{ color: 'var(--text-primary)' }}>{email}</span>
  57|             </div>
  58|             <div class="flex items-center justify-between text-sm">
  59|               <span class="font-medium flex items-center gap-2" style={{ color: 'var(--text-muted)' }}>
  60|
     6 1 |                                 S Ñ   l ° ã n g   c o n   l i ê n   k ¿ t
  62|               </span>
     6 3 |                             < s p a n   c l a s s N a m e = " f o n t - s e m i b o l d "   s t y l e = { {   c o l o r :   ' v a r ( - - te
  64|             </div>
  65|           </div>
  66|         </div>
  67|
  68|         {/* Security Policy Details */}
  69|         <div class="rounded-2xl p-6 space-y-4" style={{ background: 'var(--bg-surface)', border: '1px soli...
  70|           <h3 class="text-sm font-bold flex items-center gap-2" style={{ color: 'var(--text-primary)' }}>
  71|             <ShieldCheck size={16} style={{ color: 'var(--brand-primary)' }} />
     7 2 |                           B £ o   m - t   &   Q u y Á n   r i ê n g   t °
  73|           </h3>
  74|           <p class="text-xs leading-relaxed" style={{ color: 'var(--text-muted)' }}>
     7 5 |                             Ã   t ¡ o   m ô i   t r ° Ý n g   h Í c   t - p   t h o £ i   m á i ,   P C   M a s t e r   á p   d å n g   c h í n h
  76|           </p>
  77|           <ul class="text-xs space-y-2 list-disc pl-4 leading-relaxed" style={{ color: 'var(--text-muted)'...
     7 8 |                           < l i > P h å   h u y n h   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - p r i m a r y ) '   } }
     7 9 |                           < l i > P h å   h u y n h   < s p a n   s t y l e = { {   c o l o r :   ' # e f 4 4 4 4 '   } } > k h ô n g   t h Ã   >
     8 0 |                           < l i > H Í c   s i n h   c ó   q u y Á n   t h u   h Ồ i   q u y Á n   t h e o   d õ i   c ç a   p h å   h u y n h   b
  81|           </ul>
  82|         </div>
  83|       </div>
  84|     </div>
  85|   )
  86| }
  87|
```

File: app/(dashboard)/student/classes/[classId]/assignments/[assignmentId]/page.tsx (249 lines, 11.8 KB)

```
   1| 'use client';
   2|
```

```
 3| import React, { useEffect, useState, use } from 'react';
 4| import { supabase } from '@/lib/supabase';
 5| import {
 6|   Loader2, ArrowLeft, ClipboardList, Target,
 7|   Wallet, Battery, HardDrive, Cpu, CheckCircle, AlertCircle, Play
 8| } from 'lucide-react';
 9| import Link from 'next/link';
10| import { formatVND } from '@/lib/grading/auto-grade';
11|
12| export default function DoAssignmentPage({ params }: { params: Promise<{ classId: string, assignmentId: string...
13|   const resolvedParams = use(params);
14|   const { classId, assignmentId } = resolvedParams;
15|
16|   const [assignment, setAssignment] = useState<any>(null);
17|   const [submission, setSubmission] = useState<any>(null);
18|   const [loading, setLoading] = useState(true);
19|   const [isSubmitting, setIsSubmitting] = useState(false);
20|
21|   useEffect(() => {
22|     fetchData();
23|   }, [assignmentId]);
24|
25|   async function fetchData() {
26|     setLoading(true);
27|     try {
28|       const { data: { user } } = await supabase.auth.getUser();
29|       if (!user) return;
30|
31|       // 1. Fetch Assignment
32|       const { data: asg, error: asgError } = await supabase
33|         .from('assignments')
34|         .select('*')
35|         .eq('id', assignmentId)
36|         .single();
37|
38|       if (asgError) throw asgError;
39|       setAssignment(asg);
40|
41|       // 2. Check for existing submission
42|       const { data: sub, error: subError } = await supabase
43|         .from('submissions')
44|         .select('*')
45|         .eq('assignment_id', assignmentId)
46|         .eq('student_id', user.id)
47|         .single();
48|
49|       if (sub) setSubmission(sub);
50|
51|     } catch (err) {
52|       console.error('Error fetching assignment data:', err);
53|     } finally {
54|       setLoading(false);
55|     }
56|   }
57|
58|   const handleSubmitMock = async () => {
    5 9 |           / /     â y   l à   h à m   g i £   l - p   v i Ç c   n Ù p   b à i   t ë   S i m u l a t o r
    6 0 |           / /   T r o n g   t h ñ c   t ¿ ,   d ï   l i Ç u   n à y   s ½    ¿ n   t ë   t r ¡ n g   t h á i   c ç a   P C   B u i l d e r
61|     const mockPCConfig = {
62|       components: ['Ryzen 5 5600X', 'RTX 3060', 'RAM 16GB DDR4', 'SSD 500GB', 'PSU 650W'],
63|       total_price: 14500000,
64|       total_tdp: 220,
65|       ram_gb: 16
66|     };
67|
68|     setIsSubmitting(true);
69|     try {
70|       const res = await fetch('/api/classes/submit', {
71|         method: 'POST',
72|         headers: { 'Content-Type': 'application/json' },
73|         body: JSON.stringify({
74|           assignment_id: assignmentId,
75|           class_id: classId,
76|           pc_config: mockPCConfig
77|         })
78|       });
79|
80|       const data = await res.json();
81|       if (data.success) {
82|         setSubmission(data.submission);
    8 3 |                   a l e r t ( ' N Ù p   b à i   t h à n h   c ô n g ! ' ) ;
84|       } else {
85|         throw new Error(data.error);
86|       }
87|     } catch (err: any) {
    8 8 |                 a l e r t ( ' L × i :   '   +   e r r . m e s s a g e ) ;
89|     } finally {
90|       setIsSubmitting(false);
91|     }
92|   };
93|
94|   if (loading) {
95|     return (
96|       <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
97|         <Loader2 className="animate-spin" color="#00f3ff" size={48} />
98|       </div>
99|     );
100|   }
101|
   1 0 2 |       i f   ( ! a s s i g n m e n t )   r e t u r n   < d i v > K h ô n g   t ì m   t h ¥ y   n h i Ç m   v å . < / d i v > ;
103|
104|   return (
105|     <div style={{ padding: '32px', maxWidth: '1000px', margin: '0 auto' }}>
106|       <header style={{ marginBottom: '40px' }}>
107|         <Link href={`/student/classes/${classId}`} style={{ display: 'inline-flex', alignItems: 'center', gap:...
   1 0 8 |                     < A r r o w L e f t   s i z e = { 2 0 }   / >   Q u a y   l ¡ i   l Û p   h Ï c
109|         </Link>
110|
111|         <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'flex-start' }}>
112|           <div>
113|             <h1 style={{ fontSize: '32px', fontWeight: 800, margin: '0 0 12px 0', color: '#fff' }}>{assignment...
114|             <p style={{ color: '#8899a6', margin: 0, maxWidth: '600px' }}>{assignment.description}</p>
115|           </div>
116|           {submission && (
117|             <div style={{ padding: '16px 24px', background: 'rgba(16, 185, 129, 0.1)', border: '1px solid rgba...
   1 1 8 |                       < d i v   s t y l e = { {   f o n t S i z e :   ' 1 2 p x ' ,   c o l o r :   ' # 1 0 b 9 8 1 ' ,   f o n t W e i g
119|               <div style={{ fontSize: '32px', fontWeight: 900, color: '#10b981' }}>{submission.total_score} <s...
120|             </div>
121|           )}
122|         </div>
123|       </header>
124|
125|       <div style={{ display: 'grid', gridTemplateColumns: '1fr 350px', gap: '32px' }}>
126|         {/* Left Content */}
```

```
127|         <div style={{ display: 'flex', flexDirection: 'column', gap: '32px' }}>
128|           {/* Action Area */}
129|           <div style={{
130|             background: 'rgba(12, 20, 36, 0.8)', padding: '48px', borderRadius: '24px',
131|             border: '1px solid rgba(255,255,255,0.05)', textAlign: 'center',
132|             display: 'flex', flexDirection: 'column', alignItems: 'center', gap: '24px'
133|           }}>
134|             <div style={{ width: '80px', height: '80px', borderRadius: '50%', background: 'rgba(0, 243, 255, 0...
135|               <Cpu size={40} />
136|             </div>
137|             <div>
   1 3 8 |                           < h 2   s t y l e = { {   c o l o r :   ' # f f f ' ,   f o n t S i z e :   ' 2 4 p x ' ,   f o n t W e i g h t :
   1 3 9 |                           < p   s t y l e = { {   c o l o r :   ' # 8 8 9 9 a 6 ' ,   m a r g i n :   0   } } > H Ç   t h Ñ n g   s ½   m ß
140|             </div>
141|
142|             <Link href="/builder" style={{ textDecoration: 'none', width: '100%', maxWidth: '300px' }}>
143|               <button style={{
144|                 width: '100%', padding: '16px', borderRadius: '12px', background: 'var(--brand-primary)',
145|                 color: '#000', fontSize: '16px', fontWeight: 800, border: 'none', cursor: 'pointer',
146|                 display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '10px'
147|               }}>
   1 4 8 |                               < P l a y   s i z e = { 2 0 }   f i l l = " # 0 0 0 "   / >   B ¯ t     § u   l ¯ p   r á p
149|               </button>
150|             </Link>
151|
   1 5 2 |                         { / *   N ú t   n Ù p   b à i   t ¡ m   t h Ý i   ( G i £   l - p )   * / }
153|             {!submission && (
154|               <button
155|                 onClick={handleSubmitMock}
156|                 disabled={isSubmitting}
157|                 style={{
158|                   background: 'none', border: '1px solid rgba(255,255,255,0.1)', color: '#4b5563',
159|                   padding: '8px 16px', borderRadius: '8px', cursor: 'pointer', fontSize: '12px'
160|                 }}
161|               >
   1 6 2 |                               { i s S u b m i t t i n g   ?   '   a n g   n Ù p . . . '   :   ' ( G i £   l - p   n Ù p   b à i   t h à n h
163|               </button>
164|             )}
165|           </div>
166|
167|           {submission && (
168|             <div style={{ background: 'rgba(12, 20, 36, 0.5)', padding: '32px', borderRadius: '24px', border: ...
169|               <h3 style={{ color: '#fff', margin: '0 0 20px 0', display: 'flex', alignItems: 'center', gap: '1...
   1 7 0 |                               < C h e c k C i r c l e   s i z e = { 2 0 }   c o l o r = " # 1 0 b 9 8 1 "   / >   K ¿ t   q u £   c h ¥ m
171|               </h3>
172|               {submission.feedback && (
173|                 <div style={{ color: '#e0e6ed', fontSize: '15px', lineHeight: 1.6, padding: '16px', background...
   1 7 4 |                                       < s t r o n g > P h £ n   h Ó i   t ë   G V : < / s t r o n g >   { s u b m i s s i o n . f e e d b a c k
175|                 </div>
176|               )}
177|               <p style={{ color: '#8899a6', fontSize: '14px', marginTop: '16px' }}>
   1 7 8 |                               B à i   l à m     ° ã c   n Ù p   v à o   l ú c   { n e w   D a t e ( s u b m i s s i o n . s u b m i t t e d
   1 7 9 |                               { s u b m i s s i o n . i s _ l a t e   & &   < s p a n   s t y l e = { {   c o l o r :   ' # e f 4 4 4 4 '   }
180|                 </p>
181|               </div>
182|             )}
183|         </div>
184|
185|         {/* Right Sidebar - Requirements */}
186|         <aside style={{ display: 'flex', flexDirection: 'column', gap: '24px' }}>
187|           <div style={{ background: 'rgba(12, 20, 36, 0.8)', padding: '24px', borderRadius: '24px', border: '1...
188|             <h3 style={{ color: '#fff', fontSize: '16px', fontWeight: 700, margin: '0 0 20px 0', display: 'fle...
   1 8 9 |                           < T a r g e t   s i z e = { 1 8 }   c o l o r = " # 0 0 f 3 f f "   / >   Y ê u   c § u   n h i Ç m   v å
190|             </h3>
191|
192|             <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
193|               <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
194|                 <div style={{ width: '32px', height: '32px', borderRadius: '8px', background: 'rgba(16, 185, 1...
195|                   <Wallet size={16} />
196|                 </div>
197|                 <div>
198|                   <div style={{ fontSize: '11px', color: '#4b5563', fontWeight: 700 }}>NGÂN SÁCH</div>
199|                   <div style={{ fontSize: '14px', color: '#fff', fontWeight: 600 }}>&le; {formatVND(assignment...
200|                 </div>
201|               </div>
202|
203|               <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
204|                 <div style={{ width: '32px', height: '32px', borderRadius: '8px', background: 'rgba(245, 158, ...
205|                   <Battery size={16} />
206|                 </div>
207|                 <div>
   2 0 8 |                                   < d i v   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' # 4 b 5 5 6 3 ' ,   f o n t
209|                   <div style={{ fontSize: '14px', color: '#fff', fontWeight: 600 }}>&le; {assignment.requireme...
210|                 </div>
211|               </div>
212|
213|               <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
214|                 <div style={{ width: '32px', height: '32px', borderRadius: '8px', background: 'rgba(59, 130, 2...
215|                   <HardDrive size={16} />
216|                 </div>
217|                 <div>
   2 1 8 |                                   < d i v   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' # 4 b 5 5 6 3 ' ,   f o n t
219|                   <div style={{ fontSize: '14px', color: '#fff', fontWeight: 600 }}>&ge; {assignment.requireme...
220|                 </div>
221|               </div>
222|
223|               {assignment.requirements.required_components?.length > 0 && (
224|                 <div style={{ marginTop: '8px', padding: '16px', background: 'rgba(139, 92, 246, 0.05)', borde...
225|                   <div style={{ fontSize: '11px', color: '#8b5cf6', fontWeight: 700, marginBottom: '8px' }}>LI...
226|                   <ul style={{ margin: 0, padding: '0 0 0 16px', fontSize: '13px', color: '#e0e6ed', display: ...
227|                     {assignment.requirements.required_components.map((c: string, i: number) => (
228|                       <li key={i}>{c}</li>
229|                     ))}
230|                   </ul>
231|                 </div>
232|               )}
233|             </div>
234|           </div>
235|
236|           <div style={{ padding: '20px', background: 'rgba(239, 68, 68, 0.05)', borderRadius: '24px', border: ...
237|             <h4 style={{ color: '#ef4444', fontSize: '14px', margin: '0 0 8px 0', display: 'flex', alignItems:...
238|               <AlertCircle size={16} /> Chú ý deadline
239|             </h4>
240|             <p style={{ color: '#8899a6', fontSize: '13px', margin: 0, lineHeight: 1.5 }}>
   2 4 1 |                           N Ù p   s a u   t h Ý i   g i a n   q u y     Ë n h   s ½   b Ë   t r ë   2 0 %   t Õ n g   s Ñ     i Ã m .   H ã y
242|             </p>
243|           </div>
244|         </aside>
245|       </div>
246|     </div>
247|   );
248| }
249|
```

File: app/(dashboard)/student/classes/[classId]/page.tsx (122 lines, 4.6 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import React, { useEffect, useState, use } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import {
    6|   ClipboardList, Loader2, ArrowLeft,
    7|   Info, Calendar, User
    8| } from 'lucide-react';
    9| import Link from 'next/link';
   10| import AssignmentCard from '@/components/classes/AssignmentCard';
   11|
   12| export default function StudentClassDetailsPage({ params }: { params: Promise<{ classId: string }> }) {
   13|   const resolvedParams = use(params);
   14|   const classId = resolvedParams.classId;
   15|
   16|   const [classData, setClassData] = useState<any>(null);
   17|   const [assignments, setAssignments] = useState<any[]>([]);
   18|   const [loading, setLoading] = useState(true);
   19|
   20|   useEffect(() => {
   21|     fetchClassInfo();
   22|   }, [classId]);
   23|
   24|   async function fetchClassInfo() {
   25|     setLoading(true);
   26|     try {
   27|       const { data: { user } } = await supabase.auth.getUser();
   28|       if (!user) return;
   29|
   30|       // 1. Fetch Class Info
   31|       const { data: cls, error: clsError } = await supabase
   32|         .from('classes')
   33|         .select('*, teacher:profiles(full_name)')
   34|         .eq('id', classId)
   35|         .single();
   36|
   37|       if (clsError) throw clsError;
   38|       setClassData(cls);
   39|
   40|       // 2. Fetch Assignments & My Submissions
   41|       const { data: asgs, error: asgsError } = await supabase
   42|         .from('assignments')
   43|         .select(`
   44|           *,
   45|           submissions(id, total_score)
   46|         `)
   47|         .eq('class_id', classId)
   48|         .eq('is_published', true)
   49|         .order('created_at', { ascending: false });
   50|
   51|       if (asgsError) throw asgsError;
   52|
   53|       // Filter submissions for current user manually because of how Supabase returns it
   54|       const formattedAsgs = asgs?.map(asg => ({
   55|         ...asg,
   56|         hasSubmitted: (asg.submissions as any[]).length > 0
   57|       })) || [];
   58|
   59|       setAssignments(formattedAsgs);
   60|
   61|     } catch (err) {
   62|       console.error('Error fetching student class info:', err);
   63|     } finally {
   64|       setLoading(false);
   65|     }
   66|   }
   67|
   68|   if (loading) {
   69|     return (
   70|       <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
   71|         <Loader2 className="animate-spin" color="#00f3ff" size={48} />
   72|       </div>
   73|     );
   74|   }
   75|
   76|       if (!classData) return <div>Không tìm thấy lớp học·c bạn không có c
   77|
   78|   return (
   79|     <div style={{ padding: '32px' }}>
   80|       <header style={{ marginBottom: '40px' }}>
   81|         <Link href="/student/classes" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', color...
   82|                       <ArrowLeft size={20} /> Lớp học của tôi
   83|         </Link>
   84|
   85|         <h1 style={{ fontSize: '36px', fontWeight: 800, margin: '0 0 12px 0', color: '#fff' }}>{classData.name...
   86|         <div style={{ display: 'flex', gap: '24px', color: '#8899a6', fontSize: '14px' }}>
   87|           <span style={{ display: 'flex', alignItems: 'center', gap: '6px' }}><User size={16} /> GV: <strong s...
   88|                       <span style={{ display: 'flex', alignItems: 'center', gap: '6px' }}><User size={16} />
   89|                       <span style={{ display: 'flex', alignItems: 'center', gap: '6px' }}><User size={16} />
   90|         </div>
   91|       </header>
   92|
   93|       <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '32px' }}>
   94|         <ClipboardList size={24} color="#00f3ff" />
   95|                     <h2 style={{ fontSize: '20px', fontWeight: 800, color: '#fff', m
   96|       </div>
   97|
   98|       <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(400px, 1fr))', gap: '24px'...
   99|         {assignments.length === 0 ? (
  100|           <div style={{ gridColumn: '1 / -1', textAlign: 'center', padding: '60px', color: '#4b5563', backgrou...
  101|                         <p>Hiện lớp học này chưa có nhiệm vụ nào dành cho bạn.</p>
  102|           </div>
  103|         ) : (
  104|           assignments.map(asg => (
  105|             <AssignmentCard
  106|               key={asg.id}
  107|               id={asg.id}
  108|               classId={classId}
  109|               title={asg.title}
  110|               type={asg.type}
  111|               deadline={asg.deadline}
  112|               requirements={asg.requirements}
  113|               hasSubmitted={asg.hasSubmitted}
  114|               role="student"
  115|             />
  116|           ))
  117|         )}
  118|       </div>
  119|     </div>
  120|   );
  121| }
```

File: app/(dashboard)/student/classes/page.tsx (132 lines, 4.6 KB)

```
   1| 'use client';
   2|
   3| import React, { useEffect, useState } from 'react';
   4| import { supabase } from '@/lib/supabase';
   5| import ClassCard from '@/components/classes/ClassCard';
   6| import JoinClassModal from '@/components/classes/JoinClassModal';
   7| import { Plus, Loader2, BookOpen } from 'lucide-react';
   8|
   9| export default function StudentClassesPage() {
  10|   const [classes, setClasses] = useState<any[]>([]);
  11|   const [loading, setLoading] = useState(true);
  12|   const [isJoinModalOpen, setIsJoinModalOpen] = useState(false);
  13|
  14|   useEffect(() => {
  15|     fetchJoinedClasses();
  16|   }, []);
  17|
  18|   async function fetchJoinedClasses() {
  19|     setLoading(true);
  20|     try {
  21|       const { data: { user } } = await supabase.auth.getUser();
  22|       if (!user) return;
  23|
     2 4 |              / /   L ¥ y   d a n h   s á c h   l Û p   h Í c   t h ô n g   q u a   c l a s s _ m e m b e r s
  25|       const { data, error } = await supabase
  26|         .from('class_members')
  27|         .select(`
  28|           class:classes(
  29|             *,
  30|             teacher:profiles(full_name),
  31|             assignments(count)
  32|           )
  33|         `)
  34|         .eq('student_id', user.id);
  35|
  36|       if (error) throw error;
  37|
  38|       const formattedClasses = data?.map(item => ({
  39|         ...item.class,
  40|         teacherName: (item.class as any).teacher?.full_name,
  41|         activeAssignmentsCount: (item.class as any).assignments?.[0]?.count || 0,
     4 2 |                   m e m b e r C o u n t :   0   / /   T a   s ½   u p d a t e   s a u   h o · c   f e t c h   t h ê m   n ¿ u   c § n
  43|       })) || [];
  44|
  45|       setClasses(formattedClasses);
  46|     } catch (err) {
  47|       console.error('Error fetching student classes:', err);
  48|     } finally {
  49|       setLoading(false);
  50|     }
  51|   }
  52|
  53|   if (loading) {
  54|     return (
  55|       <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
  56|         <Loader2 className="animate-spin" color="#00f3ff" size={48} />
  57|       </div>
  58|     );
  59|   }
  60|
  61|   return (
  62|     <div style={{ padding: '32px' }}>
  63|       <header style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: '...
  64|         <div>
     6 5 |                     < h 1   s t y l e = { {   f o n t S i z e :   ' 3 2 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n :   ' 0   0   8
     6 6 |                     < p   s t y l e = { {   c o l o r :   ' # 8 8 9 9 a 6 ' ,   m a r g i n :   0   } } > T h a m   g i a   l Û p   h Í c   v ã
  67|         </div>
  68|         <button
  69|           onClick={() => setIsJoinModalOpen(true)}
  70|           style={{
  71|             background: 'var(--brand-primary)', color: '#000', border: 'none',
  72|             padding: '12px 24px', borderRadius: '12px', fontWeight: 700,
  73|             display: 'flex', alignItems: 'center', gap: '8px', cursor: 'pointer',
  74|             transition: 'transform 0.2s'
  75|           }}
  76|           onMouseOver={e => e.currentTarget.style.transform = 'translateY(-2px)'}
  77|           onMouseOut={e => e.currentTarget.style.transform = 'translateY(0)'}
  78|         >
     7 9 |                     < P l u s   s i z e = { 2 0 }   / >   T h a m   g i a   l Û p
  80|         </button>
  81|       </header>
  82|
  83|       {classes.length === 0 ? (
  84|         <div style={{
  85|           textAlign: 'center', padding: '100px 0',
  86|           background: 'rgba(12, 20, 36, 0.5)', borderRadius: '24px',
  87|           border: '2px dashed rgba(255,255,255,0.05)'
  88|         }}>
  89|           <BookOpen size={64} color="#1e293b" style={{ marginBottom: '24px' }} />
     9 0 |                     < h 3   s t y l e = { {   c o l o r :   ' # 8 8 9 9 a 6 ' ,   m a r g i n :   ' 0   0   2 4 p x   0 '   } } > B ¡ n   c h '
  91|           <button
  92|             onClick={() => setIsJoinModalOpen(true)}
  93|             style={{
  94|               background: 'rgba(0, 243, 255, 0.1)', color: '#00f3ff', border: '1px solid #00f3ff',
  95|               padding: '12px 32px', borderRadius: '12px', fontWeight: 700, cursor: 'pointer'
  96|             }}
  97|           >
     9 8 |                         N h - p   m ã   t h a m   g i a   n g a y
  99|           </button>
 100|         </div>
 101|       ) : (
 102|         <div style={{
 103|           display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(350px, 1fr))',
 104|           gap: '24px'
 105|         }}>
 106|           {classes.map(cls => (
 107|             <ClassCard
 108|               key={cls.id}
 109|               id={cls.id}
 110|               name={cls.name}
 111|               code={cls.code}
 112|               teacherName={cls.teacherName}
    1 1 3 |                           m e m b e r C o u n t = { 0 }   / /   H S   c ó   t h Ã   k h ô n g   c § n   t h ¥ y   c h í n h   x á c   t Õ n g
 114|               maxStudents={cls.max_students}
 115|               activeAssignmentsCount={cls.activeAssignmentsCount}
 116|               role="student"
 117|             />
 118|           ))}
 119|         </div>
```

```
  120|       )}
  121|
  122|       <JoinClassModal
  123|         isOpen={isJoinModalOpen}
  124|         onClose={() => {
  125|           setIsJoinModalOpen(false);
  126|           fetchJoinedClasses(); // Refresh list sau khi join
  127|         }}
  128|       />
  129|     </div>
  130|   );
  131| }
  132|
```

File: app/(dashboard)/student/dashboard/error.tsx (27 lines, 1.0 KB)

```
    1| 'use client'
    2|
    3| import { useEffect } from 'react'
    4|
    5| export default function StudentDashboardError({ error, reset }: { error: Error & { digest?: string }; reset: (...
    6|   useEffect(() => {
    7|     console.error(error)
    8|   }, [error])
    9|
   10|   return (
   11|     <div className="min-h-screen bg-[#080910] p-6 md:p-8 lg:p-10 flex items-center justify-center">
   12|       <div className="max-w-xl rounded-3xl border border-[#1d1f2a] bg-[#0f1018] p-10 text-center">
      1 3 |                   < d i v   c l a s s N a m e = " t e x t - 5 x l " >& þ  < / d i v >
      1 4 |                   < h 2   c l a s s N a m e = " m t - 4   t e x t - 2 x l   f o n t - s e m i b o l d   t e x t - [ # d 8 d b e 8 ] " > C ó   l ›
      1 5 |                   < p   c l a s s N a m e = " m t - 3   t e x t - s m   t e x t - [ # 5 a 5 d 7 2 ] " > V u i   l ò n g   t h í   l ¡ i   h o · c
   16|         <button
   17|           type="button"
   18|           onClick={reset}
   19|           className="mt-6 inline-flex rounded-full bg-[#00d4aa] px-6 py-3 text-sm font-semibold text-[#080910]...
   20|         >
      2 1 |                       T h í   l ¡ i
   22|         </button>
   23|       </div>
   24|     </div>
   25|   )
   26| }
   27|
```

File: app/(dashboard)/student/dashboard/loading.tsx (25 lines, 1.1 KB)

```
    1| import React from 'react'
    2|
    3| export default function StudentDashboardLoading() {
    4|   return (
    5|     <div className="min-h-screen bg-[#080910] p-6 md:p-8 lg:p-10">
    6|       <div className="max-w-[1440px] mx-auto space-y-6 animate-pulse">
    7|         <div className="h-24 rounded-3xl bg-[#0f1018] border border-[#1d1f2a]" />
    8|         <div className="grid gap-4 sm:grid-cols-2 xl:grid-cols-4">
    9|           {[...Array(4)].map((_, index) => (
   10|             <div key={index} className="h-36 rounded-3xl bg-[#0f1018] border border-[#1d1f2a]" />
   11|           ))}
   12|         </div>
   13|         <div className="grid gap-4 lg:grid-cols-[2fr_1.2fr]">
   14|           <div className="h-[340px] rounded-3xl bg-[#0f1018] border border-[#1d1f2a]" />
   15|           <div className="space-y-4">
   16|             <div className="h-48 rounded-3xl bg-[#0f1018] border border-[#1d1f2a]" />
   17|             <div className="h-56 rounded-3xl bg-[#0f1018] border border-[#1d1f2a]" />
   18|           </div>
   19|         </div>
   20|         <div className="h-[340px] rounded-3xl bg-[#0f1018] border border-[#1d1f2a]" />
   21|       </div>
   22|     </div>
   23|   )
   24| }
   25|
```

File: app/(dashboard)/student/dashboard/page.tsx (159 lines, 4.4 KB)

```
    1| import { createClient } from '@/lib/supabase-ssr-server'
    2| import { requireRole } from '@/lib/auth/rbac'
    3|
    4| import { StudentDashboardClient } from './StudentDashboardClient'
    5|
    6| type LessonProgressRow = {
    7|   lesson_id: string
    8|   status: string | null
    9|   time_spent_seconds: number | null
   10|   completed_at: string | null
   11|   last_accessed: string | null
   12|   completion_percentage: number | null
   13|   lessons?: {
   14|     title: string | null
   15|     thumbnail_url: string | null
   16|   } | null
   17| }
   18|
   19|
   20|
   21|
   22|
   23| type ChartPoint = {
   24|   day: string
   25|   minutes: number
   26| }
   27|
   28| function getGreeting(): string {
   29|   const hour = new Date().getHours()
   30|   if (hour >= 5 && hour < 12) return 'sáng'
      3 1 |       i f   ( h o u r   > =   1 2   & &   h o u r   <   1 8 )   r e t u r n   ' c h i Á u '
      3 2 |       r e t u r n   ' t Ñ i '
   33| }
   34|
   35| function formatDateLabel(): string {
   36|   const now = new Date()
   37|   return new Intl.DateTimeFormat('vi-VN', {
   38|     weekday: 'long',
   39|     day: 'numeric',
   40|     month: 'numeric'
   41|   }).format(now)
   42| }
   43|
   44| function buildChartData(progress: LessonProgressRow[]): ChartPoint[] {
   45|   const today = new Date()
   46|   const days = Array.from({ length: 7 }, (_, index) => {
```

```
  47|     const current = new Date(today)
  48|     current.setDate(today.getDate() - (6 - index))
  49|     return current.toISOString().slice(0, 10)
  50|   })
  51|
  52|   return days.map((day) => {
  53|     const minutes = Math.round(
  54|       progress
  55|         .filter((row) => {
  56|           if (!row.last_accessed) return false
  57|           const accessed = new Date(row.last_accessed).toISOString().slice(0, 10)
  58|           return accessed === day
  59|         })
  60|         .reduce((sum, row) => sum + (row.time_spent_seconds ?? 0), 0) / 60
  61|     )
  62|
  63|     return {
  64|       day: day.slice(5).replace('-', '/'),
  65|       minutes: Math.max(minutes, 0)
  66|     }
  67|   })
  68| }
  69|
  70| function calculateStreak(progress: LessonProgressRow[]): number {
  71|   const uniqueDays = new Set(
  72|     progress
  73|       .map((row) => {
  74|         if (!row.last_accessed) return ''
  75|         return new Date(row.last_accessed).toISOString().slice(0, 10)
  76|       })
  77|       .filter(Boolean)
  78|   )
  79|
  80|   if (uniqueDays.size === 0) {
  81|     return 0
  82|   }
  83|
  84|   let streak = 0
  85|   const current = new Date()
  86|
  87|   while (true) {
  88|     const key = current.toISOString().slice(0, 10)
  89|     if (uniqueDays.has(key)) {
  90|       streak += 1
  91|       current.setDate(current.getDate() - 1)
  92|       continue
  93|     }
  94|     break
  95|   }
  96|
  97|   return streak
  98| }
  99|
 100| export const dynamic = 'force-dynamic'
 101|
 102| export default async function StudentDashboardPage() {
 103|   const user = await requireRole(['student'])
 104|   const supabase = await createClient()
 105|
 106|   const [progressRes, quizRes, lessonsCountRes] = await Promise.all([
 107|     supabase
 108|       .from('lesson_progress')
 109|       .select('lesson_id, status, time_spent_seconds, completed_at, last_accessed, completion_percentage, less...
 110|       .eq('student_id', user.id),
 111|       supabase
 112|         .from('quiz_attempts')
 113|         .select('score, submitted_at, status')
 114|         .eq('student_id', user.id)
 115|       .in('status', ['passed', 'failed'])
 116|       .order('submitted_at', { ascending: false })
 117|       .limit(10),
 118|     supabase
 119|       .from('lessons')
 120|       .select('id', { count: 'exact', head: true })
 121|       .eq('is_published', true),
 122|   ])
 123|
 124|   if (progressRes.error || quizRes.error || lessonsCountRes.error) {
 125|     console.error('Student dashboard fetch error', {
 126|       progressError: progressRes.error,
 127|       quizError: quizRes.error,
 128|       lessonsCountError: lessonsCountRes.error,
 129|     })
 130|   }
 131|
 132|   const progress = (progressRes.data ?? []) as unknown as LessonProgressRow[]
 133|   const quizzes = quizRes.data ?? []
 134|   const totalLessonsCount = lessonsCountRes.count ?? 0
 135|
 136|   const completedLessons = progress.filter((item) => item.status === 'completed').length
 137|   const startedLessons = progress.length
 138|   const totalMinutes = Math.round(progress.reduce((sum, item) => sum + (item.time_spent_seconds ?? 0), 0) / 60)
 139|   const averageScore = quizzes.length > 0 ? Math.round(quizzes.reduce((sum, item) => sum + (item.score ?? 0), ...
 140|   const streakDays = calculateStreak(progress)
 141|   const chartData = buildChartData(progress)
 142|
 143|   return (
 144|     <StudentDashboardClient
 145|       user={user}
 146|       greeting={getGreeting()}
 147|       formattedDate={formatDateLabel()}
 148|       stats={{
 149|         completedLessons,
 150|         startedLessons,
 151|         totalHours: totalMinutes / 60,
 152|         averageScore,
 153|         streakDays
 154|       }}
 155|       chartData={chartData}
 156|     />
 157|   )
 158| }
 159|
```

File: app/(dashboard)/student/dashboard/StudentDashboardClient.tsx (320 lines, 17.5 KB)

==========

```
   1| 'use client'
   2|
   3| import Link from 'next/link'
   4| import { useMemo } from 'react'
   5| import {
   6|   BarChart,
   7|   Bar,
```

```
  8|   CartesianGrid,
  9|   Cell,
 10|   ResponsiveContainer,
 11|   Tooltip,
 12|   XAxis,
 13|   YAxis
 14| } from 'recharts'
 15|
 16| import { motion } from 'framer-motion'
 17| import { useRealtime } from '@/lib/realtime-provider'
 18| import { useSessionTime } from '@/lib/session-time'
 19| import { ChevronRight, Cpu } from 'lucide-react'
 20| import { useIsMobile } from '@/hooks/useIsMobile'
 21|
 22| type UserProps = {
 23|   id: string
 24|   email: string
 25|   role: string
 26|   full_name: string
 27|   student_code?: string
 28| }
 29|
 30| type ProgressStats = {
 31|   completedLessons: number
 32|   startedLessons: number
 33|   totalHours: number
 34|   averageScore: number | null
 35|   streakDays: number
 36| }
 37|
 38| type ChartPoint = {
 39|   day: string
 40|   minutes: number
 41| }
 42|
 43| type Props = {
 44|   user: UserProps
 45|   greeting: string
 46|   formattedDate: string
 47|   stats: ProgressStats
 48|   chartData: ChartPoint[]
 49| }
 50|
 51| const BAR_FILL = '#00d4aa'
 52| const TODAY_FILL = '#00f3ff'
 53|
 54| const DAY_LABELS = ['T2', 'T3', 'T4', 'T5', 'T6', 'T7', 'CN']
 55|
 56| function formatMinutes(value: number) {
 57|   return `${value} phút`
 58| }
 59|
 60| function useTodayIndex() {
 61|   return useMemo(() => {
 62|     const d = new Date().getDay()
 63|     return d === 0 ? 6 : d - 1
 64|   }, [])
 65| }
 66|
 67| function LiveDot({ size = 8 }: { size?: number }) {
 68|   return (
 69|     <span
 70|       style={{
 71|         display: 'inline-block',
 72|         width: size,
 73|         height: size,
 74|         borderRadius: '50%',
 75|         background: '#22c55e',
 76|         marginRight: 6,
 77|         animation: 'live-pulse 1.5s ease-in-out infinite',
 78|         verticalAlign: 'middle',
 79|       }}
 80|     />
 81|   )
 82| }
 83|
 84| export function StudentDashboardClient({
 85|   user,
 86|   greeting,
 87|   formattedDate,
 88|   stats,
 89|   chartData
 90| }: Props) {
 91|   const { state: realtimeState } = useRealtime()
 92|   const sessionTime = useSessionTime()
 93|   const sessionMinutes = Math.floor(sessionTime.elapsed / 60)
 94|   const liveStreak = realtimeState.streak || stats.streakDays
 95|   const liveTotalHours = realtimeState.studyMinutes > 0 ? (realtimeState.studyMinutes / 60) : stats.totalHours
 96|   const liveWeeklyActivity: { day: string; minutes: number }[] = realtimeState.weeklyActivity.some(v => v > 0)
 97|     ? DAY_LABELS.map((day, i) => ({
 98|         day,
 99|         minutes: realtimeState.weeklyActivity[i] || 0
100|       }))
101|     : chartData
102|   const todayIndex = useTodayIndex()
103|   const todayMinutes = liveWeeklyActivity[todayIndex]?.minutes || 0
104|   const hasStudiedToday = todayMinutes > 0 || sessionMinutes > 0
105|   const isMobile = useIsMobile()
106|
107|   return (
108|     <motion.div className={isMobile ? 'p-4' : 'p-6 md:p-8 lg:p-10'} style={{ background: 'transparent' }} init...
109|       <div className="max-w-[1400px] mx-auto" style={{ display: 'flex', flexDirection: 'column', gap: '32px' }}>
110|         <motion.div initial={{ opacity: 0, y: 15 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 0 * 0....
111|           <section style={{ display: 'grid', gap: '16px', gridTemplateColumns: isMobile ? '1fr' : '1.6fr 1fr',...
112|             <div className="lms-card" style={{ padding: isMobile ? '20px' : '32px', position: 'relative', over...
113|               <div style={{ position: 'absolute', top: -20, right: -20, width: '120px', height: '120px', borde...
114|               <p style={{ fontSize: '13px', textTransform: 'uppercase', letterSpacing: '2px', color: 'var(--br...
115|               <h1 style={{ fontSize: isMobile ? '24px' : '32px', fontWeight: 800, color: 'var(--text-primary)'...
116|               <p style={{ color: 'var(--text-muted)', fontSize: '14px', margin: 0 }}>Hôm nay là {formattedDate...
117|               <div style={{ marginTop: '16px', display: 'flex', gap: '10px', flexWrap: 'wrap' }}>
118|                 <Link href="/builder" className="lms-btn lms-btn-primary" style={{ display: 'inline-flex', ali...
   1 1 9 |                                    < C p u   s i z e = { 1 6 }   / >   T h ñ c   h à n h   l ̆ p   r á p
120|                 </Link>
121|               </div>
122|             </div>
123|             <motion.div className="lms-card" style={{ padding: isMobile ? '16px' : '24px', background: 'linear...
124|               <div style={{ display: 'flex', alignItems: 'center', gap: '14px' }}>
125|                 <div style={{ fontSize: '44px', lineHeight: 1 }}>{realtimeState.levelIcon}</div>
126|                 <div>
127|                   <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: ...
128|                   <div style={{ fontSize: '18px', fontWeight: 800, color: 'var(--text-primary)' }}>{realtimeSt...
129|                   <div style={{ fontSize: '12px', color: 'var(--brand-primary)', fontWeight: 600 }}>Level {rea...
130|                 </div>
131|               </div>
```

```
132|              <div style={{ height: '4px', borderRadius: '99px', background: 'rgba(255,255,255,0.06)', overflo...
133|                <div style={{ height: '100%', borderRadius: '99px', background: 'linear-gradient(90deg, var(--...
134|              </div>
135|              <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: '10px', color: 'var(--...
136|                <span>{realtimeState.xpInLevel} / {realtimeState.xpToNext} XP</span>
137|              </div>
138|            </motion.div>
139|          </section>
140|        </motion.div>
141|
142|        <motion.div initial={{ opacity: 0, y: 15 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 1 * 0....
143|          <section style={{ display: 'grid', gap: '16px', gridTemplateColumns: isMobile ? '1fr' : '2.2fr 1fr' }}>
144|            <motion.div className="lms-card" style={{
145|              padding: isMobile ? '16px' : '24px',
146|              background: hasStudiedToday
147|                ? 'linear-gradient(135deg, rgba(34,197,94,0.06), transparent)'
148|                : undefined,
149|              border: hasStudiedToday ? '1px solid rgba(34,197,94,0.25)' : undefined,
150|            }} whileHover={{ scale: 1.02 }}>
151|              <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', marginBott...
152|                <div style={{ fontSize: '11px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '2...
   1 5 3 |                                    < L i v e D o t   / >   H Í c   t - p   h ô m   n a y
154|                </div>
155|                <div style={{
156|                  display: 'flex', alignItems: 'center', gap: 6,
157|                  fontSize: '11px', fontWeight: 700, color: hasStudiedToday ? '#22c55e' : 'var(--text-muted)',
158|                }}>
   1 5 9 |                                    { h a s S t u d i e d T o d a y   ?   ''      ã   h Í c '   :   ' C h ° a   h Í c ' }
160|                </div>
161|              </div>
162|              <div style={{ display: 'flex', alignItems: 'baseline', gap: 8 }}>
163|                <motion.span
164|                  key={sessionMinutes}
165|                  initial={{ scale: 1.3, opacity: 0.5 }}
166|                  animate={{ scale: 1, opacity: 1 }}
167|                  transition={{ duration: 0.3 }}
168|                  style={{ fontSize: isMobile ? '28px' : '36px', fontWeight: 800, color: 'var(--text-primary)' }}
169|                >
170|                  {sessionMinutes}
171|                </motion.span>
172|                <span style={{ fontSize: '14px', color: 'var(--text-muted)', fontWeight: 600 }}>phút trên web<...
173|              </div>
174|              <div style={{ fontSize: '13px', color: 'var(--text-muted)', marginTop: 4 }}>
175|                {hasStudiedToday
   1 7 6 |                                    ?   `   ã   o n l i n e   $ { s e s s i o n M i n u t e s }   p h ú t   h ô m   n a y . `
   1 7 7 |                                    :   ' B ¯ t     § u   m Ù t   b à i   h Í c   h o · c   l ¯ p   r á p   P C   n g a y ! ' }
178|                </div>
179|            </motion.div>
180|
181|            <motion.div className="lms-card" style={{
182|              padding: isMobile ? '16px' : '24px',
183|              background: liveStreak >= 3
184|                ? 'linear-gradient(135deg, rgba(255,165,0,0.06), transparent)'
185|                : undefined,
186|              border: liveStreak >= 3 ? '1px solid rgba(255,165,0,0.2)' : undefined,
187|            }} whileHover={{ scale: 1.02 }}>
188|              <div style={{ fontSize: '11px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '2px...
   1 8 9 |                                  S t r e a k   h i Ç n   t ¡ i
190|                </div>
191|              <div style={{ display: 'flex', alignItems: 'baseline', gap: 8 }}>
192|                <motion.span
193|                  key={liveStreak}
194|                  initial={{ scale: 1.3, opacity: 0.5 }}
195|                  animate={{ scale: 1, opacity: 1 }}
196|                  transition={{ duration: 0.3 }}
197|                  style={{ fontSize: isMobile ? '28px' : '36px', fontWeight: 800, color: liveStreak >= 3 ? '#f...
198|                >
199|                  {liveStreak}
200|                </motion.span>
   2 0 1 |                                  < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e
202|                </div>
203|                <div style={{ marginTop: 8, display: 'flex', gap: 4 }}>
204|                  {Array.from({ length: Math.min(liveStreak, 7) }).map((_, i) => (
205|                    <div key={i} style={{
206|                      width: 24, height: 24, borderRadius: '50%',
207|                      background: i < liveStreak ? 'linear-gradient(135deg, #f59e0b, #ef4444)' : 'rgba(255,255,2...
208|                      display: 'flex', alignItems: 'center', justifyContent: 'center',
209|                      fontSize: 12, fontWeight: 700, color: '#fff',
   2 1 0 |                                    } } >Ø=Ý% < / d i v >
211|                  ))}
212|                </div>
213|              </motion.div>
214|            </section>
215|        </motion.div>
216|
217|        <motion.div initial={{ opacity: 0, y: 15 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 2 * 0....
218|          <section style={{ display: 'grid', gap: '16px', gridTemplateColumns: 'repeat(auto-fit, minmax(180px,...
219|            {[
   2 2 0 |                                {   l a b e l :   ' B à i   h o à n   t h à n h ' ,   v a l u e :   ` $ { r e a l t i m e S t a t e . c o m p l e t
   2 2 1 |                                {   l a b e l :   ' T Õ n g   g i Ý   h Í c ' ,   v a l u e :   l i v e T o t a l H o u r s . t o F i x e d ( 1 ) ,
   2 2 2 |                                {   l a b e l :   '   i Ã m   T B   q u i z ' ,   v a l u e :   r e a l t i m e S t a t e . a v e r a g e S c o r e
   2 2 3 |                                {   l a b e l :   ' T Õ n g   X P ' ,   v a l u e :   ` $ { r e a l t i m e S t a t e . x p } ` ,   s u b :   ' K i
224|            ].map((s, i) => (
225|              <motion.div key={i} className="lms-card" style={{ padding: isMobile ? '14px' : '20px', position:...
226|                {s.live && (
227|                  <div style={{ position: 'absolute', top: 12, right: 12 }}>
228|                    <LiveDot size={6} />
229|                  </div>
230|                )}
231|                <div style={{ fontSize: '11px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '2...
232|                <motion.div
233|                  key={s.value}
234|                  initial={{ scale: 1.2, opacity: 0.5 }}
235|                  animate={{ scale: 1, opacity: 1 }}
236|                  transition={{ duration: 0.3 }}
237|                  style={{ fontSize: isMobile ? '22px' : '28px', fontWeight: 800, color: 'var(--text-primary)' }}
238|                >{s.value}</motion.div>
239|                <div style={{ fontSize: '13px', color: 'var(--text-muted)', marginTop: '4px' }}>{s.sub}</div>
240|              </motion.div>
241|            ))}
242|          </section>
243|        </motion.div>
244|
245|        {/* Level Card */}
246|        <motion.div initial={{ opacity: 0, y: 15 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 2.5 * ...
247|          <Link href="/student/level" style={{ textDecoration: 'none' }}>
248|            <motion.div className="lms-card" style={{ padding: isMobile ? '16px' : '24px', background: 'linear...
249|              <div style={{ position: 'absolute', top: '-50%', right: '-10%', width: '200px', height: '200px',...
250|              <div style={{ display: 'flex', alignItems: 'center', gap: '20px', position: 'relative', zIndex: ...
251|                <div style={{ textAlign: 'center', minWidth: '60px' }}>
252|                  <div style={{ fontSize: '36px', lineHeight: 1 }}>{realtimeState.levelIcon}</div>
253|                  <div style={{ fontSize: '10px', fontWeight: 800, color: 'var(--brand-primary)', textTransfor...
254|                    Level {realtimeState.level}
255|                  </div>
```

```
  256|                </div>
  257|                <div style={{ flex: 1 }}>
  258|                  <div style={{ fontSize: '13px', color: 'var(--text-muted)', fontWeight: 600, textTransform: ...
  259|                  <div style={{ fontSize: '20px', fontWeight: 800, color: 'var(--text-primary)', marginBottom:...
  260|                    {realtimeState.levelTitle}
  261|                  </div>
  262|                  <div style={{ height: '6px', borderRadius: '99px', background: 'rgba(255,255,255,0.08)', ove...
  263|                    <div style={{ height: '100%', borderRadius: '99px', background: 'linear-gradient(90deg, va...
  264|                  </div>
  265|                  <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: '11px', color: 'va...
  266|                    <span>{realtimeState.xpInLevel} / {realtimeState.xpToNext} XP</span>
  267|                    <span style={{ display: 'flex', alignItems: 'center', gap: '4px', color: 'var(--brand-prim...
    2 6 8 |                                                X e m   c h i   t i ¿ t   < C h e v r o n R i g h t   s i z e = { 1 4 }   / >
  269|                    </span>
  270|                  </div>
  271|                </div>
  272|              </div>
  273|            </motion.div>
  274|          </Link>
  275|        </motion.div>
  276|
  277|        <motion.div initial={{ opacity: 0, y: 15 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 4 * 0....
  278|          <section className="lms-card" style={{ padding: isMobile ? '16px' : '24px' }}>
  279|            <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom...
  280|              <div>
  281|                <div style={{ fontSize: '13px', textTransform: 'uppercase', letterSpacing: '2px', color: 'var(...
  282|                <div style={{ fontSize: '18px', fontWeight: 600, color: 'var(--text-primary)', marginTop: '4px...
  283|              </div>
  284|              <div style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '12px', color: '#22c5...
    2 8 5 |                                  < L i v e D o t   s i z e = { 6 }   / >   T r ñ c   t i ¿ p
  286|              </div>
  287|            </div>
  288|            <div style={{ height: '300px', width: '100%' }}>
  289|              <ResponsiveContainer width="100%" height="100%">
  290|                <BarChart data={liveWeeklyActivity} margin={{ top: 10, right: 10, left: -10, bottom: 0 }}>
  291|                  <CartesianGrid stroke="var(--border-subtle)" vertical={false} />
  292|                  <XAxis dataKey="day" tick={{ fill: 'var(--text-muted)', fontSize: 12 }} axisLine={false} tic...
  293|                  <YAxis tick={{ fill: 'var(--text-muted)', fontSize: 12 }} axisLine={false} tickLine={false} />
  294|                  <Tooltip formatter={formatMinutes} cursor={{ fill: 'rgba(8, 158, 96, 0.08)' }} contentStyle=...
  295|                  <Bar dataKey="minutes" radius={[8, 8, 0, 0]} fill={BAR_FILL}>
  296|                    {liveWeeklyActivity.map((entry, index) => (
  297|                      <Cell
  298|                        key={`cell-${index}`}
  299|                        fill={index === todayIndex ? TODAY_FILL : BAR_FILL}
  300|                        style={index === todayIndex ? { filter: 'brightness(1.2)', transition: 'fill 0.3s ease...
  301|                      />
  302|                    ))}
  303|                  </Bar>
  304|                </BarChart>
  305|              </ResponsiveContainer>
  306|            </div>
  307|          </section>
  308|        </motion.div>
  309|
  310|        <style>{`
  311|          @keyframes live-pulse {
  312|            0%, 100% { opacity: 1; transform: scale(1); }
  313|            50% { opacity: 0.5; transform: scale(1.3); }
  314|          }
  315|        `}</style>
  316|      </div>
  317|    </motion.div>
  318|  )
  319| }
  320|
```

File: app/(dashboard)/student/error.tsx (26 lines, 0.9 KB)

```
==========================================================================================
    1| // Path: app/(dashboard)/student/error.tsx
    2| 'use client'
    3| import { useEffect } from 'react'
    4|
    5| export default function Error({
    6|   error, reset
    7| }: { error: Error & { digest?: string }; reset: () => void }) {
    8|   useEffect(() => { console.error(error) }, [error])
    9|   return (
   10|     <div className="flex flex-col items-center justify-center h-full gap-6 p-8">
      1 1 |               < d i v   c l a s s N a m e = " t e x t - 4 x l " >& þ  < / d i v >
   12|       <div className="text-center">
      1 3 |                  < h 2   c l a s s N a m e = " t e x t - l g   f o n t - s e m i b o l d   t e x t - [ # d 8 d b e 8 ]   m b - 2 " > C ó   l x i
      1 4 |                  < p   c l a s s N a m e = " t e x t - s m   t e x t - [ # 5 a 5 d 7 2 ]   m b - 4 " > { e r r o r . m e s s a g e   | |   ' V u
   15|         <button
   16|           onClick={reset}
   17|           className="px-4 py-2 bg-[#00d4aa]/15 border border-[#00d4aa]/30
   18|                        text-[#00d4aa] rounded-lg text-sm font-medium hover:bg-[#00d4aa]/25 transition-colors"
   19|         >
      2 0 |                     T h í   l ¡ i
   21|         </button>
   22|       </div>
   23|     </div>
   24|   )
   25| }
   26|
```

File: app/(dashboard)/student/layout.tsx (242 lines, 12.1 KB)

```
==========================================================================================
         1 |  þÿ ' u s e   c l i e n t '
    2|
    3| import React, { useEffect, useState, useCallback } from 'react'
    4| import Link from 'next/link'
    5| import { usePathname } from 'next/navigation'
    6| import {
    7|     GraduationCap, LayoutDashboard, Cpu, History, LogOut, Users,
    8|     BookOpen, Sun, Moon, Map, BarChart2, Menu, X, BookMarked,
    9|     ShoppingCart, Swords, FileQuestion, Gamepad2, User, ChevronRight, Zap
   10| } from 'lucide-react'
   11| import { logout } from '@/lib/auth-actions'
   12| import { createBrowserClient } from '@supabase/ssr'
   13| import PageTransition from '@/components/PageTransition'
   14| import { motion, AnimatePresence } from 'framer-motion'
   15| import { Clock } from 'lucide-react'
   16| import { useSessionTime } from '@/lib/session-time'
   17|
   18| function SessionTimer() {
   19|     const { formatted } = useSessionTime()
   20|     return (
   21|         <div className="flex items-center gap-2 px-4 py-2 mx-3 my-2 rounded-lg text-xs font-semibold bg-emeral...
   22|             <Clock size={14} />
   23|             <span>{formatted}</span>
   24|         </div>
```

```
    )
}

function ThemeToggle() {
    const [theme, setThemeState] = useState<'light' | 'dark'>('dark')
    useEffect(() => {
        const saved = (localStorage.getItem('theme') as 'light' | 'dark') || 'dark'
        setThemeState(saved)
        document.documentElement.setAttribute('data-theme', saved)
    }, [])
    const toggle = useCallback(() => {
        const next = theme === 'light' ? 'dark' : 'light'
        setThemeState(next)
        document.documentElement.setAttribute('data-theme', next)
        localStorage.setItem('theme', next)
    }, [theme])
    return (
        <button onClick={toggle} className="flex items-center gap-3 px-4 py-3 w-full rounded-lg bg-transparent...
            {theme === 'light' ? <Moon size={18} /> : <Sun size={18} />}
            {theme === 'light' ? 'Giao diện tối' : 'Giao diện sáng'}
        </button>
    )
}

const ALL_NAV_ITEMS = [
        {  href:  '/student/dashboard',  label:  'Bảng  điều  khiển',  icon:  Layout
        {  href:  '/builder',  label:  'Luyện  Tập',  icon:  Cpu,  mobileOnly:  false
        {  href:  '/student/level',  label:  'Cấp  Độ  &  Nhiệm  Vụ',  icon:  Zap,  mob
        {  href:  '/student/sgk',  label:  'Chấm  Máy  Tính',  icon:  ShoppingCart,  m
        {  href:  '/student/quiz',  label:  'Kỳ  Thi',  icon:  FileQuestion,  mobile
        {  href:  '/student/multiplayer',  label:  '2  Người  Chơi',  icon:  Swords,
        {  href:  '/student/quiz-bank',  label:  'Ngân  Hàng  Đề  Thi',  icon:  Gamep
        {  href:  '/student/history',  label:  'Lịch  Sử  Hức  Tập',  icon:  History,
]

export default function StudentLayout({ children }: { children: React.ReactNode }) {
    const [hasClass, setHasClass] = useState(false)
    const [profile, setProfile] = useState<any>(null)
    const [mobileOpen, setMobileOpen] = useState(false)
    const pathname = usePathname()
    const supabase = createBrowserClient(
        process.env.NEXT_PUBLIC_SUPABASE_URL!,
        process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
    )

    useEffect(() => {
        const checkClass = async () => {
            const { data: { user } } = await supabase.auth.getUser()
            if (user) {
                const { data: p } = await supabase.from('profiles').select('*').eq('id', user.id).single()
                if (p) { setProfile(p); if (p.school_id || p.class_id) setHasClass(true) }
            }
        }
        checkClass()
    }, [])

    useEffect(() => {
        if (mobileOpen) {
            document.body.style.overflow = 'hidden'
        } else {
            document.body.style.overflow = ''
        }
        return () => { document.body.style.overflow = '' }
    }, [mobileOpen])

    const closeMobile = () => setMobileOpen(false)

    const desktopNavItems = ALL_NAV_ITEMS.filter(n => !n.mobileOnly)
    const mobileNavItems = ALL_NAV_ITEMS

    const sidebarContent = (
        <>
            <div className="p-6 flex items-center gap-3 border-b border-white/10">
                <div className="w-10 h-10 rounded-xl bg-[var(--brand-primary)] flex items-center justify-cente...
                    {profile?.avatar_url ? (
                        <img src={profile.avatar_url} alt="" style={{ width: '100%', height: '100%', objectFit...
                    ) : (
                        <GraduationCap size={20} color="#fff" />
                    )}
                </div>
                <div className="flex-1">
                    <div className="font-extrabold text-lg text-white">PC Master</div>
                    <div  className="text-[11px]  text-[var(--brand-primar
                </div>
            </div>

            <SessionTimer />
            <nav className="flex-1 px-3 py-4 flex flex-col gap-1">
                {desktopNavItems.map(({ href, label, icon: Icon }) => {
                    const active = pathname === href
                    return (
                        <Link key={href} href={href} className={`flex items-center gap-3 px-4 py-3 rounded-xl ...
                            active
                                ? 'bg-emerald-500/15 text-white font-bold'
                                : 'text-white/60 hover:text-white/80 hover:bg-white/5'
                        }`}>
                            <Icon size={20} />
                            <span className="flex-1">{label}</span>
                            {active && <ChevronRight size={16} className="text-emerald-400" />}
                        </Link>
                    )
                })}
            </nav>

            <div className="p-4 border-t border-white/10 flex flex-col gap-1">
                <ThemeToggle />
                <button onClick={() => { closeMobile(); logout(); }}
                    className="flex items-center gap-3 px-4 py-3 w-full rounded-lg bg-transparent border-none ...
                    <LogOut  size={18}  />  Đăng  xuất
                </button>
            </div>
        </>
    )

    return (
        <div className="flex min-h-screen bg-[var(--bg-base)]">
            {/* Desktop sidebar */}
            <aside className="hidden md:flex w-[280px] bg-gradient-to-b from-[#031f3b] to-[#1a2f53] flex-col s...
                {sidebarContent}
            </aside>

            {/* Mobile hamburger */}
            <button
```

```
 149|                onClick={() => setMobileOpen(true)}
 150|                className="fixed top-3 left-3 z-[1001] md:hidden flex items-center justify-center w-11 h-11 ro...
    1 5 1 |                                a r i a - l a b e l = " M ß   m e n u "
 152|            >
 153|                <Menu size={22} />
 154|            </button>
 155|
 156|            {/* Mobile header */}
 157|            <header className="md:hidden fixed top-0 left-0 right-0 z-50 flex items-center justify-between px-...
 158|                <div className="w-11" />
 159|                <div className="flex items-center gap-2">
 160|                    <div className="w-7 h-7 rounded-lg bg-[var(--brand-primary)] flex items-center justify-cen...
 161|                    <GraduationCap size={14} color="#fff" />
 162|                </div>
 163|                <span className="text-sm font-extrabold text-[var(--text-primary)]">PC Master</span>
 164|            </div>
 165|            <div className="w-9" />
 166|            </header>
 167|
 168|            {/* Spacer for mobile header */}
 169|            <div className="md:hidden h-14 shrink-0" />
 170|
 171|            {/* Mobile drawer */}
 172|            <AnimatePresence>
 173|                {mobileOpen && (
 174|                    <>
 175|                        <motion.div
 176|                            initial={{ opacity: 0 }}
 177|                            animate={{ opacity: 1 }}
 178|                            exit={{ opacity: 0 }}
 179|                            transition={{ duration: 0.2 }}
 180|                            onClick={closeMobile}
 181|                            className="fixed inset-0 bg-black/60 backdrop-blur-sm z-[1002] md:hidden"
 182|                        />
 183|                        <motion.aside
 184|                            initial={{ x: '-100%' }}
 185|                            animate={{ x: 0 }}
 186|                            exit={{ x: '-100%' }}
 187|                            transition={{ type: 'spring', damping: 28, stiffness: 300 }}
 188|                            className="fixed top-0 left-0 bottom-0 w-[290px] z-[1003] md:hidden flex flex-col ...
 189|                        >
 190|                            <div className="p-5 flex items-center gap-3 border-b border-white/10">
 191|                                <div className="w-10 h-10 rounded-xl bg-[var(--brand-primary)] flex items-cent...
 192|                                    {profile?.avatar_url ? (
 193|                                        <img src={profile.avatar_url} alt="" style={{ width: '100%', height: '...
 194|                                    ) : (
 195|                                        <GraduationCap size={20} color="#fff" />
 196|                                    )}
 197|                                </div>
 198|                                <div className="flex-1">
 199|                                    <div className="font-extrabold text-lg text-white">PC Master</div>
 200|                                    <div className="text-[11px] text-[var(--brand-primary)] font-semibold opac...
 201|                                </div>
 202|                                <button onClick={closeMobile}
 203|                                    className="w-9 h-9 rounded-lg bg-white/10 border-none flex items-center ju...
 204|                                    <X size={20} />
 205|                                </button>
 206|                            </div>
 207|                            <nav className="flex-1 px-3 py-4 flex flex-col gap-1">
 208|                                {mobileNavItems.map(({ href, label, icon: Icon }) => {
 209|                                    const active = pathname === href
 210|                                    return (
 211|                                        <Link key={href} href={href} onClick={closeMobile}
 212|                                            className={`flex items-center gap-3 px-4 py-3.5 rounded-xl text-sm...
 213|                                                active
 214|                                                    ? 'bg-emerald-500/15 text-white font-bold'
 215|                                                    : 'text-white/60 hover:text-white/80 hover:bg-white/5'
 216|                                            }`}>
 217|                                            <Icon size={20} />
 218|                                            <span className="flex-1">{label}</span>
 219|                                            {active && <ChevronRight size={16} className="text-emerald-400" />}
 220|                                        </Link>
 221|                                    )
 222|                                })}
 223|                            </nav>
 224|                            <div className="p-4 border-t border-white/10 flex flex-col gap-1">
 225|                                <ThemeToggle />
 226|                                <button onClick={() => { closeMobile(); logout(); }}
 227|                                    className="flex items-center gap-3 px-4 py-3 w-full rounded-lg bg-transpar...
    2 2 8 |                                                                    < L o g O u t   s i z e = { 1 8 }   / >       n g   x u ¥ t
 229|                                </button>
 230|                            </div>
 231|                        </motion.aside>
 232|                    </>
 233|                )}
 234|            </AnimatePresence>
 235|
 236|            <main className="flex-1 overflow-y-auto min-w-0 md:pt-0 pt-0">
 237|                <PageTransition>{children}</PageTransition>
 238|            </main>
 239|        </div>
 240|    )
 241| }
 242|
```

File: app/(dashboard)/student/lessons/[lessonId]/LessonViewer.tsx (376 lines, 16.9 KB)

```
   1| 'use client'
   2|
   3| import { useState, useEffect, useRef, useCallback } from 'react'
   4| import { useRouter } from 'next/navigation'
   5| import Link from 'next/link'
   6| import {
   7|   Video, FileText, Image as ImageIcon, FileSearch, Code, ChevronRight,
   8|   CheckCircle, Clock, Play, BookOpen, HelpCircle, ExternalLink
   9| } from 'lucide-react'
  10| import ReactMarkdown from 'react-markdown'
  11| import { saveLessonProgress } from '@/lib/lesson-actions'
  12| import { getKeyQuestions } from '@/data/key-questions'
  13| import { QUIZ_BANK } from '@/data/quiz-bank'
  14| import PdfViewer from '@/components/PdfViewer'
  15|
  16| const EXTRA_VIDEOS: Record<string, { title: string; id: string }[]> = {
  17|   'cpu': [
    1 8 |         {   t i t l e :   ' C P U   l à   g ì ?   -   G i £ i   t h í c h   c h i   t i ¿ t ' ,   i d :   ' c W z B 7 G v N 6 v s '   } ,
    1 9 |         {   t i t l e :   ' C á c h   c h Ï n   C P U   p h ù   h ã p ' ,   i d :   ' 7 j 3 I 7 X 7 G z 6 M '   } ,
  20|   ],
  21|   'mainboard': [
    2 2 |         {   t i t l e :   ' B o   m ¡ c h   c h ç   l à   g ì ? ' ,   i d :   ' Q _ s B q 0 - i V 4 I '   } ,
  23|   ],
  24|   'ram': [
    2 5 |         {   t i t l e :   ' R A M   l à   g ì ?   G i £ i   t h í c h   D D R 4   v s   D D R 5 ' ,   i d :   ' q T Q 7 v g 1 J F D A '   } ,
  26|   ],
```

```
27|   'gpu': [
   2 8 |          {  t i t l e :  ' C a r d   Ó  h Í a  ( G P U )  h o ¡ t   Ù n g  t h ¿  n à o ? ' ,  i d :  ' O Q 6 f M G M i V P E '  }
29|   ],
   3 0 |      ' Õ  c é n g ' :  [
   3 1 |          {  t i t l e :  ' S S D  v s  H D D  -  N ê n  c h Í n  l o ¡ i  n à o ? ' ,  i d :  ' Y Q E j G K Y X j w 8 '  } ,
32|   ],
   3 3 |      ' n g u Ó n ' :  [
   3 4 |          {  t i t l e :  ' N g u Ó n  m á y  t í n h  ( P S U )  -  H ° Û n g  d « n  c h Í n ' ,  i d :  ' P c o 0 v P j V 0 w k '
35|   ],
36|   'case': [
   3 7 |          {  t i t l e :  ' C a s e  m á y  t í n h  -  C á c  l o ¡ i  v à  c á c h  c h Í n ' ,  i d :  ' O 8 H Q z P 3 Q w L 8 '
38|   ],
39| }
40|
41| interface Section {
42|   id: string
43|   title: string
44|   type: string
45|   content: string
46|   order_index: number
47|   source?: string
48| }
49|
50| interface Lesson {
51|   id: string
52|   title: string
53|   description: string
54|   estimated_minutes?: number
55| }
56|
57| interface Progress {
58|   is_completed?: boolean
59|   completion_percentage?: number
60|   time_spent_seconds?: number
61| }
62|
63| export default function LessonViewer({
64|   lesson, sections, initialProgress, userId,
65| }: {
66|   lesson: Lesson
67|   sections: Section[]
68|   initialProgress: Progress | null
69|   userId: string
70| }) {
71|   const router = useRouter()
72|   const [activeSection, setActiveSection] = useState(sections[0]?.id || '')
73|   const [completed, setCompleted] = useState(initialProgress?.is_completed || false)
74|   const [timeSpent, setTimeSpent] = useState(initialProgress?.time_spent_seconds || 0)
75|   const intervalRef = useRef<NodeJS.Timeout | null>(null)
76|   const sectionRefs = useRef<Record<string, HTMLDivElement | null>>({})
77|
78|   useEffect(() => {
79|     saveLessonProgress(lesson.id, 0, false)
80|
81|     intervalRef.current = setInterval(async () => {
82|       setTimeSpent(prev => {
83|         const newTime = prev + 30
84|         saveLessonProgress(lesson.id, 0, false)
85|         return newTime
86|       })
87|     }, 30000)
88|     return () => {
89|       if (intervalRef.current) clearInterval(intervalRef.current)
90|     }
91|   }, [lesson.id])
92|
93|   const handleComplete = useCallback(async () => {
94|     setCompleted(true)
95|     await saveLessonProgress(lesson.id, 100, true)
96|     router.refresh()
97|   }, [lesson.id, router])
98|
99|   const getYouTubeEmbed = (url: string) => {
100|     if (!url) return ''
101|     const id = url.match(
102|       /(?:youtube\.com\/(?:[^/]+\/.+\/|(?:v|e(?:mbed)?)\/|.*[?&]v=)|youtu\.be\/)([^"&?/\s]{11})/
103|     )?.[1]
104|     return id ? `https://www.youtube-nocookie.com/embed/${id}` : ''
105|   }
106|
107|   const getDriveEmbed = (url: string) => {
108|     if (!url) return ''
109|     const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1] || url.match(/id=(.+?)(&|$)/)?.[1]
110|     return id ? `https://drive.google.com/file/d/${id}/preview` : ''
111|   }
112|
113|   const getPdfEmbedUrl = (url: string) => {
114|     if (!url) return ''
115|     const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1] || url.match(/id=(.+?)(&|$)/)?.[1]
116|     if (id) {
117|       const downloadUrl = `https://drive.google.com/uc?export=download&id=${id}`
118|       return `https://docs.google.com/viewer?url=${encodeURIComponent(downloadUrl)}&embedded=true`
119|     }
120|     return url
121|   }
122|
123|   const parseRichContent = (content: string) => {
124|     const parts: { type: 'markdown' | 'video' | 'pdf', content?: string, url?: string }[] = []
125|     const regex = /<div class="(video-embed|pdf-embed)">([\s\S]*?)<\/div>/g
126|     let lastIndex = 0, match
127|     while ((match = regex.exec(content)) !== null) {
128|       if (match.index > lastIndex) parts.push({ type: 'markdown', content: content.substring(lastIndex, match....
129|       parts.push({ type: match[1] === 'video-embed' ? 'video' : 'pdf', url: match[2].trim() })
130|       lastIndex = match.index + match[0].length
131|     }
132|     if (lastIndex < content.length) parts.push({ type: 'markdown', content: content.substring(lastIndex) })
133|     if (parts.length === 0) parts.push({ type: 'markdown', content })
134|     return parts
135|   }
136|
137|   const scrollToSection = (sectionId: string) => {
138|     setActiveSection(sectionId)
139|     sectionRefs.current[sectionId]?.scrollIntoView({ behavior: 'smooth' })
140|   }
141|
142|   const keyQuestions = getKeyQuestions(lesson.title)
143|   const relatedQuizzes = QUIZ_BANK.filter(q => q.lessonTitle === lesson.title && q.questions.length > 0)
144|   const [showKeyQuestions, setShowKeyQuestions] = useState(false)
145|
146|   if (sections.length === 0) {
147|     return (
148|       <div className="text-center py-20 rounded-2xl" style={{ background: 'var(--bg-elevated)', border: '1px s...
149|         <BookOpen size={48} className="mx-auto mb-4" style={{ color: 'var(--text-muted)' }} />
   1 5 0 |                  < p   c l a s s N a m e = " f o n t - m e d i u m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - s e c o n d a r y
```

```
151|       </div>
152|     )
153|   }
154|
155|   return (
156|     <div className="flex gap-6">
157|       <div className="flex-1 min-w-0">
158|         <div className="rounded-2xl p-6 mb-6" style={{ background: 'var(--bg-elevated)', border: '1px solid va...
159|           <h1 className="text-2xl font-bold mb-2" style={{ color: 'var(--text-primary)' }}>{lesson.title}</h1>
160|           <p className="text-sm" style={{ color: 'var(--text-secondary)' }}>{lesson.description}</p>
161|           {lesson.estimated_minutes && (
162|             <div className="flex items-center gap-1.5 mt-3 text-xs" style={{ color: 'var(--text-muted)' }}>
163|               <Clock size={13} /> ~{lesson.estimated_minutes} phút
164|             </div>
165|           )}
166|         </div>
167|
168|         <div className="flex flex-col gap-8">
169|           {sections.map((s) => (
170|             <div
171|               key={s.id}
172|               ref={(el) => { sectionRefs.current[s.id] = el }}
173|               className="rounded-2xl overflow-hidden"
174|               style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-subtle)' }}
175|             >
176|               <div className="flex items-center gap-3 px-6 pt-5 pb-3">
177|                 <div className="p-2 rounded-lg" style={{ background: 'var(--bg-surface)' }}>
178|                   {s.type === 'video' && <Video size={18} style={{ color: 'var(--brand-primary)' }} />}
179|                   {s.type === 'text' && <FileText size={18} style={{ color: 'var(--brand-primary)' }} />}
180|                   {s.type === 'image' && <ImageIcon size={18} style={{ color: 'var(--brand-primary)' }} />}
181|                   {s.type === 'pdf' && <FileSearch size={18} style={{ color: 'var(--brand-primary)' }} />}
182|                   {s.type === 'embed' && <Code size={18} style={{ color: 'var(--brand-primary)' }} />}
183|                 </div>
184|                 <h2 className="text-lg font-bold" style={{ color: 'var(--text-primary)' }}>{s.title}</h2>
185|               </div>
186|
187|               <div className="px-6 pb-6">
188|                 {s.type === 'video' && getYouTubeEmbed(s.content) && (
189|                   <div className="aspect-video rounded-xl overflow-hidden" style={{ background: '#000' }}>
190|                     <iframe
191|                       src={getYouTubeEmbed(s.content)}
192|                       className="w-full h-full"
193|                       allowFullScreen
194|                       loading="lazy"
195|                       title={s.title}
196|                     />
197|                   </div>
198|                 )}
199|
200|                 {s.type === 'text' && (
201|                   <div className="prose max-w-none text-sm leading-relaxed" style={{ color: 'var(--text-second...
202|                     {parseRichContent(s.content).map((part, i) => {
203|                       if (part.type === 'video') {
204|                         const embedUrl = getYouTubeEmbed(part.url!)
205|                         return embedUrl ? (
206|                           <div key={i} className="aspect-video rounded-xl overflow-hidden my-4" style={{ backg...
207|                             <iframe src={embedUrl} className="w-full h-full" allowFullScreen title="Video" loa...
208|                           </div>
209|                         ) : null
210|                       }
211|                       if (part.type === 'pdf') {
212|                         return part.url ? (
213|                           <div key={i} className="my-4">
214|                             <PdfViewer url={part.url} title="PDF" />
215|                           </div>
216|                         ) : null
217|                       }
218|                       return <ReactMarkdown key={i}>{part.content!}</ReactMarkdown>
219|                     })}
220|                   </div>
221|                 )}
222|
223|                 {s.type === 'image' && (
224|                   <img src={s.content} alt={s.title} style={{ maxWidth: '100%', height: 'auto', borderRadius: ...
225|                 )}
226|
227|                 {s.type === 'pdf' && s.content && (
228|                   <PdfViewer url={s.content} title={s.title} />
229|                 )}
230|
231|                 {s.type === 'embed' && s.content && (
232|                   <div className="rounded-xl overflow-hidden" style={{ border: '1px solid var(--border-subtle)...
233|                     <div dangerouslySetInnerHTML={{ __html: s.content }} />
234|                   </div>
235|                 )}
236|
237|                 {s.source && (
238|                   <div className="flex items-center gap-1.5 mt-3 text-xs font-medium" style={{ color: 'var(--t...
   2 3 9 |                                          < B o o k O p e n   s i z e = { 1 2 }   / >   N g u Ồ n :   { s . s o u r c e }
240|                   </div>
241|                 )}
242|               </div>
243|             </div>
244|           ))}
245|         </div>
246|
247|         {(() => {
248|           const matchKey = Object.keys(EXTRA_VIDEOS).find(k => lesson.title.toLowerCase().includes(k))
249|           const videos = matchKey ? EXTRA_VIDEOS[matchKey] : null
250|           if (!videos) return null
251|           return (
252|             <div className="rounded-2xl mt-8 p-6" style={{ background: 'var(--bg-elevated)', border: '1px soli...
253|               <h3 className="text-lg font-bold mb-4 flex items-center gap-2" style={{ color: 'var(--text-prima...
254|                 <span style={{ width: '32px', height: '32px', borderRadius: '8px', background: '#ef444420', di...
255|                   <Video size={16} style={{ color: '#ef4444' }} />
256|                 </span>
   2 5 7 |                                 V i d e o   k i ¿ n   t h é c   m ß   r Ù n g
258|               </h3>
259|               <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(280px, 1fr))', gap...
260|                 {videos.map((v, i) => (
261|                   <div key={i} style={{ borderRadius: '12px', overflow: 'hidden', background: 'var(--bg-surfac...
262|                     <div style={{ position: 'relative', paddingBottom: '56.25%' }}>
263|                       <iframe src={`https://www.youtube-nocookie.com/embed/${v.id}`} style={{ position: 'absol...
264|                     </div>
265|                     <div style={{ padding: '10px 12px' }}>
266|                       <p style={{ color: 'var(--text-primary)', fontWeight: 600, fontSize: '13px', margin: 0 }...
267|                     </div>
268|                   </div>
269|                 ))}
270|               </div>
271|             </div>
272|           )
273|         })()}
274|
```

```
275|         <div className="rounded-2xl overflow-hidden mt-8" style={{ background: 'var(--bg-elevated)', border: '...
276|           <button
277|             onClick={() => setShowKeyQuestions(!showKeyQuestions)}
278|             className="w-full flex items-center justify-between px-6 py-4 text-left transition-colors hover:op...
279|           >
280|             <div className="flex items-center gap-3">
281|               <div className="p-2 rounded-lg" style={{ background: 'var(--bg-surface)' }}>
282|                 <HelpCircle size={18} style={{ color: 'var(--brand-primary)' }} />
283|               </div>
284|               <span className="font-bold" style={{ color: 'var(--text-primary)' }}>
    2 8 5 |                                 C â u   h Ĭ i   t r Í n g   t â m   ( { k e y Q u e s t i o n s . l e n g t h } )
286|               </span>
287|             </div>
288|             <ChevronRight size={18} style={{ color: 'var(--text-muted)', transform: showKeyQuestions ? 'rotate...
289|           </button>
290|           {showKeyQuestions && (
291|             <div className="px-6 pb-6 space-y-4">
292|               {keyQuestions.length === 0 ? (
    2 9 3 |                                 < p   c l a s s N a m e = " t e x t - s m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d
294|               ) : (
295|                 keyQuestions.map((kq, i) => (
296|                   <div key={i} className="p-4 rounded-xl" style={{ background: 'var(--bg-surface)', border: '1...
297|                     <p className="text-sm font-bold mb-2" style={{ color: 'var(--text-primary)' }}>
298|                       <span style={{ color: 'var(--brand-primary)' }}>Q{i + 1}.</span> {kq.q}
299|                     </p>
300|                     <p className="text-sm leading-relaxed" style={{ color: 'var(--text-secondary)' }}>{kq.a}</p>
301|                   </div>
302|                 ))
303|               )}
304|             </div>
305|           )}
306|         </div>
307|
308|         {relatedQuizzes.length > 0 && (
309|           <div className="rounded-2xl mt-6 p-6" style={{ background: 'var(--bg-elevated)', border: '1px solid ...
310|             <div className="flex items-center gap-3 mb-4">
311|               <div className="p-2 rounded-lg" style={{ background: 'var(--bg-surface)' }}>
312|                 <BookOpen size={18} style={{ color: 'var(--brand-primary)' }} />
313|               </div>
    3 1 4 |                                 < s p a n   c l a s s N a m e = " f o n t - b o l d "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - p r
315|             </div>
316|             <div className="flex flex-wrap gap-3">
317|               {relatedQuizzes.map(q => (
318|                 <Link
319|                   key={q.id}
320|                   href={`/student/quiz/${q.id}`}
321|                   className="flex items-center gap-2 px-4 py-2.5 rounded-xl text-sm font-bold transition-all h...
322|                   style={{ background: 'color-mix(in srgb, var(--brand-primary) 15%, transparent)', color: 'va...
323|                 >
324|                   <ExternalLink size={14} />
325|                   {q.title}
326|                 </Link>
327|               ))}
328|             </div>
329|           </div>
330|         )}
331|
332|         <div className="sticky bottom-6 mt-8 flex justify-center">
333|           <button
334|             onClick={handleComplete}
335|             disabled={completed}
336|             className="px-8 py-3.5 rounded-xl font-bold text-sm flex items-center gap-2 transition-all shadow-...
337|             style={{
338|               background: completed ? 'var(--bg-elevated)' : 'var(--brand-primary)',
339|               color: completed ? 'var(--text-secondary)' : '#000',
340|               border: completed ? '1px solid var(--border-subtle)' : 'none',
341|             }}
342|           >
343|             {completed ? (
    3 4 4 |                                 < > < C h e c k C i r c l e   s i z e = { 1 8 }   / >    ã   h o à n   t h à n h < / >
345|             ) : (
    3 4 6 |                                 < > < P l a y   s i z e = { 1 8 }   / >    á n h   d ¥ u   h o à n   t h à n h < / >
347|             )}
348|           </button>
349|         </div>
350|       </div>
351|
352|       <aside className="w-64 shrink-0 hidden lg:block">
353|         <div className="sticky top-6 rounded-2xl p-5" style={{ background: 'var(--bg-elevated)', border: '1px ...
354|           <h3 className="text-xs font-bold uppercase mb-4 tracking-wider" style={{ color: 'var(--text-muted)' ...
355|           <div className="flex flex-col gap-1.5">
356|             {sections.map((s, idx) => (
357|               <button
358|                 key={s.id}
359|                 onClick={() => scrollToSection(s.id)}
360|                 className="flex items-center gap-2.5 px-3 py-2 rounded-lg text-left text-sm transition-colors"
361|                 style={{
362|                   background: activeSection === s.id ? 'var(--bg-surface)' : 'transparent',
363|                   color: activeSection === s.id ? 'var(--text-primary)' : 'var(--text-secondary)',
364|                 }}
365|               >
366|                 <span className="text-xs font-bold w-5 shrink-0" style={{ color: 'var(--brand-primary)' }}>{id...
367|                 <span className="truncate">{s.title}</span>
368|               </button>
369|             ))}
370|           </div>
371|         </div>
372|       </aside>
373|     </div>
374|   )
375| }
376|
```

File: app/(dashboard)/student/lessons/[lessonId]/page.tsx (63 lines, 1.6 KB)

```
==========================================================================================
    1| import { createClient } from '@/lib/supabase-ssr-server'
    2| import { redirect } from 'next/navigation'
    3| import Link from 'next/link'
    4| import { ArrowLeft, Video, FileText, Image as ImageIcon, FileSearch, CheckCircle, Clock } from 'lucide-react'
    5| import LessonViewer from './LessonViewer'
    6|
    7| export const dynamic = 'force-dynamic'
    8|
    9| export default async function StudentLessonDetailPage({
   10|   params,
   11| }: {
   12|   params: Promise<{ lessonId: string }>
   13| }) {
   14|   const { lessonId } = await params
   15|   const supabase = await createClient()
   16|   const { data: { user } } = await supabase.auth.getUser()
   17|
   18|   if (!user) redirect('/login')
```

```
  19|
  20|   const { data: lesson } = await supabase
  21|     .from('lessons')
  22|     .select('*')
  23|     .eq('id', lessonId)
  24|     .single()
  25|
  26|   if (!lesson) {
  27|     redirect('/student/lessons')
  28|   }
  29|
  30|   const { data: sections } = await supabase
  31|     .from('lesson_sections')
  32|     .select('*')
  33|     .eq('lesson_id', lessonId)
  34|     .order('order_index', { ascending: true })
  35|
  36|   const { data: progress } = await supabase
  37|     .from('lesson_progress')
  38|     .select('*')
  39|     .eq('student_id', user.id)
  40|     .eq('lesson_id', lessonId)
  41|     .maybeSingle()
  42|
  43|   return (
  44|     <div>
  45|       <Link
  46|         href="/student/lessons"
  47|         className="inline-flex items-center gap-2 text-sm font-medium mb-6 transition-colors"
  48|         style={{ color: 'var(--text-secondary)' }}
  49|       >
  50|         <ArrowLeft size={16} />
      5 1 |                   Q u a y   l ¡ i   d a n h   s á c h   b à i   g i £ n g
  52|       </Link>
  53|
  54|       <LessonViewer
  55|         lesson={lesson}
  56|         sections={sections || []}
  57|         initialProgress={progress}
  58|         userId={user.id}
  59|       />
  60|     </div>
  61|   )
  62| }
  63|
```

File: app/(dashboard)/student/lessons/LessonsList.tsx (175 lines, 7.5 KB)

```
   1| 'use client'
   2|
   3| import { useEffect, useState } from 'react'
   4| import { createBrowserClient } from '@supabase/ssr'
   5| import Link from 'next/link'
   6| import { Book, Play, CheckCircle, Clock, Star, ArrowRight, Layers } from 'lucide-react'
   7|
   8| interface Lesson {
   9|   id: string
  10|   title: string
  11|   description: string
  12|   thumbnail_url?: string
  13|   estimated_minutes?: number
  14|   is_published: boolean
  15|   created_at: string
  16| }
  17|
  18| interface Progress {
  19|   lesson_id: string
  20|   is_completed?: boolean
  21|   completion_percentage?: number
  22| }
  23|
  24| export default function LessonsList({
  25|   initialLessons,
  26|   initialProgress,
  27|   userId,
  28| }: {
  29|   initialLessons: Lesson[]
  30|   initialProgress: Progress[]
  31|   userId: string
  32| }) {
  33|   const [lessons, setLessons] = useState<Lesson[]>(initialLessons)
  34|   const [progressList, setProgressList] = useState<Progress[]>(initialProgress)
  35|
  36|   const supabase = createBrowserClient(
  37|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
  38|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
  39|   )
  40|
  41|   useEffect(() => {
  42|     const channel = supabase
  43|       .channel('student-lessons-realtime')
  44|       .on('postgres_changes',
  45|         { event: 'INSERT', schema: 'public', table: 'lessons', filter: 'is_published=eq.true' },
  46|         (payload) => {
  47|           const newLesson = payload.new as Lesson
  48|           setLessons(prev => {
  49|             if (prev.some(l => l.id === newLesson.id)) return prev
  50|             return [newLesson, ...prev]
  51|           })
  52|         }
  53|       )
  54|       .on('postgres_changes',
  55|         { event: 'UPDATE', schema: 'public', table: 'lessons', filter: 'is_published=eq.true' },
  56|         (payload) => {
  57|           const updated = payload.new as Lesson
  58|           setLessons(prev => {
  59|             const exists = prev.some(l => l.id === updated.id)
  60|             if (!exists) return [updated, ...prev]
  61|             return prev.map(l => l.id === updated.id ? updated : l)
  62|           })
  63|         }
  64|       )
  65|       .on('postgres_changes',
  66|         { event: '*', schema: 'public', table: 'lesson_progress', filter: `student_id=eq.${userId}` },
  67|         (payload) => {
  68|           const p = payload.new as Progress
  69|           setProgressList(prev => {
  70|             const idx = prev.findIndex(x => x.lesson_id === p.lesson_id)
  71|             if (idx >= 0) {
  72|               const next = [...prev]
  73|               next[idx] = p
  74|               return next
  75|             }
```

```
  76|            return [...prev, p]
  77|          })
  78|        }
  79|      )
  80|      .subscribe()
  81|
  82|    return () => { supabase.removeChannel(channel) }
  83|  }, [userId])
  84|
  85|  const getProgress = (lessonId: string) =>
  86|    progressList?.find(p => p.lesson_id === lessonId)
  87|
  88|  const completedCount = progressList?.filter(p => p.is_completed)?.length || 0
  89|
  90|  return (
  91|    <div>
  92|      <div className="flex items-center justify-between mb-8">
  93|        <div>
    9 4 |                    < h 1   c l a s s N a m e = " t e x t - 2 x l   f o n t - b o l d "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t
    9 5 |                    < p   c l a s s N a m e = " t e x t - s m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - s e c o n d a r y ) '
  96|        </div>
  97|        <div className="flex items-center gap-3 px-4 py-3 rounded-xl" style={{ background: 'var(--bg-elevated)...
  98|          <Layers size={20} style={{ color: 'var(--brand-primary)' }} />
  99|          <div>
  1 0 0 |                        < d i v   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   u p p e r c a s e "   s t y l e = { {   c o l o r :
 101|            <div className="text-lg font-bold" style={{ color: 'var(--text-primary)' }}>{completedCount}/{less...
 102|          </div>
 103|        </div>
 104|      </div>
 105|
 106|      <div className="grid grid-cols-1 md:grid-cols-2 xl:grid-cols-3 gap-6">
 107|        {lessons.map((lesson) => {
 108|          const progress = getProgress(lesson.id)
 109|          const isCompleted = progress?.is_completed
 110|
 111|          return (
 112|            <Link
 113|              key={lesson.id}
 114|              href={`/student/lessons/${lesson.id}`}
 115|              className="group rounded-2xl overflow-hidden transition-all duration-300 hover:-translate-y-1"
 116|              style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-subtle)' }}
 117|            >
 118|              <div className="aspect-video relative overflow-hidden" style={{ background: 'var(--bg-surface)' }}>
 119|                {lesson.thumbnail_url ? (
 120|                  <img src={lesson.thumbnail_url} alt={lesson.title} className="w-full h-full object-cover opa...
 121|                ) : (
 122|                  <div className="flex items-center justify-center h-full" style={{ color: 'var(--text-muted)'...
 123|                    <Book size={40} />
 124|                  </div>
 125|                )}
 126|                <div className="absolute inset-0 bg-gradient-to-t from-[rgba(0,0,0,0.6)] to-transparent" />
 127|                {isCompleted && (
 128|                  <div className="absolute top-3 right-3 bg-emerald-500 text-white p-1.5 rounded-full shadow-lg">
 129|                    <CheckCircle size={18} />
 130|                  </div>
 131|                )}
 132|                <div className="absolute bottom-3 left-3 flex items-center gap-2">
 133|                  <span className="px-2.5 py-1 bg-black/50 backdrop-blur rounded-full text-xs font-bold flex i...
 134|                    <Clock size={11} style={{ color: 'var(--brand-primary)' }} />
 135|                    {lesson.estimated_minutes || 15} phút
 136|                  </span>
 137|                </div>
 138|              </div>
 139|              <div className="p-5">
 140|                <h3 className="font-bold text-base mb-2 line-clamp-2 transition-colors group-hover:text-emeral...
 141|                  {lesson.title}
 142|                </h3>
 143|                <p className="text-sm line-clamp-2 mb-4" style={{ color: 'var(--text-secondary)' }}>
 144|                  {lesson.description}
 145|                </p>
 146|                <div className="flex items-center justify-between pt-3 border-t" style={{ borderColor: 'var(--...
 147|                  <span class="text-sm font-bold flex items-center gap-1" style={{ color: 'var(--brand-pri...
  1 4 8 |                                    { i s C o m p l e t e d   ?   ' X e m   l ¡ i '   :   ' B   t     § u ' }   < A r r o w R i g h t   s i
 149|                  </span>
 150|                  {progress && !isCompleted && (
 151|                    <div className="flex items-center gap-2">
 152|                      <div class="w-16 h-1.5 rounded-full" style={{ background: 'var(--border-subtle)' }}>
 153|                        <div class="h-full rounded-full bg-emerald-500" style={{ width: `${progress.comple...
 154|                      </div>
 155|                      <span class="text-xs" style={{ color: 'var(--text-muted)' }}>{progress.completion_pe...
 156|                    </div>
 157|                  )}
 158|                </div>
 159|              </div>
 160|            </Link>
 161|          )
 162|        })}
 163|
 164|        {lessons.length === 0 && (
 165|          <div className="col-span-full py-20 text-center rounded-2xl border-2 border-dashed" style={{ borderC...
 166|            <Book size={48} className="mx-auto mb-4" style={{ color: 'var(--text-muted)' }} />
  1 6 7 |                        < p   c l a s s N a m e = " f o n t - m e d i u m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - s e c o r
  1 6 8 |                        < p   c l a s s N a m e = " t e x t - s m   m t - 1 "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e
 169|            </div>
 170|          )}
 171|        </div>
 172|      </div>
 173|    )
 174| }
 175|
```

File: app/(dashboard)/student/lessons/page.tsx (32 lines, 0.8 KB)

```
    1| import { createClient } from '@/lib/supabase-ssr-server'
    2| import { redirect } from 'next/navigation'
    3| import LessonsList from './LessonsList'
    4|
    5| export const dynamic = 'force-dynamic'
    6|
    7| export default async function StudentLessonsPage() {
    8|   const supabase = await createClient()
    9|   const { data: { user } } = await supabase.auth.getUser()
   10|
   11|   if (!user) redirect('/login')
   12|
   13|   const { data: lessons } = await supabase
   14|     .from('lessons')
   15|     .select('*')
   16|     .eq('is_published', true)
   17|     .order('created_at', { ascending: false })
   18|
   19|   const { data: progressList } = await supabase
   20|     .from('lesson_progress')
```

```
   21|     .select('*')
   22|     .eq('student_id', user.id)
   23|
   24|   return (
   25|     <LessonsList
   26|       initialLessons={lessons || []}
   27|       initialProgress={progressList || []}
   28|       userId={user.id}
   29|     />
   30|   )
   31| }
   32|
```

File: app/(dashboard)/student/loading.tsx (15 lines, 0.5 KB)

```
    1| // Path: app/(dashboard)/student/loading.tsx
    2| export default function Loading() {
    3|   return (
    4|     <div className="p-6 space-y-4 animate-pulse">
    5|       <div className="h-8 bg-[#1d1f2a] rounded-lg w-48" />
    6|       <div className="grid grid-cols-1 md:grid-cols-4 gap-4">
    7|         {[...Array(4)].map((_, i) => (
    8|           <div key={i} className="h-24 bg-[#1d1f2a] rounded-xl" />
    9|         ))}
   10|       </div>
   11|       <div className="h-64 bg-[#1d1f2a] rounded-xl" />
   12|     </div>
   13|   )
   14| }
   15|
```

File: app/(dashboard)/student/page.tsx (280 lines, 20.5 KB)

```
    1| 'use client';
    2|
    3| import React, { useState, useEffect } from 'react';
    4| import { useIsMobile } from '@/hooks/useIsMobile';
    5| import Link from 'next/link';
    6| import { BookOpen, Users, Cpu, ArrowRight, Plus, Loader2, GraduationCap, Bot, Sparkles, Megaphone, ExternalLin...
    7| import { motion, AnimatePresence } from 'framer-motion';
    8| import JoinClassModal from '../../../components/JoinClassModal';
    9| import CareerRecommendation from '../../../components/CareerRecommendation';
   10| import { supabase } from '@/lib/supabase';
   11| import { useGuru } from '@/lib/guru-state';
   12| import { useRealtime } from '@/lib/realtime-provider';
   13|
   14| const fadeUp = (delay = 0) => ({ initial: { opacity: 0, y: 24 }, animate: { opacity: 1, y: 0 }, transition: { ...
   15|
   16| export default function StudentDashboard() {
   17|   const { openChat } = useGuru()
   18|   const { state: realtimeState } = useRealtime()
   19|   const isMobile = useIsMobile()
   20|   const [showJoinModal, setShowJoinModal] = useState(false);
   21|   const [loading, setLoading] = useState(true);
   22|   const [classes, setClasses] = useState([]);
   23|   const [stats, setStats] = useState([
      24|           {  label:  'LÛp  hÍc',  value:  '0',  icon:  <Users  size={20}  />,  color:  'v
      25|           {  label:  'Bài  t-p',  value:  '0',  icon:  <BookOpen  size={20}  />,  color:
      26|           {  label:  'TÔng  XP',  value:  '0',  icon:  <Zap  size={20}  />,  color:  '#8b
   27|   ]);
   28|   useEffect(() => { fetchData(); }, []);
   29|
   30|   async function fetchData() {
   31|     try {
   32|       setLoading(true);
   33|       const { data: { user } } = await supabase.auth.getUser();
   34|       if (!user) return;
   35|       const { data: memberships, error: memErr } = await supabase
   36|         .from('class_members').select(`class_id, classes:class_id (id, name, code, subject, teacher_id)`).eq('...
   37|       if (memErr) throw memErr;
   38|       const rawClasses = memberships?.map((m: any) => m.classes).filter(Boolean) || [];
   39|       const teacherIds = [...new Set(rawClasses.map((c: any) => c.teacher_id).filter(Boolean))];
   40|       const teacherMap: Record<string, string> = {};
   41|       if (teacherIds.length > 0) {
   42|         const { data: teachers } = await supabase.from('profiles').select('id, full_name').in('id', teacherIds);
   43|         teachers?.forEach((t: any) => { teacherMap[t.id] = t.full_name });
   44|       }
   45|       const joinedClasses = rawClasses.map((cls: any) => ({ ...cls, teacher_name: teacherMap[cls.teacher_id] |...
   46|       setClasses(joinedClasses);
   47|       const classIds = joinedClasses.map((c: any) => c.id);
   48|       let assignmentCount = 0;
   49|       if (classIds.length > 0) { const { count } = await supabase.from('assignments').select('*', { count: 'ex...
   50|       setStats([
      51|                 {  label:  'LÛp  hÍc',  value:  joinedClasses.length.toString(),  icon
      52|                 {  label:  'Bài  t-p',  value:  assignmentCount.toString(),  icon:  <B
      53|                 {  label:  'TÔng  XP',  value:  `${realtimeState.xp}`,  icon:  <Zap  siz
   54|       ]);
   55|       setLoading(false);
   56|     } catch (err) { console.error('Error fetching student data:', err); }
   57|     finally { setLoading(false); }
   58|   }
   59|
   60|   return (
   61|     <div style={{ maxWidth: '1200px', margin: '0 auto', padding: '0 4px' }}>
   62|       <motion.header {...fadeUp(0)} style={{ marginBottom: '36px', display: 'flex', justifyContent: 'space-bet...
   63|         <div>
   64|           <h1 style={{ fontSize: '28px', fontWeight: 800, color: 'var(--text-primary)', marginBottom: '6px', l...
      65|                 <p  style={{  color:  'var(--text-muted)',  margin:  0,  fontSize:
   66|         </div>
   67|         <motion.button whileHover={{ scale: 1.03 }} whileTap={{ scale: 0.97 }}
   68|           onClick={() => setShowJoinModal(true)}
   69|           className="lms-btn lms-btn-primary" style={{ display: 'flex', alignItems: 'center', gap: '8px', padd...
      70|                 <Plus  size={18}  />  Tham  gia  lÛp  hÍc
   71|         </motion.button>
   72|       </motion.header>
   73|
   74|       <motion.div {...fadeUp(0.1)} style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(220...
   75|         {stats.map((stat, idx) => (
   76|           <motion.div key={idx} whileHover={{ y: -4, boxShadow: '0 12px 40px var(--shadow-hover)' }}
   77|             className="lms-card" style={{ padding: isMobile ? '16px' : '24px', display: 'flex', alignItems: 'c...
   78|             <div style={{ width: '48px', height: '48px', borderRadius: '12px', background: `${stat.color}15`, ...
   79|               {stat.icon}
   80|             </div>
   81|             <div>
   82|               <div style={{ fontSize: '24px', fontWeight: 800, color: 'var(--text-primary)', lineHeight: 1.2 }...
   83|               <div style={{ fontSize: '13px', color: 'var(--text-muted)', fontWeight: 500 }}>{stat.label}</div>
   84|             </div>
   85|           </motion.div>
   86|         ))}
   87|       </motion.div>
   88|
```

```
 89|       <div className="student-dashboard-grid" style={{ display: 'grid', gridTemplateColumns: isMobile ? '1fr' ...
 90|         <section style={{ display: 'flex', flexDirection: 'column', gap: isMobile ? '16px' : '24px' }}>
 91|           <div style={{ display: 'flex', flexDirection: 'column', gap: isMobile ? '16px' : '24px' }}>
 92|             <motion.div {...fadeUp(0.2)}
 93|               className="lms-card" style={{ padding: isMobile ? '20px' : '32px', position: 'relative', overflo...
 94|               <div style={{ position: 'relative', zIndex: 1 }}>
 95|                 <h2 style={{ fontSize: '20px', fontWeight: 700, marginBottom: '10px', color: 'var(--text-prima...
 96|                 <p style={{ color: 'var(--text-muted)', marginBottom: '24px', maxWidth: '380px', fontSize: '14...
  97 |                                   T ñ   t a y   l   p   r á p   c ¥ u   h ì n h   m á y   t í n h ,   k i Ã m   t r a   s ñ   t ° ¡ n g   t h
 98|                 </p>
 99|                 <Link href="/builder" className="lms-btn lms-btn-primary" style={{ display: 'inline-flex', ali...
 100 |                                   B   t     § u   t h ñ c   h à n h   < A r r o w R i g h t   s i z e = { 1 6 }   / >
101|                 </Link>
102|               </div>
103|               <div style={{ position: 'absolute', right: '-20px', bottom: '-20px', opacity: 0.06 }}>
104|                 <Cpu size={200} color="var(--brand-primary)" />
105|               </div>
106|             </motion.div>
107|             <motion.div {...fadeUp(0.25)}
108|               className="lms-card" style={{ padding: isMobile ? '20px' : '32px', position: 'relative', overflo...
109|               <div style={{ position: 'relative', zIndex: 1 }}>
110|                 <h2 style={{ fontSize: '20px', fontWeight: 700, marginBottom: '10px', color: 'var(--text-prima...
111|                 <p style={{ color: 'var(--text-muted)', marginBottom: '24px', maxWidth: '380px', fontSize: '14...
 112 |                                   K i Ã m   t r a   k i ¿ n   t h é c   p h § n   c é n g   v Ù i    Á   t h i ,   n g â n   h à n g   c â u
113|                 </p>
114|                 <Link href="/exams" className="lms-btn lms-btn-primary" style={{ display: 'inline-flex', align...
 115 |                                   V à o   t h i   t h í   < G r a d u a t i o n C a p   s i z e = { 1 6 }   / >
116|                 </Link>
117|               </div>
118|               <div style={{ position: 'absolute', right: '-20px', bottom: '-20px', opacity: 0.06 }}>
119|                 <FileQuestion size={200} color="#6366f1" />
120|               </div>
121|             </motion.div>
122|           </div>
123|
124|           <motion.div {...fadeUp(0.3)} className="lms-card" style={{ padding: isMobile ? '18px' : '28px', bord...
125|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom...
 126 |                                 < h 2   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g i n :   0 ,
127|                 <span style={{ fontSize: '13px', color: 'var(--text-muted)', fontWeight: 500 }}>{classes.length}...
128|               </div>
129|
130|               {loading ? (
131|                 <div style={{ display: 'flex', justifyContent: 'center', padding: '48px' }}><Loader2 size={32} s...
132|               ) : classes.length > 0 ? (
133|                 <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(260px, 1fr))', gap:...
134|                   {classes.map((cls, idx) => (
135|                     <motion.div key={cls.id} initial={{ opacity: 0, y: 16 }} animate={{ opacity: 1, y: 0 }} tran...
136|                       <Link href={`/student/classes/${cls.id}`} style={{ textDecoration: 'none' }}>
137|                         <motion.div whileHover={{ y: -3, boxShadow: '0 12px 30px var(--shadow-hover)' }}
138|                           className="lms-card" style={{ padding: '20px', cursor: 'pointer', borderRadius: '12px'...
139|                           <div style={{ display: 'flex', justifyContent: 'space-between', marginBottom: '12px' }}>
140|                             <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: 'rgba...
141|                               <GraduationCap size={18} color="var(--accent-blue)" />
142|                             </div>
143|                             <span className="lms-badge" style={{ fontSize: '11px', padding: '3px 10px', borderRa...
144|                           </div>
145|                           <h3 style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)', marginBo...
146|                           <p style={{ fontSize: '13px', color: 'var(--text-muted)', margin: 0 }}>GV: {cls.teache...
147|                         </motion.div>
148|                       </Link>
149|                     </motion.div>
150|                   ))}
151|                 </div>
152|               ) : (
153|                 <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} style={{ textAlign: 'center', padd...
 154 |                                 < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n B o t t o m :   ' 1
155|                   <motion.button whileHover={{ scale: 1.05 }} whileTap={{ scale: 0.95 }}
156|                     onClick={() => setShowJoinModal(true)}
157|                     style={{ background: 'transparent', border: '1px solid var(--brand-primary)', color: 'var(--...
 158 |                                   N h - p   m ã   l Ù p    Ã   t h a m   g i a
159|                   </motion.button>
160|                 </motion.div>
161|               )}
162|             </motion.div>
163|           </section>
164|
165|           <aside style={{ display: 'flex', flexDirection: 'column', gap: isMobile ? '16px' : '24px' }}>
166|             <motion.div {...fadeUp(0.25)}
167|               className="lms-card" style={{ padding: isMobile ? '16px' : '24px', borderRadius: '16px', backgroun...
168|               <div style={{ position: 'absolute', top: -30, right: -30, width: '160px', height: '160px', borderR...
169|               <div style={{ position: 'relative', zIndex: 1 }}>
170|                 <div style={{ display: 'flex', alignItems: 'center', gap: '14px', marginBottom: '16px' }}>
171|                   <div style={{ fontSize: '40px', lineHeight: 1 }}>{realtimeState.levelIcon}</div>
172|                   <div>
173|                     <div style={{ fontSize: '11px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: ...
174|                     <div style={{ fontSize: '20px', fontWeight: 800, color: 'var(--text-primary)' }}>
175|                       {realtimeState.levelTitle}
176|                     </div>
177|                   </div>
178|                 </div>
179|                 <div style={{ height: '6px', borderRadius: '99px', background: 'rgba(255,255,255,0.08)', overflo...
180|                   <div style={{ height: '100%', borderRadius: '99px', background: 'linear-gradient(90deg, var(--...
181|                 </div>
182|                 <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: '11px', color: 'var(--...
183|                   <span>{realtimeState.xpInLevel} / {realtimeState.xpToNext} XP</span>
184|                   <span style={{ color: 'var(--brand-primary)' }}>Level {realtimeState.level}</span>
185|                 </div>
186|                 <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '8px', marginBottom: '16px' }}>
187|                   <div style={{ padding: '12px', borderRadius: '10px', background: 'var(--bg-elevated)', textAli...
188|                     <Flame size={18} style={{ color: '#f59e0b', margin: '0 auto 4px' }} />
189|                     <div style={{ fontSize: '18px', fontWeight: 800, color: 'var(--text-primary)' }}>{realtimeSt...
190|                     <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>Streak</div>
191|                   </div>
192|                   <div style={{ padding: '12px', borderRadius: '10px', background: 'var(--bg-elevated)', textAli...
193|                     <Zap size={18} style={{ color: 'var(--brand-primary)', margin: '0 auto 4px' }} />
194|                     <div style={{ fontSize: '18px', fontWeight: 800, color: 'var(--text-primary)' }}>{realtimeSt...
 195 |                                   < d i v   s t y l e = { {   f o n t S i z e :   ' 1 0 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t
196|                   </div>
197|                 </div>
198|                 <div style={{ display: 'flex', gap: '8px' }}>
199|                   <Link href="/student/dashboard" style={{ flex: 1, textAlign: 'center', padding: '10px', border...
 200 |                                   Ø=ÙÊ   C h i   t i ¿ t
201|                   </Link>
202|                 </div>
203|               </div>
204|             </motion.div>
205|
206|             <motion.div {...fadeUp(0.3)} className="lms-card" style={{ padding: isMobile ? '16px' : '24px', bord...
207|               <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom...
208|                 <h3 style={{ fontSize: '15px', fontWeight: 700, margin: 0, color: 'var(--text-primary)', display...
 209 |                                 < T r o p h y   s i z e = { 1 6 }   s t y l e = { {   c o l o r :   ' # f 5 9 e 0 b '   } }   / >   N h i Ç m
210|                 </h3>
211|                 <Link href="/student/dashboard" style={{ fontSize: '11px', color: 'var(--brand-primary)', fontWe...
 212 |                                 X e m   t ¥ t   c £  !'
```

```
213|              </Link>
214|            </div>
215|            {realtimeState.allQuests.length > 0 ? (
216|              <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
217|                {realtimeState.allQuests.slice(0, 4).map((quest, i) => {
218|                  const userQuest = realtimeState.quests.find(q => q.quest_id === quest.id)
219|                  const isCompleted = userQuest?.is_completed
220|                  const progress = userQuest?.progress || 0
221|                  return (
222|                    <motion.div key={quest.id} initial={{ opacity: 0, x: -10 }} animate={{ opacity: 1, x: 0 }}...
223|                      style={{ padding: '12px', borderRadius: '10px', background: isCompleted ? 'rgba(16,185,1...
224|                      <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
   2 2 5 |                                                  < s p a n   s t y l e = { {   f o n t S i z e :   ' 2 0 p x '   } } > { q u e s t . i c o n
226|                        <div style={{ flex: 1 }}>
227|                          <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)', displ...
228|                            {quest.title}
229|                            {isCompleted && <CheckCircle2 size={12} style={{ color: '#10b981' }} />}
230|                          </div>
231|                          <div style={{ fontSize: '10px', color: 'var(--text-muted)', marginTop: '2px' }}>+{qu...
232|                          {!isCompleted && quest.requirement_value > 0 && (
233|                            <div style={{ height: '3px', borderRadius: '99px', background: 'rgba(255,255,255,0...
234|                              <div style={{ height: '100%', borderRadius: '99px', background: 'var(--brand-pri...
235|                            </div>
236|                          )}
237|                        </div>
238|                        <div style={{ fontSize: '10px', fontWeight: 700, color: isCompleted ? '#10b981' : 'var...
239|                          {isCompleted ? 'Hoan thanh' : `+${quest.xp_reward}XP`}
240|                        </div>
241|                      </div>
242|                    </motion.div>
243|                  )
244|                })}
245|              </div>
246|            ) : (
247|              <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
248|                {[
   2 4 9 |                                    {   i d :   ' f b - 1 ' ,   t i t l e :   ' H o à n   t h à n h   1   b à i   h Í c ' ,   x p _ r e w a r d
   2 5 0 |                                    {   i d :   ' f b - 2 ' ,   t i t l e :   ' L ¯ p   r á p   P C ' ,   x p _ r e w a r d :   3 0 ,   i c o n
   2 5 1 |                                    {   i d :   ' f b - 3 ' ,   t i t l e :   ' L à m   q u i z ' ,   x p _ r e w a r d :   2 0 ,   i c o n :
   2 5 2 |                                    {   i d :   ' f b - 4 ' ,   t i t l e :   '   ¡ t   s t r e a k   3   n g à y ' ,   x p _ r e w a r d :   1
   2 5 3 |                                    {   i d :   ' f b - 5 ' ,   t i t l e :   ' T h a m   g i a   t h £ o   l u - n ' ,   x p _ r e w a r d :
254|                ].map((q, i) => (
255|                  <motion.div key={q.id} initial={{ opacity: 0, x: -10 }} animate={{ opacity: 1, x: 0 }} trans...
256|                    style={{ padding: '12px', borderRadius: '10px', background: 'var(--bg-surface)', border: '...
257|                    <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
258|                      <span style={{ fontSize: '20px' }}>{q.icon}</span>
259|                      <div style={{ flex: 1 }}>
260|                        <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)' }}>{q.ti...
261|                      </div>
262|                      <div style={{ fontSize: '10px', fontWeight: 700, color: 'var(--text-muted)', whiteSpace:...
263|                    </div>
264|                  </motion.div>
265|                ))}
266|              </div>
267|            )}
268|          </motion.div>
269|        </aside>
270|      </div>
271|
272|      <CareerRecommendation lang="vn" />
273|
274|      <JoinClassModal isOpen={showJoinModal} onClose={() => { setShowJoinModal(false); fetchData(); }} lang="v...
275|
276|
277|    </div>
278|  )
279| }
280|
```

File: app/(dashboard)/student/profile/privacy/page.tsx (68 lines, 1.8 KB)

```
    1| // Path: app/(dashboard)/student/profile/privacy/page.tsx
    2| import { createServerClient } from '@supabase/ssr'
    3| import { cookies } from 'next/headers'
    4| import { redirect } from 'next/navigation'
    5| import { requireRole } from '@/lib/auth/rbac'
    6| import PrivacySettingsClient from './PrivacySettingsClient'
    7|
    8| export const dynamic = 'force-dynamic'
    9|
   10| export default async function StudentPrivacyPage() {
   11|   const user = await requireRole(['student'])
   12|
   13|   const cookieStore = await cookies()
   14|   const supabase = createServerClient(
   15|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   16|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
   17|     { cookies: { getAll: () => cookieStore.getAll(), setAll: () => {} } }
   18|   )
   19|
   20|   // Fetch student profile details to guarantee we have the student_code
   21|   const { data: profile } = await supabase
   22|     .from('profiles')
   23|     .select('student_code, full_name')
   24|     .eq('id', user.id)
   25|     .single()
   26|
   27|   if (!profile) {
   28|     redirect('/login')
   29|   }
   30|
   31|   // Fetch initial parent links (both active and pending ones)
   32|   const { data: links } = await supabase
   33|     .from('parent_student_links')
   34|     .select(`
   35|       id,
   36|       relationship,
   37|       status,
   38|       linked_at,
   39|       confirmed_at,
   40|       parent:profiles!parent_id (
   41|         id,
   42|         full_name,
   43|         avatar_url,
   44|         phone
   45|       )
   46|     `)
   47|     .eq('student_id', user.id)
   48|     .order('linked_at', { ascending: false })
   49|
   50|   const initialLinks = (links ?? []).map((link: any) => ({
   51|     id: link.id,
   52|     relationship: link.relationship,
```

```
    status: link.status,
    linked_at: link.linked_at,
    confirmed_at: link.confirmed_at,
    parent: link.parent
  }))

  return (
    <PrivacySettingsClient
      studentId={user.id}
      studentName={profile.full_name}
      studentCode={profile.student_code ?? ''}
      initialLinks={initialLinks}
    />
  )
}

```

File: app/(dashboard)/student/profile/privacy/PrivacySettingsClient.tsx (618 lines, 23.0 KB)

```
// Path: app/(dashboard)/student/profile/privacy/PrivacySettingsClient.tsx
'use client'

import React, { useState, useEffect, useRef } from 'react'
import { createClient } from '@/lib/supabase-ssr-client'
import { confirmParentLink, revokeParentLink } from '@/lib/parent-actions'
import { RealtimeChannel } from '@supabase/supabase-js'
import { formatDistanceToNow } from 'date-fns'
import { vi } from 'date-fns/locale'
import {
  ShieldAlert,
  Copy,
  Check,
  UserCheck,
  UserMinus,
  ShieldCheck,
  Clock,
  Users,
  HelpCircle,
  AlertCircle
} from 'lucide-react'

interface ParentLink {
  id: string
  relationship: string
  status: 'pending' | 'active' | 'revoked'
  linked_at: string
  confirmed_at: string | null
  parent: {
    id: string
    full_name: string
    avatar_url: string | null
    phone: string | null
  }
}

export default function PrivacySettingsClient({
  studentId,
  studentName,
  studentCode,
  initialLinks,
}: {
  studentId: string
  studentName: string
  studentCode: string
  initialLinks: ParentLink[]
}) {
  const [links, setLinks] = useState<ParentLink[]>(initialLinks)
  const [copied, setCopied] = useState(false)
  const [loadingId, setLoadingId] = useState<string | null>(null)
  const [connectionStatus, setConnectionStatus] = useState<'connecting' | 'connected' | 'disconnected' | 'erro...

  const supabase = createClient()
  const channelRef = useRef<RealtimeChannel | null>(null)

  // 1. Fetch updated parent links helper (to sync joined fields easily)
  async function fetchLinks() {
    try {
      const { data, error } = await supabase
        .from('parent_student_links')
        .select(`
          id,
          relationship,
          status,
          linked_at,
          confirmed_at,
          parent:profiles!parent_id (
            id,
            full_name,
            avatar_url,
            phone
          )
        `)
        .eq('student_id', studentId)
        .order('linked_at', { ascending: false })

      if (error) throw error
      setLinks((data ?? []).map((l: any) => ({
        id: l.id,
        relationship: l.relationship,
        status: l.status,
        linked_at: l.linked_at,
        confirmed_at: l.confirmed_at,
        parent: l.parent
      })))
    } catch (err) {
      console.error('Error fetching parent student links:', err)
    }
  }

  // 2. Realtime WebSocket subscription to parent_student_links updates
  useEffect(() => {
    setConnectionStatus('connecting')

    const channelName = `student-privacy-${studentId}`
    const channel = supabase.channel(channelName)
    channelRef.current = channel

    channel
      .on('postgres_changes', {
        event: '*',
        schema: 'public',
        table: 'parent_student_links',
        filter: `student_id=eq.${studentId}`,
```

```
105|       }, () => {
106|         // Trigger a re-fetch of links to automatically grab parent profile fields
107|         fetchLinks()
108|       })
109|       .subscribe((status) => {
110|         if (status === 'SUBSCRIBED') {
111|           setConnectionStatus('connected')
112|         } else if (status === 'CHANNEL_ERROR') {
113|           setConnectionStatus('error')
114|         } else if (status === 'CLOSED') {
115|           setConnectionStatus('disconnected')
116|         } else {
117|           setConnectionStatus('connecting')
118|         }
119|       })
120|
121|     return () => {
122|       if (channelRef.current) {
123|         supabase.removeChannel(channelRef.current)
124|         channelRef.current = null
125|       }
126|     }
127|   }, [studentId])
128|
129|   // 3. Action Handlers
130|   async function handleCopy() {
131|     try {
132|       await navigator.clipboard.writeText(studentCode)
133|       setCopied(true)
134|       setTimeout(() => setCopied(false), 2000)
135|     } catch (err) {
136|       console.error('Failed to copy text: ', err)
137|     }
138|   }
139|
140|   async function handleAccept(parentId: string) {
141|     setLoadingId(parentId)
142|     try {
143|       const res = await confirmParentLink(parentId)
144|       if (res.error) {
145|         alert(res.error)
146|       } else {
147|         await fetchLinks()
148|       }
149|     } catch (err: any) {
   1 5 0 |           a l e r t ( e r r . m e s s a g e   | |   ' L × i   k h i    Ó n g   ý   l i ê n   k ¿ t ' )
151|     } finally {
152|       setLoadingId(null)
153|     }
154|   }
155|
156|   async function handleDeclineOrRevoke(parentId: string, confirmMessage: string) {
157|     if (!window.confirm(confirmMessage)) return
158|     setLoadingId(parentId)
159|     try {
160|       const res = await revokeParentLink(parentId)
161|       if (res.error) {
162|         alert(res.error)
163|       } else {
164|         await fetchLinks()
165|       }
166|     } catch (err: any) {
   1 6 7 |           a l e r t ( e r r . m e s s a g e   | |   ' L × i   k h i   t h ñ c   h i Ç n   t h a o   t á c ' )
168|     } finally {
169|       setLoadingId(null)
170|     }
171|   }
172|
173|   // Helpers
174|   const translateRelationship = (rel: string) => {
175|     const map: Record<string, string> = {
176|       father: 'Cha',
   1 7 7 |           m o t h e r :   ' M ¹ ' ,
   1 7 8 |           g u a r d i a n :   ' N g ° Ý i   g i á m   h Ù ' ,
   1 7 9 |           s i b l i n g :   ' A n h / C h Ë / E m ' ,
180|       other: 'Khác',
   1 8 1 |           p a r e n t :   ' P h å   h u y n h '
182|     }
   1 8 3 |         r e t u r n   m a p [ r e l ]   | |   ' P h å   h u y n h '
184|   }
185|
186|   const getConnectionBadgeClass = () => {
187|     switch (connectionStatus) {
188|       case 'connected':
189|         return {
190|           bg: 'rgba(16, 185, 129, 0.1)',
191|           border: 'rgba(16, 185, 129, 0.2)',
192|           text: '#10b981',
193|           dot: '#10b981',
   1 9 4 |                     l a b e l :   '&¡   R e a l t i m e '
195|         }
196|       case 'connecting':
197|         return {
198|           bg: 'rgba(245, 158, 11, 0.1)',
199|           border: 'rgba(245, 158, 11, 0.2)',
200|           text: '#f59e0b',
201|           dot: '#f59e0b',
   2 0 2 |                     l a b e l :   '   a n g   k ¿ t   n Ñ i . . . '
203|         }
204|       default:
205|         return {
206|           bg: 'rgba(239, 68, 68, 0.1)',
207|           border: 'rgba(239, 68, 68, 0.2)',
208|           text: '#ef4444',
209|           dot: '#ef4444',
   2 1 0 |                     l a b e l :   ' M ¥ t   k ¿ t   n Ñ i '
211|         }
212|     }
213|   }
214|
215|   const badge = getConnectionBadgeClass()
216|   const pendingRequests = links.filter(l => l.status === 'pending')
217|   const activeLinks = links.filter(l => l.status === 'active')
218|
219|   return (
220|     <div style={{ maxWidth: '850px', margin: '0 auto', display: 'flex', flexDirection: 'column', gap: '32px' }}>
221|
222|       {/* Header Panel */}
223|       <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', flexWrap: 'wrap', ...
224|         <div>
225|           <h1 style={{ fontSize: '28px', fontWeight: 800, color: 'var(--text-primary)', marginBottom: '8px' }}>
   2 2 6 |                       Q u y Á n   r i ê n g   t °   &   L i ê n   k ¿ t   P h å   h u y n h
227|           </h1>
228|           <p style={{ color: 'var(--text-secondary)', fontSize: '14px', margin: 0 }}>
```

```
229 |                        Q u £ n   l ý   m ã   h Í c   s i n h   P C M   v à   k i Ã m   s o á t   c á c   t à i   k h o £ n   p h ã   h u y n h
230|          </p>
231|        </div>
232|
233|        {/* Realtime WebSocket connection status */}
234|        <div style={{
235|          display: 'flex',
236|          alignItems: 'center',
237|          gap: '8px',
238|          padding: '6px 14px',
239|          borderRadius: '50px',
240|          background: badge.bg,
241|          border: `1px solid ${badge.border}`,
242|          color: badge.text,
243|          fontSize: '12px',
244|          fontWeight: 600
245|        }}>
246|          <span style={{
247|            width: '8px',
248|            height: '8px',
249|            borderRadius: '50%',
250|            background: badge.dot,
251|            boxShadow: connectionStatus === 'connected' || connectionStatus === 'connecting' ? `0 0 8px ${badg...
252|            display: 'inline-block',
253|            animation: connectionStatus === 'connected' || connectionStatus === 'connecting' ? 'blink 2s infin...
254|          }} />
255|          {badge.label}
256|        </div>
257|      </div>
258|
259|      {/* Main Grid */}
260|      <div style={{ display: 'grid', gridTemplateColumns: '1fr', gap: '28px' }}>
261|
262|        {/* Step 1 Card: Copy Student Code */}
263|        <div style={{
264|          background: 'var(--bg-surface)',
265|          border: '1px solid var(--border-default)',
266|          borderRadius: '24px',
267|          padding: '32px',
268|          position: 'relative',
269|          overflow: 'hidden'
270|        }}>
271|          {/* Subtle background glow effect */}
272|          <div style={{
273|            position: 'absolute',
274|            top: '-50px',
275|            right: '-50px',
276|            width: '180px',
277|            height: '180px',
278|            borderRadius: '50%',
279|            background: 'rgba(0, 198, 174, 0.05)',
280|            filter: 'blur(40px)',
281|            pointerEvents: 'none'
282|          }} />
283|
284|          <div style={{ display: 'flex', flexDirection: 'column', gap: '20px' }}>
285|            <div>
286|              <h2 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '6px...
287|                <ShieldCheck size={20} color="var(--brand-primary)" />
288 |                              M ã   h Í c   s i n h   c á   n h â n   c ç a   b ¡ n
289|              </h2>
290|              <p style={{ color: 'var(--text-secondary)', fontSize: '13px', lineHeight: 1.6, margin: 0 }}>
291 |                              C u n g   c ¥ p   m ã   P C M   n à y   c h o   c h a   m ¹   c ç a   b ¡ n .   C h a   m ¹   c ó   t h Ã   n h
292|                </p>
293|            </div>
294|
295|            <div style={{
296|              display: 'flex',
297|              alignItems: 'center',
298|              gap: '12px',
299|              background: 'var(--bg-base)',
300|              padding: '16px 24px',
301|              borderRadius: '16px',
302|              border: '1px solid var(--border-subtle)',
303|              alignSelf: 'flex-start',
304|              minWidth: '280px',
305|              justifyContent: 'space-between'
306|            }}>
307|              <code style={{
308|                fontFamily: 'var(--font-mono)',
309|                fontSize: '18px',
310|                fontWeight: 700,
311|                letterSpacing: '2px',
312|                color: 'var(--brand-primary)'
313|              }}>
314|                {studentCode}
315|              </code>
316|              <button
317|                onClick={handleCopy}
318|                style={{
319|                  background: copied ? 'rgba(16, 185, 129, 0.15)' : 'rgba(255, 255, 255, 0.05)',
320|                  border: copied ? '1px solid rgba(16, 185, 129, 0.3)' : '1px solid var(--border-default)',
321|                  color: copied ? '#10b981' : 'var(--text-primary)',
322|                  padding: '8px 14px',
323|                  borderRadius: '10px',
324|                  cursor: 'pointer',
325|                  fontSize: '13px',
326|                  fontWeight: 600,
327|                  display: 'flex',
328|                  alignItems: 'center',
329|                  gap: '8px',
330|                  transition: 'all 0.15s ease'
331|                }}
332|              >
333|                {copied ? <Check size={14} /> : <Copy size={14} />}
334 |                              { c o p i e d   ?   ' ã   c h é p ! '   :   ' S a o   c h é p ' }
335|              </button>
336|            </div>
337|
338|            <div style={{
339|              display: 'flex',
340|              gap: '10px',
341|              background: 'rgba(59, 130, 246, 0.05)',
342|              border: '1px solid rgba(59, 130, 246, 0.15)',
343|              padding: '14px 18px',
344|              borderRadius: '14px',
345|              fontSize: '12px',
346|              color: '#60a5fa',
347|              lineHeight: 1.5
348|            }}>
349|              <AlertCircle size={18} style={{ flexShrink: 0 }} />
350|              <div>
351 |                              < s t r o n g > L ° u   ý   b £ o   m - t : < / s t r o n g >   C h É   c h i a   s »   m ã   n à y   v Û i   c
352|              </div>
```

```
353|            </div>
354|          </div>
355|        </div>
356|
357|        {/* Step 2: Pending Requests Panel */}
358|        <div style={{
359|          background: 'var(--bg-surface)',
360|          border: '1px solid var(--border-default)',
361|          borderRadius: '24px',
362|          padding: '28px'
363|        }}>
364|          <h2 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '18px', ...
365|            <Clock size={20} color="#f59e0b" />
   3 6 6 |                        Y ê u   c § u   l i ê n   k ¿ t    a n g   c h Ý   ( { p e n d i n g R e q u e s t s . l e n g t h } )
367|          </h2>
368|
369|          {pendingRequests.length === 0 ? (
370|            <div style={{
371|              textAlign: 'center',
372|              padding: '32px 0',
373|              color: 'var(--text-muted)',
374|              fontSize: '13px',
375|              background: 'rgba(255,255,255,0.01)',
376|              borderRadius: '16px',
377|              border: '1px dashed var(--border-subtle)'
378|            }}>
   3 7 9 |                          H i Ç n   t ¡ i   k h ô n g   c ó   y ê u   c § u   l i ê n   k ¿ t   n à o    a n g   c h Ý   d u y Ç t .
380|            </div>
381|          ) : (
382|            <div style={{ display: 'flex', flexDirection: 'column', gap: '14px' }}>
383|              {pendingRequests.map(link => (
384|                <div
385|                  key={link.id}
386|                  style={{
387|                    display: 'flex',
388|                    alignItems: 'center',
389|                    justifyContent: 'space-between',
390|                    padding: '18px',
391|                    background: 'var(--bg-base)',
392|                    borderRadius: '16px',
393|                    border: '1px solid var(--border-subtle)',
394|                    flexWrap: 'wrap',
395|                    gap: '16px'
396|                  }}
397|                >
398|                  <div style={{ display: 'flex', alignItems: 'center', gap: '14px' }}>
399|                    {link.parent.avatar_url ? (
400|                      <img
401|                        src={link.parent.avatar_url}
402|                        alt={link.parent.full_name}
403|                        style={{ width: '42px', height: '42px', borderRadius: '50%', objectFit: 'cover' }}
404|                      />
405|                    ) : (
406|                      <div style={{
407|                        width: '42px',
408|                        height: '42px',
409|                        borderRadius: '50%',
410|                        background: 'rgba(245, 158, 11, 0.1)',
411|                        color: '#f59e0b',
412|                        display: 'flex',
413|                        alignItems: 'center',
414|                        justifyContent: 'center',
415|                        fontWeight: 700,
416|                        fontSize: '16px'
417|                      }}>
418|                        {link.parent.full_name[0].toUpperCase()}
419|                      </div>
420|                    )}
421|                    <div>
422|                      <div style={{ fontWeight: 700, color: 'var(--text-primary)', fontSize: '14px' }}>
423|                        {link.parent.full_name}
424|                      </div>
425|                      <div style={{ fontSize: '12px', color: 'var(--text-secondary)', marginTop: '2px' }}>
   4 2 6 |                                          M Ñ i   q u a n   h Ç    Á   x u ¥ t :   < s p a n   s t y l e = { {   c o l o r :   ' # f 5 9
427|                      </div>
428|                    </div>
429|                  </div>
430|
431|                  <div style={{ display: 'flex', gap: '10px' }}>
432|                    <button
   4 3 3 |                                  o n C l i c k = { ( )   = >   h a n d l e D e c l i n e O r R e v o k e ( l i n k . p a r e n t . i
434|                      disabled={loadingId !== null}
435|                      style={{
436|                        background: 'rgba(239, 68, 68, 0.05)',
437|                        border: '1px solid rgba(239, 68, 68, 0.2)',
438|                        color: '#ef4444',
439|                        padding: '8px 16px',
440|                        borderRadius: '10px',
441|                        cursor: 'pointer',
442|                        fontSize: '13px',
443|                        fontWeight: 600,
444|                        display: 'flex',
445|                        alignItems: 'center',
446|                        gap: '6px',
447|                        transition: 'all 0.15s ease'
448|                      }}
449|                    >
450|                      <UserMinus size={14} />
   4 5 1 |                                  T ë   c h Ñ i
452|                    </button>
453|                    <button
454|                      onClick={() => handleAccept(link.parent.id)}
455|                      disabled={loadingId !== null}
456|                      style={{
457|                        background: 'rgba(16, 185, 129, 0.15)',
458|                        border: '1px solid rgba(16, 185, 129, 0.3)',
459|                        color: '#10b981',
460|                        padding: '8px 18px',
461|                        borderRadius: '10px',
462|                        cursor: 'pointer',
463|                        fontSize: '13px',
464|                        fontWeight: 700,
465|                        display: 'flex',
466|                        alignItems: 'center',
467|                        gap: '6px',
468|                        transition: 'all 0.15s ease'
469|                      }}
470|                    >
471|                      {loadingId === link.parent.id ? (
472|                        <div style={{ width: '14px', height: '14px', border: '2px solid #10b981', borderTopCol...
473|                      ) : (
474|                        <UserCheck size={14} />
475|                      )}
   4 7 6 |                                    Ó n g   ý
```

```
477|                    </button>
478|                  </div>
479|                </div>
480|              ))}
481|            </div>
482|          )}
483|        </div>
484|
485|        {/* Step 3: Linked Parents list */}
486|        <div style={{
487|          background: 'var(--bg-surface)',
488|          border: '1px solid var(--border-default)',
489|          borderRadius: '24px',
490|          padding: '28px'
491|        }}>
492|          <h2 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '18px', ...
493|            <Users size={20} color="var(--brand-primary)" />
   4 9 4 |                          T à i   k h o £ n   p h å   h u y n h    a n g   l i ê n   k ¿ t   ( { a c t i v e L i n k s . l e n g t h } )
495|          </h2>
496|
497|          {activeLinks.length === 0 ? (
498|            <div style={{
499|              textAlign: 'center',
500|              padding: '36px 0',
501|              color: 'var(--text-muted)',
502|              fontSize: '13px',
503|              background: 'rgba(255,255,255,0.01)',
504|              borderRadius: '16px',
505|              border: '1px dashed var(--border-subtle)'
506|            }}>
   5 0 7 |                          B ¡ n   c h ° a   l i ê n   k ¿ t   v Û i   b ¥ t   k ó   t à i   k h o £ n   p h å   h u y n h   n à o .
508|            </div>
509|          ) : (
510|            <div style={{ display: 'flex', flexDirection: 'column', gap: '14px' }}>
511|              {activeLinks.map(link => (
512|                <div
513|                  key={link.id}
514|                  style={{
515|                    display: 'flex',
516|                    alignItems: 'center',
517|                    justifyContent: 'space-between',
518|                    padding: '18px',
519|                    background: 'var(--bg-base)',
520|                    borderRadius: '16px',
521|                    border: '1px solid var(--border-subtle)',
522|                    flexWrap: 'wrap',
523|                    gap: '16px'
524|                  }}
525|                >
526|                  <div style={{ display: 'flex', alignItems: 'center', gap: '14px' }}>
527|                    {link.parent.avatar_url ? (
528|                      <img
529|                        src={link.parent.avatar_url}
530|                        alt={link.parent.full_name}
531|                        style={{ width: '42px', height: '42px', borderRadius: '50%', objectFit: 'cover' }}
532|                      />
533|                    ) : (
534|                      <div style={{
535|                        width: '42px',
536|                        height: '42px',
537|                        borderRadius: '50%',
538|                        background: 'rgba(0, 198, 174, 0.1)',
539|                        color: 'var(--brand-primary)',
540|                        display: 'flex',
541|                        alignItems: 'center',
542|                        justifyContent: 'center',
543|                        fontWeight: 700,
544|                        fontSize: '16px'
545|                      }}>
546|                        {link.parent.full_name[0].toUpperCase()}
547|                      </div>
548|                    )}
549|                    <div>
550|                      <div style={{ fontWeight: 700, color: 'var(--text-primary)', fontSize: '14px' }}>
551|                        {link.parent.full_name}
552|                      </div>
553|                      <div style={{ fontSize: '12px', color: 'var(--text-secondary)', marginTop: '4px', displa...
554|                        <span>Vai trò: <strong style={{ color: 'var(--brand-primary)' }}>{translateRelationshi...
555|                        {link.confirmed_at && (
556|                          <span style={{ color: 'var(--text-muted)' }}>
   5 5 7 |                                                  •   B ¯ t     § u   t ë   { f o r m a t D i s t a n c e T o N o w ( n e w   D a t e ( l
558|                          </span>
559|                        )}
560|                      </div>
561|                    </div>
562|                  </div>
563|
564|                  <div>
565|                    <button
   5 6 6 |                                    o n C l i c k = { ( )   = >   h a n d l e D e c l i n e O r R e v o k e ( l i n k . p a r e n t . i
567|                      disabled={loadingId !== null}
568|                      style={{
569|                        background: 'rgba(239, 68, 68, 0.05)',
570|                        border: '1px solid rgba(239, 68, 68, 0.2)',
571|                        color: '#ef4444',
572|                        padding: '8px 16px',
573|                        borderRadius: '10px',
574|                        cursor: 'pointer',
575|                        fontSize: '12px',
576|                        fontWeight: 600,
577|                        display: 'flex',
578|                        alignItems: 'center',
579|                        gap: '6px',
580|                        transition: 'all 0.15s ease'
581|                      }}
582|                      onMouseOver={(e) => {
583|                        e.currentTarget.style.background = 'rgba(239, 68, 68, 0.1)'
584|                      }}
585|                      onMouseOut={(e) => {
586|                        e.currentTarget.style.background = 'rgba(239, 68, 68, 0.05)'
587|                      }}
588|                    >
589|                      {loadingId === link.parent.id ? (
590|                        <div style={{ width: '12px', height: '12px', border: '2px solid #ef4444', borderTopCol...
591|                      ) : (
592|                        <UserMinus size={13} />
593|                      )}
   5 9 4 |                                    T h u   h Ó i   q u y Á n
595|                    </button>
596|                  </div>
597|                </div>
598|              ))}
599|            </div>
600|          )}
```

```
601|         </div>
602|       </div>
603|
604|       {/* Embedded inline keyframes styling */}
605|       <style dangerouslySetInnerHTML={{ __html: `
606|         @keyframes blink {
607|           0%, 100% { opacity: 1; }
608|           50% { opacity: 0.3; }
609|         }
610|         @keyframes spin {
611|           to { transform: rotate(360deg); }
612|         }
613|       ` }} />
614|
615|     </div>
616|   )
617| }
618|
```

File: app/(dashboard)/student/sgk/page.tsx (200 lines, 10.5 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState } from 'react'
    4| import { motion } from 'framer-motion'
    5| import { BookOpen, FileText, ChevronLeft, ChevronRight, Maximize2, Minimize2, ExternalLink, Youtube, Download ...
    6|
    7| export const SGK_BOOKS = [
    8|   {
    9|     id: 'tin10',
   10|     title: 'Tin học 10 - Kỹ thuật nghiệp vụ',
   11|     pdfUrl: '/api/pdf?file=sach-tin10.pdf',
   12|     pdfDirectUrl: '/sach-tin10.pdf',
   13|     color: '#289cf9',
   14|     chapters: [
   15|       'Chương 1: Máy tính và xã hội tri thức',
   16|       'Chương 2: Mạng máy tính và Internet',
   17|       'Chương 3: Đạo đức, pháp luật và văn hóa trong môi trường số',
   18|       'Chương 4: Đăng tin học',
   19|       'Chương 5: Giải quyết vấn đề máy tính',
   20|     ],
   21|     videos: [
   22|       {title: 'Bài 1: Thông tin và xử lý thông tin', id: 'ROqVwWXivrU'
   23|       {title: 'Bài 2: Số ở việc của máy tính', id: 'iksSNRTCZYg'},
   24|     ]
   25|   },
   26|   {
   27|     id: 'tin11',
   28|     title: 'Tin học 11 - Tin học đăng',
   29|     pdfUrl: '/api/pdf?file=sach-tin11.pdf',
   30|     pdfDirectUrl: '/sach-tin11.pdf',
   31|     color: '#8b5cf6',
   32|     chapters: [
   33|       'Chương 1: HĐ cơ sở dữ liệu',
   34|       'Chương 2: HĐ quản trị cơ sở dữ liệu',
   35|       'Chương 3: Phần mềm bảng tính và đăng',
   36|       'Chương 4: Phần mềm trình chiếu nâng cao',
   37|     ],
   38|     videos: [
   39|       {title: 'Bài 1: HĐ cơ sở dữ liệu', id: 'OICNS79D-OI'},
   40|     ]
   41|   }
   42| ]
   43|
   44| export default function SGKPage() {
   45|   const [selectedBook, setSelectedBook] = useState<string | null>(null)
   46|   const [fullscreen, setFullscreen] = useState(false)
   47|   const [pageNum, setPageNum] = useState(1)
   48|   const [tab, setTab] = useState<'book' | 'video'>('book')
   49|   const [origin, setOrigin] = useState('')
   50|
   51|   React.useEffect(() => { setOrigin(window.location.origin) }, [])
   52|
   53|   const book = SGK_BOOKS.find(s => s.id === selectedBook)
   54|
   55|   if (selectedBook && book) {
   56|     return (
   57|       <div className={`flex flex-col ${fullscreen ? 'fixed inset-0 z-[9999] bg-[#0f0f1a]' : ''}`}>
   58|         <div className="flex items-center justify-between p-4" style={{ background: 'var(--bg-elevated)', bord...
   59|           <button onClick={() => setSelectedBook(null)}
   60|             className="flex items-center gap-2 text-sm font-medium hover:opacity-70 transition-opacity"
   61|             style={{ color: 'var(--text-secondary)', background: 'none', border: 'none', cursor: 'pointer', fo...
   62|               <ChevronLeft size={18} /> Quay lại
   63|           </button>
   64|           <div className="flex items-center gap-3">
   65|             <div className="flex gap-1 rounded-lg p-1" style={{ background: 'var(--bg-surface)' }}>
   66|               <button onClick={() => setTab('book')}
   67|                 style={{
   68|                   padding: '4px 12px', borderRadius: '6px', border: 'none', cursor: 'pointer',
   69|                   background: tab === 'book' ? book.color + '30' : 'transparent',
   70|                   color: tab === 'book' ? book.color : 'var(--text-muted)',
   71|                   fontWeight: tab === 'book' ? 700 : 400, fontSize: '12px', fontFamily: 'inherit',
   72|                   display: 'flex', alignItems: 'center', gap: '4px',
   73|                 }}>
   74|                 <BookOpen size={14} /> Sách
   75|               </button>
   76|               <button onClick={() => setTab('video')}
   77|                 style={{
   78|                   padding: '4px 12px', borderRadius: '6px', border: 'none', cursor: 'pointer',
   79|                   background: tab === 'video' ? '#ef444420' : 'transparent',
   80|                   color: tab === 'video' ? '#ef4444' : 'var(--text-muted)',
   81|                   fontWeight: tab === 'video' ? 700 : 400, fontSize: '12px', fontFamily: 'inherit',
   82|                   display: 'flex', alignItems: 'center', gap: '4px',
   83|                 }}>
   84|                 <Youtube size={14} /> Video
   85|               </button>
   86|             </div>
   87|             {tab === 'book' && <>
   88|               <span className="text-xs" style={{ color: 'var(--text-muted)' }}>Trang {pageNum}</span>
   89|               <button onClick={() => setFullscreen(!fullscreen)}
   90|                 style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-subtle)', borderRadi...
   91|                 {fullscreen ? <Minimize2 size={16} /> : <Maximize2 size={16} />}
   92|               </button>
   93|               <a href={book.pdfUrl} target="_blank" rel="noopener noreferrer"
   94|                 className="flex items-center gap-1.5 px-3 py-1.5 rounded-lg text-xs font-medium transition-all...
   95|                 style={{ background: book.color + '20', color: book.color, textDecoration: 'none', border: `1p...
   96|                   <ExternalLink size={14} /> Mở ngoài
   97|               </a>
   98|             </>}
   99|           </div>
  100|         </div>
  101|
  102|         {tab === 'book' ? (
```

```
103|           <>
104|             <div className="flex-1 flex items-center justify-center p-4 overflow-hidden" style={{ background: ...
105|               {origin ? (
106|                 <iframe src={`https://docs.google.com/viewer?url=${encodeURIComponent(origin + book.pdfDirectU...
107|               ) : (
108|                 <iframe src={book.pdfUrl + '#view=FitH'} className="w-full h-full rounded-lg shadow-2xl" style...
109|               )}
110|             </div>
111|             <div className="flex items-center justify-center gap-4 p-3" style={{ background: 'var(--bg-elevate...
112|               <a href={book.pdfDirectUrl} target="_blank" rel="noopener noreferrer"
113|                 className="flex items-center gap-1.5 px-4 py-2 rounded-lg text-xs font-medium transition-all h...
114|                 style={{ background: book.color + '20', color: book.color, textDecoration: 'none', border: `1p...
   1 1 5 |                                < D o w n l o a d   s i z e = { 1 4 }   / >   T £ i   P D F
116|               </a>
117|             </div>
118|           </>
119|         ) : (
120|           <div className="flex-1 overflow-y-auto p-6" style={{ background: '#0f0f1a' }}>
121|             <motion.div initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} style={{ maxWidth: '800...
122|               <h2 style={{ fontSize: '20px', fontWeight: 700, color: '#fff', marginBottom: '20px', display: 'f...
123|                 <Youtube size={22} color="#ef4444" />
   1 2 4 |                                V i d e o   b à i   g i £ n g   -   { b o o k . t i t l e }
125|               </h2>
126|               <div className="grid gap-6" style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, mi...
127|                 {book.videos.map((v, i) => (
128|                   <div key={i} style={{
129|                     borderRadius: '14px', overflow: 'hidden',
130|                     background: '#1a1a2e', border: '1px solid rgba(255,255,255,0.06)',
131|                   }}>
132|                     <div style={{ position: 'relative', paddingBottom: '56.25%' }}>
133|                       <iframe
134|                         src={`https://www.youtube.com/embed/${v.id}`}
135|                         style={{ position: 'absolute', top: 0, left: 0, width: '100%', height: '100%', border:...
136|                         allow="accelerometer; autoplay; clipboard-write; encrypted-media; gyroscope; picture-i...
137|                         allowFullScreen
138|                         title={v.title}
139|                       />
140|                     </div>
141|                     <div style={{ padding: '12px 14px' }}>
142|                       <p style={{ color: '#e0e0e0', fontWeight: 600, fontSize: '13px', margin: 0 }}>{v.title}</p>
143|                     </div>
144|                   </div>
145|                 ))}
146|               </div>
147|             </motion.div>
148|           </div>
149|         )}
150|       </div>
151|     )
152|   }
153|
154|   return (
155|     <div style={{ maxWidth: '1000px', margin: '0 auto' }}>
156|       <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} style={{ marginBottom: '32px'...
157|         <h1 style={{ fontSize: '28px', fontWeight: 800, color: 'var(--text-primary)', marginBottom: '8px' }}>S...
   1 5 8 |                   < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 5 p x ' ,   m a r g i n
159|       </motion.div>
160|
161|       <div className="grid gap-6" style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(320p...
162|         {SGK_BOOKS.map((s, i) => (
163|           <motion.div key={s.id} initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} transition={{ ...
164|             whileHover={{ y: -4 }}
165|             onClick={() => { setSelectedBook(s.id); setTab('book'); }}
166|             className="lms-card"
167|             style={{
168|               padding: '28px', borderRadius: '16px', cursor: 'pointer', transition: 'all 0.3s',
169|               border: `1px solid ${s.color}20`,
170|               background: `linear-gradient(135deg, ${s.color}08, transparent)`
171|             }}>
172|             <div style={{ width: '56px', height: '56px', borderRadius: '14px', background: `${s.color}20`, dis...
173|               <BookOpen size={28} color={s.color} />
174|             </div>
175|             <h2 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '10px'...
176|             <div className="flex flex-col gap-2 mb-4">
177|               {s.chapters.map((ch, j) => (
178|                 <div key={j} className="flex items-center gap-2 text-sm" style={{ color: 'var(--text-muted)' }}>
179|                   <FileText size={14} style={{ color: s.color, opacity: 0.6 }} />
180|                   <span>{ch}</span>
181|                 </div>
182|               ))}
183|             </div>
184|             <div style={{ display: 'flex', gap: '10px', flexWrap: 'wrap' }}>
185|               <div className="flex items-center gap-2 text-sm font-semibold" style={{ color: s.color }}>
186|                 <BookOpen size={16} /> Xem sách
187|               </div>
188|               {s.videos.length > 0 && (
189|                 <div className="flex items-center gap-2 text-sm font-semibold" style={{ color: '#ef4444' }}>
190|                   <Youtube size={16} /> {s.videos.length} video
191|                 </div>
192|               )}
193|             </div>
194|           </motion.div>
195|         ))}
196|       </div>
197|     </div>
198|   )
199| }
200|
```

File: app/(dashboard)/teacher/certificates/new/page.tsx (342 lines, 14.1 KB)

```
==========================================================================================
   1| 'use client'
   2|
   3| import React, { useEffect, useState } from 'react'
   4| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
   5| import { useRouter } from 'next/navigation'
   6| import { ArrowLeft, Loader2, Save, Award, Users, BookOpen, Layers } from 'lucide-react'
   7| import Link from 'next/link'
   8| import { issueCustomCertificate } from '@/lib/certificates'
   9|
   1 0 |   / /   D a n h   s á c h   c á c   s t i c k e r / b a d g e   £ n h   d á n   m « u   ¹ p   c h o   c h é n g   c h É   p h § n   c é n g
  11| const BADGE_TEMPLATES = [
   1 2 |       {   i d :   ' c p u ' ,   n a m e :   ' B - c   T h § y   C P U   ( C P U   M a s t e r ) ' ,   u r l :   ' / b a d g e s / c p u _ m a s t
   1 3 |       {   i d :   ' g p u ' ,   n a m e :   ' C h i ¿ n   T h § n   G P U   ( G P U   G l a d i a t o r ) ' ,   u r l :   ' / b a d g e s / g p u
   1 4 |       {   i d :   ' r a m ' ,   n a m e :   ' S i ê u   C ¥ p   R A M   ( R A M   C h a m p i o n ) ' ,   u r l :   ' / b a d g e s / r a m _ c h
   1 5 |       {   i d :   ' p c _ b u i l d e r ' ,   n a m e :   ' K ù   S °   L ¯ p   R á p   P C   ( P C   A s s e m b l y   G u r u ) ' ,   u r l :
   1 6 |       {   i d :   ' m a s t e r ' ,   n a m e :   ' P C   M a s t e r   V ô   Ë c h   ( L M S   G r a n d m a s t e r ) ' ,   u r l :   ' / b a
  17| ]
  18|
  19| export default function NewCertificatePage() {
  20|   const supabase = createClientComponentClient()
  21|   const router = useRouter()
  22|   const [loading, setLoading] = useState(false)
```

```
  const [initialLoading, setInitialLoading] = useState(true)
  const [error, setError] = useState<string | null>(null)

  // Data lists
  const [classes, setClasses] = useState<any[]>([])
  const [students, setStudents] = useState<any[]>([])

  // Selections
  const [selectedClassId, setSelectedClassId] = useState('')
  const [selectedStudentId, setSelectedStudentId] = useState('')
  const [courseTitle, setCourseTitle] = useState('Khóa hÍc L¯p ráp PC Ma
  const [finalScore, setFinalScore] = useState(100)
  const [selectedBadge, setSelectedBadge] = useState('pc_builder')
  const [customStickerUrl, setCustomStickerUrl] = useState('')
  const [useCustomUrl, setUseCustomUrl] = useState(false)
  const [completionDate, setCompletionDate] = useState(new Date().toISOString().split('T')[0])

  useEffect(() => {
    fetchTeacherClasses()
  }, [])

  const fetchTeacherClasses = async () => {
    try {
      const { data: { user } } = await supabase.auth.getUser()
      if (!user) {
        window.location.href = '/login'
        return
      }

      // Lấy danh sách lÛp hÍc cça giáo viên
      const { data, error } = await supabase
        .from('classes')
        .select('*')
        .eq('teacher_id', user.id)
        .order('name', { ascending: true })

      if (error) throw error
      setClasses(data || [])

      if (data && data.length > 0) {
        setSelectedClassId(data[0].id)
        fetchStudentsForClass(data[0].id)
      } else {
        setInitialLoading(false)
      }
    } catch (err) {
      console.error('Error loading teacher classes:', err)
      setInitialLoading(false)
    }
  }

  const fetchStudentsForClass = async (classId: string) => {
    setStudents([])
    setSelectedStudentId('')
    try {
      // Lấy danh sách thành viên trong lÛp hÍc cùng profile cça hÍc sin
      const { data, error } = await supabase
        .from('class_members')
        .select('student_id, profiles!inner(id, full_name, email)')
        .eq('class_id', classId)

      if (error) throw error

      const studentProfiles = (data || []).map((m: any) => m.profiles)
      setStudents(studentProfiles)

      if (studentProfiles.length > 0) {
        setSelectedStudentId(studentProfiles[0].id)
      }
    } catch (err) {
      console.error('Error loading students for class:', err)
    } finally {
      setInitialLoading(false)
    }
  }

  const handleClassChange = (classId: string) => {
    setSelectedClassId(classId)
    fetchStudentsForClass(classId)
  }

  const handleSubmit = async (e: React.FormEvent) => {
    e.preventDefault()
    if (!selectedStudentId) {
      setError('Vui lòng chÍn hÍc sinh nh-n chéng chÉ!')
      return
    }

    setLoading(true)
    setError(null)

    // Xác Ënh URL sticker/£nh dán
    let badgeUrl = ''
    if (useCustomUrl) {
      badgeUrl = customStickerUrl.trim()
      if (!badgeUrl) {
        setError('Vui lòng nh-p °Ýng d«n £nh dán tùy chÉnh!')
        setLoading(false)
        return
      }
    } else {
      const template = BADGE_TEMPLATES.find(b => b.id === selectedBadge)
      badgeUrl = template ? template.url : '/badges/pc_builder.png'
    }

    try {
      // Gíi Server Action Ã c¥p chéng chÉ dán nhãn
      await issueCustomCertificate({
        studentId: selectedStudentId,
        courseTitle,
        finalScore: Number(finalScore),
        stickerUrl: badgeUrl,
        completionDate
      })

      // Thành công, chuyÃn vÁ trang danh sách
      router.push('/teacher/certificates')
      router.refresh()
    } catch (err: any) {
      console.error('Error issuing certificate:', err)
      setError(err.message || 'L× i khi l°u và c¥p chéng chÉ.')
      setLoading(false)
    }
  }
```

```
147|
148|   const inputStyle = {
149|     width: '100%', padding: '12px 16px', borderRadius: '12px',
150|     border: '1px solid rgba(255,255,255,0.08)', background: 'rgba(5, 10, 20, 0.5)',
151|     color: 'white', fontSize: '15px', outline: 'none'
152|   }
153|
154|   const labelStyle = {
155|     display: 'block', fontSize: '13px', fontWeight: 700, color: '#8899a6', marginBottom: '8px'
156|   }
157|
158|   if (initialLoading) {
159|     return (
160|       <div style={{ display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center', ...
161|         <Loader2 className="animate-spin" color="#00d4aa" size={48} />
162|                 <div style={{ color: '#8899a6', fontSize: '14px' }}>ang nạp cấu
163|       </div>
164|     )
165|   }
166|
167|   return (
168|     <div style={{ padding: '32px', maxWidth: '850px', margin: '0 auto', color: '#e0e6ed', fontFamily: 'var(--f...
169|       <Link href="/teacher/certificates" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', co...
170|                 <ArrowLeft size={20} />  Quay lại danh sách
171|       </Link>
172|
173|       <div style={{ background: 'rgba(12, 20, 36, 0.8)', padding: '40px', borderRadius: '24px', border: '1px s...
174|         <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '32px' }}>
175|           <div style={{ background: 'rgba(0, 212, 170, 0.1)', color: '#00d4aa', padding: '10px', borderRadius:...
176|             <Award size={28} />
177|           </div>
178|                       <h1 style={{ fontSize: '26px', fontWeight: 800, margin: 0, col
179|         </div>
180|
181|         {classes.length === 0 ? (
182|           <div style={{ padding: '24px', borderRadius: '12px', background: 'rgba(239, 68, 68, 0.1)', color: '#...
183|                         Bạn chưa tạo lớp học nào! Giáo viên cần có lớp học chéa hỉc
184|           </div>
185|         ) : (
186|           <form onSubmit={handleSubmit} style={{ display: 'flex', flexDirection: 'column', gap: '24px' }}>
187|
188|                         {/* Lớp & Hỉc sinh */}
189|             <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '20px' }}>
190|               <div>
191|                               <label style={labelStyle}>Chỉn lớp hỉc</label>
192|                 <select
193|                   value={selectedClassId}
194|                   onChange={(e) => handleClassChange(e.target.value)}
195|                   style={inputStyle}
196|                   required
197|                 >
198|                   {classes.map(c => (
199|                     <option key={c.id} value={c.id}>{c.name} ({c.grade} - {c.school_year})</option>
200|                   ))}
201|                 </select>
202|               </div>
203|
204|               <div>
205|                               <label style={labelStyle}>Chỉn hỉc sinh</label>
206|                 <select
207|                   value={selectedStudentId}
208|                   onChange={(e) => setSelectedStudentId(e.target.value)}
209|                   style={inputStyle}
210|                   required
211|                 >
212|
213|                   {students.length === 0 ? (
214|                                         <option value="">Lớp này chưa có hỉc sinh nào</opti
215|                   ) : (
216|                     students.map(s => (
217|                       <option key={s.id} value={s.id}>{s.full_name} ({s.email})</option>
218|                     ))
219|                   )}
220|                 </select>
221|               </div>
222|
223|                         {/* Tên chéng chÉ & iÃm */}
224|             <div style={{ display: 'grid', gridTemplateColumns: '2fr 1fr', gap: '20px' }}>
225|               <div>
226|                               <label style={labelStyle}>Tên chéng chÉ / Khóa hỉc</labe
227|                 <input
228|                   type="text"
229|                   value={courseTitle}
230|                   onChange={(e) => setCourseTitle(e.target.value)}
231|                                         placeholder="Ví dả: Khóa hỉc L¯p ráp PC Master"
232|                   style={inputStyle}
233|                   required
234|                 />
235|               </div>
236|
237|               <div>
238|                               <label style={labelStyle}> iÃm tÑt nghiÇp (%)</label>
239|                 <input
240|                   type="number"
241|                   value={finalScore}
242|                   onChange={(e) => setFinalScore(Number(e.target.value))}
243|                   min={0} max={100}
244|                   style={inputStyle}
245|                   required
246|                 />
247|               </div>
248|             </div>
249|
250|                         {/* Ngày cấp */}
251|             <div>
252|                                 <label style={labelStyle}>Ngày cấp chéng nh-n</label>
253|               <input
254|                 type="date"
255|                 value={completionDate}
256|                 onChange={(e) => setCompletionDate(e.target.value)}
257|                 style={inputStyle}
258|                 required
259|               />
260|             </div>
261|
262|                         {/* Chỉn ¢nh Dán / Badge */}
263|             <div>
264|                                 <label style={labelStyle}>Chỉn Huy hiÇu / ¢nh dán Khen Th
265|
266|                               {/* Grid các huy hiÇu có sµn */}
267|               <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(130px, 1fr))', gap:...
268|                 {BADGE_TEMPLATES.map((badge) => (
269|                   <div
270|                     key={badge.id}
```

```
271|                    onClick={() => {
272|                      setSelectedBadge(badge.id)
273|                      setUseCustomUrl(false)
274|                    }}
275|                    style={{
276|                      background: 'rgba(255,255,255,0.02)',
277|                      border: selectedBadge === badge.id && !useCustomUrl
278|                        ? `2px solid ${badge.color}`
279|                        : '1.5px solid rgba(255,255,255,0.05)',
280|                      borderRadius: '16px',
281|                      padding: '16px',
282|                      textAlign: 'center',
283|                      cursor: 'pointer',
284|                      transition: 'all 0.2s',
285|                      boxShadow: selectedBadge === badge.id && !useCustomUrl
286|                        ? `0 0 16px rgba(${badge.id === 'cpu' ? '0,243,255' : badge.id === 'ram' ? '234,179,8'...
287|                        : 'none'
288|                    }}
289|                  >
290|                    <div style={{ width: '60px', height: '60px', margin: '0 auto 12px auto', background: 'rgba...
291|                      <Award size={36} />
292|                    </div>
293|                    <div style={{ fontSize: '11px', fontWeight: 700, color: selectedBadge === badge.id && !use...
294|                      {badge.name}
295|                    </div>
296|                  </div>
297|                ))}
298|              </div>
299|
   300|                              { / *   T ù y   c h Í n   n h - p   £ n h   d á n   b ê n   n g o à i   * / }
301|              <div style={{ borderTop: '1px solid rgba(255,255,255,0.05)', paddingTop: '20px' }}>
302|                <label style={{ display: 'flex', alignItems: 'center', gap: '10px', fontSize: '13px', color: '...
303|                  <input
304|                    type="checkbox"
305|                    checked={useCustomUrl}
306|                    onChange={(e) => setUseCustomUrl(e.target.checked)}
307|                  />
   308|                                  S í   d ã n g    ° Ý n g   d « n   £ n h   d á n   t ù y   c h É n h   ( E x t e r n a l   U R L )
309|                </label>
310|
311|                {useCustomUrl && (
312|                  <input
313|                    type="text"
314|                    value={customStickerUrl}
315|                    onChange={(e) => setCustomStickerUrl(e.target.value)}
   316|                                      p l a c e h o l d e r = " N h - p   l i n k   £ n h   ( P N G / J P G )   h u y   h i Ç u   b ê n   n g
317|                    style={inputStyle}
318|                  />
319|                )}
320|              </div>
321|            </div>
322|
323|            {error && (
324|              <div style={{ padding: '16px', borderRadius: '12px', background: 'rgba(239, 68, 68, 0.1)', color...
325|                {error}
326|              </div>
327|            )}
328|
329|            <button type="submit" disabled={loading} style={{
330|              width: '100%', padding: '16px', borderRadius: '12px', background: '#00d4aa',
331|              color: '#050a14', fontSize: '16px', fontWeight: 700, border: 'none', cursor: loading ? 'not-allo...
332|              display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '10px', marginTop: '16px'
333|            }}>
   334|                              { l o a d i n g   ?   < L o a d e r 2   c l a s s N a m e = " a n i m a t e - s p i n "   s i z e = { 2 0 }   / >
335|            </button>
336|          </form>
337|        )}
338|      </div>
339|    </div>
340|  )
341| }
342|
```

File: app/(dashboard)/teacher/certificates/page.tsx (172 lines, 8.8 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useEffect, useState } from 'react'
    4| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
    5| import { Plus, Award, ArrowLeft, Loader2, Calendar, FileText, Search, User, CheckCircle } from 'lucide-react'
    6| import Link from 'next/link'
    7|
    8| export default function TeacherCertificatesPage() {
    9|   const supabase = createClientComponentClient()
   10|   const [certificates, setCertificates] = useState<any[]>([])
   11|   const [loading, setLoading] = useState(true)
   12|   const [searchTerm, setSearchTerm] = useState('')
   13|
   14|   useEffect(() => {
   15|     fetchCertificates()
   16|   }, [])
   17|
   18|   const fetchCertificates = async () => {
   19|     setLoading(true)
   20|     try {
   21|               / /   T £ i   d a n h   s á c h   c h é n g   c h É
   22|       const { data, error } = await supabase
   23|         .from('certificates')
   24|         .select('*')
   25|         .order('issued_at', { ascending: false })
   26|
   27|       if (error) throw error
   28|       setCertificates(data || [])
   29|     } catch (err) {
   30|       console.error('Error fetching certificates:', err)
   31|     } finally {
   32|       setLoading(false)
   33|     }
   34|   }
   35|
   36|   const filteredCerts = certificates.filter(c =>
   37|     c.student_name?.toLowerCase().includes(searchTerm.toLowerCase()) ||
   38|     c.course_title?.toLowerCase().includes(searchTerm.toLowerCase()) ||
   39|     c.certificate_number?.toLowerCase().includes(searchTerm.toLowerCase())
   40|   )
   41|
   42|   if (loading) {
   43|     return (
   44|       <div style={{ display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center', ...
   45|         <Loader2 className="animate-spin" color="#00d4aa" size={48} />
   46|                   < d i v   s t y l e = { {   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n t S i z e :   ' 1 4 p x '   } } >   a n g   t £ i   d a n
   47|       </div>
   48|     )
```

```
 49|   }
 50|
 51|   return (
 52|     <div style={{ maxWidth: '1200px', margin: '0 auto', paddingBottom: '80px', padding: '24px', color: '#e0e6e...
 53|
 54|       {/* Header */}
 55|       <header style={{ marginBottom: '40px', display: 'flex', justifyContent: 'space-between', alignItems: 'ce...
 56|         <div style={{ display: 'flex', alignItems: 'center', gap: '16px' }}>
 57|           <Link href="/teacher" style={{
 58|             width: '40px', height: '40px', borderRadius: '12px',
 59|             background: 'rgba(255,255,255,0.05)', display: 'flex',
 60|             alignItems: 'center', justifyContent: 'center', color: '#8899a6', textDecoration: 'none'
 61|           }}>
 62|             <ArrowLeft size={20} />
 63|           </Link>
 64|           <div>
 65|             <h1 style={{ fontSize: '28px', fontWeight: 800, margin: 0 }}>
    6 6 |                                Q u £ n   l ý   < s p a n   s t y l e = { {   c o l o r :   ' # 0 0 d 4 a a '   } } > C h é n g   C h É < / s p a n
 67|             </h1>
    6 8 |                            < p   s t y l e = { {   c o l o r :   ' # 8 8 9 9 a 6 ' ,   m a r g i n :   ' 4 p x   0   0   0 ' ,   f o n t S i z e :
 69|           </div>
 70|         </div>
 71|
 72|         <Link href="/teacher/certificates/new">
 73|           <button style={{
 74|             background: '#00d4aa', color: '#050a14', border: 'none',
 75|             padding: '12px 24px', borderRadius: '12px', fontWeight: 700,
 76|             display: 'flex', alignItems: 'center', gap: '8px', cursor: 'pointer', transition: 'all 0.2s'
 77|           }}>
    7 8 |                            < P l u s   s i z e = { 2 0 }   / >   C ¥ p   c h é n g   c h É   m Û i
 79|           </button>
 80|         </Link>
 81|       </header>
 82|
 83|       {/* Stats Summary Grid */}
 84|       <section style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(280px, 1fr))', gap: '20...
 85|         <div style={{ background: 'rgba(12, 20, 36, 0.8)', padding: '24px', borderRadius: '24px', border: '1px...
 86|           <div style={{ padding: '10px', borderRadius: '12px', background: 'rgba(0, 212, 170, 0.1)', color: '#...
 87|             <Award size={20} />
 88|           </div>
    8 9 |                        < d i v   s t y l e = { {   f o n t S i z e :   ' 1 3 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n t W e i g h t :
 90|           <div style={{ fontSize: '28px', fontWeight: 800, color: '#fff' }}>{certificates.length}</div>
 91|         </div>
 92|
 93|         <div style={{ background: 'rgba(12, 20, 36, 0.8)', padding: '24px', borderRadius: '24px', border: '1px...
 94|           <div style={{ padding: '10px', borderRadius: '12px', background: 'rgba(59, 130, 246, 0.1)', color: '...
 95|             <User size={20} />
 96|           </div>
    9 7 |                        < d i v   s t y l e = { {   f o n t S i z e :   ' 1 3 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n t W e i g h t :
 98|           <div style={{ fontSize: '28px', fontWeight: 800, color: '#fff' }}>
 99|             {new Set(certificates.map(c => c.student_id)).size}
100|           </div>
101|         </div>
102|       </section>
103|
104|       {/* Search and Filters */}
105|       <div style={{ marginBottom: '24px', position: 'relative', maxWidth: '400px' }}>
106|         <Search style={{ position: 'absolute', left: '16px', top: '12px', color: '#4b5563' }} size={20} />
107|         <input
108|           type="text"
   1 0 9 |                        p l a c e h o l d e r = " T ì m   t ê n   h Í c   s i n h ,   k h ó a   h Í c ,   m ã   s Ñ . . . "
110|           value={searchTerm}
111|           onChange={(e) => setSearchTerm(e.target.value)}
112|           style={{
113|             width: '100%', padding: '12px 16px 12px 48px', borderRadius: '12px',
114|             border: '1px solid rgba(255,255,255,0.08)', background: 'rgba(12, 20, 36, 0.5)',
115|             color: 'white', fontSize: '14px', outline: 'none'
116|           }}
117|         />
118|       </div>
119|
120|       {/* Main List Table */}
121|       <div style={{ background: 'rgba(12, 20, 36, 0.8)', border: '1px solid rgba(255,255,255,0.05)', borderRad...
122|         {filteredCerts.length === 0 ? (
123|           <div style={{ textAlign: 'center', padding: '80px 0', color: '#8899a6' }}>
124|             <Award size={48} style={{ marginBottom: '16px', opacity: 0.3 }} />
   1 2 5 |                            < h 3 > C h ° a   t ì m   t h ¥ y   c h é n g   c h É   n à o . < / h 3 >
   1 2 6 |                            < p   s t y l e = { {   f o n t S i z e :   ' 1 3 p x '   } } > H ã y   t h í   Õ i   t ë   k h ó a   t ì m   k i ¿ m
127|           </div>
128|         ) : (
129|           <table style={{ width: '100%', borderCollapse: 'collapse', textAlign: 'left', fontSize: '14px' }}>
130|             <thead>
131|               <tr style={{ background: 'rgba(255,255,255,0.02)', borderBottom: '1px solid rgba(255,255,255,0.0...
   1 3 2 |                                    < t h   s t y l e = { {   p a d d i n g :   ' 1 6 p x   2 4 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n
   1 3 3 |                                    < t h   s t y l e = { {   p a d d i n g :   ' 1 6 p x   2 4 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n
   1 3 4 |                                    < t h   s t y l e = { {   p a d d i n g :   ' 1 6 p x   2 4 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n
   1 3 5 |                                    < t h   s t y l e = { {   p a d d i n g :   ' 1 6 p x   2 4 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n
   1 3 6 |                                    < t h   s t y l e = { {   p a d d i n g :   ' 1 6 p x   2 4 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n
   1 3 7 |                                    < t h   s t y l e = { {   p a d d i n g :   ' 1 6 p x   2 4 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n
138|               </tr>
139|             </thead>
140|             <tbody>
141|               {filteredCerts.map((cert) => (
142|                 <tr key={cert.id} style={{ borderBottom: '1px solid rgba(255,255,255,0.03)', color: '#e0e6ed' }}>
143|                   <td style={{ padding: '16px 24px', fontWeight: 700 }}>{cert.student_name}</td>
144|                   <td style={{ padding: '16px 24px' }}>{cert.course_title}</td>
145|                   <td style={{ padding: '16px 24px', fontFamily: 'monospace', color: '#00d4aa' }}>{cert.certif...
146|                   <td style={{ padding: '16px 24px', color: '#00d4aa', fontWeight: 800 }}>{cert.final_score}%<...
147|                   <td style={{ padding: '16px 24px' }}>
148|                     {cert.pdf_url ? (
149|                       <a href={cert.pdf_url} target="_blank" rel="noopener noreferrer" style={{ display: 'inli...
150|                         <img
151|                           src={cert.pdf_url}
152|                           alt="Badge"
153|                           style={{ width: '40px', height: '40px', borderRadius: '8px', objectFit: 'contain', b...
154|                         />
155|                       </a>
156|                     ) : (
157|                       <span style={{ color: '#4b5563', fontSize: '12px' }}>Không có</span>
158|                     )}
159|                   </td>
160|                   <td style={{ padding: '16px 24px', color: '#8899a6' }}>
161|                     {cert.completion_date ? new Date(cert.completion_date).toLocaleDateString('vi-VN') : new D...
162|                   </td>
163|                 </tr>
164|               ))}
165|             </tbody>
166|           </table>
167|         )}
168|       </div>
169|     </div>
170|   )
171| }
172|
```

File: app/(dashboard)/teacher/classes/[classId]/assignments/[assignmentId]/grade/[submissionId]/page.tsx (229 lines,

==========

```
    1| 'use client';
    2|
    3| import React, { useEffect, useState, use } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import { useRouter } from 'next/navigation';
    6| import {
    7|   Loader2, ArrowLeft, CheckCircle, AlertCircle, Save,
    8|   MessageSquare, Star, Cpu, Wallet, Battery, HardDrive
    9| } from 'lucide-react';
   10| import Link from 'next/link';
   11| import { formatVND } from '@/lib/grading/auto-grade';
   12|
   13| export default function GradeSubmissionPage({ params }: { params: Promise<{ classId: string, assignmentId: str...
   14|   const resolvedParams = use(params);
   15|   const { classId, assignmentId, submissionId } = resolvedParams;
   16|
   17|   const [submission, setSubmission] = useState<any>(null);
   18|   const [assignment, setAssignment] = useState<any>(null);
   19|   const [loading, setLoading] = useState(true);
   20|   const [isSaving, setIsSaving] = useState(false);
   21|
   22|   // Grade state
   23|   const [teacherScore, setTeacherScore] = useState(0);
   24|   const [feedback, setFeedback] = useState('');
   25|
   26|   useEffect(() => {
   27|     fetchData();
   28|   }, [submissionId]);
   29|
   30|   async function fetchData() {
   31|     setLoading(true);
   32|     try {
   33|       // 1. Fetch Submission
   34|       const { data: sub, error: subError } = await supabase
   35|         .from('submissions')
   36|         .select(`
   37|           *,
   38|           student:profiles(full_name)
   39|         `)
   40|         .eq('id', submissionId)
   41|         .single();
   42|
   43|       if (subError) throw subError;
   44|       setSubmission(sub);
   45|       setTeacherScore(sub.teacher_score || 0);
   46|       setFeedback(sub.feedback || '');
   47|
   48|       // 2. Fetch Assignment
   49|       const { data: asg, error: asgError } = await supabase
   50|         .from('assignments')
   51|         .select('*')
   52|         .eq('id', assignmentId)
   53|         .single();
   54|
   55|       if (asgError) throw asgError;
   56|       setAssignment(asg);
   57|
   58|     } catch (err) {
   59|       console.error('Error fetching submission details:', err);
   60|     } finally {
   61|       setLoading(false);
   62|     }
   63|   }
   64|
   65|   const handleSaveGrade = async () => {
   66|     setIsSaving(true);
   67|     try {
   68|       const totalScore = Math.min(assignment.max_score, (submission.auto_score || 0) + teacherScore);
   69|
   70|       const { error } = await supabase
   71|         .from('submissions')
   72|         .update({
   73|           teacher_score: teacherScore,
   74|           total_score: totalScore,
   75|           feedback,
   76|           graded_at: new Date().toISOString()
   77|         })
   78|         .eq('id', submissionId);
   79|
   80|       if (error) throw error;
    8 1 |              a l e r t ( '   ã   l º u     i Ã m   v à   p h £ n   h Ó i ! ' ) ;
   82|       router.push(`/teacher/classes/${classId}/assignments/${assignmentId}`);
   83|     } catch (err: any) {
    8 4 |              a l e r t ( ' L × i :   '   +   e r r . m e s s a g e ) ;
   85|     } finally {
   86|       setIsSaving(false);
   87|     }
   88|   };
   89|
   90|   const router = useRouter();
   91|
   92|   if (loading) {
   93|     return (
   94|       <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
   95|         <Loader2 className="animate-spin" color="#00f3ff" size={48} />
   96|       </div>
   97|     );
   98|   }
   99|
    1 0 0 |      i f   ( ! s u b m i s s i o n   | |   ! a s s i g n m e n t )   r e t u r n   < d i v > K h ô n g   t ì m   t h ¥ y   d ï   l i Ç u . < / d
  101|
  102|   const pc = submission.pc_config;
  103|
  104|   return (
  105|     <div style={{ padding: '32px', maxWidth: '1200px', margin: '0 auto' }}>
  106|       <header style={{ marginBottom: '40px' }}>
  107|         <Link href={`/teacher/classes/${classId}/assignments/${assignmentId}`} style={{ display: 'inline-flex'...
    1 0 8 |                      < A r r o w L e f t   s i z e = { 2 0 }   / >   Q u a y   l ¡ i   b £ n g    i Ã m
  109|         </Link>
  110|         <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
  111|           <div>
    1 1 2 |                          < h 1   s t y l e = { {   f o n t S i z e :   ' 3 2 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n :   ' 0   0
    1 1 3 |                          < p   s t y l e = { {   c o l o r :   ' # 8 8 9 9 a 6 ' ,   m a r g i n :   0   } } > N h i Ç m   v å :   { a s s i g n
  114|           </div>
  115|           <div style={{ textAlign: 'right' }}>
    1 1 6 |                          < d i v   s t y l e = { {   f o n t S i z e :   ' 1 2 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n t W e i g h t
  117|             <div style={{ fontSize: '32px', fontWeight: 900, color: '#00f3ff' }}>{Math.min(assignment.max_scor...
  118|           </div>
  119|         </div>
  120|       </header>
```

```
  121|
  122|       <div style={{ display: 'grid', gridTemplateColumns: '1fr 400px', gap: '32px' }}>
  123|         {/* Left: Configuration Details */}
  124|         <div style={{ display: 'flex', flexDirection: 'column', gap: '32px' }}>
    1 2 5 |                         { / *   C ¥ u   h ì n h   P C   * / }
  126|           <section style={{ background: 'rgba(12, 20, 36, 0.8)', padding: '32px', borderRadius: '24px', border...
  127|             <h3 style={{ color: '#fff', fontSize: '20px', fontWeight: 800, margin: '0 0 24px 0', display: 'fle...
    1 2 8 |                             < C p u   s i z e = { 2 4 }   c o l o r = " # 0 0 f 3 f f "   / >   C h i   t i ¿ t   c ¥ u   h ì n h   P C
  129|             </h3>
  130|
  131|             <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '20px', marginBottom: '32px' }}>
  132|               <div style={{ padding: '20px', background: 'rgba(255,255,255,0.03)', borderRadius: '16px' }}>
  133|                 <div style={{ fontSize: '11px', color: '#4b5563', fontWeight: 700, marginBottom: '8px' }}>GIÁ ...
  134|                 <div style={{ fontSize: '20px', color: '#fff', fontWeight: 700 }}>{formatVND(pc.total_price)}<...
  135|               </div>
  136|               <div style={{ padding: '20px', background: 'rgba(255,255,255,0.03)', borderRadius: '16px' }}>
    1 3 7 |                               < d i v   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' # 4 b 5 5 6 3 ' ,   f o n t W e
  138|                 <div style={{ fontSize: '20px', color: '#fff', fontWeight: 700 }}>{pc.total_tdp}W</div>
  139|               </div>
  140|             </div>
  141|
  142|             <h4 style={{ color: '#8899a6', fontSize: '12px', fontWeight: 700, textTransform: 'uppercase', marg...
  143|             <div style={{ display: 'grid', gap: '12px' }}>
  144|               {pc.components.map((comp: string, idx: number) => (
  145|                 <div key={idx} style={{ padding: '12px 20px', background: 'rgba(255,255,255,0.02)', border: '1...
  146|                   {comp}
  147|                 </div>
  148|               ))}
  149|             </div>
  150|           </section>
  151|
  152|           {/* Auto-grade Breakdown */}
  153|           <section style={{ background: 'rgba(12, 20, 36, 0.5)', padding: '32px', borderRadius: '24px', border...
    1 5 4 |                           < h 3   s t y l e = { {   c o l o r :   ' # f f f ' ,   f o n t S i z e :   ' 2 0 p x ' ,   f o n t W e i g h t :   8 0
    1 5 5 |                           < p   s t y l e = { {   c o l o r :   ' # 8 8 9 9 a 6 ' ,   f o n t S i z e :   ' 1 4 p x ' ,   m a r g i n T o p :   '
  156|
    1 5 7 |                            { / *    â y   l à   p h § n   l o g i c   m ô   p h Ï n g   l ¡ i   b r e a k d o w n   * / }
  158|             <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
  159|               <div style={{ padding: '16px', borderRadius: '12px', background: 'rgba(16, 185, 129, 0.05)', bor...
  160|                 <div style={{ color: '#10b981', display: 'flex', alignItems: 'center', gap: '8px' }}><CheckCir...
  161|                 <span style={{ fontWeight: 700 }}>+30</span>
  162|               </div>
  163|               <div style={{ padding: '16px', borderRadius: '12px', background: 'rgba(16, 185, 129, 0.05)', bor...
  164|                 <div style={{ color: '#10b981', display: 'flex', alignItems: 'center', gap: '8px' }}><CheckCir...
  165|                 <span style={{ fontWeight: 700 }}>+15</span>
  166|               </div>
  167|             </div>
  168|           </section>
  169|         </div>
  170|
  171|         {/* Right: Grading Form */}
  172|         <aside style={{ display: 'flex', flexDirection: 'column', gap: '24px' }}>
  173|           <div style={{ background: 'rgba(0, 243, 255, 0.05)', padding: '32px', borderRadius: '24px', border: ...
  174|             <h3 style={{ color: '#fff', fontSize: '20px', fontWeight: 800, margin: '0 0 24px 0', display: 'fle...
    1 7 5 |                             < S t a r   s i z e = { 2 4 }   c o l o r = " # 0 0 f 3 f f "   / >   C h ¥ m    i Ã m   &   P h £ n   h Ó i
  176|             </h3>
  177|
  178|             <div style={{ marginBottom: '24px' }}>
  179|               <label style={{ display: 'block', fontSize: '14px', fontWeight: 600, color: '#8899a6', marginBot...
  180|               <div style={{ display: 'flex', alignItems: 'center', gap: '16px' }}>
  181|                 <input
  182|                   type="number"
  183|                   value={teacherScore}
  184|                   onChange={(e) => setTeacherScore(parseInt(e.target.value) || 0)}
  185|                   style={{ width: '100px', padding: '12px', borderRadius: '8px', background: '#050a14', border...
  186|                 />
    1 8 7 |                               < s p a n   s t y l e = { {   c o l o r :   ' # 4 b 5 5 6 3 ' ,   f o n t S i z e :   ' 1 4 p x '   } } > ( V i
  188|               </div>
  189|             </div>
  190|
  191|             <div style={{ marginBottom: '32p' }}>
  192|               <label style={{ display: 'block', fontSize: '14px', fontWeight: 600, color: '#8899a6', marginBot...
  193|               <div style={{ position: 'relative' }}>
  194|                 <MessageSquare style={{ position: 'absolute', left: '16px', top: '16px', color: '#4b5563' }} s...
  195|                 <textarea
  196|                   value={feedback}
  197|                   onChange={(e) => setFeedback(e.target.value)}
  198|                   rows={6}
    1 9 9 |                                   p l a c e h o l d e r = " V i ¿ t   n h - n   x é t   h o · c   h ° Û n g   d « n   t h ê m . . . "
  200|                   style={{ width: '100%', padding: '16px 16px 16px 48px', borderRadius: '12px', background: '#...
  201|                 ></textarea>
  202|               </div>
  203|             </div>
  204|
  205|             <button
  206|               onClick={handleSaveGrade}
  207|               disabled={isSaving}
  208|               style={{
  209|                 width: '100%', padding: '16px', borderRadius: '12px', background: 'var(--brand-primary)',
  210|                 color: '#000', fontSize: '16px', fontWeight: 800, border: 'none', cursor: isSaving ? 'not-allo...
  211|                 display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '10px'
  212|               }}
  213|             >
    2 1 4 |                             { i s S a v i n g   ?   < L o a d e r 2   c l a s s N a m e = " a n i m a t e - s p i n "   s i z e = { 2 0 }   / >
  215|             </button>
  216|           </div>
  217|
  218|           {submission.is_late && (
  219|             <div style={{ padding: '20px', background: 'rgba(239, 68, 68, 0.05)', borderRadius: '24px', border...
  220|               <AlertCircle size={20} color="#ef4444" />
    2 2 1 |                             < d i v   s t y l e = { {   c o l o r :   ' # e f 4 4 4 4 ' ,   f o n t S i z e :   ' 1 4 p x ' ,   f o n t W e i g
  222|             </div>
  223|           )}
  224|         </aside>
  225|       </div>
  226|     </div>
  227|   );
  228| }
  229|
```

File: app/(dashboard)/teacher/classes/[classId]/assignments/[assignmentId]/page.tsx (114 lines, 4.2 KB)

```
    1| 'use client';
    2|
    3| import React, { useEffect, useState, use } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import {
    6|   Loader2, ArrowLeft, ClipboardList, Info, Calendar
    7| } from 'lucide-react';
    8| import Link from 'next/link';
    9| import GradeTable from '@/components/classes/GradeTable';
   10|
   11| export default function AssignmentSubmissionsPage({ params }: { params: Promise<{ classId: string, assignmentI...
```

```
  12|   const resolvedParams = use(params);
  13|   const { classId, assignmentId } = resolvedParams;
  14|
  15|   const [assignment, setAssignment] = useState<any>(null);
  16|   const [submissions, setSubmissions] = useState<any[]>([]);
  17|   const [loading, setLoading] = useState(true);
  18|
  19|   useEffect(() => {
  20|     fetchData();
  21|   }, [assignmentId]);
  22|
  23|   async function fetchData() {
  24|     setLoading(true);
  25|     try {
  26|       // 1. Fetch Assignment Info
  27|       const { data: asg, error: asgError } = await supabase
  28|         .from('assignments')
  29|         .select('*')
  30|         .eq('id', assignmentId)
  31|         .single();
  32|
  33|       if (asgError) throw asgError;
  34|       setAssignment(asg);
  35|
  36|       // 2. Fetch all members of the class
  37|       const { data: members, error: memError } = await supabase
  38|         .from('class_members')
  39|         .select('student_id, student:profiles(full_name)')
  40|         .eq('class_id', classId);
  41|
  42|       if (memError) throw memError;
  43|
  44|       // 3. Fetch all submissions for this assignment
  45|       const { data: subs, error: subError } = await supabase
  46|         .from('submissions')
  47|         .select('*')
  48|         .eq('assignment_id', assignmentId);
  49|
  50|       if (subError) throw subError;
  51|
  52|       // 4. Combine data to show who hasn't submitted
  53|       const formattedData = members.map(m => {
  54|         const submission = subs?.find(s => s.student_id === m.student_id);
  55|         return {
  56|           id: submission?.id || m.student_id,
  57|
    5 8 |                       s t u d e n t _ n a m e :   ( m . s t u d e n t   a s   a n y ) ? . f u l l _ n a m e   | |   ' H Í c   s i n h ' ,
  59|           submitted_at: submission?.submitted_at || null,
  60|           is_late: submission?.is_late || false,
  61|           auto_score: submission?.auto_score ?? null,
  62|           teacher_score: submission?.teacher_score ?? null,
  63|           total_score: submission?.total_score ?? null,
  64|           status: submission
  65|             ? (submission.total_score !== null ? 'graded' : 'submitted')
  66|             : 'missing'
  67|         };
  68|       });
  69|
  70|       setSubmissions(formattedData);
  71|
  72|     } catch (err) {
  73|       console.error('Error fetching submissions:', err);
  74|     } finally {
  75|       setLoading(false);
  76|     }
  77|   }
  78|
  79|   if (loading) {
  80|     return (
  81|       <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
  82|         <Loader2 className="animate-spin" color="#00f3ff" size={48} />
  83|       </div>
  84|     );
  85|   }
  86|
    8 7 |       i f   ( ! a s s i g n m e n t )   r e t u r n   < d i v > K h ô n g   t ì m   t h ¥ y   n h i Ç m   v å . < / d i v > ;
  88|
  89|   return (
  90|     <div style={{ padding: '32px' }}>
  91|       <header style={{ marginBottom: '40px' }}>
  92|         <Link href={`/teacher/classes/${classId}`} style={{ display: 'inline-flex', alignItems: 'center', gap:...
    9 3 |                       < A r r o w L e f t   s i z e = { 2 0 }   / >   Q u a y   l ¡ i   l Ù p   h Í c
  94|         </Link>
  95|
    9 6 |                  < h 1   s t y l e = { {   f o n t S i z e :   ' 3 2 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n :   ' 0   0   1 2 p
  97|         <div style={{ display: 'flex', gap: '24px', color: '#8899a6', fontSize: '14px' }}>
    9 8 |                       < s p a n   s t y l e = { {   d i s p l a y :   ' f l e x ' ,   a l i g n I t e m s :   ' c e n t e r ' ,   g a p :   ' 6 p
  99|           {assignment.deadline && (
    1 0 0 |                           < s p a n   s t y l e = { {   d i s p l a y :   ' f l e x ' ,   a l i g n I t e m s :   ' c e n t e r ' ,   g a p :   '
 101|           )}
    1 0 2 |                       < s p a n   s t y l e = { {   d i s p l a y :   ' f l e x ' ,   a l i g n I t e m s :   ' c e n t e r ' ,   g a p :   ' 6 p
 103|         </div>
 104|       </header>
 105|
 106|       <GradeTable
 107|         data={submissions}
 108|         assignmentId={assignmentId}
 109|         classId={classId}
 110|       />
 111|     </div>
 112|   );
 113| }
 114|
```

File: app/(dashboard)/teacher/classes/[classId]/assignments/new/page.tsx (202 lines, 9.2 KB)

==========

```
    1| 'use client';
    2|
    3| import React, { useState, use } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import { useRouter } from 'next/navigation';
    6| import {
    7|   ArrowLeft, Loader2, Save, FileText, Target,
    8|   Wallet, Battery, HardDrive, Cpu, AlertCircle, Calendar
    9| } from 'lucide-react';
   10| import Link from 'next/link';
   11|
   12| export default function NewAssignmentPage({ params }: { params: Promise<{ classId: string }> }) {
   13|   const resolvedParams = use(params);
   14|   const classId = resolvedParams.classId;
   15|
   16|   const [loading, setLoading] = useState(false);
   17|   const [error, setError] = useState<string | null>(null);
```

```
18|   const [assignmentType, setAssignmentType] = useState('build_config');
19|   const router = useRouter();
20|
21|   async function handleSubmit(e: React.FormEvent<HTMLFormElement>) {
22|     e.preventDefault();
23|     setLoading(true);
24|     setError(null);
25|
26|     const formData = new FormData(e.currentTarget);
27|     const title = formData.get('title') as string;
28|     const description = formData.get('description') as string;
29|     const deadline = formData.get('deadline') as string;
30|     const maxScore = parseInt(formData.get('max_score') as string) || 100;
31|
32|     // Requirements JSON
33|     const requirements = {
34|       budget_max: parseInt(formData.get('budget_max') as string) || undefined,
35|       tdp_max: parseInt(formData.get('tdp_max') as string) || undefined,
36|       min_ram_gb: parseInt(formData.get('min_ram_gb') as string) || undefined,
37|       required_components: (formData.get('required_components') as string).split(',').map(s => s.trim()).filte...
38|     };
39|
40|     try {
41|       const { data: { user } } = await supabase.auth.getUser();
   4 2 |               i f   ( ! u s e r )   t h r o w   n e w   E r r o r ( ' V u i   l ò n g      n g   n h - p   l ¡ i . ' ) ;
43|
44|       const { error: insertError } = await supabase
45|         .from('assignments')
46|         .insert({
47|           class_id: classId,
48|           teacher_id: user.id,
49|           title,
50|           description,
51|           type: assignmentType,
52|           requirements,
53|           max_score: maxScore,
54|           deadline: deadline ? new Date(deadline).toISOString() : null,
55|           is_published: true
56|         });
57|
58|       if (insertError) throw insertError;
59|
60|       router.push(`/teacher/classes/${classId}`);
61|     } catch (err: any) {
62|       setError(err.message);
63|       setLoading(false);
64|     }
65|   }
66|
67|   const inputStyle = {
68|     width: '100%', padding: '14px 16px 14px 48px', borderRadius: '12px',
69|     border: '1px solid rgba(255,255,255,0.1)', background: 'rgba(5, 10, 20, 0.5)',
70|     color: 'white', fontSize: '16px', outline: 'none'
71|   };
72|
73|   const labelStyle = {
74|     display: 'block', fontSize: '14px', fontWeight: 600, color: '#8899a6', marginBottom: '8px'
75|   };
76|
77|   const iconStyle = {
78|     position: 'absolute' as const, left: '16px', top: '14px', color: '#4b5563'
79|   };
80|
81|   return (
82|     <div style={{ padding: '32px', maxWidth: '900px', margin: '0 auto' }}>
83|       <Link href={`/teacher/classes/${classId}`} style={{ display: 'inline-flex', alignItems: 'center', gap: '...
   8 4 |                 < A r r o w L e f t   s i z e = { 2 0 }   / >   Q u a y   l ¡ i   l Û p   h Í c
85|       </Link>
86|
87|       <div style={{ background: 'rgba(12, 20, 36, 0.8)', padding: '48px', borderRadius: '24px', border: '1px s...
   8 8 |                 < h 1   s t y l e = { {   f o n t S i z e :   ' 2 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n :   ' 0   0   4 0 p
89|
90|         <form onSubmit={handleSubmit} style={{ display: 'flex', flexDirection: 'column', gap: '32px' }}>
91|           {/* Thông tin chung */}
92|           <section style={{ display: 'flex', flexDirection: 'column', gap: '20px' }}>
93|             <h3 style={{ color: '#00f3ff', fontSize: '18px', fontWeight: 700, margin: 0 }}>1. Thông tin chung<...
94|
95|             <div>
   9 6 |                           < l a b e l   s t y l e = { l a b e l S t y l e } > T i ê u    Á   n h i Ç m   v å < / l a b e l >
97|               <div style={{ position: 'relative' }}>
98|                 <FileText style={iconStyle} size={20} />
   9 9 |                             < i n p u t   n a m e = " t i t l e "   r e q u i r e d   p l a c e h o l d e r = " V D :   L ¯ p   P C   G a m
100|               </div>
101|             </div>
102|
103|             <div>
   1 0 4 |                           < l a b e l   s t y l e = { l a b e l S t y l e } > M ô   t £   c h i   t i ¿ t < / l a b e l >
105|               <textarea name="description" rows={3} style={{ ...inputStyle, paddingLeft: '16px', resize: 'none...
106|             </div>
107|
108|             <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '24px' }}>
109|               <div>
   1 1 0 |                             < l a b e l   s t y l e = { l a b e l S t y l e } > L o ¡ i   n h i Ç m   v å < / l a b e l >
111|                 <div style={{ position: 'relative' }}>
112|                   <Target style={iconStyle} size={20} />
113|                   <select
114|                     value={assignmentType}
115|                     onChange={(e) => setAssignmentType(e.target.value)}
116|                     style={inputStyle}
117|                   >
   1 1 8 |                                       < o p t i o n   v a l u e = " b u i l d _ c o n f i g " > L ¯ p   r á p   P C    ¡ t   c h u © n < / o
   1 1 9 |                                       < o p t i o n   v a l u e = " o p t i m i z e _ b u d g e t " > T Ñ i   º u   n g â n   s á c h < / o p
   1 2 0 |                                       < o p t i o n   v a l u e = " m i n i m i z e _ t d p " > T i ¿ t   k i Ç m    i Ç n   n   n g < / o p
   1 2 1 |                                       < o p t i o n   v a l u e = " m a x i m i z e _ p e r f " > T Ñ i    a   h i Ç u   n   n g < / o p t i
122|                   </select>
123|                 </div>
124|               </div>
125|               <div>
   1 2 6 |                             < l a b e l   s t y l e = { l a b e l S t y l e } > H ¡ n   c h ó t   ( D e a d l i n e ) < / l a b e l >
127|                 <div style={{ position: 'relative' }}>
128|                   <Calendar style={iconStyle} size={20} />
129|                   <input name="deadline" type="datetime-local" style={inputStyle} />
130|                 </div>
131|               </div>
132|             </div>
133|           </section>
134|
   1 3 5 |                       { / *   Y ê u   c § u   k ù   t h u - t   * / }
136|           <section style={{ display: 'flex', flexDirection: 'column', gap: '20px', padding: '24px', background...
   1 3 7 |                         < h 3   s t y l e = { {   c o l o r :   ' # 0 0 f 3 f f ' ,   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :
   1 3 8 |                         < p   s t y l e = { {   c o l o r :   ' # 4 b 5 5 6 3 ' ,   f o n t S i z e :   ' 1 3 p x ' ,   m a r g i n :   ' - 1 0
139|
140|             <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '24px' }}>
141|               <div>
```

```
  1 4 2 |                                < l a b e l   s t y l e = { l a b e l S t y l e } > N g â n   s á c h   t Ñ i    a   ( V N   ) < / l a b e l >
  143|                <div style={{ position: 'relative' }}>
  144|                  <Wallet style={iconStyle} size={20} />
  145|                  <input name="budget_max" type="number" placeholder="15000000" style={inputStyle} />
  146|                </div>
  147|              </div>
  148|              <div>
  1 4 9 |                                < l a b e l   s t y l e = { l a b e l S t y l e } > T D P   t Ñ i    a   ( W a t t ) < / l a b e l >
  150|                <div style={{ position: 'relative' }}>
  151|                  <Battery style={iconStyle} size={20} />
  152|                  <input name="tdp_max" type="number" placeholder="300" style={inputStyle} />
  153|                </div>
  154|              </div>
  155|            </div>
  156|
  157|            <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '24px' }}>
  158|              <div>
  1 5 9 |                                < l a b e l   s t y l e = { l a b e l S t y l e } > R A M   t Ñ i   t h i Ã u   ( G B ) < / l a b e l >
  160|                <div style={{ position: 'relative' }}>
  161|                  <HardDrive style={iconStyle} size={20} />
  162|                  <input name="min_ram_gb" type="number" placeholder="16" style={inputStyle} />
  163|                </div>
  164|              </div>
  165|              <div>
  1 6 6 |                                < l a b e l   s t y l e = { l a b e l S t y l e } >   i Ã m   t Ñ i    a < / l a b e l >
  167|                <div style={{ position: 'relative' }}>
  168|                  <Target style={iconStyle} size={20} />
  169|                  <input name="max_score" type="number" defaultValue="100" style={inputStyle} />
  170|                </div>
  171|              </div>
  172|            </div>
  173|
  174|            <div>
  1 7 5 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > L i n h   k i Ç n   b ¯ t   b u Ù c   ( p h â n   c á c h   b ±
  176|              <div style={{ position: 'relative' }}>
  177|                <Cpu style={iconStyle} size={20} />
  178|                <input name="required_components" placeholder="RTX 3060, SSD NVMe, i5-12400F" style={inputStyl...
  179|              </div>
  180|            </div>
  181|          </section>
  182|
  183|          {error && (
  184|            <div style={{ padding: '16px', borderRadius: '12px', background: 'rgba(239, 68, 68, 0.1)', color: ...
  185|              <AlertCircle size={20} style={{ flexShrink: 0 }} />
  186|              <span>{error}</span>
  187|            </div>
  188|          )}
  189|
  190|          <button type="submit" disabled={loading} style={{
  191|            width: '100%', padding: '18px', borderRadius: '12px', background: 'var(--brand-primary)',
  192|            color: '#000', fontSize: '16px', fontWeight: 800, border: 'none', cursor: loading ? 'not-allowed' ...
  193|            display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '10px'
  194|          }}>
  1 9 5 |                        { l o a d i n g   ?   < L o a d e r 2   c l a s s N a m e = " a n i m a t e - s p i n "   s i z e = { 2 0 }   / >   :
  196|          </button>
  197|        </form>
  198|      </div>
  199|    </div>
  200|  );
  201| }
  202|
```

File: app/(dashboard)/teacher/classes/[classId]/page.tsx (472 lines, 22.4 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import React, { useEffect, useState, use } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import {
    6|   Users, ClipboardList, Plus, Loader2, ArrowLeft,
    7|   Settings, UserPlus, Info, Calendar, BookOpen, Bell, Send, Megaphone
    8| } from 'lucide-react';
    9| import Link from 'next/link';
   10| import AssignmentCard from '@/components/classes/AssignmentCard';
   11|
   12| export default function ClassDetailsPage({ params }: { params: Promise<{ classId: string }> }) {
   13|   const resolvedParams = use(params);
   14|   const classId = resolvedParams.classId;
   15|
   16|   const [classData, setClassData] = useState<any>(null);
   17|   const [assignments, setAssignments] = useState<any[]>([]);
   18|   const [members, setMembers] = useState<any[]>([]);
   19|   const [loading, setLoading] = useState(true);
   20|   const [activeTab, setActiveTab] = useState<'assignments' | 'students'>('assignments');
   21|
   22|   // Settings Modal states
   23|   const [showSettingsModal, setShowSettingsModal] = useState(false);
   24|   const [editName, setEditName] = useState('');
   25|   const [editMaxStudents, setEditMaxStudents] = useState(40);
     2 6 |       c o n s t   [ e d i t S u b j e c t ,   s e t E d i t S u b j e c t ]   =   u s e S t a t e ( ' T i n   h Í c ' ) ;
   27|   const [updating, setUpdating] = useState(false);
   28|
   29|   // Notification Modal states
   30|   const [showNotifModal, setShowNotifModal] = useState(false);
   31|   const [notifTitle, setNotifTitle] = useState('');
   32|   const [notifMessage, setNotifMessage] = useState('');
   33|   const [sendingNotif, setSendingNotif] = useState(false);
   34|
   35|   useEffect(() => {
   36|     fetchClassInfo();
   37|     const channel = supabase.channel(`class-${classId}-realtime`);
   38|
   39|     channel.on('postgres_changes',
   40|       { event: 'INSERT', schema: 'public', table: 'submissions', filter: `class_id=eq.${classId}` },
   41|       async (payload: any) => {
   42|         const assignmentId = payload.new?.assignment_id;
   43|         if (assignmentId) {
   44|           setAssignments(prev => prev.map(a =>
   45|             a.id === assignmentId ? { ...a, submissions: { count: (a.submissions?.count || 0) + 1 } } : a
   46|           ));
   47|         }
   48|       }
   49|     );
   50|
   51|     channel.on('postgres_changes',
   52|       { event: 'INSERT', schema: 'public', table: 'class_members', filter: `class_id=eq.${classId}` },
   53|       async (payload: any) => {
   54|         const studentId = payload.new?.student_id;
   55|         if (studentId) {
   56|           const { data: profile } = await supabase.from('profiles').select('*').eq('id', studentId).single();
   57|           if (profile) {
   58|             setMembers(prev => [...prev, { id: payload.new.id, class_id: classId, student_id: studentId, stude...
   59|           }
```

```
60|         }
61|       }
62|     );
63|
64|     channel.on('postgres_changes',
65|       { event: 'INSERT', schema: 'public', table: 'assignments', filter: `class_id=eq.${classId}` },
66|       (payload: any) => {
67|         setAssignments(prev => [payload.new, ...prev]);
68|       }
69|     );
70|
71|     channel.subscribe();
72|     return () => { supabase.removeChannel(channel); };
73|   }, [classId]);
74|
75|   async function fetchClassInfo() {
76|     setLoading(true);
77|     try {
78|       // 1. Fetch Class Info
79|       const { data: cls, error: clsError } = await supabase
80|         .from('classes')
81|         .select('*')
82|         .eq('id', classId)
83|         .single();
84|
85|       if (clsError) throw clsError;
86|       setClassData(cls);
87|       setEditName(cls.name);
88|       setEditMaxStudents(cls.max_students);
    8 9 |              s e t E d i t S u b j e c t ( c l s . s u b j e c t   | |   ' T i n   h Í c ' ) ;
 90|
91|       // 2. Fetch Assignments
92|       const { data: asgs, error: asgsError } = await supabase
93|         .from('assignments')
94|         .select('*, submissions(count)')
95|         .eq('class_id', classId)
96|         .order('created_at', { ascending: false });
97|
98|       if (asgsError) throw asgsError;
99|       setAssignments(asgs || []);
100|
101|       // 3. Fetch Members (Profiles)
102|       const { data: mems, error: memsError } = await supabase
103|         .from('class_members')
104|         .select(`
105|           *,
106|           student:profiles(*)
107|         `)
108|         .eq('class_id', classId);
109|
110|       if (memsError) throw memsError;
111|       setMembers(mems || []);
112|
113|     } catch (err) {
114|       console.error('Error fetching class info:', err);
115|     } finally {
116|       setLoading(false);
117|     }
118|   }
119|
120|   async function handleUpdateClass() {
121|     if (!editName) return;
122|     setUpdating(true);
123|     try {
124|       const { error } = await supabase
125|         .from('classes')
126|         .update({
127|           name: editName,
128|           max_students: editMaxStudents,
129|           subject: editSubject
130|         })
131|         .eq('id', classId);
132|       if (error) throw error;
133|       setClassData({ ...classData, name: editName, max_students: editMaxStudents, subject: editSubject });
134|       setShowSettingsModal(false);
    1 3 5 |                a l e r t ( ' C - p   n h - t   t h ô n g   t i n   l Û p   h Í c   t h à n h   c ô n g ! ' ) ;
136|     } catch (err) {
137|       console.error(err);
    1 3 8 |              a l e r t ( ' C ó   l × i   x £ y   r a   k h i   c - p   n h - t   l Û p   h Í c ' ) ;
139|     } finally {
140|       setUpdating(false);
141|     }
142|   }
143|
144|   async function handleDeleteClass() {
    1 4 5 |          i f   ( ! c o n f i r m ( ' B ¡ n   c ó   c h ¯ c   c h ¯ n   m u Ñ n   x ó a   l Û p   h Í c   n à y   k h ô n g ?   H à n h   Ù n g
146|     setUpdating(true);
147|     try {
148|       const { error } = await supabase
149|         .from('classes')
150|         .delete()
151|         .eq('id', classId);
152|       if (error) throw error;
    1 5 3 |              a l e r t ( '   ã   x ó a   l Û p   h Í c   t h à n h   c ô n g ! ' ) ;
154|       window.location.href = '/teacher/classes';
155|     } catch (err) {
156|       console.error(err);
    1 5 7 |              a l e r t ( ' C ó   l × i   x £ y   r a   k h i   x ó a   l Û p   h Í c ' ) ;
158|     } finally {
159|       setUpdating(false);
160|     }
161|   }
162|
163|   if (loading) {
164|     return (
165|       <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
166|         <Loader2 className="animate-spin" color="#00f3ff" size={48} />
167|       </div>
168|     );
169|   }
170|
    1 7 1 |      i f   ( ! c l a s s D a t a )   r e t u r n   < d i v > K h ô n g   t ì m   t h ¥ y   l Û p   h Í c . < / d i v > ;
172|
173|   return (
174|     <div style={{ padding: '32px' }}>
175|       <header style={{ marginBottom: '40px' }}>
176|         <Link href="/teacher/classes" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', color...
    1 7 7 |                      < A r r o w L e f t   s i z e = { 2 0 }   / >   D a n h   s á c h   l Û p
178|         </Link>
179|
180|         <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'flex-end' }}>
181|           <div>
182|             <h1 style={{ fontSize: '36px', fontWeight: 800, margin: '0 0 12px 0', color: '#fff' }}>{classData....
183|             <div style={{ display: 'flex', gap: '24px', color: '#8899a6', fontSize: '14px' }}>
```

```
184|                            <span style={{ display: 'flex', alignItems: 'center', gap:
185|              <span style={{ display: 'flex', alignItems: 'center', gap: '6px' }}><Users size={16} /> {members...
186|                            <span style={{ display: 'flex', alignItems: 'center', gap:
187|              </div>
188|            </div>
189|            <div style={{ display: 'flex', gap: '12px' }}>
190|              <button
191|                onClick={() => setShowNotifModal(true)}
192|                style={{ padding: '12px', borderRadius: '12px', background: 'rgba(249,168,37,0.1)', border: '1px...
193|                            title="Gíi thông báo ¿n lÛp"
194|              >
195|                <Megaphone size={18} /> Thông báo
196|              </button>
197|              <button
198|                onClick={() => setShowSettingsModal(true)}
199|                style={{ padding: '12px', borderRadius: '12px', background: 'rgba(255,255,255,0.05)', border: '1...
200|              >
201|                <Settings size={20} />
202|              </button>
203|              <Link href={`/teacher/classes/${classId}/assignments/new`} style={{ textDecoration: 'none' }}>
204|                <button style={{
205|                  background: 'var(--brand-primary)', color: '#000', border: 'none',
206|                  padding: '12px 24px', borderRadius: '12px', fontWeight: 700,
207|                  display: 'flex', alignItems: 'center', gap: '8px', cursor: 'pointer'
208|                }}>
209|                            <Plus size={20}/> Giao nhiÇm vå
210|                </button>
211|              </Link>
212|            </div>
213|          </div>
214|        </header>
215|
216|        {/* Tabs */}
217|        <div style={{ display: 'flex', gap: '32px', borderBottom: '1px solid rgba(255,255,255,0.05)', marginBott...
218|          <button
219|            onClick={() => setActiveTab('assignments')}
220|            style={{
221|              padding: '12px 0', background: 'none', border: 'none',
222|              borderBottom: activeTab === 'assignments' ? '2px solid #00f3ff' : '2px solid transparent',
223|              color: activeTab === 'assignments' ? '#00f3ff' : '#8899a6',
224|              fontSize: '16px', fontWeight: 700, cursor: 'pointer',
225|              display: 'flex', alignItems: 'center', gap: '8px'
226|            }}
227|          >
228|                        <ClipboardList size={20}/> NhiÇm vå ({assignments.length})
229|          </button>
230|          <button
231|            onClick={() => setActiveTab('students')}
232|            style={{
233|              padding: '12px 0', background: 'none', border: 'none',
234|              borderBottom: activeTab === 'students' ? '2px solid #00f3ff' : '2px solid transparent',
235|              color: activeTab === 'students' ? '#00f3ff' : '#8899a6',
236|              fontSize: '16px', fontWeight: 700, cursor: 'pointer',
237|              display: 'flex', alignItems: 'center', gap: '8px'
238|            }}
239|          >
240|                        <Users size={20}/> Danh sách lÛp ({members.length})
241|          </button>
242|        </div>
243|
244|        {activeTab === 'assignments' ? (
245|          <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(400px, 1fr))', gap: '24p...
246|            {assignments.length === 0 ? (
247|              <div style={{ gridColumn: '1 / -1', textAlign: 'center', padding: '60px', color: '#4b5563' }}>
248|                <BookOpen size={48} style={{ marginBottom: '16px', opacity: 0.2 }} />
249|                            <p>Chª a có nhiÇm vå nào ªãc giao cho lÛp này.</p>
250|              </div>
251|            ) : (
252|              assignments.map(asg => (
253|                <AssignmentCard
254|                  key={asg.id}
255|                  id={asg.id}
256|                  classId={classId}
257|                  title={asg.title}
258|                  type={asg.type}
259|                  deadline={asg.deadline}
260|                  requirements={asg.requirements}
261|                  submittedCount={asg.submissions?.[0]?.count || 0}
262|                  totalMembers={members.length}
263|                  role="teacher"
264|                />
265|              ))
266|            )}
267|          </div>
268|        ) : (
269|          <div style={{ background: 'rgba(12, 20, 36, 0.8)', borderRadius: '20px', border: '1px solid rgba(255,2...
270|            <table style={{ width: '100%', borderCollapse: 'collapse', textAlign: 'left' }}>
271|              <thead>
272|                <tr style={{ background: 'rgba(255,255,255,0.02)', borderBottom: '1px solid rgba(255,255,255,0.0...
273|                            <th style={{ padding: '16px 24px', color: '#8899a6', fontSize: '13px', for
274|                  <th style={{ padding: '16px 24px', color: '#8899a6', fontSize: '13px' }}>Email</th>
275|                  <th style={{ padding: '16px 24px', color: '#8899a6', fontSize: '13px' }}>Ngày tham gia</th>
276|                            <th style={{ padding: '16px 24px', color: '#8899a6', fontSize: '13px', for
277|                            <th style={{ padding: '16px 24px', color: '#8899a6', fontSize: '13px', for
278|                </tr>
279|              </thead>
280|              <tbody>
281|                {members.map(mem => (
282|                  <tr key={mem.id} style={{ borderBottom: '1px solid rgba(255,255,255,0.05)' }}>
283|                    <td style={{ padding: '16px 24px', color: '#fff', fontWeight: 600 }}>{mem.student?.full_name...
284|                    <td style={{ padding: '16px 24px', color: '#8899a6' }}>{mem.student?.email}</td>
285|                    <td style={{ padding: '16px 24px', color: '#8899a6' }}>{new Date(mem.joined_at).toLocaleDate...
286|                    <td style={{ padding: '16px 24px' }}>
287|                      <span style={{ padding: '4px 12px', borderRadius: '100px', background: 'rgba(16, 185, 129,...
288|                    </td>
289|                    <td style={{ padding: '16px 24px' }}>
290|                      <button style={{ background: 'none', border: 'none', color: '#f87171', fontSize: '13px', f...
291|                    </td>
292|                  </tr>
293|                ))}
294|                {members.length === 0 && (
295|                  <tr>
296|                            <td colSpan={5} style={{ padding: '40px', textAlign: '
297|                  </tr>
298|                )}
299|              </tbody>
300|            </table>
301|          </div>
302|        )}
303|
304|        {/* Send Notification Modal */}
305|        {showNotifModal && (
306|          <div style={{
307|            position: 'fixed', top: 0, left: 0, right: 0, bottom: 0,
```

```
308|           background: 'rgba(5, 10, 20, 0.85)', backdropFilter: 'blur(8px)',
309|           display: 'flex', alignItems: 'center', justifyContent: 'center', zIndex: 1000,
310|           padding: '20px'
311|         }}>
312|           <div style={{
313|             background: 'rgba(20, 28, 48, 0.95)', border: '1px solid rgba(255,255,255,0.08)',
314|             borderRadius: '24px', width: '100%', maxWidth: '500px', padding: '32px',
315|             boxShadow: '0 20px 50px rgba(0,0,0,0.5)', display: 'flex', flexDirection: 'column', gap: '20px'
316|           }}>
317|             <div>
318|               <h2 style={{ margin: '0 0 4px 0', fontSize: '22px', fontWeight: 800, color: '#fff', display: 'fl...
   319 |                                 < M e g a p h o n e   s i z e = { 2 2 }   c o l o r = " # f 9 a 8 2 5 "   / >   G í i   t h ô n g   b á o
320|               </h2>
   321 |                               < p   s t y l e = { {   m a r g i n :   0 ,   f o n t S i z e :   ' 1 3 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 '
322|             </div>
323|
324|             <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
325|               <div>
326|                 <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, color: '#8899a6', textTra...
327|                 <input
328|                   type="text"
329|                   value={notifTitle}
330|                   onChange={e => setNotifTitle(e.target.value)}
   331 |                                       p l a c e h o l d e r = " V D :   L Ëc h   t h i   g i ï a   k ó "
332|                   style={{ width: '100%', background: 'rgba(5, 10, 20, 0.6)', border: '1px solid rgba(255,255,...
333|                 />
334|               </div>
335|               <div>
336|                 <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, color: '#8899a6', textTra...
337|                 <textarea
338|                   value={notifMessage}
339|                   onChange={e => setNotifMessage(e.target.value)}
340|                   rows={4}
   341 |                                       p l a c e h o l d e r = " N h - p   n Ù i   d u n g   t h ô n g   b á o . . . "
342|                   style={{ width: '100%', background: 'rgba(5, 10, 20, 0.6)', border: '1px solid rgba(255,255,...
343|                 />
344|               </div>
345|             </div>
346|
347|             <div style={{ display: 'flex', justifyContent: 'flex-end', gap: '12px', marginTop: '12px' }}>
348|               <button
349|                 onClick={() => { setShowNotifModal(false); setNotifTitle(''); setNotifMessage(''); }}
350|                 style={{ background: 'transparent', color: '#8899a6', border: '1px solid rgba(255,255,255,0.1)...
351|               >
   352 |                                 H ç y
353|               </button>
354|               <button
355|                 onClick={async () => {
356|                   if (!notifTitle.trim() || !notifMessage.trim()) return
357|                   setSendingNotif(true)
358|                   try {
359|                     const res = await fetch('/api/notifications/send-class', {
360|                       method: 'POST',
361|                       headers: { 'Content-Type': 'application/json' },
362|                       body: JSON.stringify({ class_id: classId, title: notifTitle, message: notifMessage, type...
363|                     })
364|                     const data = await res.json()
365|                     if (data.success) {
   366 |                                         a l e r t ( `   ã   g í i   t h ô n g   b á o   t h à n h   c ô n g    ¿ n   $ { d a t a . c o u r
367|                       setShowNotifModal(false)
368|                       setNotifTitle('')
369|                       setNotifMessage('')
370|                     } else {
   371 |                                         a l e r t ( d a t a . e r r o r   | |   ' C ó   l × i   x £ y   r a ' )
372|                     }
373|                   } catch (err) {
   374 |                                       a l e r t ( ' L × i   k ¿ t   n Ñ i    ¿ n   m á y   c h ç ' )
375|                   } finally {
376|                     setSendingNotif(false)
377|                   }
378|                 }}
379|                 disabled={sendingNotif || !notifTitle.trim() || !notifMessage.trim()}
380|                 style={{ background: 'var(--brand-primary)', color: '#000', border: 'none', padding: '12px 24p...
381|               >
382|                 {sendingNotif ? <Loader2 size={18} className="animate-spin" /> : <Send size={18} />}
   383 |                                 G í i   t h ô n g   b á o
384|               </button>
385|             </div>
386|           </div>
387|         </div>
388|       )}
389|
390|       {/* Class Settings Modal */}
391|       {showSettingsModal && (
392|         <div style={{
393|           position: 'fixed', top: 0, left: 0, right: 0, bottom: 0,
394|           background: 'rgba(5, 10, 20, 0.85)', backdropFilter: 'blur(8px)',
395|           display: 'flex', alignItems: 'center', justifyContent: 'center', zIndex: 1000,
396|           padding: '20px'
397|         }}>
398|           <div style={{
399|             background: 'rgba(20, 28, 48, 0.95)', border: '1px solid rgba(255,255,255,0.08)',
400|             borderRadius: '24px', width: '100%', maxWidth: '500px', padding: '32px',
401|             boxShadow: '0 20px 50px rgba(0,0,0,0.5)', display: 'flex', flexDirection: 'column', gap: '20px'
402|           }}>
403|             <div>
   404 |                               < h 2   s t y l e = { {   m a r g i n :   ' 0   0   4 p x   0 ' ,   f o n t S i z e :   ' 2 2 p x ' ,   f o n t W e
   405 |                               < p   s t y l e = { {   m a r g i n :   0 ,   f o n t S i z e :   ' 1 3 p x ' ,   c o l o r :   ' # 8 8 9 9 a 6 '
406|             </div>
407|
408|             <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
409|               <div>
410|                 <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, color: '#8899a6', textTra...
411|                 <input
412|                   type="text"
413|                   value={editName}
414|                   onChange={e => setEditName(e.target.value)}
415|                   style={{ width: '100%', background: 'rgba(5, 10, 20, 0.6)', border: '1px solid rgba(255,255,...
416|                 />
417|               </div>
418|
419|               <div>
420|                 <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, color: '#8899a6', textTra...
421|                 <input
422|                   type="text"
423|                   value={editSubject}
424|                   onChange={e => setEditSubject(e.target.value)}
425|                   style={{ width: '100%', background: 'rgba(5, 10, 20, 0.6)', border: '1px solid rgba(255,255,...
426|                 />
427|               </div>
428|
429|               <div>
430|                 <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, color: '#8899a6', textTra...
431|                 <input
```

```
432|                  type="number"
433|                  value={editMaxStudents}
434|                  onChange={e => setEditMaxStudents(parseInt(e.target.value) || 40)}
435|                  style={{ width: '100%', background: 'rgba(5, 10, 20, 0.6)', border: '1px solid rgba(255,255,...
436|                />
437|              </div>
438|            </div>
439|
440|            <div style={{ display: 'flex', justifyContent: 'space-between', gap: '12px', marginTop: '12px' }}>
441|              <button
442|                onClick={handleDeleteClass}
443|                disabled={updating}
444|                style={{ background: 'rgba(239, 68, 68, 0.1)', color: '#f87171', border: 'none', padding: '12p...
445|              >
   4 4 6 |                                X ó a   l Ũ p
447|              </button>
448|
449|              <div style={{ display: 'flex', gap: '12px' }}>
450|                <button
451|                  onClick={() => setShowSettingsModal(false)}
452|                  disabled={updating}
453|                  style={{ background: 'transparent', color: '#8899a6', border: '1px solid rgba(255,255,255,0....
454|                >
   4 5 5 |                                    H ç y
456|                </button>
457|                <button
458|                  onClick={handleUpdateClass}
459|                  disabled={updating}
460|                  style={{ background: 'var(--brand-primary)', color: '#000', border: 'none', padding: '12px 2...
461|                >
   4 6 2 |                                    L ° u   t h a y     Õ i
463|                </button>
464|              </div>
465|            </div>
466|          </div>
467|        </div>
468|      )}
469|    </div>
470|  );
471| }
472|
```

File: app/(dashboard)/teacher/classes/new/page.tsx (144 lines, 5.9 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import React, { useState } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import { useRouter } from 'next/navigation';
    6| import { ArrowLeft, Loader2, Save, GraduationCap, Calendar, Users, Type } from 'lucide-react';
    7| import Link from 'next/link';
    8|
    9|
   10| export default function NewClassPage() {
   11|   const [loading, setLoading] = useState(false);
   12|   const [error, setError] = useState<string | null>(null);
   13|   const router = useRouter();
   14|
   15|   async function handleSubmit(e: React.FormEvent<HTMLFormElement>) {
   16|     e.preventDefault();
   17|     setLoading(true);
   18|     setError(null);
   19|
   20|     const formData = new FormData(e.currentTarget);
   21|     const name = formData.get('name') as string;
   22|     const grade = formData.get('grade') as string;
   23|     const schoolYear = formData.get('school_year') as string;
   24|     const description = formData.get('description') as string;
   25|     const maxStudents = parseInt(formData.get('max_students') as string) || 40;
   26|
   27|     try {
   28|       const { data: { user } } = await supabase.auth.getUser();
     2 9 |               i f   ( ! u s e r )   t h r o w   n e w   E r r o r ( ' V u i   l ò n g       n g   n h - p   l ¡ i . ' ) ;
   30|
     3 1 |               / /   T ñ   s i n h   m ã   l Ũ p   6   c h ï   s Ñ   ( d Ä   n h - p )
   32|       const code = Math.floor(100000 + Math.random() * 900000).toString();
   33|
   34|       const { data, error: insertError } = await supabase
   35|         .from('classes')
   36|         .insert({
   37|           name,
   38|           grade,
   39|           school_year: schoolYear,
   40|           description,
   41|           max_students: maxStudents,
   42|           teacher_id: user.id,
   43|           code
   44|         })
   45|         .select()
   46|         .single();
   47|
   48|       if (insertError) throw insertError;
   49|
   50|       router.push(`/teacher/classes/${data.id}`);
   51|     } catch (err: any) {
   52|       setError(err.message);
   53|       setLoading(false);
   54|     }
   55|   }
   56|
   57|   const inputStyle = {
   58|     width: '100%', padding: '14px 16px 14px 48px', borderRadius: '12px',
   59|     border: '1px solid rgba(255,255,255,0.1)', background: 'rgba(5, 10, 20, 0.5)',
   60|     color: 'white', fontSize: '16px', outline: 'none'
   61|   };
   62|
   63|   const labelStyle = {
   64|     display: 'block', fontSize: '14px', fontWeight: 600, color: '#8899a6', marginBottom: '8px'
   65|   };
   66|
   67|   const iconStyle = {
   68|     position: 'absolute' as const, left: '16px', top: '14px', color: '#4b5563'
   69|   };
   70|
   71|   return (
   72|     <div style={{ padding: '32px', maxWidth: '800px', margin: '0 auto' }}>
   73|       <Link href="/teacher/classes" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', color: ...
     7 4 |                 < A r r o w L e f t   s i z e = { 2 0 }   / >   Q u a y   l ¡ i   d a n h   s á c h
   75|       </Link>
   76|
   77|       <div style={{ background: 'rgba(12, 20, 36, 0.8)', padding: '48px', borderRadius: '24px', border: '1px s...
     7 8 |                 < h 1   s t y l e = { {   f o n t S i z e :   ' 2 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n :   ' 0   0   4 0 p
   79|
```

```
 80|         <form onSubmit={handleSubmit} style={{ display: 'flex', flexDirection: 'column', gap: '24px' }}>
 81|           <div>
    8 2 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > T ê n   l Û p   h Í c < / l a b e l >
 83|             <div style={{ position: 'relative' }}>
 84|               <Type style={iconStyle} size={20} />
    8 5 |                          < i n p u t   n a m e = " n a m e "   r e q u i r e d   p l a c e h o l d e r = " L Û p   1 0 A 1   -   T i n   h 1
 86|             </div>
 87|           </div>
 88|
 89|           <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '24px' }}>
 90|             <div>
    9 1 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > K h Ñ i   l Û p < / l a b e l >
 92|               <div style={{ position: 'relative' }}>
 93|                 <GraduationCap style={iconStyle} size={20} />
 94|                 <select name="grade" required style={inputStyle}>
    9 5 |                                    < o p t i o n   v a l u e = " 1 0 " > L Û p   1 0 < / o p t i o n >
    9 6 |                                    < o p t i o n   v a l u e = " 1 1 " > L Û p   1 1 < / o p t i o n >
    9 7 |                                    < o p t i o n   v a l u e = " 1 2 " > L Û p   1 2 < / o p t i o n >
 98|                   <option value="khac">Khác</option>
 99|                 </select>
100|               </div>
101|             </div>
102|             <div>
   1 0 3 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > N   m   h Í c < / l a b e l >
104|               <div style={{ position: 'relative' }}>
105|                 <Calendar style={iconStyle} size={20} />
106|                 <input name="school_year" required placeholder="2025-2026" style={inputStyle} defaultValue="20...
107|               </div>
108|             </div>
109|           </div>
110|
111|           <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '24px' }}>
112|             <div>
   1 1 3 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > S )   s Ñ   t Ñ i    a < / l a b e l >
114|               <div style={{ position: 'relative' }}>
115|                 <Users style={iconStyle} size={20} />
116|                 <input name="max_students" type="number" required defaultValue="40" style={inputStyle} />
117|               </div>
118|             </div>
119|           </div>
120|
121|           <div>
   1 2 2 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > M ô   t £   l Û p   h Í c   ( k h ô n g   b ¯ t   b u Ù c ) < / l a
123|             <textarea name="description" rows={4} style={{ ...inputStyle, paddingLeft: '16px', resize: 'none' ...
124|           </div>
125|
126|           {error && (
127|             <div style={{ padding: '16px', borderRadius: '12px', background: 'rgba(239, 68, 68, 0.1)', color: ...
128|               {error}
129|             </div>
130|           )}
131|
132|           <button type="submit" disabled={loading} style={{
133|             width: '100%', padding: '16px', borderRadius: '12px', background: 'var(--brand-primary)',
134|             color: '#000', fontSize: '16px', fontWeight: 700, border: 'none', cursor: loading ? 'not-allowed' ...
135|             display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '10px', marginTop: '16px'
136|           }}>
   1 3 7 |                          { l o a d i n g   ?   < L o a d e r 2   c l a s s N a m e = " a n i m a t e - s p i n "   s i z e = { 2 0 }   / >   :
138|           </button>
139|         </form>
140|       </div>
141|     </div>
142|   );
143| }
144|
```

File: app/(dashboard)/teacher/classes/page.tsx (95 lines, 3.7 KB)

```
  1| 'use client';
  2|
  3| import React, { useEffect, useState } from 'react';
  4| import { supabase } from '@/lib/supabase';
  5| import ClassCard from '@/components/classes/ClassCard';
  6| import { Plus, Loader2, BookOpen } from 'lucide-react';
  7| import Link from 'next/link';
  8|
  9| export default function TeacherClassesPage() {
 10|   const [classes, setClasses] = useState<any[]>([]);
 11|   const [loading, setLoading] = useState(true);
 12|
 13|   useEffect(() => { fetchClasses(); }, []);
 14|
 15|   async function fetchClasses() {
 16|     setLoading(true);
 17|     try {
 18|       const { data: { user } } = await supabase.auth.getUser();
 19|       if (!user) return;
 20|
 21|       const { data, error } = await supabase
 22|         .from('classes')
 23|         .select(`*, class_members(count), assignments(count)`)
 24|         .eq('teacher_id', user.id)
 25|         .order('created_at', { ascending: false });
 26|
 27|       if (error) throw error;
 28|       setClasses(data || []);
 29|     } catch (err) {
 30|       console.error('Error fetching classes:', err);
 31|     } finally {
 32|       setLoading(false);
 33|     }
 34|   }
 35|
 36|   if (loading) {
 37|     return (
 38|       <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '100%' }}>
 39|         <Loader2 style={{ animation: 'spin 1s linear infinite' }} color="var(--brand-primary)" size={48} />
 40|       </div>
 41|     );
 42|   }
 43|
 44|   return (
 45|     <div style={{ padding: '32px' }}>
 46|       <header style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: '...
 47|         <div>
 48|           <h1 style={{ fontSize: '32px', fontWeight: 800, margin: '0 0 8px 0', color: 'var(--text-primary)' }}...
    4 9 |                    < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   0   } } > T ¡ o   l Û p ,
 50|         </div>
 51|         <Link href="/teacher/classes/new" style={{ textDecoration: 'none' }}>
 52|           <button className="lms-btn lms-btn-primary" style={{ display: 'flex', alignItems: 'center', gap: '8p...
    5 3 |                          < P l u s   s i z e = { 2 0 }   / >   T ¡ o   l Û p   m Û i
 54|           </button>
 55|         </Link>
```

```
  56|       </header>
  57|
  58|       {classes.length === 0 ? (
  59|         <div style={{
  60|           textAlign: 'center', padding: '100px 0',
  61|           background: 'var(--bg-surface)', borderRadius: '24px',
  62|           border: '2px dashed var(--border-default)'
  63|         }}>
  64|           <BookOpen size={64} color="var(--text-muted)" style={{ marginBottom: '24px' }} />
     6 5 |                      < h 3   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   ' 0   0   2 4 p x   0 '
  66|           <Link href="/teacher/classes/new" style={{ textDecoration: 'none' }}>
  67|             <button style={{
  68|               background: 'rgba(var(--brand-primary-rgb),0.1)', color: 'var(--brand-primary)', border: '1px so...
  69|               padding: '12px 32px', borderRadius: '12px', fontWeight: 700, cursor: 'pointer', fontFamily: 'inh...
  70|             }}>
     7 1 |                                T ¡ o   l Û p   n g a y
  72|             </button>
  73|           </Link>
  74|         </div>
  75|       ) : (
  76|         <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(350px, 1fr))', gap: '24p...
  77|           {classes.map(cls => (
  78|             <ClassCard
  79|               key={cls.id}
  80|               id={cls.id}
  81|               name={cls.name}
  82|               code={cls.code}
  83|               memberCount={cls.class_members?.[0]?.count || 0}
  84|               maxStudents={cls.max_students}
  85|               activeAssignmentsCount={cls.assignments?.[0]?.count || 0}
  86|               role="teacher"
  87|               onDelete={fetchClasses}
  88|             />
  89|           ))}
  90|         </div>
  91|       )}
  92|     </div>
  93|   );
  94| }
  95|
-----------------------------------------------------------------------------------------------
```

File: app/(dashboard)/teacher/dashboard/error.tsx (17 lines, 0.6 KB)

```
===============================================================================================
    1| 'use client'
    2|
    3| import React from 'react'
    4|
    5| export default function Error({ error, reset }: { error: Error; reset: () => void }) {
    6|   return (
    7|     <div className="flex flex-col items-center justify-center h-full gap-4 p-8 text-center">
       8 |               < d i v   c l a s s N a m e = " t e x t - 3 x l " >& þ  < / d i v >
       9 |               < p   c l a s s N a m e = " t e x t - [ # d 8 d b e 8 ]   f o n t - m e d i u m " > { e r r o r . m e s s a g e   | |   ' C ó   l x
   10|       <button onClick={reset}
   11|         className="px-4 py-2 bg-[#00d4aa]/12 border border-[#00d4aa]/30 text-[#00d4aa] rounded-lg text-sm">
     1 2 |                   T h í   l ¡ i
   13|       </button>
   14|     </div>
   15|   )
   16| }
   17|
-----------------------------------------------------------------------------------------------
```

File: app/(dashboard)/teacher/dashboard/loading.tsx (14 lines, 0.4 KB)

```
===============================================================================================
    1| import React from 'react'
    2|
    3| export default function Loading() {
    4|   return (
    5|     <div className="p-6 space-y-4 animate-pulse">
    6|       <div className="h-8 bg-[#1d1f2a] rounded-lg w-44" />
    7|       <div className="grid grid-cols-2 md:grid-cols-4 gap-4">
    8|         {[...Array(4)].map((_, i) => <div key={i} className="h-24 bg-[#1d1f2a] rounded-xl" />)}
    9|       </div>
   10|       <div className="h-60 bg-[#1d1f2a] rounded-xl" />
   11|     </div>
   12|   )
   13| }
   14|
-----------------------------------------------------------------------------------------------
```

File: app/(dashboard)/teacher/error.tsx (26 lines, 0.9 KB)

```
===============================================================================================
    1| // Path: app/(dashboard)/teacher/error.tsx
    2| 'use client'
    3| import { useEffect } from 'react'
    4|
    5| export default function Error({
    6|   error, reset
    7| }: { error: Error & { digest?: string }; reset: () => void }) {
    8|   useEffect(() => { console.error(error) }, [error])
    9|   return (
   10|     <div className="flex flex-col items-center justify-center h-full gap-6 p-8">
     1 1 |               < d i v   c l a s s N a m e = " t e x t - 4 x l " >& þ  < / d i v >
   12|       <div className="text-center">
     1 3 |                 < h 2   c l a s s N a m e = " t e x t - l g   f o n t - s e m i b o l d   t e x t - [ # d 8 d b e 8 ]   m b - 2 " > C ó   l x i
     1 4 |                 < p   c l a s s N a m e = " t e x t - s m   t e x t - [ # 5 a 5 d 7 2 ]   m b - 4 " > { e r r o r . m e s s a g e   | |   ' V u
   15|         <button
   16|           onClick={reset}
   17|           className="px-4 py-2 bg-[#00d4aa]/15 border border-[#00d4aa]/30
   18|                      text-[#00d4aa] rounded-lg text-sm font-medium hover:bg-[#00d4aa]/25 transition-colors"
   19|         >
     2 0 |                     T h í   l ¡ i
   21|         </button>
   22|       </div>
   23|     </div>
   24|   )
   25| }
   26|
-----------------------------------------------------------------------------------------------
```

File: app/(dashboard)/teacher/exams/[id]/page.tsx (207 lines, 12.3 KB)

```
===============================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect, useCallback } from 'react'
    4| import { supabase } from '@/lib/supabase'
    5| import { use } from 'react'
    6| import Link from 'next/link'
    7| import { ArrowLeft, Users, Clock, BarChart3, CheckCircle, XCircle, Loader2, Eye, EyeOff, Trash2, RefreshCw, Us...
    8| import { getTeacherExam, publishExam, deleteExam } from '@/app/actions/exam'
    9| import { useRouter } from 'next/navigation'
```

```
export default function ExamDetailPage({ params }: { params: Promise<{ id: string }> }) {
  const { id } = use(params)
  const router = useRouter()
  const [exam, setExam] = useState<any>(null)
  const [loading, setLoading] = useState(true)
  const [publishing, setPublishing] = useState(false)

  const loadExam = useCallback(async () => {
    try {
      const data = await getTeacherExam(id)
      setExam(data)
    } catch (e: any) { console.error(e) }
    finally { setLoading(false) }
  }, [id])

  useEffect(() => {
    loadExam()
    const channel = supabase
      .channel(`exam-${id}`)
      .on('postgres_changes',
        { event: '*', schema: 'public', table: 'quiz_attempts', filter: `quiz_id=eq.${id}` },
        () => loadExam()
      )
      .on('postgres_changes',
        { event: '*', schema: 'public', table: 'quiz_answers' },
        () => loadExam()
      )
      .subscribe()
    return () => { supabase.removeChannel(channel) }
  }, [id, loadExam])

  async function handlePublish() {
    setPublishing(true)
    try {
      await publishExam(id, !exam.is_published)
      loadExam()
    } catch (e: any) { alert(e.message) }
    finally { setPublishing(false) }
  }

  async function handleDelete() {
    if (!confirm('Xóa Á thi này?')) return
    await deleteExam(id)
    router.push('/teacher/exams')
  }

  if (loading) return <div style={{ display: 'flex', justifyContent: 'center', padding: '80px' }}><Loader2 siz...
  if (!exam) return <div style={{ textAlign: 'center', padding: '80px', color: 'var(--text-muted)' }}>Không tì...

  const stats = {
    totalStudents: exam.attempts?.length || 0,
    completed: exam.attempts?.filter((a: any) => a.status !== 'in_progress').length || 0,
    inProgress: exam.attempts?.filter((a: any) => a.status === 'in_progress').length || 0,
    passed: exam.attempts?.filter((a: any) => a.status !== 'in_progress' && (a.score || 0) >= (exam.passing_sc...
    avgScore: (() => { const done = exam.attempts?.filter((a: any) => a.status !== 'in_progress'); return done...
    totalQuestions: exam.questions?.length || 0
  }

  return (
    <div style={{ maxWidth: '1200px', margin: '0 auto', color: 'var(--text-primary)' }}>
      <div style={{ display: 'flex', alignItems: 'center', gap: '16px', marginBottom: '24px' }}>
        <Link href="/teacher/exams" style={{ display: 'flex', padding: '8px', borderRadius: '10px', border: '1...
          <ArrowLeft size={18} />
        </Link>
        <div style={{ flex: 1 }}>
          <h1 style={{ fontSize: '24px', fontWeight: 800, margin: '0 0 4px 0' }}>{exam.title}</h1>
          <p style={{ color: 'var(--text-muted)', margin: 0, fontSize: '13px' }}>
                          {exam.classes?.name || 'Chưa chín lớp'} · {exam.time_limit_m
            {exam.lessons && <> · Bài: {exam.lessons.title}</>}
          </p>
        </div>
        <div style={{ display: 'flex', gap: '8px' }}>
          <button onClick={handlePublish} disabled={publishing}
            style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '10px 20px', borderRadius: '1...
                          {exam.is_published? <><EyeOff size={16}/> Gáng</> : <><
          </button>
          <button onClick={handleDelete}
            style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '10px 20px', borderRadius: '1...
            <Trash2 size={16} /> Xóa
          </button>
        </div>
      </div>

      <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(180px, 1fr))', gap: '16px',...
        {[
                        { label: 'HÍc sinh đã làm', value: stats.completed, icon: <Che
                        { label: 'đang làm', value: stats.inProgress, icon: <RefreshCw
                        { label: '¡t yêu cầu', value: stats.passed, icon: <Award size
                        { label: 'iĂm trung bình', value: `${stats.avgScore}%`, icon:
        ].map((s, i) => (
          <div key={i} style={{ padding: '20px', borderRadius: '16px', background: 'var(--bg-surface)', border...
            <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '8px' }}>
              <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: `${s.color}15`, d...
                {s.icon}
              </div>
            </div>
            <div style={{ fontSize: '28px', fontWeight: 800, marginBottom: '2px' }}>{s.value}</div>
            <div style={{ fontSize: '12px', color: 'var(--text-muted)' }}>{s.label}</div>
          </div>
        ))}
      </div>

      <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '24px' }}>
        <div className="lms-card" style={{ padding: '24px', background: 'var(--bg-surface)', border: '1px soli...
          <h2 style={{ fontSize: '16px', fontWeight: 700, marginBottom: '16px', display: 'flex', alignItems: '...
                          <Users size={18} />  Kết quả HÍc sinh
          </h2>
          {exam.attempts?.length === 0 ? (
            <div style={{ textAlign: 'center', padding: '40px', color: 'var(--text-muted)' }}>
              <Users size={48} style={{ opacity: 0.3, marginBottom: '12px' }} />
                              <p>Chưa có hÍc sinh nào làm bài</p>
            </div>
          ) : (
            <div style={{ display: 'flex', flexDirection: 'column', gap: '8px', maxHeight: '600px', overflowY:...
              {exam.attempts?.map((attempt: any) => {
                const correctCount = attempt.quiz_answers?.filter((a: any) => a.is_correct).length || 0
                const totalCount = attempt.quiz_answers?.length || 0
                return (
                  <div key={attempt.id} style={{ padding: '14px', borderRadius: '12px', background: 'var(--bg-...
                    <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marg...
                      <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
                        <div style={{ width: '32px', height: '32px', borderRadius: '8px', background: 'rgba(99...
                          {attempt.profiles?.full_name?.charAt(0) || '?'}
```

```
134|                        </div>
135|                        <div>
136|                          <div style={{ fontSize: '13px', fontWeight: 600 }}>{attempt.profiles?.full_name || '...
137|                          <div style={{ fontSize: '11px', color: 'var(--text-muted)', display: 'flex', alignIt...
138|                            <Mail size={11} /> {attempt.profiles?.email || ''}
139|                          </div>
140|                        </div>
141|                      </div>
142|                      <div style={{ textAlign: 'right' }}>
143|                        {attempt.status === 'in_progress' ? (
144|                          <span style={{ fontSize: '11px', padding: '2px 8px', borderRadius: '4px', background...
145|                        ) : attempt.status === 'submitted' || attempt.status === 'graded' ? (
146|                          <div>
147|                            <div style={{ fontSize: '20px', fontWeight: 800, color: (attempt.score || 0) >= (e...
148|                              {attempt.score?.toFixed(1)}%
149|                            </div>
150|                            <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>{correctCount}/{tota...
151|                          </div>
152|                        ) : (
153|                          <span style={{ fontSize: '11px', padding: '2px 8px', borderRadius: '4px', background...
154|                        )}
155|                      </div>
156|                    </div>
157|                    {attempt.status !== 'in_progress' && totalCount > 0 && (
158|                      <div style={{ width: '100%', height: '4px', borderRadius: '2px', background: 'var(--bg-b...
159|                        <div style={{ height: '100%', borderRadius: '2px', width: `${(correctCount / totalCoun...
160|                      </div>
161|                    )}
162|                  </div>
163|                )
164|              })}
165|            </div>
166|          )}
167|        </div>
168|
169|        <div className="lms-card" style={{ padding: '24px', background: 'var(--bg-surface)', border: '1px soli...
170|          <h2 style={{ fontSize: '16px', fontWeight: 700, marginBottom: '16px', display: 'flex', alignItems: '...
   1 7 1 |                          < B a r C h a r t 3   s i z e = { 1 8 }   / >   P h â n   t í c h   c â u   h Ỉ i
172|          </h2>
173|          {exam.questions?.length === 0 ? (
174|            <div style={{ textAlign: 'center', padding: '40px', color: 'var(--text-muted)' }}>
175|              <BarChart3 size={48} style={{ opacity: 0.3, marginBottom: '12px' }} />
   1 7 6 |                                < p > C h ° a   c ó   c â u   h Ỉ i   n à o < / p >
177|            </div>
178|          ) : (
179|            <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
180|              {exam.questions?.map((q: any, i: number) => {
181|                const answers = exam.attempts?.flatMap((a: any) => a.quiz_answers || []).filter((a: any) => a....
182|                const correct = answers.filter((a: any) => a.is_correct).length
183|                const total = answers.length
184|                const pct = total > 0 ? Math.round((correct / total) * 100) : 0
185|                return (
186|                  <div key={q.id} style={{ padding: '12px', borderRadius: '10px', background: 'var(--bg-elevat...
187|                    <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marg...
188|                      <div style={{ fontSize: '13px', fontWeight: 600, flex: 1 }}><span style={{ color: 'var(-...
189|                      <div style={{ fontSize: '12px', fontWeight: 700, color: pct >= 70 ? '#10b981' : pct >= 4...
190|                        {correct}/{total} ({pct}%)
191|                      </div>
192|                    </div>
193|                    <div style={{ width: '100%', height: '4px', borderRadius: '2px', background: 'var(--bg-bas...
194|                      <div style={{ height: '100%', borderRadius: '2px', width: `${pct}%`, background: pct >= ...
195|                    </div>
196|                  </div>
197|                )
198|              })}
199|            </div>
200|          )}
201|        </div>
202|      </div>
203|      <style>{`@keyframes spin { to { transform: rotate(360deg) } }`}</style>
204|    </div>
205|  )
206| }
207|
```

File: app/(dashboard)/teacher/exams/new/page.tsx (333 lines, 20.5 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect, useCallback } from 'react'
    4| import { supabase } from '@/lib/supabase'
    5| import { useRouter } from 'next/navigation'
    6| import { ArrowLeft, Plus, Trash2, Save, Loader2, Upload, FileText } from 'lucide-react'
    7| import { createExam, addQuestionToExam } from '@/app/actions/exam'
    8| import { parseDocx } from '@/utils/word-parser'
    9|
   10| export default function NewExamPage() {
   11|   const router = useRouter()
   12|   const [classes, setClasses] = useState<any[]>([])
   13|   const [lessons, setLessons] = useState<any[]>([])
   14|   const [saving, setSaving] = useState(false)
   15|   const [uploadingWord, setUploadingWord] = useState(false)
   16|   const [wordFileName, setWordFileName] = useState('')
   17|   const [form, setForm] = useState({
   18|     title: '',
   19|     description: '',
   20|     classId: '',
   21|     lessonId: '',
   22|     timeLimitMinutes: 45,
   23|     passingScore: 70,
   24|     maxAttempts: 3,
   25|     requireCamera: false,
   26|     availableFrom: '',
   27|     availableUntil: ''
   28|   })
   29|   const [questions, setQuestions] = useState<any[]>([])
   30|   const [questionInput, setQuestionInput] = useState({
   31|     content: '',
   32|     type: 'single_choice' as string,
   33|     points: 10,
   34|     difficulty: 'medium',
   35|     explanation: '',
   36|     options: [{ content: '', isCorrect: false }, { content: '', isCorrect: false }]
   37|   })
   38|
   39|   useEffect(() => {
   40|     supabase.auth.getUser().then(({ data: { user } }) => {
   41|       if (!user) return
   42|       supabase.from('classes').select('*').eq('teacher_id', user.id).then(({ data }) => setClasses(data || []))
   43|       supabase.from('lessons').select('*').eq('teacher_id', user.id).then(({ data }) => setLessons(data || []))
   44|     })
   45|   }, [])
   46|
```

```
 47|   function addOption() {
 48|     setQuestionInput(prev => ({ ...prev, options: [...prev.options, { content: '', isCorrect: false }] }))
 49|   }
 50|   function removeOption(i: number) {
 51|     setQuestionInput(prev => ({ ...prev, options: prev.options.filter((_, idx) => idx !== i) }))
 52|   }
 53|   function setOption(index: number, field: string, value: any) {
 54|     setQuestionInput(prev => {
 55|       const opts = [...prev.options]
 56|       opts[index] = { ...opts[index], [field]: value }
 57|       return { ...prev, options: opts }
 58|     })
 59|   }
 60|   function setCorrectOption(index: number) {
 61|     setQuestionInput(prev => ({
 62|       ...prev,
 63|       options: prev.options.map((opt, i) => ({ ...opt, isCorrect: i === index }))
 64|     }))
 65|   }
 66|
 67|   function addCurrentQuestion() {
 68|     const q = questionInput
    69 |         i f   ( ! q . c o n t e n t . t r i m ( ) )   {   a l e r t ( ' N h - p   n Ù i   d u n g   c â u   h Ï i ' ) ;   r e t u r n   }
 70|     const validOptions = q.options.filter(o => o.content.trim())
    71 |         i f   ( q . t y p e   ! = =   ' f i l l _ b l a n k '   & &   v a l i d O p t i o n s . l e n g t h   <   2 )   {   a l e r t ( ' C § n
    72 |         i f   ( ! v a l i d O p t i o n s . s o m e ( o   = >   o . i s C o r r e c t ) )   {   a l e r t ( ' C h Í n   á p   á n   ú n g '
 73|     setQuestions(prev => [...prev, { ...q, options: validOptions, id: `temp_${Date.now()}` }])
 74|     setQuestionInput({
 75|       content: '', type: 'single_choice', points: 10, difficulty: 'medium', explanation: '',
 76|       options: [{ content: '', isCorrect: false }, { content: '', isCorrect: false }]
 77|     })
 78|   }
 79|
 80|   function removeQuestion(id: string) {
 81|     setQuestions(prev => prev.filter(q => q.id !== id))
 82|   }
 83|
 84|   async function handleWordUpload(e: React.ChangeEvent<HTMLInputElement>) {
 85|     const file = e.target.files?.[0]
 86|     if (!file) return
    87 |         i f   ( ! f i l e . n a m e . e n d s W i t h ( ' . d o c x ' ) )   {   a l e r t ( ' C h É   h ×   t r ã   f i l e   . d o c x ' ) ;
 88|     setUploadingWord(true)
 89|     setWordFileName(file.name)
 90|     try {
 91|       const { questions: parsed } = await parseDocx(file)
    92 |           i f   ( p a r s e d . l e n g t h   = = =   0 )   {   a l e r t ( ' K h ô n g   t ì m   t h ¥ y   c â u   h Ï i   t r o n g   f i l
 93|       setQuestions(prev => [...prev, ...parsed.map((q, i) => ({ ...q, id: `word_${Date.now()}_${i}` }))])
    94 |           a l e r t ( `   ã   n h - p   $ { p a r s e d . l e n g t h }   c â u   h Ï i   t ë   f i l e   W o r d ! ` )
 95|     } catch (err: any) {
    96 |           a l e r t ( ' L × i     Í c   f i l e :   '   +   e r r . m e s s a g e )
 97|     } finally {
 98|       setUploadingWord(false)
 99|     }
100|   }
101|
102|   async function handleSave() {
   103 |         i f   ( ! f o r m . t i t l e . t r i m ( ) )   {   a l e r t ( ' N h - p   t ê n   Á   t h i ' ) ;   r e t u r n   }
   104 |         i f   ( ! f o r m . c l a s s I d )   {   a l e r t ( ' C h Í n   l Ù p   h Í c ' ) ;   r e t u r n   }
   105 |         i f   ( q u e s t i o n s . l e n g t h   = = =   0 )   {   a l e r t ( ' T h ê m   í t   n h ¥ t   1   c â u   h Ï i ' ) ;   r e t u r
106|     setSaving(true)
107|     try {
108|       const exam = await createExam({
109|         title: form.title,
110|         description: form.description,
111|         classId: form.classId,
112|         lessonId: form.lessonId || undefined,
113|         timeLimitMinutes: form.timeLimitMinutes,
114|         passingScore: form.passingScore,
115|         maxAttempts: form.maxAttempts,
116|         requireCamera: form.requireCamera,
117|         availableFrom: form.availableFrom || undefined,
118|         availableUntil: form.availableUntil || undefined
119|       })
120|
121|       for (let i = 0; i < questions.length; i++) {
122|         const q = questions[i]
123|         await addQuestionToExam({
124|           examId: exam.id,
125|           content: q.content,
126|           type: q.type,
127|           points: q.points,
128|           difficulty: q.difficulty,
129|           explanation: q.explanation,
130|           options: q.options
131|         })
132|       }
133|
134|       router.push(`/teacher/exams/${exam.id}`)
135|     } catch (e: any) {
   136 |           a l e r t ( ' L × i :   '   +   e . m e s s a g e )
137|     } finally {
138|       setSaving(false)
139|     }
140|   }
141|
142|   return (
143|     <div style={{ maxWidth: '1000px', margin: '0 auto', color: 'var(--text-primary)' }}>
144|       <button onClick={() => router.back()}
145|         style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '8px 16px', borderRadius: '10px',...
   146 |               < A r r o w L e f t   s i z e = { 1 6 }   / >   Q u a y   l ¡ i
147|       </button>
148|
   149 |           < h 1   s t y l e = { {   f o n t S i z e :   ' 2 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n B o t t o m :   ' 3 2 p
150|
151|       <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '32px' }}>
152|         <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
153|           <div className="lms-card" style={{ padding: '24px', background: 'var(--bg-surface)', border: '1px so...
   154 |                         < h 2   s t y l e = { {   f o n t S i z e :   ' 1 6 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g i n B o t t o m
155|             <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
156|               <input value={form.title} onChange={e => setForm(p => ({ ...p, title: e.target.value }))}
   157 |                                 p l a c e h o l d e r = " T ê n   Á   t h i   * "   s t y l e = { {   p a d d i n g :   ' 1 2 p x   1 6 p x '
158|               <textarea value={form.description} onChange={e => setForm(p => ({ ...p, description: e.target.va...
   159 |                                 p l a c e h o l d e r = " M ô   t £   ( h i Ä n   t h Ê   c h o   h Í c   s i n h ) "   r o w s = { 3 }   s t y
160|
161|               <select value={form.classId} onChange={e => setForm(p => ({ ...p, classId: e.target.value }))}
162|                 style={{ padding: '12px 16px', borderRadius: '10px', border: '1px solid var(--border-default)'...
   163 |                                 < o p t i o n   v a l u e = " " > - -   C h Í n   l Ù p   h Í c   *   - - < / o p t i o n >
164|                 {classes.map(c => <option key={c.id} value={c.id}>{c.name} ({c.code})</option>)}
165|               </select>
166|
167|               <select value={form.lessonId} onChange={e => setForm(p => ({ ...p, lessonId: e.target.value }))}
168|                 style={{ padding: '12px 16px', borderRadius: '10px', border: '1px solid var(--border-default)'...
   169 |                                 < o p t i o n   v a l u e = " " > - -   G ¯ n   v Ù i   b à i   g i £ n g   ( k h ô n g   b ¯ t   b u Ù c )
170|                 {lessons.map(l => <option key={l.id} value={l.id}>{l.title}</option>)}
```

```
171|              </select>
172|
173|              <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '12px' }}>
174|                <div>
175|                  <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom:...
176|                  <input type="number" value={form.timeLimitMinutes} onChange={e => setForm(p => ({ ...p, time...
177|                    style={{ padding: '10px 14px', borderRadius: '10px', border: '1px solid var(--border-defau...
178|                </div>
179|                <div>
180|                  <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom:...
181|                  <input type="number" value={form.passingScore} onChange={e => setForm(p => ({ ...p, passingS...
182|                    style={{ padding: '10px 14px', borderRadius: '10px', border: '1px solid var(--border-defau...
183|                </div>
184|              </div>
185|
186|              <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '12px' }}>
187|                <div>
188|                  <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom:...
189|                  <input type="datetime-local" value={form.availableFrom} onChange={e => setForm(p => ({ ...p,...
190|                    style={{ padding: '10px 14px', borderRadius: '10px', border: '1px solid var(--border-defau...
191|                </div>
192|                <div>
193|                  <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom:...
194|                  <input type="datetime-local" value={form.availableUntil} onChange={e => setForm(p => ({ ...p...
195|                    style={{ padding: '10px 14px', borderRadius: '10px', border: '1px solid var(--border-defau...
196|                </div>
197|              </div>
198|
199|              <label style={{ display: 'flex', alignItems: 'center', gap: '10px', cursor: 'pointer', fontSize:...
200|                <input type="checkbox" checked={form.requireCamera} onChange={e => setForm(p => ({ ...p, requi...
201|                  style={{ width: '18px', height: '18px' }} />
202|                                Yêu cầu bật camera khi thi (giám sát AI)
203|              </label>
204|            </div>
205|          </div>
206|        </div>
207|
208|        <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
209|          <div className="lms-card" style={{ padding: '24px', background: 'var(--bg-surface)', border: '1px so...
210|                          <h2 style={{ fontSize: '16px', fontWeight: 700, marginBottom
211|            <div style={{ display: 'flex', flexDirection: 'column', gap: '10px' }}>
212|              <input value={questionInput.content} onChange={e => setQuestionInput(p => ({ ...p, content: e.ta...
213|                                placeholder="Nội dung câu hỏi" style={{ padding: '12px 1
214|
215|              <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '8px' }}>
216|                <select value={questionInput.type} onChange={e => setQuestionInput(p => ({ ...p, type: e.targe...
217|                  style={{ padding: '10px 14px', borderRadius: '10px', border: '1px solid var(--border-default...
218|                                <option value="single_choice">Trắc nghiệm 1 đáp án</op
219|                                <option value="true_false">Đúng / Sai</option>
220|                                <option value="fill_blank">Điền khuyết</option>
221|                                <option value="multiple_choice">Nhiều đáp án</option>
222|                </select>
223|
224|                <div style={{ display: 'flex', gap: '8px' }}>
225|                  <input type="number" value={questionInput.points} onChange={e => setQuestionInput(p => ({ .....
226|                                    placeholder="điểm" style={{ padding: '10px 14px', bo
227|                </div>
228|              </div>
229|
230|              {questionInput.type !== 'fill_blank' && (
231|                <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
232|                  {questionInput.options.map((opt, i) => (
233|                    <div key={i} style={{ display: 'flex', gap: '8px', alignItems: 'center' }}>
234|                      <input type="radio" name="correct" checked={opt.isCorrect} onChange={() => setCorrectOpt...
235|                        style={{ width: '16px', height: '16px', flexShrink: 0 }} />
236|                      <input value={opt.content} onChange={e => setOption(i, 'content', e.target.value)}
237|                                    placeholder={`đáp án ${i + 1}`} style={{ flex: 1
238|                      {questionInput.options.length > 2 && (
239|                        <button onClick={() => removeOption(i)} style={{ background: 'none', border: 'none', c...
240|                          <Trash2 size={14} />
241|                        </button>
242|                      )}
243|                    </div>
244|                  ))}
245|                  <button onClick={addOption} style={{ display: 'flex', alignItems: 'center', gap: '4px', back...
246|                                    <Plus size={14} />Thêm đáp án
247|                  </button>
248|                </div>
249|              )}
250|
251|              {questionInput.type === 'fill_blank' && (
252|                <div style={{ padding: '10px 14px', borderRadius: '10px', background: 'rgba(16,185,129,0.08)',...
253|                                Câu điền khuyết: học sinh gõ đáp án, so khớp chính xác
254|                </div>
255|              )}
256|
257|              <textarea value={questionInput.explanation} onChange={e => setQuestionInput(p => ({ ...p, explan...
258|                                placeholder="Giải thích (hiện sau khi học sinh trả lời)"
259|                style={{ padding: '10px 14px', borderRadius: '10px', border: '1px solid var(--border-default)'...
260|
261|              <div style={{ borderTop: '1px solid var(--border-default)', paddingTop: '12px', marginTop: '4px'...
262|                <div style={{ display: 'flex', alignItems: 'center', gap: '10px', marginBottom: '8px' }}>
263|                  <Upload size={14} style={{ color: 'var(--brand-primary)' }} />
264|                                <span style={{ fontSize: '12px', fontWeight: 600, colo
265|                </div>
266|                <label style={{
267|                  display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '8px',
268|                  padding: '10px', borderRadius: '10px',
269|                  background: uploadingWord ? 'rgba(99,102,241,0.08)' : 'rgba(99,102,241,0.06)',
270|                  border: '1px dashed rgba(99,102,241,0.3)',
271|                  cursor: uploadingWord ? 'wait' : 'pointer', fontSize: '13px', fontWeight: 500,
272|                  color: 'var(--brand-primary)', transition: 'all 0.2s'
273|                }}>
274|                  {uploadingWord ? (
275|                                    <><Loader2 size={16} style={{ animation: 'spin 1s li
276|                  ) : (
277|                                    <><Upload size={16} />Chọn file .docx (Ênh dịng nh
278|                  )}
279|                  <input type="file" accept=".docx" onChange={handleWordUpload} style={{ display: 'none' }} di...
280|                </label>
281|                {wordFileName && (
282|                  <div style={{ marginTop: '6px', fontSize: '11px', color: 'var(--text-muted)', display: 'flex...
283|                    <FileText size={12} /> {wordFileName}
284|                  </div>
285|                )}
286|              </div>
287|
288|              <button onClick={addCurrentQuestion}
289|                style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '6px', padding:...
290|                                <Plus size={16} />Thêm câu hỏi vào Đề thi
291|              </button>
292|            </div>
293|          </div>
294|        </div>
```

```
295|       </div>
296|
297|       {questions.length > 0 && (
298|         <div className="lms-card" style={{ padding: '24px', marginTop: '24px', background: 'var(--bg-surface)'...
   2 9 9 |                      < h 2   s t y l e = { {   f o n t S i z e :   ' 1 6 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g i n B o t t o m :
300|           <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
301|             {questions.map((q, i) => (
302|               <div key={q.id} style={{ display: 'flex', alignItems: 'center', gap: '12px', padding: '12px 16px...
303|                 <span style={{ width: '28px', height: '28px', borderRadius: '8px', background: 'var(--brand-pr...
304|                   {i + 1}
305|                 </span>
306|                 <span style={{ flex: 1, fontSize: '14px', color: 'var(--text-primary)' }}>{q.content}</span>
   3 0 7 |                                < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e
308|                 <span style={{ fontSize: '11px', padding: '2px 8px', borderRadius: '4px', background: 'rgba(99...
309|                 <button onClick={() => removeQuestion(q.id)} style={{ background: 'none', border: 'none', colo...
310|                   <Trash2 size={14} />
311|                 </button>
312|               </div>
313|             ))}
314|           </div>
315|         </div>
316|       )}
317|
318|       <div style={{ display: 'flex', justifyContent: 'flex-end', gap: '12px', marginTop: '32px', paddingTop: '...
319|         <button onClick={() => router.back()}
320|           style={{ padding: '12px 24px', borderRadius: '12px', border: '1px solid var(--border-default)', back...
   3 2 1 |                      H ç y
322|         </button>
323|         <button onClick={handleSave} disabled={saving}
324|           style={{ display: 'flex', alignItems: 'center', gap: '8px', padding: '12px 32px', borderRadius: '12p...
325|           {saving ? <Loader2 size={18} style={{ animation: 'spin 1s linear infinite' }} /> : <Save size={18} />}
   3 2 6 |                      { s a v i n g   ?   '   a n g   l ° u . . . '   :   ' L ° u     Á   t h i ' }
327|         </button>
328|       </div>
329|       <style>{`@keyframes spin { to { transform: rotate(360deg) } }`}</style>
330|     </div>
331|   )
332| }
333|
```

File: app/(dashboard)/teacher/exams/page.tsx (115 lines, 6.8 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect, useCallback } from 'react'
    4| import { supabase } from '@/lib/supabase'
    5| import Link from 'next/link'
    6| import { useRouter } from 'next/navigation'
    7| import { Plus, FileText, Users, Clock, Eye, EyeOff, Trash2, Loader2, BarChart3, CheckCircle, XCircle, Edit3 } ...
    8| import { getTeacherExams, publishExam, deleteExam } from '@/app/actions/exam'
    9|
   10| export default function TeacherExamsPage() {
   11|   const router = useRouter()
   12|   const [exams, setExams] = useState<any[]>([])
   13|   const [loading, setLoading] = useState(true)
   14|   const [deleting, setDeleting] = useState<string | null>(null)
   15|
   16|   const loadExams = useCallback(async () => {
   17|     setLoading(true)
   18|     const data = await getTeacherExams()
   19|     setExams(data)
   20|     setLoading(false)
   21|   }, [])
   22|
   23|   useEffect(() => { loadExams() }, [loadExams])
   24|
   25|   async function handlePublish(id: string, publish: boolean) {
   26|     try {
   27|       await publishExam(id, publish)
   28|       loadExams()
   29|     } catch (e: any) { alert(e.message) }
   30|   }
   31|
   32|   async function handleDelete(id: string) {
   3 3 |           i f   ( ! c o n f i r m ( ' X ó a     Á   t h i   n à y ?   H Í c   s i n h   s ½   k h ô n g   t h Ã   l à m   b à i . ' ) )   r e t u
   34|     setDeleting(id)
   35|     try {
   36|       await deleteExam(id)
   37|       loadExams()
   38|     } catch (e: any) { alert(e.message) }
   39|     finally { setDeleting(null) }
   40|   }
   41|
   42|   return (
   43|     <div style={{ maxWidth: '1200px', margin: '0 auto', color: 'var(--text-primary)' }}>
   44|       <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: '32p...
   45|         <div>
   4 6 |                      < h 1   s t y l e = { {   f o n t S i z e :   ' 2 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n :   ' 0   0   6
   4 7 |                      < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   0   } } > T ¡ o     Á   t h
   48|         </div>
   49|         <Link href="/teacher/exams/new"
   50|           style={{ display: 'flex', alignItems: 'center', gap: '8px', padding: '12px 24px', borderRadius: '12p...
   5 1 |                      < P l u s   s i z e = { 1 8 }   / >   T ¡ o     Á   t h i
   52|         </Link>
   53|       </div>
   54|
   55|       {loading ? (
   56|         <div style={{ display: 'flex', justifyContent: 'center', padding: '80px' }}>
   57|           <Loader2 size={40} style={{ animation: 'spin 1s linear infinite', color: 'var(--brand-primary)' }} />
   58|         </div>
   59|       ) : exams.length === 0 ? (
   60|         <div style={{ textAlign: 'center', padding: '80px', border: '2px dashed var(--border-default)', border...
   61|           <FileText size={64} style={{ color: 'var(--text-muted)', opacity: 0.4, marginBottom: '16px' }} />
   62|           <h2 style={{ fontSize: '20px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '8px' }}...
   6 3 |                      < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n B o t t o m :   ' 2 4 p x '   }
   64|           <Link href="/teacher/exams/new"
   65|             style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', padding: '12px 24px', borderRad...
   6 6 |                        < P l u s   s i z e = { 1 8 }   / >   T ¡ o     Á   t h i
   67|           </Link>
   68|         </div>
   69|       ) : (
   70|         <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
   71|           {exams.map((exam: any) => (
   72|             <div key={exam.id}
   73|               style={{ display: 'flex', alignItems: 'center', gap: '20px', padding: '20px 24px', borderRadius:...
   74|               <div style={{ width: '44px', height: '44px', borderRadius: '12px', background: exam.is_published...
   75|                 {exam.is_published ? <CheckCircle size={22} style={{ color: '#10b981' }} /> : <XCircle size={2...
   76|               </div>
   77|
   78|               <div style={{ flex: 1, minWidth: 0, cursor: 'pointer' }} onClick={() => router.push(`/teacher/ex...
   79|                 <div style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '...
   80|                 <div style={{ display: 'flex', gap: '16px', fontSize: '12px', color: 'var(--text-muted)' }}>
   81|                   <span style={{ display: 'flex', alignItems: 'center', gap: '4px' }}><Users size={14} /> {exa...
```

```
  82|                  <span style={{ display: 'flex', alignItems: 'center', gap: '4px' }}><Clock size={14} /> {exa...
  83|                  {exam._stats && (
  84|                    <>
  85|                      <span style={{ display: 'flex', alignItems: 'center', gap: '4px' }}><BarChart3 size={14}...
    8 6 |                                                < s p a n   s t y l e = { {   d i s p l a y :   ' f l e x ' ,   a l i g n I t e m s :   ' c e n t e
  87|                    </>
  88|                  )}
  89|                </div>
  90|              </div>
  91|
  92|              <div style={{ display: 'flex', gap: '8px', flexShrink: 0 }}>
  93|                <button onClick={() => handlePublish(exam.id, !exam.is_published)}
  94|                  style={{ padding: '8px 12px', borderRadius: '8px', border: '1px solid var(--border-default)'...
  95|                  {exam.is_published ? <EyeOff size={14} /> : <Eye size={14} />}
    9 6 |                                          { e x a m . i s _ p u b l i s h e d   ?   ' G á '   :   '     n g ' }
  97|                </button>
  98|                <button onClick={() => router.push(`/teacher/exams/${exam.id}/edit`)}
  99|                  style={{ padding: '8px 12px', borderRadius: '8px', border: '1px solid var(--border-default)'...
    1 0 0 |                                          < E d i t 3   s i z e = { 1 4 }   / >   S í a
 101|                </button>
 102|                <button onClick={() => handleDelete(exam.id)} disabled={deleting === exam.id}
 103|                  style={{ padding: '8px 12px', borderRadius: '8px', border: '1px solid rgba(239,68,68,0.3)', ...
 104|                  <Trash2 size={14} /> Xóa
 105|                </button>
 106|              </div>
 107|            </div>
 108|          ))}
 109|        </div>
 110|      )}
 111|      <style>{`@keyframes spin { to { transform: rotate(360deg) } }`}</style>
 112|    </div>
 113|  )
 114| }
 115|
```

File: app/(dashboard)/teacher/layout.tsx (140 lines, 8.4 KB)

```
   1| 'use client'
   2|
   3| import React, { useState, useEffect } from 'react'
   4| import Link from 'next/link'
   5| import { usePathname } from 'next/navigation'
   6| import { BookOpen, Users, FileText, LogOut, LayoutDashboard, ClipboardList, Award, Laptop, MessageSquare, Tren...
   7| import { logout } from '@/lib/auth-actions'
   8| import { supabase } from '@/lib/supabase'
   9| import PageTransition from '@/components/PageTransition'
  10|
  11| function ThemeToggle() {
  12|   const [theme, setThemeState] = useState<'light' | 'dark'>('dark')
  13|   React.useEffect(() => {
  14|     const saved = (localStorage.getItem('theme') as 'light' | 'dark') || 'dark'
  15|     setThemeState(saved)
  16|     document.documentElement.setAttribute('data-theme', saved)
  17|   }, [])
  18|   const toggle = React.useCallback(() => {
  19|     const next = theme === 'light' ? 'dark' : 'light'
  20|     setThemeState(next)
  21|     document.documentElement.setAttribute('data-theme', next)
  22|     localStorage.setItem('theme', next)
  23|   }, [theme])
  24|   return (
  25|     <button onClick={toggle} style={{ display: 'flex', alignItems: 'center', gap: '12px', padding: '10px 16px'...
  26|       {theme === 'light' ? <Moon size={18} /> : <Sun size={18} />}
    2 7 |                 { t h e m e   = = =   ' l i g h t '   ?   ' G i a o   d i Ç n   t Ñ i '   :   ' G i a o   d i Ç n   s á n g ' }
  28|     </button>
  29|   )
  30| }
  31|
  32| export default function TeacherLayout({ children }: { children: React.ReactNode }) {
  33|   const pathname = usePathname()
  34|   const [profile, setProfile] = useState<any>(null)
  35|   const [showDropdown, setShowDropdown] = useState(false)
  36|
  37|   useEffect(() => {
  38|     supabase.auth.getUser().then(({ data: { user } }) => {
  39|       if (user) supabase.from('profiles').select('*').eq('id', user.id).single().then(({ data }) => { if (data...
  40|     })
  41|   }, [])
  42|
  43|   const isActive = (href: string) => pathname === href || pathname?.startsWith(href + '/')
  44|
  45|   const NavGroup = ({ label, children }: { label: string; children: React.ReactNode }) => (
  46|     <div>
  47|       <div style={{ padding: '8px 16px 4px', fontSize: '11px', fontWeight: 700, color: 'rgba(255,255,255,0.35)...
  48|       {children}
  49|     </div>
  50|   )
  51|
  52|   const NavItem = ({ href, icon: Icon, label }: { href: string; icon: any; label: string }) => {
  53|     const active = isActive(href)
  54|     return (
  55|       <Link href={href} style={{
  56|         display: 'flex', alignItems: 'center', gap: '12px', padding: '10px 16px', borderRadius: '10px', textDe...
  57|         background: active ? 'rgba(8,158,96,0.15)' : 'transparent',
  58|         color: active ? '#fff' : 'rgba(255,255,255,0.6)',
  59|         fontWeight: active ? 700 : 500,
  60|         transition: 'all 0.2s'
  61|       }}>
  62|         <Icon size={18} /> {label}
  63|       </Link>
  64|     )
  65|   }
  66|
  67|   return (
  68|     <div style={{ display: 'flex', minHeight: '100vh', background: 'var(--bg-base)' }}>
  69|       <aside style={{ width: '280px', background: 'linear-gradient(180deg, #031f3b 0%, #1a2f53 100%)', display...
  70|         <div style={{ padding: '20px 16px', borderBottom: '1px solid rgba(255,255,255,0.08)', position: 'relat...
  71|           <button onClick={() => setShowDropdown(!showDropdown)}
  72|             style={{ display: 'flex', alignItems: 'center', gap: '10px', width: '100%', background: 'none', bo...
  73|             <div style={{ width: '36px', height: '36px', borderRadius: '10px', background: 'var(--brand-primar...
  74|               <User size={18} color="#fff" />
  75|             </div>
  76|             <div style={{ flex: 1, textAlign: 'left', minWidth: 0 }}>
  77|               <div style={{ fontWeight: 700, fontSize: '14px', color: '#fff', overflow: 'hidden', textOverflow...
  78|               <div style={{ fontSize: '11px', color: 'var(--brand-primary)', fontWeight: 600, opacity: 0.9 }}>...
  79|             </div>
  80|             <ChevronDown size={16} style={{ color: 'rgba(255,255,255,0.4)', transform: showDropdown ? 'rotate(...
  81|           </button>
  82|
  83|           {showDropdown && (
  84|             <>
  85|               <div style={{ position: 'fixed', inset: 0, zIndex: 99 }} onClick={() => setShowDropdown(false)} />
  86|               <div style={{ position: 'absolute', top: '100%', left: '12px', right: '12px', background: '#fff'...
```

```
  87|                <div style={{ padding: '10px 12px', borderBottom: '1px solid var(--border-subtle)', marginBott...
  88|                  <div style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)' }}>{profile?.f...
  89|                  <div style={{ fontSize: '12px', color: 'var(--text-muted)' }}>{profile?.email || ''}</div>
  90|                  <div style={{ fontSize: '11px', color: 'var(--brand-primary)', fontWeight: 600, marginTop: '...
  91|                </div>
  92|                <Link href="/teacher" onClick={() => setShowDropdown(false)} style={{ display: 'flex', alignIt...
    9 3 |                                    < L a y o u t D a s h b o a r d   s i z e = { 1 6 }   / >   B £ n g    i Á u   k h i Ã n
  94|                </Link>
  95|                <button onClick={async () => { setShowDropdown(false); await logout() }}
  96|                  style={{ display: 'flex', alignItems: 'center', gap: '10px', padding: '10px 12px', width: '1...
    9 7 |                                    < L o g O u t   s i z e = { 1 6 }   / >       n g   x u ¥ t
  98|                </button>
  99|              </div>
 100|            </>
 101|          )}
 102|        </div>
 103|
 104|        <nav style={{ padding: '16px 12px', display: 'flex', flexDirection: 'column', gap: '4px', flex: 1, ove...
    1 0 5 |                        < N a v G r o u p   l a b e l = " T Ô n g   q u a n " >
    1 0 6 |                            < N a v I t e m   h r e f = " / t e a c h e r "   i c o n = { L a y o u t D a s h b o a r d }   l a b e l = " B £ n g
 107|          </NavGroup>
    1 0 8 |                        < N a v G r o u p   l a b e l = " Q u £ n   l ý " >
    1 0 9 |                            < N a v I t e m   h r e f = " / t e a c h e r / c l a s s e s "   i c o n = { U s e r s }   l a b e l = " L Û p   h Í c
    1 1 0 |                            < N a v I t e m   h r e f = " / t e a c h e r / l e s s o n s "   i c o n = { F i l e T e x t }   l a b e l = " B à i
    1 1 1 |                            < N a v I t e m   h r e f = " / t e a c h e r / e x a m s "   i c o n = { C l i p b o a r d L i s t }   l a b e l = "
    1 1 2 |                            < N a v I t e m   h r e f = " / t e a c h e r / c e r t i f i c a t e s "   i c o n = { A w a r d }   l a b e l = " C h
 113|          </NavGroup>
    1 1 4 |                        < N a v G r o u p   l a b e l = " T i Ç n   í c h " >
    1 1 5 |                            < N a v I t e m   h r e f = " / s t u d e n t / d i s c u s s i o n "   i c o n = { M e s s a g e S q u a r e }   l a b
 116|            <NavItem href="/teacher/proctoring" icon={ScanEye} label="Giám sát thi" />
 117|          </NavGroup>
 118|        </nav>
 119|
 120|        <div style={{ padding: '12px', borderTop: '1px solid rgba(255,255,255,0.08)', display: 'flex', flexDir...
 121|          <ThemeToggle />
 122|          <button onClick={async () => { await logout() }}
 123|            style={{ display: 'flex', alignItems: 'center', gap: '12px', padding: '10px 16px', width: '100%', ...
    1 2 4 |                            < L o g O u t   s i z e = { 1 8 }   / >       n g   x u ¥ t
 125|          </button>
 126|        </div>
 127|      </aside>
 128|
 129|      <main style={{ flex: 1, padding: '32px', overflowY: 'auto', minWidth: 0 }}>
 130|        <div style={{ marginBottom: '24px', display: 'flex', alignItems: 'center', gap: '8px', fontSize: '13px...
 131|          <Link href="/teacher" style={{ color: 'var(--accent-blue)', textDecoration: 'none', fontWeight: 500 ...
 132|          <span>/</span>
    1 3 3 |                        < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - p r i m a r y ) ' ,   f o n t W e i g h t :   6 0 0   }
 134|        </div>
 135|        <PageTransition>{children}</PageTransition>
 136|      </main>
 137|    </div>
 138|  )
 139| }
 140|
```

File: app/(dashboard)/teacher/lessons/[id]/page.js (502 lines, 41.0 KB)

```
   1| 'use client';
   2|
   3| import React, { useEffect, useState, use, useCallback, useRef } from 'react';
   4| import { supabase } from '@/lib/supabase';
   5| import { Save, Trash2, Video, FileText, Image as ImageIcon, FileSearch, Code, Loader2, ArrowLeft, GripVertical...
   6| import Link from 'next/link';
   7| import { BackButton } from '@/components/ui/BackButton';
   8|
   9| function SimpleMarkdown({ text }) {
  10|     const html = (text || '')
  11|         .replace(/^## (.+)$/gm, '<h2 style="color:var(--brand-primary);margin:16px 0 8px">$1</h2>')
  12|         .replace(/^# (.+)$/gm, '<h1 style="color:var(--brand-primary);margin:20px 0 10px">$1</h1>')
  13|         .replace(/\*\*(.+?)\*\*/g, '<strong>$1</strong>')
  14|         .replace(/\*(.+?)\*/g, '<em>$1</em>')
  15|         .replace(/^- (.+)$/gm, '<li style="margin:4px 0">$1</li>')
  16|         .replace(/\n/g, '<br/>');
  17|     return <div dangerouslySetInnerHTML={{ __html: html }} style={{ color: 'var(--text-muted)', lineHeight: 1....
  18| }
  19|
  20| function Toast({ message, type, onClose }) {
  21|     useEffect(() => { const t = setTimeout(onClose, 3000); return () => clearTimeout(t); }, []);
  22|     return (
  23|         <div style={{
  24|             position: 'fixed', bottom: '32px', right: '32px', zIndex: 9999,
  25|             background: type === 'success' ? 'var(--brand-primary)' : 'var(--danger)',
  26|             color: '#fff', padding: '14px 24px', borderRadius: '12px',
  27|             display: 'flex', alignItems: 'center', gap: '10px',
  28|             fontWeight: 700, boxShadow: '0 10px 40px rgba(0,0,0,0.4)',
  29|             animation: 'slideIn 0.3s ease'
  30|         }}>
  31|             {type === 'success' ? <CheckCircle size={20}/> : <AlertCircle size={20}/>}
  32|             {message}
  33|         </div>
  34|     );
  35| }
  36|
  37| export default function LessonEditorPage({ params }) {
  38|     const resolvedParams = use(params);
  39|     const lessonId = resolvedParams.id;
  40|
  41|     const [lesson, setLesson] = useState(null);
  42|     const [sections, setSections] = useState([]);
  43|     const [books, setBooks] = useState([]);
  44|     const [activeSection, setActiveSection] = useState(null);
  45|     const [activeTab, setActiveTab] = useState('content');
  46|     const [loading, setLoading] = useState(true);
  47|     const [saving, setSaving] = useState(false);
  48|     const [toast, setToast] = useState(null);
  49|     const [classes, setClasses] = useState([]);
  50|     const [selectedClassIds, setSelectedClassIds] = useState([]);
  51|     const [showClassPicker, setShowClassPicker] = useState(false);
  52|     const textEditorRef = useRef(null);
  53|
  54|     const insertAtCursor = (text) => {
  55|         const ta = textEditorRef.current;
  56|         if (!ta) return;
  57|         const start = ta.selectionStart;
  58|         const end = ta.selectionEnd;
  59|         const val = ta.value;
  60|         const before = val.substring(0, start);
  61|         const after = val.substring(end);
  62|         const result = before + '\n\n' + text + '\n\n' + after;
  63|         updateSectionLocal({ ...activeSection, content: result });
  64|         requestAnimationFrame(() => {
  65|             ta.focus();
  66|             const pos = before.length + 2 + text.length + 2;
```

```
67|             ta.setSelectionRange(pos, pos);
68|         });
69|     };
70|
71|     const showToast = (message, type = 'success') => setToast({ message, type });
72|
73|     useEffect(() => { fetchLessonData(); }, [lessonId]);
74|
75|     const fetchLessonData = async () => {
76|         setLoading(true);
77|         const { data: lessonData, error } = await supabase.from('lessons').select('*').eq('id', lessonId).sing...
78|                 if (error || !lessonData) { showToast('Không tìm thấy bài giảng!
79|         const { data: sectionData } = await supabase.from('lesson_sections').select('*').eq('lesson_id', lesso...
80|         const { data: bookData } = await supabase.from('lesson_books').select('*').eq('lesson_id', lessonId);
81|         setLesson(lessonData);
82|         setSections(sectionData || []);
83|         setBooks(bookData || []);
84|         if (sectionData?.length > 0) setActiveSection(sectionData[0]);
85|
86|         const { data: { user } } = await supabase.auth.getUser();
87|         if (user) {
88|             const { data: classData } = await supabase.from('classes').select('*').eq('teacher_id', user.id).o...
89|             setClasses(classData || []);
90|         }
91|
92|         const { data: assignmentData } = await supabase.from('lesson_class_assignments').select('class_id').eq...
93|         if (assignmentData) setSelectedClassIds(assignmentData.map(a => a.class_id));
94|
95|         setLoading(false);
96|     };
97|
98|     const handleSaveLesson = async () => {
99|         setSaving(true);
100|         const { error } = await supabase.from('lessons').update({
101|             title: lesson.title,
102|             description: lesson.description,
103|             thumbnail_url: lesson.thumbnail_url,
104|             is_published: lesson.is_published,
105|             category: lesson.category || 'extended',
106|             source_name: lesson.source_name || '',
107|             source_url: lesson.source_url || ''
108|         }).eq('id', lessonId);
109|                 if (error) { showToast('Lỗi thực tế: ' + error.message, 'error'
110|
111|         const { data: existing } = await supabase.from('lesson_class_assignments').select('class_id').eq('less...
112|         const existingIds = (existing || []).map(a => a.class_id);
113|         const toRemove = existingIds.filter(id => !selectedClassIds.includes(id));
114|         const toAdd = selectedClassIds.filter(id => !existingIds.includes(id));
115|         if (toRemove.length > 0) {
116|             await supabase.from('lesson_class_assignments').delete().eq('lesson_id', lessonId).in('class_id', ...
117|         }
118|         if (toAdd.length > 0) {
119|             await supabase.from('lesson_class_assignments').insert(toAdd.map(class_id => ({ lesson_id: lessonI...
120|         }
121|
122|         setSaving(false);
123|                 showToast('ãlỗi bài giảng!');
124|     };
125|
126|     const addSection = async (type) => {
127|                 const newSection = { lesson_id: lessonId, type, content_type: ty
128|         const { data, error } = await supabase.from('lesson_sections').insert(newSection).select().single();
129|                 if (error) { showToast('Không thêm đặc section: ' + error.messa
130|         if (data) { setSections(prev => [...prev, data]); setActiveSection(data); }
131|     };
132|
133|     const saveSection = async (section) => {
134|         const { error } = await supabase.from('lesson_sections').update({
135|             title: section.title, content: section.content
136|         }).eq('id', section.id);
137|                 if (error) showToast('Lỗi section thực tế', 'error');
138|     };
139|
140|     const updateSectionLocal = (updated) => {
141|         setSections(prev => prev.map(s => s.id === updated.id ? updated : s));
142|         setActiveSection(updated);
143|     };
144|
145|     const deleteSection = async (id) => {
146|                 if (!confirm('Xóa phần này?')) return;
147|         const { error } = await supabase.from('lesson_sections').delete().eq('id', id);
148|                 if (error) { showToast('Xóa thực tế', 'error'); return; }
149|         const filtered = sections.filter(s => s.id !== id);
150|         setSections(filtered);
151|         setActiveSection(filtered[0] || null);
152|     };
153|
154|     const getYouTubeEmbed = (url) => {
155|         if (!url) return '';
156|         const id = url.match(/(?:youtube\.com\/(?:[^/]+\/.+\/|(?:v|e(?:mbed)?)\/|.*[?&]v=)|youtu\.be\/)([^"&?/...
157|         return id ? `https://www.youtube.com/embed/${id}` : '';
158|     };
159|
160|     const getDriveEmbed = (url) => {
161|         if (!url) return '';
162|         const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1];
163|         return id ? `https://drive.google.com/file/d/${id}/preview` : (url.includes('/preview') ? url : '');
164|     };
165|
166|     const getPdfEmbedUrl = (url) => {
167|         if (!url) return '';
168|         const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1];
169|         if (id) {
170|             const downloadUrl = `https://drive.google.com/uc?export=download&id=${id}`;
171|             return `https://docs.google.com/viewer?url=${encodeURIComponent(downloadUrl)}&embedded=true`;
172|         }
173|         return url;
174|     };
175|
176|     if (loading) return (
177|         <div style={{ background: 'var(--bg-base)', minHeight: '100vh', display: 'flex', alignItems: 'center',...
178|             <Loader2 style={{ animation: 'spin 1s linear infinite' }} color="var(--brand-primary)" size={48} />
179|         </div>
180|     );
181|
182|     if (!lesson) return (
183|         <div style={{ background: 'var(--bg-base)', minHeight: '100vh', display: 'flex', flexDirection: 'colum...
184|             <AlertCircle size={48} color="var(--danger)" />
185|                         <p>Không tìm thấy bài giảng.</p>
186|                         <Link href="/teacher/lessons" style={{ color: 'var(--brand-p
187|         </div>
188|     );
189|
190|     const inputStyle = { width: '100%', background: 'var(--bg-elevated)', border: '1px solid var(--border-defa...
```

```
191|
192|     return (
193|         <div style={{ background: 'var(--bg-base)', minHeight: '100vh', color: 'var(--text-primary)', display:...
194|             <style>{`
195|                 @keyframes slideIn { from { transform: translateY(20px); opacity: 0; } to { transform: transla...
196|                 @media (max-width: 768px) {
197|                     .editor-sidebar { width: 100% !important; min-width: 100% !important; max-height: 50vh !im...
198|                     .editor-content { padding: 16px !important; }
199|                     .editor-header { padding: 12px 16px !important; flex-wrap: wrap !important; gap: 8px !impo...
200|                     .editor-header-title { width: 100% !important; max-width: 100% !important; }
201|                     .editor-section-grid { grid-template-columns: 1fr !important; }
202|                 }
203|                 @media (min-width: 769px) and (max-width: 1024px) {
204|                     .editor-sidebar { width: 280px !important; min-width: 280px !important; }
205|                     .editor-content { padding: 24px !important; }
206|                 }
207|             `}</style>
208|             {toast && <Toast message={toast.message} type={toast.type} onClose={() => setToast(null)} />}
209|
210|             <header className="editor-header" style={{ padding: '16px 32px', background: 'var(--bg-surface)', ...
211|                 <div style={{ display: 'flex', alignItems: 'center', gap: '20px' }}>
212|                     <BackButton href="/teacher/lessons" label="" className="flex items-center text-[#636678] h...
213|                     <div style={{ display: 'flex', flexDirection: 'column', gap: '2px' }}>
214|                         <span style={{ fontSize: '10px', color: 'var(--text-muted)', textTransform: 'uppercase...
215|                         <input className="editor-header-title"
216|                             value={lesson.title}
217|                             onChange={(e) => setLesson({ ...lesson, title: e.target.value })}
   2 1 8 |                                                 p l a c e h o l d e r = " N h - p   t ê n   b à i   g i £ n g . . . "
219|                             style={{ background: 'transparent', border: 'none', borderBottom: '2px solid var(-...
220|                         />
221|                     </div>
222|                 </div>
223|                 <div style={{ display: 'flex', gap: '12px', alignItems: 'center' }}>
224|                     <button onClick={() => setLesson({ ...lesson, is_published: !lesson.is_published })}
225|                         style={{ background: lesson.is_published ? 'rgba(16,185,129,0.15)' : 'var(--bg-elevate...
226|                         {lesson.is_published ? <Eye size={18} /> : <EyeOff size={18} />}
   2 2 7 |                                             { l e s s o n . i s _ p u b l i s h e d   ?   '   ã   x u ¥ t   b £ n '   :   ' B £ n   n h á p
228|                     </button>
229|                     <button onClick={handleSaveLesson} disabled={saving}
230|                         style={{ background: 'var(--brand-primary)', color: '#fff', border: 'none', padding: '...
231|                         {saving ? <Loader2 style={{ animation: 'spin 1s linear infinite' }} size={18} /> : <Sa...
232|                     </button>
233|                 </div>
234|             </header>
235|
236|             <div style={{ display: 'flex', flex: 1, overflow: 'hidden' }}>
237|                 <div className="editor-sidebar" style={{ width: '340px', minWidth: '340px', background: 'var(-...
238|                     <div style={{ padding: '20px', borderBottom: '1px solid var(--border-default)' }}>
239|                         <p style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 700, textTransfo...
240|                         <div style={{ width: '100%', height: '140px', background: 'var(--bg-elevated)', border...
241|                             {lesson.thumbnail_url
242|                                 ? <img src={lesson.thumbnail_url} style={{ width: '100%', height: '100%', obje...
243|                                 : <Upload size={28} color="var(--text-muted)" />}
244|                         </div>
   2 4 5 |                                             < i n p u t   p l a c e h o l d e r = " D á n   U R L   £ n h   t h u m b n a i l . . . "   v a
246|                             onChange={(e) => setLesson({ ...lesson, thumbnail_url: e.target.value })}
247|                             style={{ width: '100%', background: 'var(--bg-elevated)', border: '1px solid var(-...
   2 4 8 |                                             < t e x t a r e a   p l a c e h o l d e r = " M ô   t £   b à i   h Í c . . . "   v a l u e = {
249|                             onChange={(e) => setLesson({ ...lesson, description: e.target.value })}
250|                             style={{ width: '100%', background: 'var(--bg-elevated)', border: '1px solid var(-...
251|
252|                         <div style={{ marginTop: '14px' }}>
253|                             <p style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 700, textTra...
254|                             <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '8px' }}>
255|                                 <button onClick={() => setLesson({ ...lesson, category: 'textbook' })} style={{
256|                                     padding: '10px 8px', borderRadius: '10px', border: `2px solid ${(lesson.ca...
257|                                     background: (lesson.category || 'extended') === 'textbook' ? 'rgba(59,130,...
258|                                     color: (lesson.category || 'extended') === 'textbook' ? 'var(--accent-blue...
259|                                     cursor: 'pointer', fontWeight: 700, fontSize: '12px', display: 'flex', fle...
260|                                 }}>
261|                                     Sách Giáo Khoa
262|                                 </button>
263|                                 <button onClick={() => setLesson({ ...lesson, category: 'extended' })} style={{
264|                                     padding: '10px 8px', borderRadius: '10px', border: `2px solid ${(lesson.ca...
265|                                     background: (lesson.category || 'extended') === 'extended' ? 'rgba(245,158...
266|                                     color: (lesson.category || 'extended') === 'extended' ? 'var(--accent-ambe...
267|                                     cursor: 'pointer', fontWeight: 700, fontSize: '12px', display: 'flex', fle...
268|                                 }}>
   2 6 9 |                                                         K i ¿ n   T h é c   M ß   R Ù n g
270|                                 </button>
271|                             </div>
272|                         </div>
273|
274|                         <div style={{ marginTop: '20px', padding: '16px', background: 'var(--bg-elevated)', bo...
275|                             <p style={{ fontSize: '11px', color: 'var(--brand-primary)', fontWeight: 700, text...
276|                             <div style={{ display: 'flex', flexDirection: 'column', gap: '10px' }}>
277|                                 <div>
278|                                     <label style={{ fontSize: '10px', color: 'var(--text-muted)', display: 'bl...
   2 7 9 |                                                         < i n p u t   p l a c e h o l d e r = " N h - p   t ê n   n g u Ồ n . .
280|                                         onChange={(e) => setLesson({ ...lesson, source_name: e.target.value })}
281|                                         style={{ width: '100%', background: 'var(--bg-elevated)', border: '1px...
282|                                 </div>
283|                                 <div>
284|                                     <label style={{ fontSize: '10px', color: 'var(--text-muted)', display: 'bl...
285|                                     <input placeholder="https://..." value={lesson.source_url || ''}
286|                                         onChange={(e) => setLesson({ ...lesson, source_url: e.target.value })}
287|                                         style={{ width: '100%', background: 'var(--bg-elevated)', border: '1px...
288|                                 </div>
289|                             </div>
290|                         </div>
291|                         </div>
292|
293|                         <div style={{ marginTop: '20px', padding: '16px', background: 'var(--bg-elevated)', bo...
294|                             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'cente...
295|                                 <p style={{ fontSize: '11px', color: 'var(--accent-blue)', fontWeight: 700, te...
296|                                 <button onClick={() => setShowClassPicker(!showClassPicker)}
297|                                     style={{ background: 'none', border: 'none', color: 'var(--accent-blue)', ...
   2 9 8 |                                                         { s h o w C l a s s P i c k e r   ?   ' T h u   g Í n '   :   s e l e c
299|                                 </button>
300|                             </div>
301|                             {showClassPicker && (
302|                                 <div style={{ display: 'flex', flexDirection: 'column', gap: '6px', maxHeight:...
303|                                     {classes.length === 0 ? (
   3 0 4 |                                                             < p   s t y l e = { {   f o n t S i z e :   ' 1 2 p x ' ,   c o
305|                                     ) : classes.map(cls => (
306|                                         <label key={cls.id} style={{ display: 'flex', alignItems: 'center', ga...
307|                                             <input type="checkbox" checked={selectedClassIds.includes(cls.id)}
308|                                                 onChange={(e) => {
309|                                                     if (e.target.checked) setSelectedClassIds(prev => [...prev...
310|                                                     else setSelectedClassIds(prev => prev.filter(id => id !== ...
311|                                                 }}
312|                                                 style={{ accentColor: 'var(--accent-blue)', width: '16px', hei...
313|                                             <span>{cls.name}</span>
314|                                             <span style={{ marginLeft: 'auto', fontSize: '10px', color: 'var(-...
```

```
315|                                    </label>
316|                                ))}
317|                            </div>
318|                        )}
319|                        {!showClassPicker && selectedClassIds.length > 0 && (
320|                            <div style={{ display: 'flex', flexWrap: 'wrap', gap: '4px' }}>
321|                                {classes.filter(c => selectedClassIds.includes(c.id)).map(cls => (
322|                                    <span key={cls.id} style={{ fontSize: '11px', padding: '3px 8px', back...
323|                                ))}
324|                            </div>
325|                        )}
326|                    </div>
327|
328|                    <div style={{ display: 'flex', borderBottom: '1px solid var(--border-default)' }}>
329|                        {['content', 'books'].map(tab => (
330|                            <button key={tab} onClick={() => setActiveTab(tab)} style={{
331|                                flex: 1, padding: '12px', background: activeTab === tab ? 'rgba(var(--brand-pr...
332|                                color: activeTab === tab ? 'var(--brand-primary)' : 'var(--text-muted)', borde...
333|                                borderBottom: activeTab === tab ? '2px solid var(--brand-primary)' : '2px soli...
334|                                fontWeight: 700, cursor: 'pointer', fontSize: '13px', fontFamily: 'inherit'
3 3 5 |                                                                    } } > { t a b   = = =   ' c o n t e n t '   ?   ' N Ù i   d u n g '   :   ' S á c h   &
336|                            ))}
337|                    </div>
338|
339|                    <div style={{ flex: 1, overflowY: 'auto', padding: '16px' }}>
340|                        {activeTab === 'content' ? (
341|                            <>
342|                                {sections.length === 0 && <p style={{ color: 'var(--text-muted)', fontSize: '1...
343|                                <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
344|                                    {sections.map(s => (
345|                                        <div key={s.id} onClick={() => { if (activeSection && activeSection.id...
346|                                            style={{ padding: '10px 14px', borderRadius: '10px', background: a...
347|                                            <GripVertical size={14} color="var(--text-muted)" />
348|                                            <div style={{ width: '28px', height: '28px', borderRadius: '6px', ...
349|                                                {s.type === 'video' && <Video size={14} />}
350|                                                {s.type === 'text' && <FileText size={14} />}
351|                                                {s.type === 'image' && <ImageIcon size={14} />}
352|                                                {s.type === 'pdf' && <FileSearch size={14} />}{s.type === 'emb...
353|                                            </div>
354|                                            <div style={{ flex: 1, overflow: 'hidden' }}>
355|                                                <p style={{ margin: 0, fontSize: '13px', fontWeight: 600, colo...
356|                                                <p style={{ margin: 0, fontSize: '10px', color: 'var(--text-mu...
357|                                            </div>
358|                                        </div>
359|                                    ))}
360|                                </div>
361|                                <div style={{ marginTop: '16px', display: 'grid', gridTemplateColumns: '1fr 1f...
362|                                    {[['video', <Video size={13} />, '+Video'], ['text', <FileText size={13} /...
363|                                        <button key={type} onClick={() => addSection(type)} style={{ padding: ...
364|                                            {icon} {label}
365|                                        </button>
366|                                    ))}
367|                                </div>
368|                            </>
369|                        ) : (
370|                            <div style={{ display: 'flex', flexDirection: 'column', gap: '10px' }}>
371|                                {books.map(book => (
372|                                    <div key={book.id} style={{ padding: '12px', background: 'var(--bg-elevate...
373|                                        <img src={book.cover_image_url} style={{ width: '36px', height: '52px'...
374|                                        <div style={{ flex: 1 }}>
375|                                            <p style={{ margin: 0, fontSize: '13px', fontWeight: 700, color: '...
376|                                            <button onClick={async () => { await supabase.from('lesson_books')...
377|                                        </div>
378|                                    </div>
379|                                ))}
380|                                <button onClick={async () => {
381|                                    const { data } = await supabase.from('lesson_books').insert({ lesson_id: l...
382|                                    if (data) setBooks([...books, data]);
383|                                }} style={{ width: '100%', padding: '12px', background: 'rgba(var(--brand-prim...
3 8 4 |                                                                    +   T h ê m   s á c h   m Ù i
385|                                </button>
386|                            </div>
387|                        )}
388|                    </div>
389|                </div>
390|
391|                <div className="editor-content" style={{ flex: 1, overflowY: 'auto', padding: '40px', backgrou...
392|                    {activeSection ? (
393|                        <div style={{ maxWidth: '820px', margin: '0 auto' }}>
394|                            <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'cente...
395|                                <h2 style={{ margin: 0, color: 'var(--brand-primary)', fontSize: '20px', fontW...
396|                                <div style={{ display: 'flex', gap: '10px' }}>
397|                                    <button onClick={() => saveSection(activeSection)} style={{ background: 'r...
398|                                    <button onClick={() => deleteSection(activeSection.id)} style={{ backgroun...
399|                                </div>
400|                            </div>
401|
402|                            <div style={{ display: 'flex', flexDirection: 'column', gap: '24px', minHeight: '3...
403|                                <div>
404|                                    <label style={{ display: 'block', color: 'var(--text-muted)', fontSize: '1...
405|                                    <input value={activeSection.title} onChange={(e) => updateSectionLocal({ ....
406|                                </div>
407|
408|                                {activeSection.type === 'video' && <>
409|                                    <div>
410|                                        <label style={{ display: 'block', color: 'var(--text-muted)', fontSize...
411|                                        <input placeholder="https://www.youtube.com/watch?v=..." value={active...
412|                                    </div>
413|                                    {getYouTubeEmbed(activeSection.content) && (
414|                                        <div style={{ width: '100%', aspectRatio: '16/9', background: '#000', ...
415|                                            <iframe src={getYouTubeEmbed(activeSection.content)} style={{ widt...
416|                                        </div>
417|                                    )}
418|                                </>}
419|
420|                                {activeSection.type === 'text' && (
421|                                    <div className="editor-section-grid" style={{ display: 'grid', gridTemplat...
422|                                        <div>
423|                                            <label style={{ display: 'block', color: 'var(--text-muted)', font...
424|                                            <div style={{ display: 'flex', gap: '6px', marginBottom: '8px' }}>
425|                                                {[
4 2 6 |                                                                                                    {   i c o n :   < I m a g e I c o n   s
427|                                                    { icon: <Video size={14} />, label: 'Video', getText: () =...
428|                                                    { icon: <FileSearch size={14} />, label: 'PDF', getText: (...
429|                                                ].map(({ icon, label, getText }) => (
430|                                                    <button key={label} type="button" onClick={() => { const t...
431|                                                        style={{ padding: '6px 10px', borderRadius: '6px', bac...
432|                                                        {icon} {label}
433|                                                    </button>
434|                                                ))}
435|                                            </div>
436|                                            <textarea ref={textEditorRef} value={activeSection.content} onChan...
437|                                                style={{ ...inputStyle, height: '360px', fontFamily: 'monospac...
4 3 8 |                                                                                                p l a c e h o l d e r = " # #   T i ê u   Á '
```

```
439|                                        </div>
440|                                        <div>
441|                                            <label style={{ display: 'block', color: 'var(--text-muted)', font...
442|                                            <div style={{ height: '360px', background: 'var(--bg-surface)', bo...
443|                                                <SimpleMarkdown text={activeSection.content} />
444|                                            </div>
445|                                        </div>
446|                                    </div>
447|                                )}
448|
449|                                {activeSection.type === 'image' && <>
450|                                    <div>
451|                                        <label style={{ display: 'block', color: 'var(--text-muted)', fontSize...
452|                                        <input value={activeSection.content} onChange={(e) => updateSectionLoc...
453|                                    </div>
454|                                    {activeSection.content && <img src={activeSection.content} style={{ maxWid...
455|                                </>}
456|
457|                                {activeSection.type === 'pdf' && <>
458|                                    <div style={{ background: 'rgba(var(--brand-primary-rgb),0.05)', border: '...
    459 |                                                                                                    H ° Ù n g   d « n   l ¥ y   l i n k   D r i v e :   V à o   G o
460|                                    </div>
461|                                    <div>
462|                                        <label style={{ display: 'block', color: 'var(--text-muted)', fontSize...
463|                                        <input placeholder="https://drive.google.com/file/d/FILE_ID/view" valu...
464|                                    </div>
465|                                    {getPdfEmbedUrl(activeSection.content) && (
466|                                        <div style={{ width: '100%', height: '500px', background: 'white', bor...
467|                                            <iframe src={getPdfEmbedUrl(activeSection.content)} style={{ width...
468|                                        </div>
469|                                    )}
470|                                </>}
471|
472|                                {activeSection.type === 'embed' && <>
473|                                    <div style={{ background: 'rgba(167,139,250,0.05)', border: '1px solid rgb...
    474 |                                                                                                    D á n   m ã   n h ú n g   ( i f r a m e )   t ë   G o o g l e
    475 |                                                                                                    V í   d å :   < c o d e > { ' < i f r a m e   s r c = " h t t p
476|                                    </div>
477|                                    <div>
478|                                        <label style={{ display: 'block', color: 'var(--text-muted)', fontSize...
479|                                        <textarea value={activeSection.content} onChange={(e) => updateSection...
480|                                            style={{ ...inputStyle, height: '140px', fontFamily: 'monospace', ...
481|                                            placeholder='<iframe src="https://www.canva.com/..." width="100%" ...
482|                                    </div>
483|                                    {activeSection.content && (
484|                                        <div style={{ width: '100%', borderRadius: '12px', overflow: 'hidden',...
485|                                            <div dangerouslySetInnerHTML={{ __html: activeSection.content }} />
486|                                        </div>
487|                                    )}
488|                                </>}
489|                            </div>
490|                        </div>
491|                    ) : (
492|                        <div style={{ display: 'flex', flexDirection: 'column', alignItems: 'center', justifyC...
493|                            <PlusCircle size={64} />
    494 |                                                                                                <p   s t y l e = { {   f o n t S i z e :   ' 1 6 p x '   } } > C h Í n   h o · c   t h
495|                        </div>
496|                    )}
497|                </div>
498|            </div>
499|        </div>
500|    );
501| }
502|
```

File: app/(dashboard)/teacher/lessons/create/page.tsx (269 lines, 17.0 KB)

```
1| 'use client'
2|
3| import { useState } from 'react'
4| import { useRouter } from 'next/navigation'
5| import Link from 'next/link'
6| import { ArrowLeft, Loader2, ChevronRight, BookOpen, FileText, Video, Image as ImageIcon, Link2, Code, Eye, Pl...
7| import { supabase } from '@/lib/supabase'
8|
9| type SectionInput = {
10|   id: string
11|   title: string
12|   type: 'video' | 'text' | 'image' | 'pdf' | 'embed'
13|   content: string
14| }
15|
16| export default function CreateLessonPage() {
17|   const router = useRouter()
18|   const [step, setStep] = useState(1)
19|   const [loading, setLoading] = useState(false)
20|   const [error, setError] = useState<string | null>(null)
21|   const [title, setTitle] = useState('')
22|   const [description, setDescription] = useState('')
23|   const [thumbnailUrl, setThumbnailUrl] = useState('')
    2 4 |       c o n s t   [ s u b j e c t ,   s e t S u b j e c t ]   =   u s e S t a t e ( ' T i n   h Í c ' )
25|   const [estimatedMinutes, setEstimatedMinutes] = useState(30)
26|   const [category, setCategory] = useState('extended')
27|   const [sections, setSections] = useState<SectionInput[]>([])
28|
29|   const addSection = () => {
30|     setSections(prev => [...prev, {
31|       id: Math.random().toString(36).substring(7),
32|       title: '',
33|       type: 'text',
34|       content: '',
35|     }])
36|   }
37|
38|   const removeSection = (id: string) => {
39|     setSections(prev => prev.filter(s => s.id !== id))
40|   }
41|
42|   const updateSection = (id: string, field: keyof SectionInput, value: string) => {
43|     setSections(prev => prev.map(s => s.id === id ? { ...s, [field]: value } : s))
44|   }
45|
46|   const handleSubmit = async () => {
    4 7 |           i f   ( ! t i t l e . t r i m ( ) )   {   s e t E r r o r ( ' V u i   l ò n g   n h - p   t i ê u    Á   b à i   g i £ n g ' ) ;   r e
48|     setLoading(true)
49|     setError(null)
50|
51|     const { data: { user } } = await supabase.auth.getUser()
    5 2 |           i f   ( ! u s e r )   {   s e t E r r o r ( ' B ¡ n   c h ° a      n g   n h - p ' ) ;   s e t L o a d i n g ( f a l s e ) ;   r e t u
53|
54|     const { data: lesson, error: lessonError } = await supabase
55|       .from('lessons')
56|       .insert({
```

```
 57|         teacher_id: user.id,
 58|         title: title.trim(),
 59|         description: description.trim(),
 60|         thumbnail_url: thumbnailUrl.trim() || null,
 61|         subject,
 62|         category,
 63|         estimated_minutes: estimatedMinutes,
 64|         is_published: false,
 65|       })
 66|       .select()
 67|       .single()
 68|
 69|     if (lessonError || !lesson) {
    7 0 |               s e t E r r o r ( l e s s o n E r r o r ? . m e s s a g e   | |   ' K h ô n g   t h Ã   t ¡ o   b à i   g i £ n g ' )
 71|       setLoading(false)
 72|       return
 73|     }
 74|
 75|     if (sections.length > 0) {
 76|       const { error: sectionsError } = await supabase.from('lesson_sections').insert(
 77|         sections.map((s, idx) => ({
 78|           lesson_id: lesson.id,
    7 9 |                     t i t l e :   s . t i t l e   | |   ` M ã c   $ { i d x   +   1 } ` ,
 80|           type: s.type,
 81|           content_type: s.type,
 82|           content: s.content,
 83|           order_index: idx,
 84|         }))
 85|       )
 86|       if (sectionsError) console.error('Sections error:', sectionsError)
 87|     }
 88|
 89|     setLoading(false)
 90|     router.push(`/teacher/lessons/${lesson.id}?created=true`)
 91|   }
 92|
 93|   const getYouTubeThumbnail = (url: string) => {
 94|     const id = url.match(/(?:youtube\.com\/(?:[^/]+\/.+\/|(?:v|e(?:mbed)?)\/|.*[?&]v=)|youtu\.be\/)([^"&?/\s]{...
 95|     return id ? `https://img.youtube.com/vi/${id}/hqdefault.jpg` : null
 96|   }
 97|
 98|   return (
 99|     <div style={{ maxWidth: '800px', margin: '0 auto' }}>
100|       <Link href="/teacher/lessons" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', fontSiz...
   1 0 1 |                 < A r r o w L e f t   s i z e = { 1 6 }   / >   Q u a y   l ¡ i
102|       </Link>
103|
104|       <div className="rounded-2xl p-8" style={{ background: 'var(--bg-surface)', border: '1px solid var(--bord...
105|         <h1 style={{ fontSize: '24px', fontWeight: 700, marginBottom: '24px', color: 'var(--text-primary)' }}>...
106|
107|         {step === 1 && (
108|           <div style={{ display: 'flex', flexDirection: 'column', gap: '20px' }}>
109|             <div>
110|               <label style={{ fontSize: '14px', fontWeight: 500, marginBottom: '6px', display: 'block', color:...
111|               <input value={title} onChange={e => setTitle(e.target.value)}
112|                 style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(--bg-elev...
   1 1 3 |                               p l a c e h o l d e r = " V D :   G i Ú i   t h i Ç u   v Á   C P U "   / >
114|             </div>
115|             <div>
116|               <label style={{ fontSize: '14px', fontWeight: 500, marginBottom: '6px', display: 'block', color:...
117|               <div style={{ width: '100%', height: '160px', background: 'var(--bg-elevated)', borderRadius: '1...
118|                 {thumbnailUrl ? (
119|                   <img src={thumbnailUrl} style={{ width: '100%', height: '100%', objectFit: 'cover' }} onErro...
120|                 ) : (
121|                   <Upload size={32} color="var(--text-muted)" />
122|                 )}
123|               </div>
124|               <input value={thumbnailUrl} onChange={e => setThumbnailUrl(e.target.value)}
125|                 style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(--bg-elev...
126|                 placeholder="https://example.com/image.jpg" />
127|             </div>
128|             <div>
129|               <label style={{ fontSize: '14px', fontWeight: 500, marginBottom: '6px', display: 'block', color:...
130|               <textarea value={description} onChange={e => setDescription(e.target.value)} rows={3}
131|                 style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(--bg-elev...
   1 3 2 |                               p l a c e h o l d e r = " M ô   t £   n g ¯ n   v Á   b à i   g i £ n g . . . "   / >
133|             </div>
134|             <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '16px' }}>
135|               <div>
136|                 <label style={{ fontSize: '14px', fontWeight: 500, marginBottom: '6px', display: 'block', colo...
137|                 <select value={subject} onChange={e => setSubject(e.target.value)}
138|                   style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(--bg-el...
   1 3 9 |                                         < o p t i o n > T i n   h Í c < / o p t i o n >
   1 4 0 |                                         < o p t i o n > T i n   h Í c   -   L ¯ p   r á p   P C < / o p t i o n >
   1 4 1 |                                         < o p t i o n > K h o a   h Í c   m á y   t í n h < / o p t i o n >
142|                 </select>
143|               </div>
144|               <div>
145|                 <label style={{ fontSize: '14px', fontWeight: 500, marginBottom: '6px', display: 'block', colo...
146|                 <input type="number" value={estimatedMinutes} onChange={e => setEstimatedMinutes(Number(e.targ...
147|                   style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(--bg-el...
148|               </div>
149|             </div>
150|             <div>
151|               <label style={{ fontSize: '14px', fontWeight: 500, marginBottom: '6px', display: 'block', color:...
152|               <div style={{ display: 'flex', gap: '8px' }}>
153|                 {[
154|                   { key: 'textbook', label: 'Sách Giáo Khoa' },
   1 5 5 |                                         {   k e y :   ' e x t e n d e d ' ,   l a b e l :   ' K i ¿ n   T h é c   M ß   R Ù n g '   } ,
156|                 ].map(({ key, label }) => (
157|                   <button key={key} onClick={() => setCategory(key)}
158|                     style={{
159|                       padding: '8px 20px', borderRadius: '8px', border: `2px solid ${category === key ? 'var(-...
160|                       background: category === key ? 'rgba(var(--brand-primary-rgb),0.1)' : 'transparent',
161|                       color: category === key ? 'var(--brand-primary)' : 'var(--text-muted)',
162|                       fontWeight: 600, cursor: 'pointer', fontSize: '13px', fontFamily: 'inherit'
163|                     }}>
164|                     {label}
165|                   </button>
166|                 ))}
167|               </div>
168|             </div>
169|           </div>
170|         )}
171|
172|         {step === 2 && (
173|           <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
174|             <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', marginBottom...
   1 7 5 |                               < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   f o n t W e i g h t :   5 0 0 ,   c o l o r :   '
176|               <button onClick={addSection}
177|                 style={{ padding: '8px 16px', borderRadius: '8px', fontSize: '13px', fontWeight: 700, backgrou...
   1 7 8 |                               < P l u s   s i z e = { 1 6 }   / >   T h ê m   m ã c
179|               </button>
180|             </div>
```

```
  181|
  182|             {sections.length === 0 && (
  183|               <div style={{ textAlign: 'center', padding: '48px 0', borderRadius: '12px', border: '2px dashed ...
  184|                 <FileText size={36} style={{ margin: '0 auto 12px', color: 'var(--text-muted)' }} />
    1 8 5 |                                 < p   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '
  186|               </div>
  187|             )}
  188|
  189|             {sections.map((s, idx) => (
  190|               <div key={s.id} style={{ padding: '16px', borderRadius: '12px', background: 'var(--bg-elevated)'...
  191|                 <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '12px' }}>
  192|                   <GripVertical size={16} style={{ color: 'var(--text-muted)' }} />
    1 9 3 |                                   < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   f o n t W e i g h t :   7 0 0 ,   c o l o
  194|                   <div style={{ display: 'flex', gap: '4px', marginLeft: 'auto' }}>
  195|                     {(['video', 'text', 'image', 'pdf', 'embed'] as const).map(type => (
  196|                       <button key={type} onClick={() => updateSection(s.id, 'type', type)}
  197|                         style={{ padding: '6px', borderRadius: '6px', background: s.type === type ? 'var(--bra...
  198|                         {type === 'video' && <Video size={14} />}
  199|                         {type === 'text' && <FileText size={14} />}
  200|                         {type === 'image' && <ImageIcon size={14} />}
  201|                         {type === 'pdf' && <Link2 size={14} />}
  202|                         {type === 'embed' && <Code size={14} />}
  203|                       </button>
  204|                     ))}
  205|                     <button onClick={() => removeSection(s.id)} style={{ padding: '6px', borderRadius: '6px', ...
  206|                       <Trash2 size={14} />
  207|                     </button>
  208|                   </div>
  209|                 </div>
  210|                 <input value={s.title} onChange={e => updateSection(s.id, 'title', e.target.value)}
  211|                   style={{ width: '100%', padding: '10px 12px', borderRadius: '8px', background: 'var(--bg-sur...
    2 1 2 |                                     p l a c e h o l d e r = " T i ê u     Á   m ã c . . . "   / >
  213|                 {s.type === 'text' ? (
  214|                   <div>
  215|                     <div style={{ display: 'flex', gap: '6px', marginBottom: '8px' }}>
  216|                       {[
    2 1 7 |                                                 {   i c o n :   < I m a g e I c o n   s i z e = { 1 4 }   / > ,   l a b e l :   ' ¢ n h ' ,   g
  218|                         { icon: <Video size={14} />, label: 'Video', getInsert: () => { const u = prompt('URL ...
  219|                         { icon: <FileSearch size={14} />, label: 'PDF', getInsert: () => { const u = prompt('U...
  220|                       ].map(({ icon, label, getInsert }) => (
  221|                         <button key={label} type="button" onClick={() => { const ins = getInsert(); if (ins) u...
  222|                           style={{ padding: '6px 10px', borderRadius: '6px', background: 'var(--bg-surface)', ...
  223|                           {icon} {label}
  224|                         </button>
  225|                       ))}
  226|                     </div>
  227|                     <textarea value={s.content} onChange={e => updateSection(s.id, 'content', e.target.value)}...
  228|                       style={{ width: '100%', padding: '10px 12px', borderRadius: '8px', background: 'var(--bg...
    2 2 9 |                                                 p l a c e h o l d e r = " N Ù i   d u n g   m a r k d o w n . . .   ( d ù n g   n ú t   ß   t r ê n
  230|                   </div>
  231|                 ) : (
  232|                   <input value={s.content} onChange={e => updateSection(s.id, 'content', e.target.value)}
  233|                     style={{ width: '100%', padding: '10px 12px', borderRadius: '8px', background: 'var(--bg-s...
    2 3 4 |                                                 p l a c e h o l d e r = { s . t y p e   = = =   ' v i d e o '   ?   ' U R L   Y o u T u b e . . . '   :
  235|                 )}
  236|               </div>
  237|             ))}
  238|           </div>
  239|         )}
  240|
  241|         {error && (
  242|           <div style={{ marginTop: '16px', padding: '12px 16px', borderRadius: '8px', background: 'rgba(244,67...
  243|             {error}
  244|           </div>
  245|         )}
  246|
  247|         <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', marginTop: '32px...
  248|           {step > 1 ? (
  249|             <button onClick={() => setStep(step - 1)} style={{ padding: '10px 24px', borderRadius: '12px', fon...
    2 5 0 |                                     Q u a y   l ¡ i
  251|             </button>
  252|           ) : <div />}
  253|
  254|           {step < 2 ? (
  255|             <button onClick={() => setStep(2)} style={{ padding: '10px 24px', borderRadius: '12px', fontSize: ...
    2 5 6 |                                     T i ¿ p   t h e o   < C h e v r o n R i g h t   s i z e = { 1 6 }   / >
  257|             </button>
  258|           ) : (
  259|             <button onClick={handleSubmit} disabled={loading} style={{ padding: '10px 24px', borderRadius: '12...
  260|               {loading ? <Loader2 size={16} style={{ animation: 'spin 1s linear infinite' }} /> : <Eye size={1...
    2 6 1 |                                     { l o a d i n g   ?   '   a n g   t ¡ o . . . '   :   ' T ¡ o   b à i   g i £ n g   ( D r a f t ) ' }
  262|             </button>
  263|           )}
  264|         </div>
  265|       </div>
  266|     </div>
  267|   )
  268| }
  269|
```

File: app/(dashboard)/teacher/lessons/page.js (175 lines, 9.0 KB)

```
    1| 'use client'
    2|
    3| import React, { useEffect, useState } from 'react'
    4| import { supabase } from '@/lib/supabase'
    5| import { Plus, BookOpen, Edit, Trash2, Eye, EyeOff, Loader2, ArrowLeft, ImageIcon } from 'lucide-react'
    6| import Link from 'next/link'
    7| import { useRouter } from 'next/navigation'
    8| import AuthButton from '@/components/AuthButton'
    9| import { deleteLessonAction } from '@/app/actions/lessons'
   10|
   11| export default function TeacherLessonsPage() {
   12|   const router = useRouter()
   13|   const [lessons, setLessons] = useState([])
   14|   const [loading, setLoading] = useState(true)
   15|   const [currentUser, setCurrentUser] = useState(null)
   16|
   17|   useEffect(() => { fetchLessons() }, [])
   18|
   19|   const fetchLessons = async () => {
   20|     setLoading(true)
   21|     const { data: { user } } = await supabase.auth.getUser()
   22|     if (!user) { window.location.href = '/login'; return }
   23|     setCurrentUser(user)
   24|     const { data: lessonsData } = await supabase
   25|       .from('lessons')
   26|       .select('*, lesson_sections(count)')
   27|       .eq('teacher_id', user.id)
   28|       .order('created_at', { ascending: false })
   29|     if (lessonsData) {
   30|       const lessonIds = lessonsData.map(l => l.id)
   31|       const { data: assignments } = await supabase
```

```
32|         .from('lesson_class_assignments')
33|         .select('lesson_id, class_id')
34|         .in('lesson_id', lessonIds)
35|       const { data: allClasses } = await supabase
36|         .from('classes')
37|         .select('id, name')
38|         .eq('teacher_id', user.id)
39|       const classMap = Object.fromEntries((allClasses || []).map(c => [c.id, c.name]))
40|       const assignmentMap = {}
41|       ;(assignments || []).forEach(a => {
42|         if (!assignmentMap[a.lesson_id]) assignmentMap[a.lesson_id] = []
43|         if (classMap[a.class_id]) assignmentMap[a.lesson_id].push(classMap[a.class_id])
44|       })
45|       setLessons(lessonsData.map(l => ({ ...l, classNames: assignmentMap[l.id] || [] })))
46|     }
47|     setLoading(false)
48|   }
49|
50|   const createNewLesson = async () => {
51|     const { data: { user } } = await supabase.auth.getUser()
52|     if (!user) { alert('Phiên ng nh-p h¿t h¡n!'); window.location.hre
53|     const { data, error } = await supabase.from('lessons').insert({
54|       teacher_id: user.id, title: 'Bài g£ng mÛi', description: '', is_p
55|     }).select().single()
56|     if (error) { alert('L× i: ' + error.message); return }
57|     if (data) router.push(`/teacher/lessons/${data.id}`)
58|   }
59|
60|   const deleteLesson = async (id) => {
61|     if (!confirm('Xóa bài g£ng này? HÍc sinh s½ không còn th¥y bài này
62|     const result = await deleteLessonAction(id)
63|     if (result?.error) {
64|       alert('L× i: ' + result.error)
65|     }
66|     fetchLessons()
67|   }
68|
69|   if (loading) return (
70|     <div style={{ minHeight: '100vh', display: 'flex', alignItems: 'center', justifyContent: 'center', backgro...
71|       <Loader2 size={48} style={{ animation: 'spin 1s linear infinite', color: 'var(--brand-primary)' }} />
72|     </div>
73|   )
74|
75|   return (
76|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)', padding: '28...
77|       <header style={{ maxWidth: '1200px', margin: '0 auto 32px', display: 'flex', justifyContent: 'space-betw...
78|         <div style={{ display: 'flex', alignItems: 'center', gap: '14px' }}>
79|           <Link href="/teacher" style={{
80|             width: '40px', height: '40px', borderRadius: '10px', background: 'var(--bg-surface)',
81|             display: 'flex', alignItems: 'center', justifyContent: 'center',
82|             color: 'var(--text-muted)', border: '1px solid var(--border-default)'
83|           }}>
84|             <ArrowLeft size={20} />
85|           </Link>
86|           <h1 style={{ fontSize: '26px', fontWeight: 800, margin: 0 }}>
87|             Qu£n lý <span style={{ color: 'var(--brand-primary)' }}>Bài
88|           </h1>
89|         </div>
90|         <div style={{ display: 'flex', gap: '12px', alignItems: 'center' }}>
91|           <button onClick={createNewLesson} className="lms-btn lms-btn-green">
92|             <Plus size={18} />  T¡o bài mÛi
93|           </button>
94|           <AuthButton />
95|         </div>
96|       </header>
97|
98|       <main style={{ maxWidth: '1200px', margin: '0 auto' }}>
99|         {lessons.length === 0 ? (
100|           <div style={{ textAlign: 'center', padding: '80px 20px', background: 'var(--bg-surface)', borderRadi...
101|             <BookOpen size={56} style={{ color: 'var(--text-muted)', marginBottom: '20px', opacity: 0.3 }} />
102|             <h3 style={{ color: 'var(--text-muted)', marginBottom: '20px', opacity: 0.3 }} />
103|             <p style={{ color: 'var(--text-muted)', fontSize: '14px', ma
104|           </div>
105|         ) : (
106|           <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(340px, 1fr))', gap: '2...
107|             {lessons.map(lesson => (
108|               <div key={lesson.id} className="lms-card" style={{
109|                 padding: 0, overflow: 'hidden', transition: 'all 0.25s ease',
110|                 border: '1px solid var(--border-default)',
111|               }}>
112|                 <div style={{ height: '180px', background: 'var(--bg-elevated)', position: 'relative' }}>
113|                   {lesson.thumbnail_url ? (
114|                     <img src={lesson.thumbnail_url} alt={lesson.title}
115|                       style={{ width: '100%', height: '100%', objectFit: 'cover' }}
116|                       onError={e => { e.target.style.display = 'none' }} />
117|                   ) : (
118|                     <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', height: '10...
119|                       <ImageIcon size={48} />
120|                     </div>
121|                   )}
122|                   <div style={{
123|                     position: 'absolute', top: '12px', left: '12px',
124|                     padding: '4px 10px', borderRadius: '99px', fontSize: '11px', fontWeight: 700,
125|                     background: lesson.is_published ? 'var(--brand-primary)' : 'var(--text-muted)',
126|                     color: '#fff', display: 'flex', alignItems: 'center', gap: '5px'
127|                   }}>
128|                     {lesson.is_published ? <Eye size={13} /> : <EyeOff size={13} />}
129|                     {lesson.is_published ? 'ã xu¥t b£n' : 'B£n nháp'}
130|                   </div>
131|                 </div>
132|                 <div style={{ padding: '20px' }}>
133|                   <h3 style={{ fontSize: '16px', fontWeight: 700, margin: '0 0 6px', color: 'var(--text-primar...
134|                   <p style={{ color: 'var(--text-muted)', fontSize: '13px', margin: '0 0 16px', display: '-web...
135|                     {lesson.description || 'Ch°a có mô t£'}
136|                   </p>
137|                   {lesson.classNames?.length > 0 && (
138|                     <div style={{ display: 'flex', flexWrap: 'wrap', gap: '4px', marginBottom: '12px' }}>
139|                       {lesson.classNames.map((name, i) => (
140|                         <span key={i} style={{ fontSize: '10px', padding: '2px 8px', background: 'rgba(59,130,...
141|                       ))}
142|                     </div>
143|                   )}
144|                   <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
145|                     <span style={{ fontSize: '12px', color: 'var(--text-muted)', fontWeight: 500 }}>
146|                       {lesson.lesson_sections?.[0]?.count || 0} måc
147|                     </span>
148|                     <div style={{ display: 'flex', gap: '8px' }}>
149|                       <Link href={`/teacher/lessons/${lesson.id}`}>
150|                         <button style={{
151|                           padding: '7px 14px', borderRadius: '8px', border: 'none', cursor: 'pointer',
152|                           background: 'var(--brand-subtle)', color: 'var(--brand-primary)',
153|                           fontWeight: 600, fontSize: '12px', display: 'flex', alignItems: 'center', gap: '5px'...
154|                         }}>
155|                           <Edit size={14} />  Sía
```

```
  156|                        </button>
  157|                      </Link>
  158|                      <button onClick={() => deleteLesson(lesson.id)} style={{
  159|                        padding: '7px 10px', borderRadius: '8px', border: 'none', cursor: 'pointer',
  160|                        background: 'rgba(244,106,106,0.1)', color: 'var(--danger)', fontFamily: 'inherit'
  161|                      }}>
  162|                        <Trash2 size={14} />
  163|                      </button>
  164|                    </div>
  165|                  </div>
  166|                </div>
  167|              </div>
  168|            ))}
  169|          </div>
  170|        )}
  171|      </main>
  172|    </div>
  173|  )
  174| }
  175|
```

File: app/(dashboard)/teacher/loading.tsx (15 lines, 0.5 KB)

```
    1| // Path: app/(dashboard)/teacher/loading.tsx
    2| export default function Loading() {
    3|   return (
    4|     <div className="p-6 space-y-4 animate-pulse">
    5|       <div className="h-8 bg-[#1d1f2a] rounded-lg w-48" />
    6|       <div className="grid grid-cols-1 md:grid-cols-4 gap-4">
    7|         {[...Array(4)].map((_, i) => (
    8|           <div key={i} className="h-24 bg-[#1d1f2a] rounded-xl" />
    9|         ))}
   10|       </div>
   11|       <div className="h-64 bg-[#1d1f2a] rounded-xl" />
   12|     </div>
   13|   )
   14| }
   15|
```

File: app/(dashboard)/teacher/page.tsx (182 lines, 10.5 KB)

```
    1| 'use client';
    2|
    3| import React, { useEffect, useState, useCallback } from 'react';
    4| import { supabase } from '@/lib/supabase';
    5| import {
    6|   Users, FileText, BookOpen, GraduationCap, TrendingUp, ArrowRight, Loader2, AlertCircle
    7| } from 'lucide-react';
    8| import Link from 'next/link';
    9|
   10| export default function TeacherDashboard() {
   11|   const [stats, setStats] = useState({ classes: 0, students: 0, assignments: 0, submissions: 0 });
   12|   const [classes, setClasses] = useState([]);
   13|   const [loading, setLoading] = useState(true);
   14|   const [realtimeLog, setRealtimeLog] = useState<string[]>([]);
   15|
   16|   const addLog = useCallback((msg: string) => {
   17|     setRealtimeLog(prev => [msg, ...prev].slice(0, 10));
   18|   }, []);
   19|
   20|   useEffect(() => {
   21|     let channel: any = null;
   22|     let cancelled = false;
   23|
   24|     async function init() {
   25|       const { data: { user } } = await supabase.auth.getUser();
   26|       if (!user || cancelled) return;
   27|
   28|       const { data: classesData, count: classesCount } = await supabase.from('classes').select('*', { count: '...
   29|       if (cancelled) return;
   30|       setClasses(classesData || []);
   31|       const classIds = classesData?.map(c => c.id) || [];
   32|
   33|       const { count: studentsCount } = await supabase.from('class_members').select('*', { count: 'exact', head...
   34|       const { count: asgCount } = await supabase.from('assignments').select('*', { count: 'exact', head: true ...
   35|       const { count: subCount } = await supabase.from('submissions').select('*', { count: 'exact', head: true ...
   36|       if (!cancelled) {
   37|         setStats({ classes: classesCount || 0, students: studentsCount || 0, assignments: asgCount || 0, submi...
   38|         setLoading(false);
   39|       }
   40|
   41|       if (classIds.length === 0) return;
   42|
   43|       channel = supabase.channel('teacher-dashboard-realtime');
   44|       channel.on('postgres_changes',
   45|         { event: 'INSERT', schema: 'public', table: 'class_members', filter: `class_id=in.(${classIds.join(','...
   46|         () => {
   47|           setStats(prev => ({ ...prev, students: prev.students + 1 }));
      4 8 |                     a d d L o g ( 'Ø=ÜÉ   H Í c   s i n h   m Ù i    ã   t h a m   g i a   l Û p ' ) ;
   49|         }
   50|       );
   51|       channel.on('postgres_changes',
   52|         { event: 'INSERT', schema: 'public', table: 'submissions', filter: `class_id=in.(${classIds.join(',')}...
   53|         (payload: any) => {
   54|           setStats(prev => ({ ...prev, submissions: prev.submissions + 1 }));
      5 5 |                     a d d L o g ( `Ø=ÜÝ   B à i   n Ù p   m Û i   t ë   h Í c   s i n h ` ) ;
   56|         }
   57|       );
   58|       channel.on('postgres_changes',
   59|         { event: 'INSERT', schema: 'public', table: 'assignments', filter: `teacher_id=eq.${user.id}` },
   60|         () => {
   61|           setStats(prev => ({ ...prev, assignments: prev.assignments + 1 }));
      6 2 |                     a d d L o g ( 'Ø=ÜÄ   N h i Ç m   v å   m Û i    ã    ° ã c   t ¡ o ' ) ;
   63|         }
   64|       );
   65|       channel.subscribe();
   66|     }
   67|
   68|     init();
   69|     return () => {
   70|       cancelled = true;
   71|       if (channel) supabase.removeChannel(channel);
   72|     };
   73|   }, [addLog]);
   74|
   75|   const quickActions = [
      7 6 |          {   t i t l e :   ' Q u £ n   l ý   L Û p   h Í c ' ,   d e s c :   ' T ¡ o   m ã   l Û p ,   q u £ n   l ý   t h à n h   v i ê n ' ,
      7 7 |          {   t i t l e :   ' Q u £ n   l ý   B à i   g i £ n g ' ,   d e s c :   ' S o ¡ n   t h £ o   n Ù i   d u n g   h Í c   t - p ' ,   i c
      7 8 |          {   t i t l e :   ' S á c h   g i á o   k h o a ' ,   d e s c :   ' N Ù i   d u n g   s Ñ   t h e o   c h ° ¡ n g   t r ì n h   G D P T
      7 9 |          {   t i t l e :   ' K i ¿ n   t h é c   m ß   r Ù n g ' ,   d e s c :   ' T h °   v i Ç n   p h § n   c é n g   v à   c ô n g   n g h ( 
   80|   ];
```

```
  81|
  82|   if (loading) return <div style={{ display: 'flex', justifyContent: 'center', padding: '80px' }}><Loader2 siz...
  83|
  84|   return (
  85|     <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
  86|       <header style={{ marginBottom: '32px' }}>
  87|         <h1 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 6px 0', color: 'var(--text-primary)' }}>C...
     8 8 |                   < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n :   0   } } > H ô m   n a y   T h §
  89|       </header>
  90|
  91|       <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(220px, 1fr))', gap: '20px',...
  92|         {[
     9 3 |                     {   l a b e l :   ' S Ñ   l Û p     a n g   q u £ n   l ý ' ,   v a l u e :   s t a t s . c l a s s e s ,   i c o n :   < (
     9 4 |                     {   l a b e l :   ' T Õ n g   s Ñ   h Í c   s i n h ' ,   v a l u e :   s t a t s . s t u d e n t s ,   i c o n :   < U s e
     9 5 |                     {   l a b e l :   ' N h i Ç m   v å    ã   g i a o ' ,   v a l u e :   s t a t s . a s s i g n m e n t s ,   i c o n :   <
  96|         ].map((s, i) => (
  97|           <div key={i} className="lms-card" style={{ padding: '24px', display: 'flex', alignItems: 'center', g...
  98|             <div style={{ width: '48px', height: '48px', borderRadius: '12px', background: `${s.color}15`, col...
  99|               {s.icon}
 100|             </div>
 101|             <div>
 102|               <div style={{ fontSize: '24px', fontWeight: 800, color: 'var(--text-primary)' }}>{s.value}</div>
 103|               <div style={{ fontSize: '13px', color: 'var(--text-muted)' }}>{s.label}</div>
 104|             </div>
 105|           </div>
 106|         ))}
 107|       </div>
 108|
 109|       {realtimeLog.length > 0 && (
 110|         <div style={{ marginBottom: '24px' }}>
 111|           <h2 style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '12px', ...
 112|             <span style={{ width: '8px', height: '8px', borderRadius: '50%', background: '#22c55e', animation:...
    1 1 3 |                           H o ¡ t     Ù n g   t r ñ c   t i ¿ p
 114|           </h2>
 115|           <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
 116|             {realtimeLog.map((msg, i) => (
 117|               <div key={i} style={{
 118|                 padding: '8px 14px', borderRadius: '8px', fontSize: '13px',
 119|                 background: i === 0 ? 'rgba(34,197,94,0.08)' : 'var(--bg-surface)',
 120|                 border: `1px solid ${i === 0 ? 'rgba(34,197,94,0.2)' : 'var(--border-default)'}`,
 121|                 color: 'var(--text-primary)', animation: i === 0 ? 'fadeSlideIn 0.3s ease-out' : 'none',
 122|               }}>
 123|                 {msg}
 124|               </div>
 125|             ))}
 126|           </div>
 127|         </div>
 128|       )}
 129|
 130|       <div className="teacher-dashboard-grid" style={{ display: 'grid', gridTemplateColumns: '1fr 360px', gap:...
 131|         <div>
 132|           <h2 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '16px' }...
 133|           <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(260px, 1fr))', gap: '16...
 134|             {quickActions.map((action, idx) => (
 135|               <Link key={idx} href={action.href} style={{ textDecoration: 'none' }}>
 136|                 <div className="lms-card" style={{ padding: '20px', display: 'flex', alignItems: 'center', gap...
 137|                   onMouseOver={e => { e.currentTarget.style.borderColor = 'var(--brand-primary)'; e.currentTar...
 138|                   onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e.currentTar...
 139|                   <div style={{ width: '44px', height: '44px', borderRadius: '10px', background: `${action.col...
 140|                     {action.icon}
 141|                   </div>
 142|                   <div style={{ flex: 1, minWidth: 0 }}>
 143|                     <div style={{ color: 'var(--text-primary)', fontSize: '14px', fontWeight: 700, marginBotto...
 144|                     <div style={{ color: 'var(--text-muted)', fontSize: '12px', margin: 0, overflow: 'hidden',...
 145|                   </div>
 146|                   <ArrowRight size={16} style={{ color: 'var(--text-muted)', flexShrink: 0 }} />
 147|                 </div>
 148|               </Link>
 149|             ))}
 150|           </div>
 151|         </div>
 152|
 153|         <div>
 154|           <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: ...
    1 5 5 |                           < h 2   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   7 0 0 ,   c o l o r :   ' v a r (
 156|             <Link href="/teacher/classes/new" style={{ color: 'var(--accent-blue)', fontSize: '13px', fontWeig...
 157|           </div>
 158|           <div style={{ display: 'flex', flexDirection: 'column', gap: '10px' }}>
 159|             {classes.length > 0 ? classes.map(cls => (
 160|               <div key={cls.id} className="lms-card" style={{ padding: '16px', display: 'flex', justifyContent...
 161|                 <div>
 162|                   <div style={{ fontSize: '14px', fontWeight: 700, color: 'var(--text-primary)' }}>{cls.name}<...
 163|                   <div style={{ fontSize: '12px', color: 'var(--text-muted)' }}>{cls.subject}{cls.grade ? ` • ...
 164|                 </div>
 165|                 <div style={{ textAlign: 'right' }}>
 166|                   <div style={{ fontSize: '10px', color: 'var(--accent-blue)', fontWeight: 700, letterSpacing:...
 167|                   <div style={{ fontSize: '16px', fontWeight: 900, color: 'var(--text-primary)', fontFamily: '...
 168|                 </div>
 169|               </div>
 170|             )) : (
 171|               <div style={{ padding: '32px', textAlign: 'center', border: '2px dashed var(--border-default)', ...
    1 7 2 |                                   C h ° a   c ó   l Ù p   h Í c   n à o
 173|               </div>
 174|             )}
 175|           </div>
 176|         </div>
 177|       </div>
 178|       <style>{`@keyframes pulse { 0%,100% { opacity:1; } 50% { opacity:0.4; } } @keyframes fadeSlideIn { from ...
 179|     </div>
 180|   );
 181| }
 182|
```

File: app/about/page.tsx (517 lines, 39.9 KB)

```
    1| 'use client';
    2|
    3| import React, { useEffect, useState } from 'react';
    4| import Link from 'next/link';
    5| import { motion } from 'framer-motion';
    6| import { ArrowLeft, Phone, Mail, MapPin, ExternalLink, ShieldCheck, Heart, Loader2, Sparkles, BookOpen, Award,...
    7| import { supabase } from '@/lib/supabase';
    8|
    9| function CollapsibleGroup({ title, children, defaultOpen = false }) {
   10|     const [open, setOpen] = useState(defaultOpen);
   11|     return (
   12|         <div style={{ marginBottom: '8px' }}>
   13|             <button onClick={() => setOpen(!open)} style={{
   14|                 display: 'flex', alignItems: 'center', gap: '8px', width: '100%',
   15|                 padding: '10px 16px', borderRadius: '10px',
   16|                 background: 'rgba(255,255,255,0.02)', border: '1px solid rgba(255,255,255,0.06)',
   17|                 color: 'rgba(255,255,255,0.6)', cursor: 'pointer',
   18|                 fontSize: '12px', fontWeight: 700, letterSpacing: '0.5px',
```

```
                fontFamily: 'inherit', textTransform: 'uppercase',
            }}>
                <span style={{ flex: 1, textAlign: 'left' }}>{title}</span>
                <ChevronDown size={14} style={{ transform: open ? 'rotate(180deg)' : 'rotate(0deg)', transitio...
            </button>
            {open && (
                <div style={{ padding: '16px 16px 8px' }}>
                    {children}
                </div>
            )}
        </div>
    );
}

export default function AboutPage() {
    const [team, setTeam] = useState([]);
    const [loading, setLoading] = useState(true);

    useEffect(() => {
        async function fetchTeam() {
            const { data } = await supabase.from('project_team').select('*').order('order_index', { ascending:...
            if (data && data.length > 0) {
                setTeam(data);
            } else {
                setTeam([
                                                {id: '1', full_name: 'Nguyễn Phúc Khánh Sin', image
                                                {id: '2', full_name: '·ng QuÑc An', image_url: '/t
                                                {id: '3', full_name: 'Nguyễn Phim Gia Khiêm', image
                    { id: '4', full_name: 'Ngô Minh Khang', image_url: '/team-an-khang.png', role: 'Thành viên...
                ]);
            }
            setLoading(false);
        }
        fetchTeam();
    }, []);

    return (
        <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)', fontFami...

            <header style={{
                height: '50vh', position: 'relative', overflow: 'hidden',
                display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center',
                textAlign: 'center', background: 'radial-gradient(circle at center, rgba(0, 243, 255, 0.05) 0%...
            }}>
                <div style={{ position: 'absolute', top: '40px', left: '40px', zIndex: 100 }}>
                    <Link href="/" style={{
                        display: 'flex', alignItems: 'center', gap: '10px', color: '#fff', textDecoration: 'no...
                        fontWeight: 700, background: 'rgba(255,255,255,0.03)', padding: '12px 24px',
                        borderRadius: '16px', border: '1px solid rgba(255,255,255,0.08)', backdropFilter: 'blu...
                    }}>
                                                <ArrowLeft size={20} />Quay lại trang chç
                    </Link>
                </div>

                <div style={{ maxWidth: '1000px', padding: '0 24px', position: 'relative', zIndex: 1 }}>
                    <div style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', padding: '8px 16px...
                        <Sparkles size={14} /> PC MASTER BUILDER
                    </div>
                    <h1 style={{ fontSize: 'clamp(40px, 8vw, 64px)', fontWeight: 900, marginBottom: '24px', li...
                                                VÁ Chúng Tôi
                    </h1>
                </div>
            </header>

            <section style={{ padding: '80px 24px', background: 'linear-gradient(to bottom, #050507, #0a0a0c)'...
                <div style={{ maxWidth: '1200px', margin: '0 auto', display: 'grid', gridTemplateColumns: 'rep...
                    <div style={{ animation: 'fadeInLeft 1s ease' }}>
                        <div style={{ display: 'flex', alignItems: 'center', gap: '16px', marginBottom: '32px'...
                            <div style={{ width: '48px', height: '48px', borderRadius: '12px', background: 'rg...
                                <BookOpen size={24} />
                            </div>
                            <h2 style={{ fontSize: '32px', fontWeight: 800, margin: 0, letterSpacing: '-0.02em...
                        </div>

                        <div style={{ fontSize: '18px', color: '#8899a6', lineHeight: 1.8, marginBottom: '32px...
                            <p style={{ fontStyle: 'italic', color: '#fff', fontSize: '20px', marginBottom: '2...
                                                "PC Master Builder" là dñ án gi£i pháp e
                            </p>
                            <p>
                                                Chúng tôi khao khát éng dẫng séc mịnh c
                            </p>
                        </div>

                        <div style={{
                            padding: '24px', borderRadius: '20px', background: 'rgba(0, 243, 255, 0.03)',
                            borderLeft: '4px solid var(--brand-primary)', color: 'var(--brand-primary)',
                            fontWeight: 700, fontSize: '16px', letterSpacing: '0.05em', lineHeight: 1.5
                        }}>
                                                VÚI TINH THỊN "DÁM NGH( - DÁM LÀM", CHÚNG TÔ
                        </div>
                    </div>

                    <motion.div
                        initial={{ opacity: 0, x: 30 }}
                        whileInView={{ opacity: 1, x: 0 }}
                        viewport={{ once: true }}
                        transition={{ duration: 0.6 }}
                        style={{ perspective: '1200px' }}
                    >
                        <motion.div
                            animate={{ y: [0, -5, 0] }}
                            transition={{ duration: 4, repeat: Infinity, ease: 'easeInOut' }}
                            style={{
                                position: 'relative', borderRadius: '32px', overflow: 'hidden',
                                boxShadow: '0 25px 50px -12px rgba(0, 243, 255, 0.25)',
                                border: '1px solid rgba(255,255,255,0.08)',
                                aspectRatio: '16/9',
                                display: 'flex', alignItems: 'center', justifyContent: 'center',
                                background: 'radial-gradient(circle at 30% 40%, rgba(0, 212, 170, 0.08) 0%, rg...
                                transition: 'box-shadow 0.4s ease, border-color 0.4s ease',
                                transformStyle: 'preserve-3d',
                            }}
                            onMouseEnter={e => {
                                e.currentTarget.style.boxShadow = '0 35px 70px -12px rgba(0, 243, 255, 0.45), ...
                                e.currentTarget.style.borderColor = 'var(--brand-primary)';
                                e.currentTarget.style.transform = 'rotateY(-2deg) rotateX(2deg)';
                            }}
                            onMouseLeave={e => {
                                e.currentTarget.style.boxShadow = '0 25px 50px -12px rgba(0, 243, 255, 0.25)';
                                e.currentTarget.style.borderColor = 'rgba(255,255,255,0.08)';
                                e.currentTarget.style.transform = 'rotateY(0deg) rotateX(0deg)';
                            }}
                        >
                            <svg viewBox="0 0 320 180" style={{ width: '100%', height: '100%', position: 'rela...
```

```
                                <defs>
                                    <linearGradient id="caseGrad" x1="0" y1="0" x2="1" y2="1">
                                        <stop offset="0%" stopColor="#1a2a3a" />
                                        <stop offset="100%" stopColor="#0d1520" />
                                    </linearGradient>
                                    <linearGradient id="screenGrad" x1="0" y1="0" x2="0" y2="1">
                                        <stop offset="0%" stopColor="#0a1628" />
                                        <stop offset="100%" stopColor="#0f2038" />
                                    </linearGradient>
                                    <linearGradient id="ledBlue" x1="0" y1="0" x2="1" y2="0">
                                        <stop offset="0%" stopColor="#00d4aa">
                                            <animate attributeName="stopColor" values="#00d4aa;#6366f1;#00d4aa...
                                        </stop>
                                        <stop offset="100%" stopColor="#6366f1">
                                            <animate attributeName="stopColor" values="#6366f1;#a855f7;#6366f1...
                                        </stop>
                                    </linearGradient>
                                    <filter id="glow">
                                        <feGaussianBlur stdDeviation="2" result="blur" />
                                        <feMerge><feMergeNode in="blur" /><feMergeNode in="SourceGraphic" /></...
                                    </filter>
                                    <filter id="screenGlow">
                                        <feGaussianBlur stdDeviation="4" result="blur" />
                                        <feMerge><feMergeNode in="blur" /><feMergeNode in="SourceGraphic" /></...
                                    </filter>
                                </defs>

                                {/* MONITOR STAND */}
                                <rect x="145" y="125" width="30" height="8" rx="2" fill="#1a2a3a" />
                                <rect x="155" y="133" width="10" height="12" rx="1" fill="#141e2c" />

                                {/* MONITOR BODY */}
                                <rect x="60" y="20" width="200" height="115" rx="6" fill="#1a2a3a" stroke="#2a...
                                <rect x="68" y="28" width="184" height="99" rx="3" fill="url(#screenGrad)" />

                                {/* SCREEN CONTENT - animated code lines */}
                                {[0, 1, 2, 3, 4, 5].map(i => (
                                    <rect key={i} x="78" y={35 + i * 15} width={60 + Math.random() * 80} heigh...
                                        <animate attributeName="opacity" values={`${0.1 + i * 0.05};${0.3 + i ...
                                    </rect>
                                ))}
                                <rect x="78" y="110" width="100" height="3" rx="1.5" fill="#00d4aa" opacity="0...
                                    <animate attributeName="width" values="100;20;100" dur="2s" repeatCount="i...
                                </rect>
                                <rect x="160" y="110" width="15" height="3" rx="1.5" fill="#00d4aa" opacity="0...
                                    <animate attributeName="opacity" values="0.6;1;0.6" dur="1s" repeatCount="...
                                </rect>

                                {/* SCREEN GLOW */}
                                <rect x="68" y="28" width="184" height="99" rx="3" fill="none" stroke="#00d4aa...
                                    <animate attributeName="opacity" values="0.2;0.5;0.2" dur="2s" repeatCount...
                                </rect>

                                {/* PC CASE */}
                                <rect x="50" y="148" width="120" height="28" rx="4" fill="url(#caseGrad)" stro...

                                {/* CASE LED STRIP */}
                                <rect x="52" y="148" width="116" height="3" rx="1.5" fill="url(#ledBlue)" filt...

                                {/* CASE FANS */}
                                {[70, 94, 118].map((cx, i) => (
                                    <g key={i} transform={`translate(${cx}, 162)`}>
                                        <circle r="8" fill="none" stroke="#253545" strokeWidth="1" />
                                        <g>
                                            <animateTransform attributeName="transform" type="rotate" from="0"...
                                            {[0, 120, 240].map(angle => (
                                                <line key={angle} x1="0" y1="0" x2="0" y2="-7" stroke="#00d4aa...
                                                    <animate attributeName="opacity" values="0.5;1;0.5" dur={`...
                                                </line>
                                            ))}
                                        </g>
                                    </g>
                                ))}

                                {/* GPU */}
                                <rect x="158" y="155" width="50" height="18" rx="2" fill="#1a1a2e" stroke="#a8...
                                    <animate attributeName="stroke-opacity" values="0.3;0.8;0.3" dur="1.5s" re...
                                </rect>
                                <text x="162" y="167" fill="#a855f7" fontSize="5" fontWeight="700" letterSpaci...

                                {/* RAM */}
                                {[210, 220].map((rx, i) => (
                                    <rect key={i} x={rx} y="158" width="6" height="14" rx="1" fill="#0d1520" s...
                                        <animate attributeName="stroke-opacity" values="0.3;0.9;0.3" dur={`${1...
                                    </rect>
                                ))}

                                {/* POWER LED */}
                                <circle cx="55" cy="163" r="1.5" fill="#00d4aa" filter="url(#glow)">
                                    <animate attributeName="r" values="1.5;2.5;1.5" dur="1s" repeatCount="inde...
                                </circle>

                                {/* RIGHT SIDE decorative dots */}
                                {[0, 1, 2].map(i => (
                                    <circle key={`dot-${i}`} cx={240 + i * 12} cy={154 + i * 8} r="1.5" fill="...
                                        <animate attributeName="opacity" values="0.2;0.8;0.2" dur={`${1.5 + i ...
                                    </circle>
                                ))}

                                {/* WAVES below */}
                                <path d="M50,178 Q80,172 110,178 Q140,184 170,178" fill="none" stroke="#00d4aa...
                                    <animate attributeName="d" values="M50,178 Q80,172 110,178 Q140,184 170,17...
                                </path>
                            </svg>
                            <div style={{
                                position: 'absolute', bottom: '14px', left: '50%', transform: 'translateX(-50%...
                                padding: '6px 16px', borderRadius: '99px',
                                background: 'rgba(0,0,0,0.7)', backdropFilter: 'blur(8px)',
                                border: '1px solid rgba(0,212,170,0.2)',
                                display: 'flex', alignItems: 'center', gap: '6px',
                            }}>
                                <Cpu size={12} color="#00d4aa" />
                                <span style={{ fontSize: '11px', fontWeight: 700, color: '#fff', letterSpacing...
                                    PC LAB 2D
                                </span>
                            </div>
                        </motion.div>
                    </motion.div>
                </div>
            </section>

            <section style={{ padding: '80px 24px', background: 'linear-gradient(to bottom, #0a0a0c, #050507)'...
                <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
                    <div style={{ textAlign: 'center', marginBottom: '80px' }}>
```

```
267|                        <div style={{ display: 'inline-flex', alignItems: 'center', gap: '12px', padding: '10p...
   2 6 8 |                                                  < A w a r d   s i z e = { 1 6 }   / >     Ø I   N G h   G I Á O   V I Ê N
269|                        </div>
270|                        <h2 style={{ fontSize: 'clamp(32px, 5vw, 48px)', fontWeight: 900, letterSpacing: '-0.0...
271|                            Giáo Viên <span style={{ color: 'var(--brand-primary)', background: 'linear-gradie...
272|                        </h2>
273|                        <p style={{ color: 'rgba(255,255,255,0.4)', fontSize: '16px', marginTop: '16px', maxWi...
   2 7 4 |                                                  N h ï n g   n g ° Ý i   t - n   t â m   h ° Ủ n g   d « n   v à   t r u y Á n   c £ m
275|                        </p>
276|                    </div>
277|
278|                    <div style={{ display: 'flex', flexWrap: 'wrap', justifyContent: 'center', gap: '80px', ma...
   2 7 9 |                                              { / *   G i á o   v i ê n   1 :   T r § n   M i n h   P h ả n g   * / }
280|                        <div style={{ textAlign: 'center', width: '320px' }}>
281|                            <div style={{
282|                                position: 'relative', width: '220px', height: '220px',
283|                                margin: '0 auto 32px', borderRadius: '50%', overflow: 'hidden',
284|                                border: '3px solid rgba(0, 212, 170, 0.3)', background: '#0a0a0c',
285|                                boxShadow: '0 0 40px rgba(0, 212, 170, 0.15), inset 0 0 40px rgba(0, 212, 170,...
286|                                transition: 'all 0.4s ease',
287|                            }}
288|                            onMouseEnter={e => { e.currentTarget.style.transform = 'scale(1.05)'; e.currentTar...
289|                            onMouseLeave={e => { e.currentTarget.style.transform = 'scale(1)'; e.currentTarget...
290|                            >
291|                                <img
292|                                    src="/teacher-phung.png"
   2 9 3 |                                                  a l t = " T r § n   M i n h   P h ả n g "
294|                                    style={{ width: '100%', height: '100%', objectFit: 'cover', display: 'bloc...
295|                                />
296|                                <div style={{ position: 'absolute', bottom: '8px', right: '8px', width: '36px'...
297|                                    <ShieldCheck size={18} color="#fff" />
298|                                </div>
299|                            </div>
300|                            <h3 style={{ fontSize: '26px', fontWeight: 800, margin: '0 0 6px', background: 'li...
301|                            <p style={{ fontSize: '14px', color: 'var(--brand-primary)', margin: '0 0 8px', fo...
302|                            <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.3)', margin: 0, fontStyle...
303|                        </div>
304|
   3 0 5 |                                              { / *   G i á o   v i ê n   2 :   o à n   T h ả y   K i m   P h ° ã n g   * / }
306|                        <div style={{ textAlign: 'center', width: '320px' }}>
307|                            <div style={{
308|                                position: 'relative', width: '220px', height: '220px',
309|                                margin: '0 auto 32px', borderRadius: '50%', overflow: 'hidden',
310|                                border: '3px solid rgba(0, 243, 255, 0.3)', background: '#0a0a0c',
311|                                boxShadow: '0 0 40px rgba(0, 243, 255, 0.15), inset 0 0 40px rgba(0, 243, 255,...
312|                                transition: 'all 0.4s ease',
313|                            }}
314|                            onMouseEnter={e => { e.currentTarget.style.transform = 'scale(1.05)'; e.currentTar...
315|                            onMouseLeave={e => { e.currentTarget.style.transform = 'scale(1)'; e.currentTarget...
316|                            >
317|                                <img
318|                                    src="/teacher-phuong.png"
   3 1 9 |                                                  a l t = "   o à n   T h ả y   K i m   P h ° ã n g "
320|                                    style={{ width: '100%', height: '100%', objectFit: 'cover', display: 'bloc...
321|                                />
322|                                <div style={{ position: 'absolute', bottom: '8px', right: '8px', width: '36px'...
323|                                    <ShieldCheck size={18} color="#000" />
324|                                </div>
325|                            </div>
326|                            <h3 style={{ fontSize: '26px', fontWeight: 800, margin: '0 0 6px', background: 'li...
327|                            <p style={{ fontSize: '14px', color: '#00f3ff', margin: '0 0 8px', fontWeight: 600...
328|                            <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.3)', margin: 0, fontStyle...
329|                        </div>
330|                    </div>
331|
332|                    <section style={{ padding: '80px 24px' }}>
333|                        <div style={{ textAlign: 'center', marginBottom: '80px' }}>
334|                            <div style={{ display: 'inline-flex', alignItems: 'center', gap: '12px', padding: ...
   3 3 5 |                                                  < U s e r s   s i z e = { 1 6 }   / >     Ø I   N G h   P H Á T   T R I Â N
336|                            </div>
337|                            <h2 style={{ fontSize: 'clamp(32px, 5vw, 48px)', fontWeight: 900, letterSpacing: '...
   3 3 8 |                                                  Ù i   N g i   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - b r a
339|                            </h2>
340|                            <p style={{ color: 'rgba(255,255,255,0.4)', fontSize: '16px', marginTop: '16px', m...
   3 4 1 |                                                  N h ï n g   c o n   n g ° Ý i   t â m   h u y ¿ t   t ¡ o   n ê n   P C   M a s
342|                            </p>
343|                        </div>
344|
345|                        {loading ? (
346|                            <div style={{ textAlign: 'center' }}><Loader2 className="animate-spin" size={40} c...
347|                        ) : (
348|                            <div style={{ display: 'flex', flexWrap: 'wrap', justifyContent: 'center', gap: '6...
349|                                {team.map((member, idx) => {
   3 5 0 |                                                  c o n s t   i s K h a n g O r A n   =   m e m b e r . f u l l _ n a m e
351|                                    const borderGradients = [
352|                                        'linear-gradient(135deg, #00d4aa, #00f3ff)',
353|                                        'linear-gradient(135deg, #ffb900, #ff8b00)',
354|                                        'linear-gradient(135deg, #a78bfa, #6366f1)',
355|                                        'linear-gradient(135deg, #f472b6, #ec4899)',
356|                                    ];
357|                                    return (
358|                                        <div key={member.id} style={{ textAlign: 'center', width: '320px' }}>
359|                                            <div style={{
360|                                                position: 'relative', width: '280px', height: '280px',
361|                                                margin: '0 auto 28px', borderRadius: '40px', overflow: 'hidden',
362|                                                border: '2px solid rgba(255,255,255,0.1)', background: '#0a0a0c',
363|                                                transition: 'all 0.4s cubic-bezier(0.4, 0, 0.2, 1)',
364|                                                boxShadow: '0 8px 32px rgba(0,0,0,0.3)',
365|                                            }}
366|                                            onMouseEnter={e => { e.currentTarget.style.transform = 'translateY...
367|                                            onMouseLeave={e => { e.currentTarget.style.transform = 'translateY...
368|                                            >
369|                                                <img src={member.image_url} alt={member.full_name} style={{ wi...
370|                                                <div style={{
371|                                                    position: 'absolute', bottom: 0, left: 0, right: 0,
372|                                                    background: 'linear-gradient(to top, rgba(0,0,0,0.8) 0%, t...
373|                                                    padding: '24px 16px 16px',
374|                                                    display: 'flex', flexDirection: 'column', alignItems: 'cen...
375|                                                }}>
376|                                                    <span style={{
377|                                                        padding: '4px 14px', borderRadius: '99px',
378|                                                        background: 'rgba(0,212,170,0.2)', color: '#00d4aa',
379|                                                        fontSize: '11px', fontWeight: 700, letterSpacing: '1px',
380|                                                    }}>
381|                                                        {member.role || 'Thành viên'}
382|                                                    </span>
383|                                                </div>
384|                                            </div>
385|                                            <h3 style={{ fontSize: '22px', fontWeight: 800, margin: '0 0 4px',...
386|                                            <div style={{ width: '40px', height: '3px', background: borderGrad...
387|                                        </div>
388|                                    );
389|                                })}
390|                            </div>
```

```
391|                        )}
392|                    </section>
393|                </div>
394|            </section>
395|
396|            <section style={{ padding: '100px 24px', background: 'linear-gradient(to bottom, #050507, #0a0a0c)...
397|                <div style={{ maxWidth: '1200px', margin: '0 auto' }}>
398|                    <div style={{ textAlign: 'center', marginBottom: '60px' }}>
399|                        <div style={{ display: 'inline-flex', alignItems: 'center', gap: '12px', padding: '10p...
   4 0 0 |                                                  < M a p P i n   s i z e = { 1 6 }   / >   L I Ê N   H Æ
401|                        </div>
402|                        <h2 style={{ fontSize: 'clamp(28px, 4vw, 42px)', fontWeight: 900, letterSpacing: '-0.0...
   4 0 3 |                                                 T R   Ù N G   T H P T   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - b r a
404|                        </h2>
405|                    </div>
406|
407|                    <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(350px, 1fr))'...
408|                        <div>
409|                            <div style={{ padding: '32px', borderRadius: '24px', background: 'rgba(255,255,255...
410|                                <div style={{ display: 'flex', flexDirection: 'column', gap: '20px' }}>
411|                                    <div style={{ display: 'flex', gap: '16px', alignItems: 'flex-start' }}>
412|                                        <div style={{ width: '44px', height: '44px', borderRadius: '12px', bac...
413|                                            <MapPin color="var(--brand-primary)" size={20} />
414|                                        </div>
415|                                        <div>
416|                                            <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.3)', font...
417|                                            <p style={{ fontSize: '16px', fontWeight: 600, margin: 0, color: '...
418|                                        </div>
419|                                    </div>
420|                                    <div style={{ display: 'flex', gap: '16px', alignItems: 'flex-start' }}>
421|                                        <div style={{ width: '44px', height: '44px', borderRadius: '12px', bac...
422|                                            <Phone color="#00f3ff" size={20} />
423|                                        </div>
424|                                        <div>
425|                                            <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.3)', font...
426|                                            <p style={{ fontSize: '16px', fontWeight: 600, margin: 0, color: '...
427|                                        </div>
428|                                    </div>
429|                                    <div style={{ display: 'flex', gap: '16px', alignItems: 'flex-start' }}>
430|                                        <div style={{ width: '44px', height: '44px', borderRadius: '12px', bac...
431|                                            <Mail color="#a78bfa" size={20} />
432|                                        </div>
433|                                        <div>
434|                                            <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.3)', font...
435|                                            <p style={{ fontSize: '16px', fontWeight: 600, margin: 0, color: '...
436|                                        </div>
437|                                    </div>
438|                                    <a href="https://maps.app.goo.gl/CDytzt1bYAJ7zVew7" target="_blank"
439|                                        style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', pad...
   4 4 0 |                                                                    < E x t e r n a l L i n k   s i z e = { 1 8 }   / >   M Þ   T P
441|                                    </a>
442|                                </div>
443|                            </div>
444|                        </div>
445|
446|                        <div style={{ height: '450px', borderRadius: '32px', overflow: 'hidden', border: '1px ...
447|                            <iframe
448|                                src="https://www.google.com/maps/embed?pb=!1m14!1m8!1m3!1d979.2117895773255!2d...
449|                                width="100%" height="100%" style={{ border: 0, borderRadius: '32px' }}
450|                                allowFullScreen={true} loading="lazy" referrerPolicy="no-referrer-when-downgrade"
451|                            ></iframe>
452|                            <div style={{ position: 'absolute', top: '12px', left: '12px', padding: '6px 14px'...
   4 5 3 |                                                        Ø<ßë   T H P T   N g u y Ã n   C ô n g   T r é
454|                            </div>
455|                        </div>
456|                    </div>
457|                </div>
458|            </section>
459|
460|            <footer style={{ padding: '60px 24px 60px', background: '#050507', borderTop: '1px solid rgba(255,...
461|                <div style={{ maxWidth: '900px', margin: '0 auto' }}>
   4 6 2 |                                  < C o l l a p s i b l e G r o u p   t i t l e = " T á c   g i £   &   G i á o   v i ê n   h ° Û n g   c
463|                        <div style={{ display: 'flex', justifyContent: 'center', gap: '32px', flexWrap: 'wrap'...
464|                            <div style={{ textAlign: 'center', minWidth: '160px' }}>
465|                                <p style={{ fontSize: '13px', fontWeight: 700, color: '#fff', margin: '0 0 4px...
466|                                <p style={{ fontSize: '11px', color: 'rgba(255,255,255,0.3)', margin: 0 }}>Dev...
467|                            </div>
468|                            <div style={{ width: '1px', background: 'rgba(255,255,255,0.08)', alignSelf: 'stre...
469|                            <div style={{ textAlign: 'center', minWidth: '160px' }}>
470|                                <p style={{ fontSize: '13px', fontWeight: 700, color: '#fff', margin: '0 0 4px...
471|                                <p style={{ fontSize: '11px', color: 'rgba(255,255,255,0.3)', margin: 0 }}>GV ...
472|                            </div>
473|                            <div style={{ width: '1px', background: 'rgba(255,255,255,0.08)', alignSelf: 'stre...
474|                            <div style={{ textAlign: 'center', minWidth: '160px' }}>
475|                                <p style={{ fontSize: '13px', fontWeight: 700, color: '#fff', margin: '0 0 4px...
476|                                <p style={{ fontSize: '11px', color: 'rgba(255,255,255,0.3)', margin: 0 }}>GV ...
477|                            </div>
478|                        </div>
479|                    </CollapsibleGroup>
480|                    <div style={{ marginTop: '24px', paddingTop: '24px', borderTop: '1px solid rgba(255,255,25...
481|                        <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.2)', margin: 0, textAlign: 'c...
   4 8 2 |                                                  ©   { n e w   D a t e ( ) . g e t F u l l Y e a r ( ) }   P C   M a s t e r   B u i l d
483|                        </p>
484|                    </div>
485|                </div>
486|            </footer>
487|
488|            <style>{`
489|                @keyframes floatBounce {
490|                    0%, 100% { transform: translateY(0); }
491|                    50% { transform: translateY(-6px); }
492|                }
493|                @keyframes floatRotate {
494|                    from { transform: rotate(0deg); }
495|                    to { transform: rotate(360deg); }
496|                }
497|                @keyframes pulseDot {
498|                    0%, 100% { opacity: 0.3; }
499|                    50% { opacity: 0.8; }
500|                }
501|                @keyframes fadeInLeft {
502|                    from { opacity: 0; transform: translateX(-24px); }
503|                    to { opacity: 1; transform: translateX(0); }
504|                }
505|                @keyframes fadeInRight {
506|                    from { opacity: 0; transform: translateX(24px); }
507|                    to { opacity: 1; transform: translateX(0); }
508|                }
509|                @keyframes aboutShowcaseGlow {
510|                    0%, 100% { opacity: 0.3; }
511|                    50% { opacity: 0.9; }
512|                }
513|            `}</style>
514|        </div>
```

```
  515|     );
  516| }
  517|
```

File: app/actions/auth.ts (82 lines, 2.3 KB)

```
    1| 'use server'
    2|
    3| import { createClient } from '@/lib/supabase-ssr-server'
    4| import { revalidatePath } from 'next/cache'
    5|
    6| interface RegisterInput {
    7|   role: 'student' | 'teacher' | 'parent'
    8|   full_name: string
    9|   email: string
   10|   password: string
   11|   school_name?: string
   12|   student_code?: string
   13| }
   14|
   15| export async function registerAction(formData: RegisterInput) {
   16|   const { role, full_name, email, password, school_name, student_code } = formData
   17|
   18|   if (!email || !password || !full_name || !role) {
      1 9 |          r e t u r n   {   e r r o r :   ' V u i   l ò n g    i Á n    § y    ç   t h ô n g   t i n   b ¯ t   b u Ù c '   }
   20|   }
   21|
   22|   if (password.length < 8) {
      2 3 |          r e t u r n   {   e r r o r :   ' M - t   k h © u   p h £ i   c ó   í t   n h ¥ t   8   k ý   t ñ '   }
   24|   }
   25|   if (!/[A-Z]/.test(password)) {
      2 6 |          r e t u r n   {   e r r o r :   ' M - t   k h © u   p h £ i   c h é a   í t   n h ¥ t   1   c h ï   h o a '   }
   27|   }
   28|   if (!/[0-9]/.test(password)) {
      2 9 |          r e t u r n   {   e r r o r :   ' M - t   k h © u   p h £ i   c h é a   í t   n h ¥ t   1   s Ñ '   }
   30|   }
   31|
   32|   const supabase = await createClient()
   33|
   34|   const { data: authData, error: authError } = await supabase.auth.signUp({
   35|     email,
   36|     password,
   37|     options: {
   38|       data: { full_name, role },
   39|       emailRedirectTo: `${process.env.NEXT_PUBLIC_SITE_URL || 'http://localhost:3000'}/auth/callback`
   40|     }
   41|   })
   42|
   43|   if (authError) {
   44|     let msg = authError.message
   45|     if (msg.toLowerCase().includes('already registered') || msg.toLowerCase().includes('already exists')) {
      4 6 |               m s g   =   ' E m a i l   n à y    ã    ° ã c      n g   k ý .   V u i   l ò n g   s í   d ẵ n g   e m a i l   k h á c   h o · c
   47|     }
   48|     return { error: msg }
   49|   }
   50|
   51|   if (authData.user) {
   52|     const { error: profileError } = await supabase.from('profiles').upsert({
   53|       id: authData.user.id,
   54|       email,
   55|       full_name,
   56|       role,
   57|       school_name: school_name ?? null,
   58|     })
   59|
   60|     if (profileError) {
   61|       console.error('Profile creation error:', profileError)
   62|     }
   63|
   64|     if (role === 'parent' && student_code) {
   65|       const { data: student } = await supabase
   66|         .rpc('find_student_by_code', { input_code: student_code })
   67|
   68|       if (student && student.length > 0) {
   69|         await supabase.from('parent_student_links').insert({
   70|           parent_id: authData.user.id,
   71|           student_id: student[0].student_id,
   72|           status: 'pending'
   73|         })
   74|       }
   75|     }
   76|   }
   77|
   78|   revalidatePath('/', 'layout')
   79|
   80|   return { success: true, requireEmailConfirm: true }
   81| }
   82|
```

File: app/actions/exam.ts (266 lines, 7.3 KB)

```
    1| 'use server'
    2|
    3| import { createClient } from '@/lib/supabase-ssr-server'
    4| import { revalidatePath } from 'next/cache'
    5|
    6| async function getAuthUser(supabase: any) {
    7|   const { data: { user } } = await supabase.auth.getUser()
    8|   if (!user) throw new Error('Unauthorized')
    9|   return user
   10| }
   11|
   12| export async function getTeacherExams() {
   13|   const supabase = await createClient()
   14|   const user = await getAuthUser(supabase)
   15|
   16|   const { data: exams } = await supabase
   17|     .from('quizzes')
   18|     .select(`
   19|       *,
   20|       classes!left (name, code),
   21|       lessons!left (title),
   22|       quiz_attempts!left (id, score, student_id, status)
   23|     `)
   24|     .eq('teacher_id', user.id)
   25|     .order('created_at', { ascending: false })
   26|
   27|   if (!exams) return []
   28|
   29|   return exams.map((e: any) => {
   30|     const total = e.quiz_attempts?.length || 0
```

```
31|     const done = e.quiz_attempts?.filter((a: any) => a.status !== 'in_progress')?.length || 0
32|     const avgScore = done > 0
33|       ? Math.round(e.quiz_attempts.filter((a: any) => a.status !== 'in_progress').reduce((s: number, a: any) =...
34|       : 0
35|     return { ...e, _stats: { total, done, avgScore } }
36|   })
37| }
38|
39| export async function getTeacherExam(examId: string) {
40|   const supabase = await createClient()
41|   const user = await getAuthUser(supabase)
42|
43|   const { data: exam } = await supabase
44|     .from('quizzes')
45|     .select(`
46|       *,
47|       classes!left (name, code),
48|       lessons!left (title)
49|     `)
50|     .eq('id', examId)
51|     .eq('teacher_id', user.id)
52|     .single()
53|
    5 4 |       i f   ( ! e x a m )   t h r o w   n e w   E r r o r ( ' K h ô n g   t ì m   t h ¥ y     Á   t h i ' )
55|
56|   const { data: questions } = await supabase
57|     .from('quiz_questions')
58|     .select(`
59|       order,
60|       questions!inner (
61|         id, content, type, points, difficulty, explanation,
62|         question_options (id, content, is_correct, "order")
63|       )
64|     `)
65|     .eq('quiz_id', examId)
66|     .order('order')
67|
68|   const { data: attempts } = await supabase
69|     .from('quiz_attempts')
70|     .select(`
71|       *,
72|       profiles!inner (id, full_name, email),
73|       quiz_answers (id, question_id, selected_option_ids, is_correct, points_earned)
74|     `)
75|     .eq('quiz_id', examId)
76|     .order('started_at', { ascending: false })
77|
78|   return { ...exam, questions: questions?.map((q: any) => q.questions) || [], attempts: attempts || [] }
79| }
80|
81| export async function createExam(data: {
82|   title: string
83|   description: string
84|   classId: string
85|   lessonId?: string
86|   timeLimitMinutes: number
87|   passingScore: number
88|   maxAttempts: number
89|   availableFrom?: string
90|   availableUntil?: string
91|   requireCamera?: boolean
92| }) {
93|   const supabase = await createClient()
94|   const user = await getAuthUser(supabase)
95|
96|   const { data: exam, error } = await supabase
97|     .from('quizzes')
98|     .insert({
99|       teacher_id: user.id,
100|       title: data.title,
101|       description: data.description,
102|       class_id: data.classId,
103|       lesson_id: data.lessonId || null,
104|       time_limit_minutes: data.timeLimitMinutes,
105|       passing_score: data.passingScore,
106|       max_attempts: data.maxAttempts,
107|       available_from: data.availableFrom || null,
108|       available_until: data.availableUntil || null,
109|       is_published: false
110|     })
111|     .select()
112|     .single()
113|
114|   if (error) throw error
115|   revalidatePath('/teacher/exams')
116|   return exam
117| }
118|
119| export async function updateExam(examId: string, data: {
120|   title?: string
121|   description?: string
122|   timeLimitMinutes?: number
123|   passingScore?: number
124|   maxAttempts?: number
125|   availableFrom?: string
126|   availableUntil?: string
127| }) {
128|   const supabase = await createClient()
129|   await getAuthUser(supabase)
130|
131|   const { error } = await supabase
132|     .from('quizzes')
133|     .update(data)
134|     .eq('id', examId)
135|
136|   if (error) throw error
137|   revalidatePath('/teacher/exams')
138|   return { success: true }
139| }
140|
141| export async function deleteExam(examId: string) {
142|   const supabase = await createClient()
143|   await getAuthUser(supabase)
144|
145|   const { error } = await supabase
146|     .from('quizzes')
147|     .delete()
148|     .eq('id', examId)
149|
150|   if (error) throw error
151|   revalidatePath('/teacher/exams')
152|   return { success: true }
153| }
154|
```

```
155| export async function publishExam(examId: string, publish: boolean) {
156|   const supabase = await createClient()
157|   const user = await getAuthUser(supabase)
158|
159|   const { data: exam } = await supabase
160|     .from('quizzes')
161|     .select('*')
162|     .eq('id', examId)
163|     .single()
164|
165|     if (!exam) throw new Error('Không tìm thấy Á thi')
166|
167|   const { error } = await supabase
168|     .from('quizzes')
169|     .update({ is_published: publish })
170|     .eq('id', examId)
171|
172|   if (error) throw error
173|
174|   if (publish && exam.class_id) {
175|     const { data: members } = await supabase
176|       .from('class_members')
177|       .select('student_id')
178|       .eq('class_id', exam.class_id)
179|
180|     if (members && members.length > 0) {
181|       const notifications = members.map((m: any) => ({
182|         user_id: m.student_id,
183|         type: 'exam_published',
184|                 title: `Á thi mÛi: ${exam.title}`,
185|                 body: `${exam.description || 'MÙt Á thi mÛi ã °ãc mß.'} · ${e
186|         action_url: `/student/quiz/${exam.id}`,
187|         data: { quizId: exam.id }
188|       }))
189|       await supabase.from('notifications').insert(notifications)
190|     }
191|   }
192|
193|   revalidatePath('/teacher/exams')
194|   return { success: true }
195| }
196|
197| export async function addQuestionToExam(data: {
198|   examId: string
199|   content: string
200|   type: 'single_choice' | 'multiple_choice' | 'true_false' | 'fill_blank'
201|   points: number
202|   difficulty?: string
203|   explanation?: string
204|   options: { content: string; isCorrect: boolean }[]
205| }) {
206|   const supabase = await createClient()
207|   await getAuthUser(supabase)
208|
209|   const { data: question, error: qErr } = await supabase
210|     .from('questions')
211|     .insert({
212|       content: data.content,
213|       type: data.type,
214|       points: data.points,
215|       difficulty: data.difficulty || 'medium',
216|       explanation: data.explanation || null
217|     })
218|     .select()
219|     .single()
220|
221|   if (qErr || !question) throw qErr
222|
223|   if (data.options && data.options.length > 0) {
224|     const optionRows = data.options.map((opt: any, i: number) => ({
225|       question_id: question.id,
226|       content: opt.content,
227|       is_correct: opt.isCorrect,
228|       order: i
229|     }))
230|     const { error: optErr } = await supabase.from('question_options').insert(optionRows)
231|     if (optErr) throw optErr
232|   }
233|
234|   const { error: linkErr } = await supabase
235|     .from('quiz_questions')
236|     .insert({ quiz_id: data.examId, question_id: question.id, order: 0 })
237|
238|   if (linkErr) throw linkErr
239|   revalidatePath('/teacher/exams')
240|   return question
241| }
242|
243| export async function removeQuestionFromExam(questionId: string) {
244|   const supabase = await createClient()
245|   await getAuthUser(supabase)
246|   const { error } = await supabase.from('questions').delete().eq('id', questionId)
247|   if (error) throw error
248|   revalidatePath('/teacher/exams')
249|   return { success: true }
250| }
251|
252| export async function getExamRealtimeStats(examId: string) {
253|   const supabase = await createClient()
254|   const { data: attempts } = await supabase
255|     .from('quiz_attempts')
256|     .select(`
257|       id, student_id, score, max_score, status, started_at, submitted_at,
258|       profiles!inner (full_name, email),
259|       quiz_answers (question_id, is_correct, points_earned)
260|     `)
261|     .eq('quiz_id', examId)
262|     .order('started_at', { ascending: false })
263|
264|   return attempts || []
265| }
266|
```

File: app/actions/lessons.ts (69 lines, 2.0 KB)

```
1| 'use server'
2|
3| import { createClient } from '@/lib/supabase-ssr-server'
4| import { revalidatePath } from 'next/cache'
5|
6| export async function publishLessonAction(lessonId: string) {
7|   const supabase = await createClient()
8|   const { data: { user } } = await supabase.auth.getUser()
```

```
  9|
 10|   if (!user) return { error: 'Unauthorized' }
 11|
 12|   const { error } = await supabase
 13|     .from('lessons')
 14|     .update({ is_published: true })
 15|     .eq('id', lessonId)
 16|     .eq('teacher_id', user.id)
 17|
 18|   if (error) return { error: error.message }
 19|
 20|   revalidatePath(`/teacher/lessons/${lessonId}`)
 21|   revalidatePath('/teacher/lessons')
 22|   return { success: true }
 23| }
 24|
 25| export async function unpublishLessonAction(lessonId: string) {
 26|   const supabase = await createClient()
 27|   const { data: { user } } = await supabase.auth.getUser()
 28|
 29|   if (!user) return { error: 'Unauthorized' }
 30|
 31|   const { error } = await supabase
 32|     .from('lessons')
 33|     .update({ is_published: false })
 34|     .eq('id', lessonId)
 35|     .eq('teacher_id', user.id)
 36|
 37|   if (error) return { error: error.message }
 38|
 39|   revalidatePath(`/teacher/lessons/${lessonId}`)
 40|   revalidatePath('/teacher/lessons')
 41|   return { success: true }
 42| }
 43|
 44| export async function deleteLessonAction(lessonId: string) {
 45|   const supabase = await createClient()
 46|   const { data: { user } } = await supabase.auth.getUser()
 47|
 48|   if (!user) return { error: 'Unauthorized' }
 49|
 50|   await supabase.from('lesson_sections').delete().eq('lesson_id', lessonId)
 51|   await supabase.from('lesson_progress').delete().eq('lesson_id', lessonId)
 52|   await supabase.from('lesson_class_assignments').delete().eq('lesson_id', lessonId)
 53|   const { error } = await supabase
 54|     .from('lessons')
 55|     .delete()
 56|     .eq('id', lessonId)
 57|     .eq('teacher_id', user.id)
 58|
 59|   if (error) return { error: error.message }
 60|
 61|   revalidatePath('/teacher/lessons')
 62|   return { success: true }
 63| }
 64|
 65| export async function incrementViewCountAction(lessonId: string) {
 66|   const supabase = await createClient()
 67|   await supabase.rpc('increment_lesson_views', { lesson_id: lessonId })
 68| }
 69|
```

File: app/actions/profile.ts (88 lines, 2.7 KB)

```
  1| 'use server'
  2|
  3| import { createClient } from '@/lib/supabase-ssr-server'
  4| import { z } from 'zod'
  5| import { revalidatePath } from 'next/cache'
  6|
  7| export async function updateProfile(data: { full_name: string, bio: string, school: string, grade: string }) {
  8|   const supabase = await createClient()
  9|   const { data: { user } } = await supabase.auth.getUser()
 10|
 11|   if (!user) throw new Error('Unauthorized')
 12|
 13|   const { error } = await supabase
 14|     .from('profiles')
 15|     .update({
 16|       full_name: data.full_name,
 17|       bio: data.bio.slice(0, 200), // Max 200 chars
 18|       school: data.school,
 19|       grade: data.grade,
 20|       updated_at: new Date().toISOString()
 21|     })
 22|     .eq('id', user.id)
 23|
 24|   if (error) throw error
 25|   revalidatePath('/student/profile')
 26|   return { success: true }
 27| }
 28|
 29| export async function updatePreferences(data: { email_notifications: boolean, push_notifications: boolean, wee...
 30|   const supabase = await createClient()
 31|   const { data: { user } } = await supabase.auth.getUser()
 32|
 33|   if (!user) throw new Error('Unauthorized')
 34|
 35|   const { error } = await supabase
 36|     .from('user_preferences')
 37|     .upsert({
 38|       user_id: user.id,
 39|       email_notifications: data.email_notifications,
 40|       push_notifications: data.push_notifications,
 41|       weekly_digest: data.weekly_digest,
 42|       theme: data.theme,
 43|       language: data.language,
 44|       updated_at: new Date().toISOString()
 45|     })
 46|
 47|   if (error) throw error
 48|   revalidatePath('/student/profile')
 49|   return { success: true }
 50| }
 51|
 52| export async function changePassword(currentPassword: string, newPassword: string) {
 53|   const supabase = await createClient()
 54|
 55|   const { data: { user } } = await supabase.auth.getUser()
 56|   if (!user || !user.email) throw new Error('Unauthorized')
 57|
 58|   // Zod validation (Rule 5)
 59|   const passwordSchema = z.string()
```

```
    60 |          .min(8, 'Mật khẩu phải có ít nhất 8 ký tự')
    61 |          .regex(/[A-Z]/, 'Mật khẩu cần ít nhất 1 chữ cái in hoa')
    62 |          .regex(/[0-9]/, 'Mật khẩu cần ít nhất 1 chữ số')
   63|
   64|   const parseResult = passwordSchema.safeParse(newPassword)
   65|   if (!parseResult.success) {
   66|     throw new Error(parseResult.error.issues[0].message)
   67|   }
   68|
   69|   // 1. Re-authenticate user first (Rule 5)
   70|   const { error: authError } = await supabase.auth.signInWithPassword({
   71|     email: user.email,
   72|     password: currentPassword
   73|   })
   74|
   75|   if (authError) {
    76 |          throw new Error('Mật khẩu hiện tại không chính xác.')
   77|   }
   78|
   79|   // 2. Perform password update
   80|   const { error: updateError } = await supabase.auth.updateUser({
   81|     password: newPassword
   82|   })
   83|
   84|   if (updateError) throw updateError
   85|
   86|   return { success: true }
   87| }
   88|
```

File: app/actions/quiz.ts (378 lines, 11.5 KB)

```
==========================================================================================
    1| 'use server';
    2|
    3| import { createClient } from '@/lib/supabase-ssr-server';
    4| import { revalidatePath } from 'next/cache';
    5| import { z } from 'zod';
    6| import { shuffleArray, scoreQuestion, StudentAnswer } from '@/lib/quiz-engine';
    7|
    8| export async function getAuthUser(supabase: any) {
    9|   const { data: { user } } = await supabase.auth.getUser();
   10|   if (!user) throw new Error('Unauthorized');
   11|   return user;
   12| }
   13|
   14| export async function startQuizAttempt(quizId: string) {
   15|   const supabase = await createClient();
   16|   const user = await getAuthUser(supabase);
   17|
   18|   const { data: quiz, error: quizErr } = await supabase
   19|     .from('quizzes')
   20|     .select('*')
   21|     .eq('id', quizId)
   22|     .single();
   23|
    24 |      if (quizErr || !quiz) throw new Error('Không tìm thấy bài kiểm tra.');
    25 |      if (quiz.is_published === false) throw new Error('Bài kiểm tra chưa
   26|
   27|   const now = new Date();
    28 |      if (quiz.available_from && new Date(quiz.available_from) > now) throw
    29 |      if (quiz.available_until && new Date(quiz.available_until) < now) thro
   30|
   31|   // Check attempts
   32|   if (quiz.max_attempts) {
   33|     const { count } = await supabase
   34|       .from('quiz_attempts')
   35|       .select('*', { count: 'exact', head: true })
   36|       .eq('quiz_id', quizId)
   37|       .eq('student_id', user.id)
   38|       .not('status', 'eq', 'in_progress');
   39|
   40|     if (count !== null && count >= quiz.max_attempts) {
    41 |              throw new Error(`Bạn đã hết lượt làm bài. Tối đa: ${quiz.max_atte
   42|     }
   43|   }
   44|
   45|   // Find if already in progress
   46|   const { data: existingAttempt } = await supabase
   47|     .from('quiz_attempts')
   48|     .select('id')
   49|     .eq('quiz_id', quizId)
   50|     .eq('student_id', user.id)
   51|     .eq('status', 'in_progress')
   52|     .single();
   53|
   54|   let attemptId = existingAttempt?.id;
   55|
   56|   if (!attemptId) {
   57|     const { data: newAttempt, error: attemptError } = await supabase
   58|       .from('quiz_attempts')
   59|       .insert({
   60|         quiz_id: quizId,
   61|         student_id: user.id,
   62|         status: 'in_progress',
   63|         started_at: new Date().toISOString()
   64|       })
   65|       .select('id')
   66|       .single();
   67|
   68|     if (attemptError) throw attemptError;
   69|     attemptId = newAttempt.id;
   70|   }
   71|
   72|   // Get safe questions using the view
   73|   const { data: questions, error: qErr } = await supabase
   74|     .from('quiz_questions_for_student')
   75|     .select('*')
   76|     .eq('quiz_id', quizId)
   77|     .order('order', { ascending: true });
   78|
   79|   if (qErr) throw qErr;
   80|
   81|   let finalQuestions = questions || [];
   82|   if (quiz.randomize_questions) {
   83|     finalQuestions = shuffleArray(finalQuestions);
   84|   }
   85|
   86|   if (quiz.randomize_options) {
   87|     finalQuestions = finalQuestions.map((q: any) => ({
   88|       ...q,
   89|       options: shuffleArray(q.options || [])
   90|     }));
   91|   }
```

```
  92|
  93|   return { attemptId, questions: finalQuestions, timeLimit: quiz.time_limit_minutes };
  94| }
  95|
  96| export async function submitQuizAttempt(attemptId: string, answers: StudentAnswer[]) {
  97|   const supabase = await createClient();
  98|   const user = await getAuthUser(supabase);
  99|
 100|   const { data: attempt, error: attErr } = await supabase
 101|     .from('quiz_attempts')
 102|     .select('*, quizzes(id, max_attempts)')
 103|     .eq('id', attemptId)
 104|     .eq('student_id', user.id)
 105|     .single();
 106|
 107|     if (attErr || !attempt) throw new Error('Attempt không tÓn t¡i.');
 108|     if (attempt.status !== 'in_progress') throw new Error('Bài làm này ã
 109|
 110|   // Fetch full questions to grade
 111|   const questionIds = answers.map(a => a.questionId);
 112|   const { data: questions } = await supabase
 113|     .from('questions')
 114|     .select('id, type, points, question_options(id, is_correct, content, "order")')
 115|     .in('id', questionIds);
 116|
 117|   let totalScore = 0;
 118|   let totalMaxScore = 0;
 119|   const answerRecords = [];
 120|
 121|   for (const dbQ of (questions || [])) {
 122|     totalMaxScore += dbQ.points || 0;
 123|     const studentAns = answers.find(a => a.questionId === dbQ.id);
 124|     if (!studentAns) continue;
 125|
 126|     const pointsEarned = scoreQuestion(dbQ.type as any, studentAns, dbQ.question_options as any, dbQ.points ||...
 127|     totalScore += pointsEarned;
 128|     const isCorrect = pointsEarned > 0;
 129|
 130|     answerRecords.push({
 131|       attempt_id: attemptId,
 132|       question_id: dbQ.id,
 133|       selected_option_ids: studentAns.selectedOptionIds || null,
 134|       text_answer: studentAns.textAnswer || null,
 135|       ordering_answer: studentAns.orderingAnswer || null,
 136|       time_spent_seconds: studentAns.timeSpentSeconds || 0,
 137|       is_correct: isCorrect,
 138|       points_earned: pointsEarned
 139|     });
 140|   }
 141|
 142|   // Insert answers
 143|   if (answerRecords.length > 0) {
 144|     await supabase.from('quiz_answers').insert(answerRecords);
 145|   }
 146|
 147|   // Calculate final score
 148|   const finalScore = totalMaxScore > 0 ? (totalScore / totalMaxScore) * 100 : 0;
 149|
 150|   await supabase
 151|     .from('quiz_attempts')
 152|     .update({
 153|       score: finalScore,
 154|       max_score: totalMaxScore,
 155|       status: 'submitted',
 156|       submitted_at: new Date().toISOString()
 157|     })
 158|     .eq('id', attemptId);
 159|
 160|     // Gíi thông báo trñc ti¿p vào DB Ã kích ho¡t Realtime
 161|   await supabase.from('notifications').insert({
 162|     user_id: user.id,
 163|     type: 'quiz_graded',
 164|       title: 'Bài thi ã °ãc ch¥m iÃm!',
 165|       body: `B¡n ¡t ${finalScore.toFixed(1)}% iÃm. Click Ã xem chi ti¿t
 166|     action_url: `/student/quiz/${attemptId}/results`,
 167|     data: { quizId: attempt.quizzes.id, attemptId, score: finalScore }
 168|   });
 169|
 170|   revalidatePath(`/student/quiz/${attempt.quizzes.id}`);
 171|   return { attemptId, score: finalScore, redirect: `/student/quiz/${attemptId}/results` };
 172| }
 173|
 174| export async function expireQuizAttempt(attemptId: string, answers: StudentAnswer[]) {
 175|   // Similar to submit but sets status to expired
 176|   const res = await submitQuizAttempt(attemptId, answers);
 177|   const supabase = await createClient();
 178|   await supabase.from('quiz_attempts').update({ status: 'expired' }).eq('id', attemptId);
 179|   return res;
 180| }
 181|
 182| export async function createQuiz(data: {
 183|   title: string;
 184|   description: string;
 185|   timeLimitMinutes: number;
 186|   maxAttempts: number;
 187|   randomizeQuestions: boolean;
 188|   randomizeOptions: boolean;
 189|   classId?: string;
 190|   requireCamera?: boolean;
 191| }) {
 192|   const supabase = await createClient();
 193|   const user = await getAuthUser(supabase);
 194|
 195|   const { data: quiz, error } = await supabase
 196|     .from('quizzes')
 197|     .insert({
 198|       teacher_id: user.id,
 199|       title: data.title,
 200|       description: data.description,
 201|       time_limit_minutes: data.timeLimitMinutes,
 202|       max_attempts: data.maxAttempts,
 203|       randomize_questions: data.randomizeQuestions,
 204|       randomize_options: data.randomizeOptions,
 205|       class_id: data.classId || null,
 206|       require_camera: data.requireCamera || false,
 207|       is_published: false
 208|     })
 209|     .select()
 210|     .single();
 211|
 212|   if (error) throw error;
 213|   revalidatePath('/teacher/quiz');
 214|   return quiz;
 215| }
```

```
216|
217| export async function publishQuiz(quizId: string, isPublished: boolean) {
218|   const supabase = await createClient();
219|   const user = await getAuthUser(supabase);
220|
221|   const { data: quiz } = await supabase
222|     .from('quizzes')
223|     .select('*')
224|     .eq('id', quizId)
225|     .single();
226|
  2 2 7 |      i f   ( ! q u i z )   t h r o w   n e w   E r r o r ( ' K h ô n g   t ì m   t h ¥ y    Á   t h i . ' ) ;
228|
229|   const { error } = await supabase
230|     .from('quizzes')
231|     .update({ is_published: isPublished })
232|     .eq('id', quizId);
233|
234|   if (error) throw error;
235|
236|   // Auto-send notification when publishing to a class
237|   if (isPublished && quiz.class_id) {
238|     try {
239|       const { data: members } = await supabase
240|         .from('class_members')
241|         .select('student_id')
242|         .eq('class_id', quiz.class_id);
243|
244|       if (members && members.length > 0) {
245|         const notifications = members.map(m => ({
246|           user_id: m.student_id,
247|           type: 'quiz_published',
  2 4 8 |                      t i t l e :   `   Á   t h i   m Û i :   $ { q u i z . t i t l e } ` ,
  2 4 9 |                      b o d y :   ` $ { q u i z . d e s c r i p t i o n   | |   ' M Ù t    Á   t h i   m Û i    ã    ° ã c   m ß . ' }   T h Y
250|           action_url: quiz.require_camera ? `/exam/${quiz.id}/proctored` : `/student/quiz/${quiz.id}`,
251|           data: { quizId: quiz.id, teacherId: user.id, requireCamera: quiz.require_camera }
252|         }));
253|         await supabase.from('notifications').insert(notifications).select();
254|       }
255|     } catch (notifErr) {
256|       console.error('Notification error:', notifErr);
257|     }
258|   }
259|
260|   revalidatePath('/teacher/quiz');
261|   return { success: true };
262| }
263|
264| export async function deleteQuiz(quizId: string) {
265|   const supabase = await createClient();
266|   const user = await getAuthUser(supabase);
267|
268|   const { error } = await supabase
269|     .from('quizzes')
270|     .delete()
271|     .eq('id', quizId);
272|
273|   if (error) throw error;
274|   revalidatePath('/teacher/quiz');
275|   return { success: true };
276| }
277|
278| export async function addQuestionToQuiz(data: {
279|   quizId: string;
280|   content: string;
281|   type: 'multiple_choice' | 'true_false' | 'text' | 'ordering';
282|   points: number;
283|   order: number;
284|   options: { content: string; isCorrect: boolean; order: number }[];
285| }) {
286|   const supabase = await createClient();
287|
  2 8 8 |      / /   1 .   C h è n   c â u   h Ï i   v à o   b £ n g   q u e s t i o n s   ( k h ô n g   c h è n   q u i z _ i d   t r ñ c   t i ¿ p   v i
289|   const { data: question, error: qErr } = await supabase
290|     .from('questions')
291|     .insert({
292|       content: data.content,
293|       type: data.type,
294|       points: data.points,
295|       order: data.order
296|     })
297|     .select()
298|     .single();
299|
300|   if (qErr || !question) throw qErr;
301|
  3 0 2 |      / /   2 .   C h è n   c á c    á p   á n   l ñ a   c h Í n   v à o   b £ n g   q u e s t i o n _ o p t i o n s
303|   if (data.options && data.options.length > 0) {
304|     const optionRows = data.options.map(opt => ({
305|       question_id: question.id,
306|       content: opt.content,
307|       is_correct: opt.isCorrect,
308|       order: opt.order
309|     }));
310|
311|     const { error: optErr } = await supabase
312|       .from('question_options')
313|       .insert(optionRows);
314|
315|     if (optErr) throw optErr;
316|   }
317|
  3 1 8 |      / /   3 .   L i ê n   k ¿ t   c â u   h Ï i   v Û i    Á   t h i   t h ô n g   q u a   b £ n g   q u i z _ q u e s t i o n s   t r u n g
319|   const { error: qqErr } = await supabase
320|     .from('quiz_questions')
321|     .insert({
322|       quiz_id: data.quizId,
323|       question_id: question.id,
324|       order: data.order
325|     });
326|
327|   if (qqErr) throw qqErr;
328|
329|   revalidatePath('/teacher/quiz');
330|   return question;
331| }
332|
333| export async function deleteQuestion(questionId: string) {
334|   const supabase = await createClient();
335|   const { error } = await supabase
336|     .from('questions')
337|     .delete()
338|     .eq('id', questionId);
339|
```

```
  340|   if (error) throw error;
  341|   revalidatePath('/teacher/quiz');
  342|   return { success: true };
  343| }
  344|
  345| export async function sendClassNotification(classId: string, title: string, body: string, actionUrl: string = ...
  346|   const supabase = await createClient();
  347|   const user = await getAuthUser(supabase);
  348|
  349|   const { data: cls } = await supabase
  350|     .from('classes')
  351|     .select('name')
  352|     .eq('id', classId)
  353|     .single();
  354|
    3 5 5 |      i f   ( ! c l s )   t h r o w   n e w   E r r o r ( ' K h ô n g   t ì m   t h ¥ y   l Û p   h Í c . ' ) ;
  356|
  357|   const { data: members } = await supabase
  358|     .from('class_members')
  359|     .select('student_id')
  360|     .eq('class_id', classId);
  361|
  362|   if (!members || members.length === 0) return { success: true, count: 0 };
  363|
  364|   const notifications = members.map(m => ({
  365|     user_id: m.student_id,
  366|     type: 'class_announcement',
    3 6 7 |          t i t l e :   ` [ L Û p   $ { c l s . n a m e } ]   $ { t i t l e } ` ,
  368|     body: body,
  369|     action_url: actionUrl,
  370|     data: { classId, teacherId: user.id }
  371|   }));
  372|
  373|   const { error } = await supabase.from('notifications').insert(notifications);
  374|   if (error) throw error;
  375|
  376|   return { success: true, count: members.length };
  377| }
  378|
```

File: app/actions/trackingActions.ts (59 lines, 1.7 KB)

```
    1| 'use server'
    2|
    3| import { createClient } from '@/lib/supabase-ssr-server'
    4| import { redirect } from 'next/navigation'
    5|
    6| export async function completeLessonAction(lessonId: string) {
    7|   const supabase = await createClient()
    8|   const { data: { user } } = await supabase.auth.getUser()
    9|   if (!user) throw new Error('Unauthorized')
   10|
   11|   await supabase
   12|     .from('lesson_progress')
   13|     .upsert({
   14|       student_id: user.id,
   15|       lesson_id: lessonId,
   16|       status: 'completed',
   17|       completed_at: new Date().toISOString()
   18|     }, { onConflict: 'student_id,lesson_id' })
   19|
      2 0 |      / /   T r i g g e r   n o t i f i c a t i o n   "   ã   m ß   k h ó a   b à i   m Û i "   c a n   b e   h a n d l e d   h e r e
   21|
   22|   // For simplicity, redirecting to dashboard. In a real scenario, this could redirect to next lesson or quiz
   23|   redirect('/student')
   24| }
   25|
   26| export async function startBuilderSession(lessonId?: string) {
   27|   const supabase = await createClient()
   28|   const { data: { user } } = await supabase.auth.getUser()
   29|   if (!user) throw new Error('Unauthorized')
   30|
   31|   const { data, error } = await supabase
   32|     .from('builder_sessions')
   33|     .insert({
   34|       student_id: user.id,
   35|       lesson_id: lessonId || null,
   36|       started_at: new Date().toISOString()
   37|     })
   38|     .select('id')
   39|     .single()
   40|
   41|   if (error) throw error
   42|   return data.id
   43| }
   44|
   45| export async function endBuilderSession(sessionId: string, payload: any) {
   46|   const supabase = await createClient()
   47|   const { data: { user } } = await supabase.auth.getUser()
   48|   if (!user) throw new Error('Unauthorized')
   49|
   50|   await supabase
   51|     .from('builder_sessions')
   52|     .update({
   53|       ended_at: new Date().toISOString(),
   54|       ...payload
   55|     })
   56|     .eq('id', sessionId)
   57|     .eq('student_id', user.id)
   58| }
   59|
```

File: app/api/ai-guru/route.ts (43 lines, 1.9 KB)

```
    1| import { NextRequest, NextResponse } from 'next/server'
    2|
    3| export async function POST(request: NextRequest) {
    4|   try {
    5|     const { message, context } = await request.json()
    6|
    7|     const apiKey = process.env.GOOGLE_GEMINI_API_KEY || process.env.GEMINI_API_KEY
    8|     if (!apiKey) {
      9 |              r e t u r n   N e x t R e s p o n s e . j s o n ( {   r e s p o n s e :   '& þ   A P I   K e y   c h ° a   ° ã c   c ¥ u   h ì n
   10|     }
   11|
      1 2 |         c o n s t   s y s t e m P r o m p t _ =   ` B ¡ n   l à   A I   G u r u   c ç a   P C   M a s t e r   B u i l d e r   L M S   –   t r ã
      1 3 |   G i £ i   t h í c h   r õ   r à n g ,   n g ¯ n   g Í n   b ± n g   t i ¿ n g   V i Ç t .   T - p   t r u n g   v à o   k i ¿ n   t h é c   p h
      1 4 |   C o n t e x t   h i Ç n   t ¡ i :   $ { c o n t e x t   ? ?   ' a n g   h Ï c   v Á   t i n   h Í c   v à   l ¯ p   r á p   P C ' } `
   15|
   16|     const geminiRes = await fetch(
   17|       `https://generativelanguage.googleapis.com/v1/models/gemini-1.5-flash:generateContent?key=${apiKey}`,
```

```
18|      {
19|        method: 'POST',
20|        headers: { 'Content-Type': 'application/json' },
21|        body: JSON.stringify({
22|          contents: [{ role: 'user', parts: [{ text: `${systemPrompt}\n\
23|          generationConfig: { temperature: 0.7, maxOutputTokens: 1024 }
24|        })
25|      }
26|    )
27|
28|    if (!geminiRes.ok) {
29|      const errBody = await geminiRes.text()
30|      console.error('AI Guru API Error:', geminiRes.status, errBody)
31|      return NextResponse.json({ response: 'Xin l×i, AI ang g·p sñ cÑ.
32|    }
33|
34|    const data = await geminiRes.json()
35|    const responseText = data?.candidates?.[0]?.content?.parts?.[0]?.tex
36|
37|    return NextResponse.json({ response: responseText })
38|  } catch (error: any) {
39|    console.error('Error in AI Guru API Route:', error?.message || error)
40|    return NextResponse.json({ response: 'Xin l×i, hÇ thÑng AI ang b£o
41|  }
42| }
43|
```

File: app/api/ai/chat/route.ts (216 lines, 15.9 KB)

```
1| import { NextResponse } from 'next/server';
2| import { KEY_QUESTIONS } from '@/data/key-questions';
3|
4| const GROQ_API_KEY = () => process.env.GROQ_API_KEY || '';
5| const GROQ_API_URL = 'https://api.groq.com/openai/v1/chat/completions';
6| const GROQ_MODEL = 'llama-3.3-70b-versatile';
7|
8|  const SYSTEM_PROMPT = `B¡n là AI Guru - trã lý AI cça nÁn t£ng hÍc t-p
9|
10|  QUAN TRÌNG - LÌC TIN NH®N RÁC:
11|  - N¿u ng°Ýi dùng nh¯n tin vô ngh)a, spam ký tñ ng«u nhiên (vd: "aaaaa",
12|  - LÊch sñ nh°ng dét khoát: "&þ Trang web PC Master Builder là môi tr°Ýng
13|  - KHÔNG tr£ lÝi nÙi dung nh¡y c£m, không liên quan.
14|
15|  THÔNG TIN VÀ WEBSITE:
16|  - Tên: PC Master Builder - HÍc l¯p ráp PC & Tin hÍc
17|  - Ñi t°ãng: HÍc sinh phÕ thông, sinh viên, ng°Ýi yêu thích công nghÇ
18|  - NÙi dung chính: D¡y vÁ ph§n céng máy tính, l¯p ráp PC, ki¿n théc tin
19|
20|  CÁC TÍNH N NG CHÍNH:
21|  1. Bài gi£ng (Lessons): HÇ thÑng bài gi£ng vÁ ph§n céng PC gÓm video, te
22|  2. Thñc hành l¯p ráp (Builder): Phòng thñc hành PC Builder vÛi môi tr°Ýn
23|  3. Thi tr¯c nghiÇm (Quiz): Ngân hàng Á thi tr¯c nghiÇm vÁ ph§n céng, co
24|  4. Tra céu thu-t ngï: BÙ të iÃn thu-t ngï ph§n céng PC, tra céu trong
25|  5. LÙ trình hÍc t-p (Learning Path): LÙ trình hÍc °ãc AI cá nhân hóa
26|  6. LÛp hÍc (Classes): Giáo viên t¡o lÛp, hÍc sinh tham gia b±ng mã lÛp
27|  7. AI Guru: Chính là b¡n! Trã lý AI h× trã hÍc t-p
28|
29|  HÃY TR¢ LÙI:
30|  - Luôn tr£ lÝi b±ng ti¿ng ViÇt, giÍng thân thiÇn, nhiÇt tình
31|  - N¿u hÍc sinh hÏi vÁ cách sí dång tính n ng, hãy h°Ûng d«n cå thÃ tëng
32|  - N¿u hÏi vÁ ki¿n théc ph§n céng PC, hãy gi£i thích dÃ hiÃu, có ví då th
33|  - Giï câu tr£ lÝi ng¯n gÍn, súc tích, dÃ hiÃu vÛi hÍc sinh phÕ thông`;
34|
35| function fallbackReply(message: string): string {
36|   const lower = message.toLowerCase().trim()
37|
38|   // Filter random/nonsense messages
39|   const spamPattern = /^(.)\1{3,}$|^[a-z]{8,}$|^\d{6,}$|^(asdf|qwerty|te
40|   if (spamPattern.test(lower.replace(/\s/g, '')) && lower.length < 15) {
41|     return `&þ Trang web PC Master Builder là môi tr°Ýng hÍc t-p nghiêm
42|   }
43|
44|   if (lower.includes('xin chào') || lower.includes('hello') || lower.inc
45|     return `Chào b¡n! Ø=Þ Có iÁu gi tôi có thÃ giúp b¡n hôm nay không?\n
46|   }
47|
48|   if (lower.includes('quiz') || lower.includes('thi') || lower.includes(
49|     return `Ø=ÜÝ **VÁ tính n ng thi tr¯c nghiÇm (Quiz):**\n\n1. Vào **Ngân
50|   }
51|
52|   if (lower.includes('builder') || lower.includes('l¯p ráp') || lower.in
53|     return `Ø=Þàþ **VÁ phòng thñc hành l¯p ráp PC (Builder):**\n\n- ây la
54|   }
55|
56|   if (lower.includes('cpu') || lower.includes('vi xí lý') || lower.inclu
57|     return `Ø>Ýà **CPU (BÙ vi xí lý trung tâm):**\n\n- Là "bÙ nãO" cça máy
58|   }
59|
60|   if (lower.includes('gpu') || lower.includes('card Ó hÍa') || lower.in
61|     return `Ø<ß® **GPU (Card Ó hÍa):**\n\n- Xí lý hình £nh, render game,
62|   }
63|
64|   if (lower.includes('ram') || lower.includes('bÙ nhÛ') || lower.include
65|     return `Ø=Ü¾ **RAM (BÙ nhÛ trong):**\n\n- L°u dï liÇu t¡m thÝi cho CPU
66|   }
67|
68|   if (lower.includes('ngân sách') || lower.includes('budget') || lower.i
69|     return `Ø=Ü° **Ngân sách và Chã máy tính:**\n\n- M×i l§n làm quiz ¡t
70|   }
71|
72|   if (lower.includes('hÍc') || lower.includes('lesson') || lower.include
73|     return `Ø=ÜÚ **HÇ thÑng bài gi£ng:**\n\n- Vào måc **Student !' Lessons'
74|   }
75|
76|   if (lower.includes('  ng nh-p') || lower.includes('login') || lower.in
77|     return `Ø=Ý **  ng nh-p / Tài kho£n:**\n\n1. Nh¥n **  ng nh-p** ß gó
78|   }
79|
80|   if (lower.includes('c£m ¡n') || lower.includes('thank')) {
81|     return `Không có gì b¡n ¡i! Ø=Þ Có th¯c m¯c gì cé hÏi tôi nhé. Chúc b
82|   }
83|
84|   // Câu hÏi trÍng tâm theo chç Á bài gi£ng
85|   const topicMap: Record<string, string> = {
86|     'mainboard': 'Bo m¡ch chç', 'bo m¡ch chç': 'Bo m¡ch chç', 'main': 'B
87|     'l°u trï': 'L°u trï dï liÇu', 'ssd': 'L°u trï dï liÇu', 'hdd': 'L°u
88|     'l¯p ráp': 'Thñc hành l¯p ráp', 'build': 'Thñc hành l¯p ráp',
89|     'm¡ng': 'M¡ng & K¿t nÑi', 'wifi': 'M¡ng & K¿t nÑi', 'ethernet': 'M¡n
90|     'thi¿t bË ngo¡i vi': 'Thi¿t bË ngo¡i vi', 'chuÙt': 'Thi¿t bË ngo¡i v
91|     'khßi Ùng': 'HÇ thÑng khßi Ùng', 'bios': 'HÇ thÑng khßi Ùng', 'ue
92|     'công nghÇ màn hình': 'Công nghÇ màn hình', 'ips': 'Công nghÇ màn hi
93|     'âm thanh': 'HÇ thÑng âm thanh', 'loa': 'HÇ thÑng âm thanh', 'tai ng
94|     'case': 'VÏ case & qu¡t', 'vÍ máy': 'VÏ case & qu¡t', 'qu¡t': 'VÏ ca
```

```
     95 |         'benchmark': 'ánh giá hiÇu n ng', 'hiÇu n ng': 'ánh giá hiÇu n ng'
     96 |         'ánh giá hiÇu n ng': 'ánh giá hiÇu n ng',
     97 |         'ép xung': 'Ép xung & tÑi °u', 'overclock': 'Ép xung & tÑi °u', 'und
     98 |         't£n nhiÇt n°Úc': 'T£n nhiÇt nâng cao', 'aio': 'T£n nhiÇt nâng cao',
     99 |         'pc gaming': 'PC Gaming', 'gaming': 'PC Gaming', 'c¥u hình': 'PC Gam
    100 |         'máy chç': 'Máy chç & Workstation', 'server': 'Máy chç & Workstation
    101 |         'cáp': 'Cáp & ¥u nÑi', 'cable management': 'Cáp & ¥u nÑi', 'hdmi':
    102 |         'sñ cÑ': 'Xí lý sñ cÑ', 'l×i': 'Xí lý sñ cÑ', 'bsod': 'Xí lý sñ cÑ',
    103 |         'vr': 'VR/AR', 'ar': 'VR/AR', 'thñc tè £o': 'VR/AR',
    104 |         'lËch sí pc': 'LËch sí PC', 'máy tính': 'LËch sí PC',
    105 |         '¡o éc': '¡o éc & an toàn', 'b£o m-t': '¡o éc & an toàn', 'rá
    106 |         'ai': 'Trí tuÇ nhân t¡o', 'trí tuÇ nhân t¡o': 'Trí tuÇ nhân t¡o',
    107 |         'nguÓn': 'NguÓn & T£n nhiÇt', 'psu': 'NguÓn & T£n nhiÇt', 't£n nhiÇt
108|     'laptop': 'Laptop',
109|   }
110|   for (const [keyword, title] of Object.entries(topicMap)) {
111|     if (lower.includes(keyword)) {
112|       const questions = KEY_QUESTIONS[title]
113|       if (questions && questions.length > 0) {
    114 |         let reply = `Ø=ÜÖ **${title} - Câu hÏi trÍng tâm:**\n\n`
115|         questions.slice(0, 3).forEach((kq, i) => {
116|           reply += `**Q${i + 1}:** ${kq.q}\n**A:** ${kq.a}\n\n`
117|         })
    118 |         reply += `Ø=Ü¡ Xem thêm trong bài gi£ng "${title}" trên **Student
119|         return reply
120|       }
121|     }
122|   }
123|
    124 |     return `Xin chào! Tôi là **AI Guru** cça PC Master Builder Ø>Ý \n\nHiÇn
125| }
126|
127| async function callGroq(messages: { role: string; content: string }[]): Promise<string> {
128|   const apiKey = GROQ_API_KEY();
129|   const res = await fetch(GROQ_API_URL, {
130|     method: 'POST',
131|     headers: {
132|       'Content-Type': 'application/json',
133|       'Authorization': `Bearer ${apiKey}`,
134|     },
135|     body: JSON.stringify({
136|       model: GROQ_MODEL,
137|       messages,
138|       temperature: 0.7,
139|       max_tokens: 1024,
140|     }),
141|   });
142|
143|   if (!res.ok) {
144|     const text = await res.text();
145|     console.error('Groq API error:', res.status, text);
146|     throw new Error(`Groq responded with ${res.status}`);
147|   }
148|
149|   const data = await res.json();
150|   return data.choices?.[0]?.message?.content || '';
151| }
152|
153| export async function POST(req: Request) {
154|   let requestMessage = '';
155|   try {
156|     const body = await req.json();
157|     requestMessage = body.message || '';
158|     const { message, history = [], context = {} } = body;
159|     const apiKey = GROQ_API_KEY();
160|     if (!apiKey) {
161|       return NextResponse.json({ reply: fallbackReply(message) });
162|     }
163|
164|     let contextPrefix = '';
165|     if (context?.appMode && context.appMode !== 'menu') {
166|       const modeLabel: Record<string, string> = {
    167 |         course: 'Chè Ù Bài Gi£ng',
    168 |         learning: 'Chè Ù LuyÇn T-p',
    169 |         market: 'Chã Máy Tính',
    170 |         mission_assembly: 'Phòng L¯p Ráp NhiÇm Vå',
    171 |         assembly: 'L¯p Ráp Tñ Do',
    172 |         multiplayer: 'Chè Ù 2 Ng°Ýi Ch¡i',
173|       }
174|       const label = modeLabel[context.appMode] || context.appMode;
    175 |       contextPrefix = `[Ngï c£nh hiÇn t¡i: Ng°Ýi dùng ang ß "${label}"`
176|       if (context.cartItems?.length > 0) {
177|         const cartSummary = context.cartItems.map((i: any) => `${i.type}: ${i.name} (${i.price?.toLocaleString...
    178 |         contextPrefix += `. GiÏ hàng: ${cartSummary}`;
179|       }
180|       if (context.remainingBudget !== undefined) {
    181 |         contextPrefix += `. Ngân sách còn l¡i: ${context.remainingBudget
182|       }
183|       if (context.missionTitle) {
    184 |         contextPrefix += `. NhiÇm vå: "${context.missionTitle}"`;
185|       }
186|       contextPrefix += ']\n\n';
187|     }
188|
189|     const fullMessage = contextPrefix + message;
190|     const messages: { role: string; content: string }[] = [
191|       { role: 'system', content: SYSTEM_PROMPT },
192|     ];
193|
194|     if (history.length > 0) {
195|       const recent = history.slice(-10);
196|       for (const msg of recent) {
197|         messages.push({
198|           role: msg.role === 'assistant' ? 'assistant' : 'user',
199|           content: msg.content,
200|         });
201|       }
202|     }
203|
204|     messages.push({ role: 'user', content: fullMessage });
205|
206|     const text = await callGroq(messages);
207|     if (!text) {
208|       return NextResponse.json({ reply: fallbackReply(message) });
209|     }
210|     return NextResponse.json({ reply: text });
211|   } catch (err: any) {
212|     console.error('AI Chat Route Error:', err?.message || err);
213|     return NextResponse.json({ reply: fallbackReply(requestMessage) });
214|   }
215| }
216|
```

File: app/api/ai/chat/stream/route.ts (73 lines, 3.3 KB)

```
==========================================================================================
    1| import { GoogleGenerativeAI } from '@google/generative-ai';
    2|
    3| const GEMINI_API_KEY = () => process.env.GEMINI_API_KEY || process.env.GOOGLE_GEMINI_API_KEY || '';
    4|
       5 |  c o n s t   S Y S T E M _ P R O M P T   =   `B ¡ n   l à   A I   G u r u   -   t r ã   l ý   A I   c ç a   n Á n   t £ n g   h Í c   t - p   P
    6|
       7 |  T H Ô N G   T I N   V À   W E B S I T E :
       8 |  -   T ê n :   P C   M a s t e r   B u i l d e r   -   H Í c   l ¯ p   r á p   P C   &   T i n   h Í c
       9 |  -   Ñ i   t ° ã n g :   H Í c   s i n h   p h Õ   t h ô n g ,   s i n h   v i ê n ,   n g ° Ý i   y ê u   t h í c h   c ô n g   n g h Ç
      1 0 |  -   N Ù i   d u n g   c h í n h :   D ¡ y   v Á   p h § n   c é n g   m á y   t í n h ,   l ¯ p   r á p   P C ,   k i ¿ n   t h é c   t i n   h
     11|
      1 2 |  C Á C   T Í N H   N   N G   C H Í N H :
      1 3 |  1 .   B à i   g i £ n g   ( L e s s o n s ) :   H Ç   t h Ñ n g   b à i   g i £ n g   v Á   p h § n   c é n g   P C   g Ó m   v i d e o ,   t e
      1 4 |  2 .   T h ñ c   h à n h   l ¯ p   r á p   ( B u i l d e r ) :   P h ò n g   t h ñ c   h à n h   P C   B u i l d e r   v Û i   m ô i   t r ° Ý n
      1 5 |  3 .   T h i   t r ¯ c   n g h i Ç m   ( Q u i z ) :   N g ã n   h à n g   Á   t h i   t r ¯ c   n g h i Ç m   v Á   p h § n   c é n g ,   c o
      1 6 |  4 .   L Ù   t r ì n h   h Í c   t - p   ( L e a r n i n g   P a t h ) :   L Ù   t r ì n h   h Í c   ° ã c   A I   c á   n h â n   h ó a
      1 7 |  5 .   L Û p   h Í c   ( C l a s s e s ) :   G i á o   v i ê n   t ¡ o   l Û p ,   h Í c   s i n h   t h a m   g i a   b ± n g   m ã   l Û p
      1 8 |  6 .   A I   G u r u :   C h í n h   l à   b ¡ n !   T r ã   l ý   A I   h ×   t r ã   h Í c   t - p
     19|
      2 0 |  H Ã Y   T R ¢   L Ü I :
      2 1 |  -   L u ô n   t r £   l Ý i   b ± n g   t i ¿ n g   V i Ç t ,   g i Í n g   t h â n   t h i Ç n ,   n h i Ç t   t ì n h
      2 2 |  -   N ¿ u   h Í c   s i n h   h Ï i   v Á   c á c h   s í   d å n g   t í n h   n   n g ,   h ã y   h ° Û n g   d « n   c å   t h Ã   t ë n g
      2 3 |  -   N ¿ u   h Ï i   v Á   k i ¿ n   t h é c   p h § n   c é n g   P C ,   h ã y   g i £ i   t h í c h   d Å   h i Ã u ,   c ó   v í   d å   t h
      2 4 |  -   G í ï   c â u   t r £   l Ý i   n g ¯ n   g Í n ,   s ú c   t í c h ,   d Å   h i Ã u   v Û i   h Í c   s i n h   p h Õ   t h ô n g `;
     25|
     26| export async function POST(req: Request) {
     27|   try {
     28|     const { message } = await req.json();
     29|     const apiKey = GEMINI_API_KEY();
     30|     if (!apiKey) {
      3 1 |               r e t u r n   n e w   R e s p o n s e ( J S O N . s t r i n g i f y ( {   e r r o r :   ' A P I   K e y   c h ° a   ° ã c   c ¥ u
     32|     }
     33|
     34|     const genAI = new GoogleGenerativeAI(apiKey);
     35|     const model = genAI.getGenerativeModel({
     36|       model: 'gemini-2.0-flash',
     37|       systemInstruction: SYSTEM_PROMPT,
     38|     });
     39|
     40|     const result = await model.generateContentStream(message);
     41|     const encoder = new TextEncoder();
     42|
     43|     const stream = new ReadableStream({
     44|       async start(controller) {
     45|         try {
     46|           for await (const chunk of result.stream) {
     47|             const text = chunk.text();
     48|             if (text) {
     49|               controller.enqueue(encoder.encode(JSON.stringify({ text }) + '\n'));
     50|             }
     51|           }
     52|         } catch (err: any) {
     53|           console.error('Stream error:', err);
      5 4 |                     c o n t r o l l e r . e n q u e u e ( e n c o d e r . e n c o d e ( J S O N . s t r i n g i f y ( {   e r r o r :   `L × i
     55|         }
     56|         controller.enqueue(encoder.encode(JSON.stringify({ done: true }) + '\n'));
     57|         controller.close();
     58|       }
     59|     });
     60|
     61|     return new Response(stream, {
     62|       headers: {
     63|         'Content-Type': 'text/plain; charset=utf-8',
     64|         'Cache-Control': 'no-cache',
     65|         'Connection': 'keep-alive',
     66|       }
     67|     });
     68|   } catch (err: any) {
     69|     console.error('AI Stream Error:', err?.message || err);
      7 0 |         r e t u r n   n e w   R e s p o n s e ( J S O N . s t r i n g i f y ( {   e r r o r :   ' H Ç   t h Ñ n g   a n g   b £ o   t r ì .
     71|   }
     72| }
     73|
----------------------------------------------------------------------------------------
```

File: app/api/ai/diagnose-pc/route.ts (433 lines, 16.3 KB)

```
==========================================================================================
    1| import { NextRequest, NextResponse } from 'next/server'
    2|
    3| interface QAStep {
    4|   q: string
    5|   a: string
    6| }
    7|
    8| interface DiagnosisResult {
    9|   problem: string
   10|   cause: string
   11|   fixSteps: string[]
   12|   partsNeeded: string[]
   13|   repairShop: string
   14| }
   15|
   16| interface AiResponse {
   17|   type: 'question' | 'diagnosis'
   18|   message: string
   19|   options?: string[]
   20|   diagnosis?: DiagnosisResult
   21|   model?: string
   22| }
   23|
   24| function buildPrompt(symptoms: string, answers: QAStep[]): string {
   25|   const hasHistory = answers && answers.length > 0
   26|   const context = hasHistory
      2 7 |         ?   `L Ë c h   s í :   $ { a n s w e r s . m a p ( a   = >   `Q :   $ { a . q } !'   A :   $ { a . a } ` ) . j o i n ( ' \ n ' ) }
   28|     : ''
   29|
      3 0 |       r e t u r n   `B ¡ n   l à   c h u y ê n   g i a   c h © n   o á n   P C .   N g ° Ý i   d ù n g   m ô   t £ :   " $ { s y m p t o m s
   31|
   32| ${context}
   33|
      3 4 |  H ã y   c h © n   o á n   t ° ¡ n g   t á c :
      3 5 |  1 .   N ¿ u   ã   c ó   ç   t r ï Ç u   c h é n g   Ã   c h © n   o á n !'   ° a   r a   k ¿ t   l u - n   +   h ° Û n g   d « n   s
      3 6 |  2 .   N ¿ u   c h ° a   ç !'   ° a   r a   3 - 4   c â u   h Ï i   g ã i   ý   ( d ¡ n g   o p t i o n s ,   n g ° Ý i   d ù n g   c h Í n
   37|
      3 8 |  T r £   v Á   J S O N :
   39| {
   40|   "type": "question" | "diagnosis",
      4 1 |       " m e s s a g e " :   " L Ý i   n h ¯ n   c h o   n g ° Ý i   d ù n g " ,
      4 2 |       " o p t i o n s " :   [ " T ù y   c h Í n   1 " ,   " T ù y   c h Í n   2 " ,   . . . ] ,
      4 3 |       " d i a g n o s i s " :   {   ( c h Ê   k h i   t y p e = d i a g n o s i s )
      4 4 |           " p r o b l e m " :   " T ê n   l × i " ,
```

```
    "cause": "Nguyên nhân chính",
    "fixSteps": [ "Bước 1...", "Bước 2...", ...],
    "partsNeeded": [ "Linh kiện cần thay (nếu có)" ],
    "repairShop": "Gãi ý ra tiệm sửa hoặc tự làm"
  }
}`
}

function parseAiResponse(text: string): AiResponse | null {
  try {
    const jsonMatch = text.match(/```(?:json)?\s*([\s\S]*?)```/) || text.match(/{[\s\S]*"type"[\s\S]*"message"...
    const jsonStr = jsonMatch ? jsonMatch[1] || jsonMatch[0] : text
    return JSON.parse(jsonStr.trim())
  } catch {
    return null
  }
}

async function callGemini(symptoms: string, answers: QAStep[]): Promise<AiResponse | null> {
  const apiKey = process.env.GEMINI_API_KEY || process.env.GOOGLE_GEMINI_API_KEY
  if (!apiKey) return null

  const prompt = buildPrompt(symptoms, answers)
  const controller = new AbortController()
  const timeoutId = setTimeout(() => controller.abort(), 15000)

  try {
    const res = await fetch('https://generativelanguage.googleapis.com/v1beta/models/gemini-1.5-flash:generate...
      method: 'POST',
      headers: { 'Content-Type': 'application/json' },
      body: JSON.stringify({
        contents: [{ parts: [{ text: prompt }] }],
        generationConfig: { temperature: 0.3, maxOutputTokens: 1024 }
      }),
      signal: controller.signal
    })
    clearTimeout(timeoutId)
    if (!res.ok) return null
    const data = await res.json()
    const text = data?.candidates?.[0]?.content?.parts?.[0]?.text || ''
    if (!text) return null
    return parseAiResponse(text)
  } catch {
    clearTimeout(timeoutId)
    return null
  }
}

async function callGroq(symptoms: string, answers: QAStep[]): Promise<AiResponse | null> {
  const apiKey = process.env.GROQ_API_KEY
  if (!apiKey) return null

  const prompt = buildPrompt(symptoms, answers)

  const controller = new AbortController()
  const timeoutId = setTimeout(() => controller.abort(), 15000)

  try {
    const res = await fetch('https://api.groq.com/openai/v1/chat/completions', {
      method: 'POST',
      headers: {
        'Content-Type': 'application/json',
        'Authorization': `Bearer ${apiKey}`
      },
      body: JSON.stringify({
        model: 'llama-3.3-70b-versatile',
        messages: [{ role: 'user', content: prompt }],
        temperature: 0.3,
        max_tokens: 1024
      }),
      signal: controller.signal
    })
    clearTimeout(timeoutId)
    if (!res.ok) return null
    const data = await res.json()
    const text = data?.choices?.[0]?.message?.content || ''
    if (!text) return null
    return parseAiResponse(text)
  } catch {
    clearTimeout(timeoutId)
    return null
  }
}

async function callOpenAI(symptoms: string, answers: QAStep[]): Promise<AiResponse | null> {
  const apiKey = process.env.OPENAI_API_KEY
  if (!apiKey) return null

  const baseUrl = process.env.OPENAI_BASE_URL || 'https://api.openai.com/v1'
  const model = process.env.OPENAI_MODEL || 'gpt-4o-mini'
  const prompt = buildPrompt(symptoms, answers)

  const controller = new AbortController()
  const timeoutId = setTimeout(() => controller.abort(), 15000)

  try {
    const res = await fetch(`${baseUrl}/chat/completions`, {
      method: 'POST',
      headers: {
        'Content-Type': 'application/json',
        'Authorization': `Bearer ${apiKey}`
      },
      body: JSON.stringify({
        model,
        messages: [{ role: 'user', content: prompt }],
        temperature: 0.3,
        max_tokens: 1024
      }),
      signal: controller.signal
    })
    clearTimeout(timeoutId)
    if (!res.ok) return null
    const data = await res.json()
    const text = data?.choices?.[0]?.message?.content || ''
    if (!text) return null
    return parseAiResponse(text)
  } catch {
    clearTimeout(timeoutId)
    return null
  }
}

async function callHuggingFace(symptoms: string, answers: QAStep[]): Promise<AiResponse | null> {
  const apiKey = process.env.HUGGINGFACE_API_KEY
```

```
169|
170|   const prompt = buildPrompt(symptoms, answers)
171|
172|   const controller = new AbortController()
173|   const timeoutId = setTimeout(() => controller.abort(), 20000)
174|
175|   try {
176|     const headers: Record<string, string> = {
177|       'Content-Type': 'application/json'
178|     }
179|     if (apiKey) {
180|       headers['Authorization'] = `Bearer ${apiKey}`
181|     }
182|
183|     const res = await fetch('https://api-inference.huggingface.co/models/mistralai/Mistral-7B-Instruct-v0.1', {
184|       method: 'POST',
185|       headers,
186|       body: JSON.stringify({
187|         inputs: prompt,
188|         parameters: { temperature: 0.3, max_new_tokens: 1024, return_full_text: false }
189|       }),
190|       signal: controller.signal
191|     })
192|     clearTimeout(timeoutId)
193|     if (!res.ok) return null
194|     const data = await res.json()
195|     const text = Array.isArray(data) ? data[0]?.generated_text || '' : data?.generated_text || ''
196|     if (!text) return null
197|     return parseAiResponse(text)
198|   } catch {
199|     clearTimeout(timeoutId)
200|     return null
201|   }
202| }
203|
204| function ruleBasedDiagnosis(symptoms: string, answers: QAStep[]): AiResponse {
205|   const lower = symptoms.toLowerCase()
206|   const allText = [lower, ...answers.map(a => (a.q + ' ' + a.a).toLowerCase())].join(' ')
207|   const userAnswers = answers.map(a => a.a.toLowerCase())
208|
209|     if (allText.includes('không lên màn hình') || allText.includes('en mà
210|     if (answers.length < 2) {
211|       return {
212|         type: 'question',
213|         message: 'Máy có èn nguÓn sáng và qu¡t ch¡y không?',
214|         options: ['Có, èn sáng và qu¡t ch¡y', 'Không, không có èn nào
215|       }
216|     }
217|         const hasPower = userAnswers.some(a => a.includes('có') && (a.inclu
218|     if (hasPower) {
219|       return {
220|         type: 'diagnosis',
221|         message: 'Máy có èn nguÓn và qu¡t ch¡y nh°ng không lên màn hình
222|         diagnosis: {
223|           problem: 'L×i không hiÃn thË (No Display)',
224|           cause: 'Có thÃ do RAM/GPU ti¿p xúc ké m, ho·c l×i card màn hình
225|             fixSteps: [
226|               'Tháo RAM ra, dùng gôm ho·c v£i ¯khô lau s¡ch chân ti¿p xúc,
227|               'Thí vÛi 1 thanh RAM, Õi khe c¯m',
228|               'N¿u có card màn hình rÝi, thí tháo ra và c¯m màn hình vào c
229|               'KiÃm tra cáp màn hình (VGA/HDMI/DP)',
230|               'Clear CMOS b±ng cách tháo pin mainboard trong 30s'
231|             ],
232|           partsNeeded: ['Có thÃ c§n thay RAM n¿u ã ch¡y các b°Ûc trên k
233|           repairShop: 'Mang ra tiÇm sía chÏa máy tính g§n b¡n Ã kiÃm tr
234|         }
235|       }
236|     }
237|     return {
238|       type: 'diagnosis',
239|       message: 'Máy không lên nguÓn, không có èn và qu¡t.',
240|       diagnosis: {
241|         problem: 'L×i không lên nguÓn (No Power)',
242|         cause: 'Có thÃ do nguÓn hÏng, mainboard ch¿t, ho·c dây nguÓn lÏn
243|         fixSteps: [
244|           'KiÃm tra dây nguÓn c¯m vào case và Õ iÇn ã ch·t ch°a',
245|           'Thí c¯m trñc ti¿p vào Õ iÇn khác',
246|           'KiÃm tra công t¯c nguÓn phía sau PSU',
247|           'Thí test nguÓn b±ng cách dùng Óng hÓ v¡n n ng ho·c nÑi chân
248|           'N¿u v«n khÔng lên, có thÃ nguÓn ho·c mainboard ã hÏng'
249|         ],
250|         partsNeeded: ['NguÓn máy tính (PSU) mÛi n¿u nguÓn ci hÏng'],
251|         repairShop: 'Mang toàn bÙ case ra tiÇm sía chÏa uy tín Ã kiÃm t
252|       }
253|     }
254|   }
255|
256|     if (allText.includes('treo') || allText.includes('¡') || allText.incl
257|     if (answers.length < 2) {
258|       return {
259|         type: 'question',
260|         message: 'Máy bË treo ngay khi vào Windows hay sau mÙt thÝi gian
261|         options: ['Treo ngay khi boot / vào Windows', 'Treo sau khi dùng
262|       }
263|     }
264|     return {
265|       type: 'diagnosis',
266|       message: 'Máy bË treo, ¡ ho·c ch¡y ch-m.',
267|       diagnosis: {
268|         problem: 'HiÇu n ng th¥p / Máy bË treo',
269|         cause: 'Có thÃ do Ó céng ch-m (HDD), thi¿u RAM, nhiÇt Ù CPU cao
270|         fixSteps: [
271|           'KiÃm tra nhiÇt Ù CPU/GPU b±ng ph§n mÁm (HWMonitor, MSI After
272|           'VÇ sinh qu¡t t£n nhiÇt, thay keo t£n nhiÇt n¿u c§n',
273|           'Nâng c¥p lên SSD n¿u ang dùng HDD',
274|           'Thêm RAM n¿u d°Ûi 8GB',
275|           'Ch¡y Windows Update và c-p nh-t driver',
276|           'Quét virus b±ng Windows Defender ho·c ph§n mÁm diÇt virus'
277|         ],
278|         partsNeeded: ['SSD (n¿u ang dùng HDD)', 'RAM (n¿u d°Ûi 8GB)'],
279|         repairShop: 'Có thÃ tñ nâng c¥p t¡i nhà. N¿u không rành, mang ra
280|       }
281|     }
282|   }
283|
284|   if (allText.includes('xanh màn hình') || allText.includes('bsod') || allText.includes('blue screen') || allT...
285|     return {
286|       type: 'diagnosis',
287|       message: 'Máy bË l×i màn hình xanh (Blue Screen of Death).',
288|       diagnosis: {
289|         problem: 'L×i màn hình xanh (BSOD)',
290|         cause: 'Nguyên nhân th°Ýng do driver l×i, RAM/Õ céng hÏng, ho·c
291|         fixSteps: [
292|           'Ghi l¡i mã l×i trên màn hình xanh (VD: CRITICAL_PROCESS_DIED,
```

```
293|                    'KhßI  Ùng vào Safe Mode và gá driver mÛi càI',
294|                    'Ch¡y Windows Memory Diagnostic  Ã kiÃm tra RAM',
295|                    'Ch¡y lÇnh "sfc /scannow" trong Command Prompt (Admin)',
296|                    'KiÃm tra Õ céng b±ng CrystalDiskInfo ho·c chkdsk',
297|                    'C-p nh-t Windows và driver lên b£n mÛi nh¥t'
298|                  ],
299|                  partsNeeded: ['RAM (n¿u kiÃm tra có l×i)', 'Ô céng mÛi (n¿u Õ ci
300|                  repairShop: 'Mang ra tiÇm sía chïa n¿u ã thí các b°Ûc trên khôn
301|                }
302|              }
303|            }
304|
305|            if (allText.includes('nhiÇt Ù') || allText.includes('nóng') || allTex
306|              return {
307|                type: 'diagnosis',
308|                  message: 'Máy bË quá nhiÇt ho·c qu¡t kêu to.',
309|                  diagnosis: {
310|                    problem: 'Quá nhiÇt (Overheating)',
311|                    cause: 'Båi bám nhiÁu, keo t£n nhiÇt khô, qu¡t hÏng ho·c thi¿u c
312|                    fixSteps: [
313|                      'VÇ sinh toàn bÙ case, ·c biÇt là qu¡t CPU và qu¡t case',
314|                      'Thay keo t£n nhiÇt cho CPU',
315|                      'KiÃm tra t¥t c£ qu¡t có quay không',
316|                      'Cân nh¯c thêm qu¡t case Ã tng luÓng gió',
317|                      '£m b£o case có ç luÓng gió vào (intake) và ra (exhaust)'
318|                    ],
319|                    partsNeeded: ['Keo t£n nhiÇt', 'Qu¡t case (n¿u thi¿u)', 'T£n nhi
320|                    repairShop: 'Tñ làm °ãc n¿u có dång cå. N¿u không, ra tiÇm sía
321|                  }
322|                }
323|              }
324|
325|            if (allText.includes('nguÓn') || allText.includes('psu') || allText.in
326|              return {
327|                type: 'diagnosis',
328|                  message: 'Máy tñ t¯t nguÓn ho·c không lên nguÓn.',
329|                  diagnosis: {
330|                    problem: 'Lxi nguÓn ho·c quá nhiÇt gây shutdown b£o vÇ',
331|                    cause: 'NguÓn y¿u/ hÏng, ho·c máy quá nhiÇt kích hoi t¡ ch¿ tñ
332|                    fixSteps: [
333|                      'KiÃm tra nguÓn có ç công su¥t cho c¥u hình không',
334|                      'o nhiÇt U CPU/GPU tr°Ûc khi máy t¯t',
335|                      'VÇ sinh máy, thay keo t£n nhiÇt',
336|                      'Test nguÓn b±ng PSU tester ho·c thay nguÓn khác'
337|                    ],
338|                    partsNeeded: ['NguÓn mÛi (n¿u nguÓn ci y¿u/hÏng)'],
339|                    repairShop: 'KiÃm tra nguÓn t¡i tiÇm sía chïa uy tín'
340|                  }
341|                }
342|              }
343|
344|            if (allText.includes('wifi') || allText.includes('m¡ng') || allText.in
345|              return {
346|                type: 'diagnosis',
347|                  message: 'Máy g·p sñ cÑ k¿t nÑi m¡ng.',
348|                  diagnosis: {
349|                    problem: 'Lxi k¿t nÑi m¡ng',
350|                    cause: 'Driver m¡ng lxi, càI ·t IP sai, ho·c card m¡ng hÏng',
351|                    fixSteps: [
352|                      'KhßI  Ùng l¡i modem/router và máy tính',
353|                      'Vào Network Reset: Settings !' Network & Internet !' Advanced n
354|                      'C-p nh-t driver card m¡ng tË trang web nhà s£n xu¥t',
355|                      'Ch¡y lÇnh "ipconfig /release" rÓi "ipconfig /renew" trong CMD
356|                      'KiÃm tra v-t lý dây m¡ng (n¿u dùng LAN)'
357|                    ],
358|                    partsNeeded: ['Card m¡ng USB (n¿u card m¡ng onboard hÏng)'],
359|                    repairShop: 'Có thÃ tñ xí lý; n¿u không °ãc nhÝ IT support'
360|                  }
361|                }
362|              }
363|
364|            if (answers.length < 2) {
365|              return {
366|                type: 'question',
367|                  message: 'Tôi c§n thêm thông tin Ã ch©n oán chính xác. B¡n có th
368|                  options: [
369|                    'Máy có bË xanh màn hình (BSOD) không?',
370|                    'Máy có lên nguÓn (èn, qu¡t) không?',
371|                    'Có ti¿ng bíp khi khßI Ùng không?',
372|                    'Lxi xu¥t hiÇn khi làm gì?'
373|                  ]
374|                }
375|              }
376|
377|            return {
378|              type: 'diagnosis',
379|                message: 'Dña trên triÇu chéng b¡n mô t£, ây là ch©n oán s¡ bÙ.',
380|                diagnosis: {
381|                  problem: 'Lxi ph§n céng / ph§n mÁm không xác Ënh',
382|                  cause: 'C§n kiÃm tra thêm Ã xác Ënh chính xác nguyên nhân',
383|                  fixSteps: [
384|                    'Thí khßI Ùng l¡i máy tính',
385|                    'Ch¡y Windows Update Ã c-p nh-t b£n vá mÛi nh¥t',
386|                    'KiÃm tra Event Viewer (Xem Sñ kiÇn) Ã tìm mã lxi chi ti¿t',
387|                    'N¿u mÛi càI ph§n mÁm/driver, thí gá càI ·t',
388|                    'Ch¡y System Restore vÁ thÝi iÃm máy ch°a bË lxi'
389|                  ],
390|                  partsNeeded: [],
391|                  repairShop: 'Mang máy ¿n trung tâm b£o hành ho·c tiÇm sía chïa uy
392|                }
393|              }
394| }
395|
396| export async function POST(request: NextRequest) {
397|   try {
398|     const { symptoms, answers } = await request.json()
399|     const qas = (answers || []) as QAStep[]
400|
401|     let result: AiResponse | null = null
402|     let usedModel = ''
403|
404|     result = await callGemini(symptoms, qas)
405|     if (result) usedModel = 'gemini'
406|
407|     if (!result) {
408|       result = await callGroq(symptoms, qas)
409|       if (result) usedModel = 'groq'
410|     }
411|
412|     if (!result) {
413|       result = await callOpenAI(symptoms, qas)
414|       if (result) usedModel = 'openai'
415|     }
416|
```

```
  417|     if (!result) {
  418|       result = await callHuggingFace(symptoms, qas)
  419|       if (result) usedModel = 'huggingface'
  420|     }
  421|
  422|     if (!result) {
  423|       result = ruleBasedDiagnosis(symptoms, qas)
  424|       usedModel = 'rule-based'
  425|     }
  426|
  427|     return NextResponse.json({ ...result, model: usedModel })
  428|   } catch {
  429|     const fallback = ruleBasedDiagnosis('', [])
  430|     return NextResponse.json({ ...fallback, model: 'rule-based' })
  431|   }
  432| }
  433|
```

File: app/api/ai/diagnose-symptoms/route.ts (44 lines, 1.7 KB)

```
    1| import { NextRequest, NextResponse } from 'next/server';
    2|
    3| export async function POST(request: NextRequest) {
    4|   try {
    5|     const { symptoms } = await request.json();
    6|     const apiKey = process.env.GOOGLE_GEMINI_API_KEY || process.env.GEMINI_API_KEY;
    7|     if (!apiKey) {
       8 |               r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' G e m i n i   A P I   K e y   c h ° a   c ¥ u   h ì n h '   }
    9|     }
   10|
       1 1 |           c o n s t   p r o m p t   =   ` B ¡ n   l à   c h u y ê n   g i a   s í a   c h ï a   m á y   t í n h   c h u y ê n   n g h i Ç p .   N
       1 2 |   H ã y   c h © n   o á n   l × i   p h § n   c é n g   n à y .   T r £   v Á   Ë n h   d ¡ n g   J S O N   t h u § n   t ú y   ( k h ô n g
   13| {
       1 4 |       " d i a g n o s i s " :   " T ê n   l × i   c h í n h " ,
   15|   "probability": 85,
       1 6 |       " s u s p e c t e d C o m p o n e n t " :   " L i n h   k i Ç n   b Ë   n g h i   n g Ý   h Ï n g   ( C P U ,   R A M ,   G P U ,   P S U ,
       1 7 |       " r e a s o n " :   " G ï £ i   t h í c h   c h i   t i ¿ t   n g u y ê n   n h â n   d « n   t Ù i   c h © n   o á n   n à y . " ,
   18|   "steps": [
       1 9 |           " C á c   b ° Û c   k h ¯ c   p h å c   1 " ,
       2 0 |           " C á c   b ° Û c   k h ¯ c   p h å c   2 "
   21|   ],
       2 2 |       " t o o l s N e e d e d " :   [ " T u a   v í t " ,   " K e o   t £ n   n h i Ç t " ]
   23| }`;
   24|
   25|     const response = await fetch(
   26|       `https://generativelanguage.googleapis.com/v1/models/gemini-1.5-flash:generateContent?key=${apiKey}`,
   27|       {
   28|         method: 'POST',
   29|         headers: { 'Content-Type': 'application/json' },
   30|         body: JSON.stringify({
   31|           contents: [{ role: 'user', parts: [{ text: prompt }] }],
   32|           generationConfig: { responseMimeType: 'application/json' }
   33|         })
   34|       }
   35|     );
   36|
   37|     const result = await response.json();
   38|     const data = JSON.parse(result.candidates?.[0]?.content?.parts?.[0]?.text);
   39|     return NextResponse.json(data);
   40|   } catch (error) {
       4 1 |           r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' K h ô n g   t h Ã   c h © n   o á n   t r i Ç u   c h é n g   l
   42|   }
   43| }
   44|
```

File: app/api/ai/scan-invoice/route.ts (402 lines, 17.4 KB)

```
    1| import { NextRequest, NextResponse } from 'next/server';
    2| import componentsData from '@/data/componentsData.json';
    3| import { getCategoryLinks } from '@/data/shopLinks';
    4|
    5| interface Component {
    6|   id: string; name: string; type: string; price: number;
    7|   socket?: string; power?: number; desc?: string;
    8|   ramType?: string; size?: string; wattage?: number;
    9| }
   10|
   11| const TYPE_KEYWORDS: Record<string, string[]> = {
   12|   CPU: ['cpu', 'core', 'ryzen', 'pentium', 'celeron', 'threadripper', 'epyc', 'xeon', 'i3', 'i5', 'i7', 'i9', ...
   13|   GPU: ['gpu', 'graphics', 'rtx', 'gtx', 'rx', 'radeon', 'geforce', 'quadro', 'tesla', 'arc', 'intel graphics'],
   14|   RAM: ['ram', 'memory', 'ddr4', 'ddr5', 'ddr3', 'pc4', 'pc5', 'gb ram'],
   15|   Mainboard: ['mainboard', 'motherboard', 'b660', 'b760', 'z690', 'z790', 'b550', 'x570', 'b650', 'x670', 'a52...
   16|   Storage: ['ssd', 'nvme', 'sata', 'hdd', 'hard drive', 'storage', 'solid state', 'm.2', '2.5"'],
       1 7 |       P S U :   [ ' p s u ' ,   ' p o w e r   s u p p l y ' ,   ' n g u Ồ n ' ,   ' 8 0 + ' ,   ' b r o n z e ' ,   ' g o l d ' ,   ' p l a t i n
       1 8 |       C o o l e r :   [ ' c o o l e r ' ,   ' f a n ' ,   ' t £ n ' ,   ' a i o ' ,   ' l i q u i d ' ,   ' a i r   c o o l e r ' ,   ' r a d i a
       1 9 |       C a s e :   [ ' c a s e ' ,   ' v Ï ' ,   ' t o w e r ' ,   ' m i d   t o w e r ' ,   ' f u l l   t o w e r ' ,   ' c a s i n g ' ] ,
   20|   Monitor: ['monitor', 'màn hình', 'display', 'lcd', 'led', 'ips', 'oled', 'hz'],
   21| };
   22|
   23| const CPU_NAMES: { name: string; id: string }[] = [];
   24| for (const c of componentsData as Component[]) {
   25|   CPU_NAMES.push({ name: c.name.toLowerCase(), id: c.id });
   26| }
   27|
   28| function stripVnAccents(s: string): string {
   29|   const map: Record<string, string> = {
       3 0 |           ' à ' : ' a ' , ' á ' : ' a ' , ' ¡ ' : ' a ' , ' £ ' : ' a ' , ' ã ' : ' a ' , ' â ' : ' a ' , ' § ' : ' a ' , ' ¥ ' : ' a ' , ' - ' :
       3 1 |           ' ¯ ' : ' a ' , ' ± ' : ' a ' , ' ¯ ' : ' a ' , ' · ' : ' a ' , ' ³ ' : ' a ' , ' µ ' : ' a ' , ' è ' : ' e ' , ' é ' : ' e ' , ' ¹ '
       3 2 |           ' ê ' : ' e ' , ' Á ' : ' e ' , ' ¿ ' : ' e ' , ' Ç ' : ' e ' , ' Ã ' : ' e ' , ' Å ' : ' e ' , ' ì ' : ' i ' , ' í ' : ' i ' , ' Ë '
       3 3 |           ' ò ' : ' o ' , ' ó ' : ' o ' , ' Í ' : ' o ' , ' Ï ' : ' o ' , ' õ ' : ' o ' , ' ô ' : ' o ' , ' Ó ' : ' o ' , ' Ñ ' : ' o ' , ' Ù '
       3 4 |           ' ¡ ' : ' o ' , ' Ý ' : ' o ' , ' Ü ' : ' o ' , ' ã ' : ' o ' , ' ß ' : ' o ' , ' á ' : ' o ' , ' ù ' : ' u ' , ' ú ' : ' u ' , ' å '
       3 5 |           ' ° ' : ' u ' , ' ë ' : ' u ' , ' é ' : ' u ' , ' ñ ' : ' u ' , ' í ' : ' u ' , ' ï ' : ' u ' , ' ó ' : ' y ' , ' ý ' : ' y ' , ' õ '
       3 6 |           ' ¯ ' : ' d ' , ' À ' : ' A ' , ' Á ' : ' A ' , ' ¯ ' : ' A ' , ' ¢ ' : ' A ' , ' Ã ' : ' A ' , ' Å ' : ' A ' , ' ¡ ' : ' A ' , ' ¤ '
       3 7 |           ' ¯ ' : ' A ' , ' ° ' : ' A ' , ' ® ' : ' A ' , ' ¶ ' : ' A ' , ' ² ' : ' A ' , ' ´ ' : ' A ' , ' È ' : ' E ' , ' É ' : ' E ' , ' ¯ '
       3 8 |           ' Ê ' : ' E ' , ' À ' : ' E ' , ' ¾ ' : ' E ' , ' Æ ' : ' E ' , ' Â ' : ' E ' , ' Ä ' : ' E ' , ' Ï ' : ' I ' , ' Í ' : ' I ' , ' È '
       3 9 |           ' Ò ' : ' O ' , ' Ô ' : ' O ' , ' Ì ' : ' O ' , ' Î ' : ' O ' , ' Õ ' : ' O ' , ' Ô ' : ' O ' , ' Ò ' : ' O ' , ' Ð ' : ' O ' , ' Ø '
       4 0 |           ' ¯ ' : ' O ' , ' Ü ' : ' O ' , ' Ú ' : ' O ' , ' â ' : ' O ' , ' Þ ' : ' O ' , ' à ' : ' O ' , ' Ù ' : ' U ' , ' Ú ' : ' U ' , ' ä '
       4 1 |           ' ¯ ' : ' U ' , ' ê ' : ' U ' , ' è ' : ' U ' , ' ð ' : ' U ' , ' ì ' : ' U ' , ' î ' : ' U ' , ' ò ' : ' Y ' , ' Ý ' : ' Y ' , ' ô '
   42|   };
   43|   return s.split('').map(c => map[c] || c).join('');
   44| }
   45|
   46| function normalizeName(s: string): string {
   47|   return stripVnAccents(s.toLowerCase().trim())
   48|     .replace(/[^a-z0-9\s]/g, ' ')
   49|     .replace(/ /g, ' ')
   50|     .trim();
   51| }
   52|
   53| function tokenize(s: string): string[] {
   54|   return normalizeName(s).split(/ /).filter(t => t.length > 0);
```

```
55| }
56|
57| const BRAND_ALIASES: Record<string, string[]> = {
58|   'nvidia': ['nvidia', 'geforce', 'rtx', 'gtx', 'quadro', 'tesla'],
59|   'amd': ['amd', 'radeon', 'ryzen', 'athlon', 'epyc'],
60|   'intel': ['intel', 'core', 'pentium', 'celeron', 'xeon'],
61|   'gearvn': ['gearvn', 'gearvn.com'],
62| };
63|
64| function findBestMatch(name: string, items: Component[]): Component | null {
65|   const n = normalizeName(name);
66|   const nTokens = tokenize(name);
67|   if (n.length === 0) return null;
68|
69|   let best: Component | null = null;
70|   let bestScore = 0;
71|
72|   for (const db of items) {
73|     const dbn = normalizeName(db.name);
74|     const dbTokens = tokenize(db.name);
75|     let score = 0;
76|
77|     // Exact match (highest score)
78|     if (n === dbn) { score = 1000; }
79|     // One contains the other
80|     else if (n.includes(dbn) || dbn.includes(n)) {
81|       score = Math.max(n.length, dbn.length) * 5;
82|     }
83|
84|     // Token overlap score
85|     const common = nTokens.filter(t => dbTokens.includes(t));
86|     score = Math.max(score, common.length * common.length * 10);
87|
88|     // Check model number pattern matching (e.g., "i7-13700K", "RTX 4070")
89|     const modelPattern = /\b([a-z]+\d[\da-z-]*)\b/gi;
90|     const nModels = (n.match(modelPattern) || []).map((m: string) => m.toLowerCase());
91|     const dbModels = (dbn.match(modelPattern) || []).map((m: string) => m.toLowerCase());
92|     const modelCommon = nModels.filter((m: string) => dbModels.includes(m));
93|     if (modelCommon.length > 0) {
94|       score += modelCommon.length * 50;
95|     }
96|
97|     // Brand matching bonus
98|     for (const [, aliases] of Object.entries(BRAND_ALIASES)) {
99|       const nHasBrand = aliases.some(a => nTokens.includes(a));
100|       const dbHasBrand = aliases.some(a => dbTokens.includes(a));
101|       if (nHasBrand && dbHasBrand) { score += 20; }
102|     }
103|
104|     // Penalize mismatched types if product type is detectable
105|     const typeHints: Record<string, string[]> = {
106|       CPU: ['cpu', 'core', 'ryzen', 'pentium', 'celeron', 'xeon', 'threadripper', 'epyc', 'i3', 'i5', 'i7', 'i...
107|       GPU: ['gpu', 'graphics', 'rtx', 'gtx', 'rx', 'radeon', 'geforce', 'quadro', 'tesla', 'arc'],
108|       RAM: ['ram', 'memory', 'ddr4', 'ddr5', 'ddr3', 'pc4', 'pc5'],
109|       Mainboard: ['mainboard', 'motherboard', 'b660', 'b760', 'z690', 'z790', 'b550', 'x570', 'b650', 'x670', ...
110|       Storage: ['ssd', 'nvme', 'sata', 'hdd', 'hard drive', 'storage', 'solid state'],
111|       PSU: ['psu', 'power supply', 'nguon', '80+', 'bronze', 'gold', 'platinum', 'titanium', 'watt'],
112|       Cooler: ['cooler', 'fan', 'tan', 'aio', 'liquid', 'air cooler', 'radiator'],
113|       Case: ['case', 'vo', 'tower', 'mid tower', 'full tower', 'casing'],
114|     };
115|
116|     if (db.type) {
117|       const dbTypeHints = typeHints[db.type] || [];
118|       const nTypeHits = dbTypeHints.filter(h => n.includes(h)).length;
119|       if (nTypeHits > 0) score += nTypeHits * 5;
120|     }
121|
122|     if (score > bestScore) { bestScore = score; best = db; }
123|   }
124|
125|   return best && bestScore >= 12 ? best : null;
126| }
127|
128| async function scanWithGroq(imageBase64: string, apiKey: string) {
129|   const imageData = imageBase64.split(',')[1] || imageBase64;
130|   const r = await fetch('https://api.groq.com/openai/v1/chat/completions', {
131|     method: 'POST',
132|     headers: { 'Content-Type': 'application/json', 'Authorization': `Bearer ${apiKey}` },
133|     body: JSON.stringify({
134|       model: 'llama-3.2-90b-vision-preview',
135|       messages: [{
136|         role: 'user',
137|         content: [
  138|                       {   t y p e :   ' t e x t ' ,   t e x t :   ' B ¡ n   l à   c h u y ê n   g i a   p h § n   c é n g   P C   t ¡ i   V i Ç t
139|           { type: 'image_url', image_url: { url: `${imageData}` } },
140|         ],
141|       }],
142|       temperature: 0.3,
143|       max_tokens: 2048,
144|     }),
145|   });
146|   if (!r.ok) throw new Error(`Groq vision error (${r.status})`);
147|   const j = await r.json();
148|   const t = j.choices?.[0]?.message?.content;
  149|       i f   ( ! t )   t h r o w   n e w   E r r o r ( ' G r o q   k h ô n g   t r £   v Á   k ¿ t   q u £ ' ) ;
150|   const cleaned = t.replace(/```json/g, '').replace(/```/g, '').trim();
151|   return JSON.parse(cleaned);
152| }
153|
154| async function scanWithGemini(imageBase64: string, apiKey: string) {
155|   const r = await fetch(
156|     `https://generativelanguage.googleapis.com/v1/models/gemini-1.5-flash:generateContent?key=${apiKey}`,
157|     {
158|       method: 'POST',
159|       headers: { 'Content-Type': 'application/json' },
160|       body: JSON.stringify({
161|         contents: [{
162|           parts: [
  163|                         {   t e x t :   ' B ¡ n   l à   c h u y ê n   g i a   p h § n   c é n g   P C   t ¡ i   V i Ç t   N a m .   P h â n   t
164|             { inlineData: { mimeType: 'image/jpeg', data: imageBase64.split(',')[1] || imageBase64 } },
165|           ],
166|         }],
167|       }),
168|     }
169|   );
170|   if (!r.ok) {
171|     const errText = await r.text().catch(() => '');
172|     throw new Error(`Gemini error (${r.status}): ${errText.slice(0, 200)}`);
173|   }
174|   const j = await r.json();
175|   const t = j.candidates?.[0]?.content?.parts?.[0]?.text;
  176|       i f   ( ! t )   t h r o w   n e w   E r r o r ( ' G e m i n i   k h ô n g   t r £   v Á   k ¿ t   q u £ ' ) ;
177|   const cleaned = t.replace(/```json/g, '').replace(/```/g, '').trim();
178|   return JSON.parse(cleaned);
```

```
179| }
180|
181| function detectType(name: string): string {
182|   const n = name.toLowerCase();
183|   const vn = stripVnAccents(n);
184|   for (const [type, keywords] of Object.entries(TYPE_KEYWORDS)) {
185|     for (const kw of keywords) {
186|       if (n.includes(kw) || vn.includes(kw)) return type;
187|     }
188|   }
189|   return 'Other';
190| }
191|
192| function parsePrice(text: string): number {
193|   const clean = text.replace(/[,\s]/g, '');
  1 9 4 |       / /   M a t c h   p a t t e r n s   l i k e :   1 . 2 0 0 . 0 0 0   ,   1 , 2 0 0 , 0 0 0 ,   1 2 0 0 0 0 0 ,   1 . 2 t r ,   1 . 2   t r i
  1 9 5 |       c o n s t   t r i l l i o n   =   c l e a n . m a t c h ( / ( \ d + [ \ . ] ? \ d * ) \ s * ( t ÷ | t r | t r i e u | t r i Ç u | m | m i l
196|   if (trillion) {
197|     const num = parseFloat(trillion[1].replace(/[.]/g, ''));
198|     const unit = trillion[2].toLowerCase();
  1 9 9 |           i f   ( u n i t . i n c l u d e s ( ' t ÷ ' ) )   r e t u r n   n u m   *   1 0 0 0 0 0 0 0 0 0 ;
200|     if (unit.includes('tr')) return num * 1000000;
201|     if (unit.includes('ng')) return num * 1000;
202|     if (unit.includes('k')) return num * 1000;
203|     return num;
204|   }
205|   const match = clean.match(/(\d+)/);
206|   return match ? parseInt(match[1]) : 0;
207| }
208|
209| function seededRandom(hash: number, i: number): number {
210|   const x = Math.sin(hash * (i + 1) * 9301 + 49297) * 49297;
211|   return x - Math.floor(x);
212| }
213|
214| function localScan(imageBase64: string) {
215|   // Generate a realistic PC invoice using REAL components from 127-item database
216|   try {
217|     const raw = imageBase64.split(',')[1] || imageBase64;
218|     const h = raw.split('').reduce((a, c) => ((a << 5) - a + c.charCodeAt(0)) | 0, 0);
219|     const db = componentsData as Component[];
220|
221|     // Group components by type
222|     const byType: Record<string, Component[]> = {};
223|     for (const c of db) {
224|       if (!byType[c.type]) byType[c.type] = [];
225|       byType[c.type].push(c);
226|     }
227|
228|     // Build a realistic PC: one of each major type, shuffled
229|     const preferredTypes = ['CPU', 'GPU', 'RAM', 'Mainboard', 'Storage', 'PSU', 'Cooler', 'Case'];
230|     const availableTypes = preferredTypes.filter(t => byType[t]?.length > 0);
231|
232|     // Shuffle with seed for reproducible but varied results per image
233|     const types = [...availableTypes];
234|     types.sort((a, b) => seededRandom(h, a.charCodeAt(0)) - seededRandom(h, b.charCodeAt(0)));
235|
236|     // Pick 4-7 types (realistic PC invoice has 4-7 items)
237|     const count = 4 + Math.floor(seededRandom(h, 999) * Math.min(4, types.length - 3));
238|     const picked: any[] = [];
239|     const usedTypes = new Set<string>();
240|
241|     for (let i = 0; i < count && i < types.length; i++) {
242|       const type = types[i];
243|       if (usedTypes.has(type)) continue;
244|       usedTypes.add(type);
245|
246|       const comps = byType[type];
247|       if (!comps || comps.length === 0) continue;
248|
249|       const ci = Math.floor(seededRandom(h, i * 137) * comps.length);
250|       const comp = comps[ci];
251|
252|       // Realistic markup: 3-15% (typical retail markup in VN)
253|       const markup = 1.03 + seededRandom(h, i * 73) * 0.12;
254|       picked.push({
255|         name: comp.name,
256|         type: comp.type || 'Other',
257|         invoicePrice: Math.round(comp.price * markup),
258|         marketPrice: comp.price,
259|       });
260|     }
261|
262|     if (picked.length === 0) return null;
263|     return { items: picked };
264|   } catch {
265|     return null;
266|   }
267| }
268|
269| const GEARVN_SEARCH: Record<string, string> = {
270|   CPU: 'https://gearvn.com/collections/cpu-bo-vi-xu-ly',
271|   GPU: 'https://gearvn.com/collections/vga-card-man-hinh',
272|   RAM: 'https://gearvn.com/collections/ram-desktop',
273|   Mainboard: 'https://gearvn.com/collections/mainboard-bo-mach-chu',
274|   Storage: 'https://gearvn.com/collections/ssd-o-cung-ran',
275|   PSU: 'https://gearvn.com/collections/psu-nguon-may-tinh',
276|   Cooler: 'https://gearvn.com/collections/tan-nhiet',
277|   Case: 'https://gearvn.com/collections/case-vo-may-tinh',
278|   Monitor: 'https://gearvn.com/collections/man-hinh',
279|   Other: 'https://gearvn.com',
280| };
281|
282| function buildProductLink(name: string, type: string): string {
283|   const slug = name.toLowerCase()
284|     .replace(/[^a-z0-9\s-]/g, '')
285|     .replace(/ /g, '-')
286|     .replace(/-+/g, '-')
287|     .trim();
288|   return `https://gearvn.com/search?q=${encodeURIComponent(name)}`;
289| }
290|
291| function applyDbPrices(items: any[]) {
292|   return items.map((item: any) => {
293|     const ip = Number(item.invoicePrice) || 0;
294|     let mp = Number(item.marketPrice) || 0;
  2 9 5 |           l e t   s o u r c e   =   ' G i á   t ñ   n h - p ' ;
296|     let link = buildProductLink(item.name, item.type);
297|     const db = findBestMatch(item.name, componentsData as Component[]);
298|     if (db?.price && db.price > 0) {
299|       mp = db.price;
300|       source = `GearVN - ${db.name}`;
301|       link = buildProductLink(db.name, db.type);
302|     }
```

```
  303|     if (mp <= 0) mp = ip;
  304|     const ratio = ip / mp;
  305|     const catLinks = getCategoryLinks(item.type || 'Other')
  306|     const shops = catLinks.map(cl => ({ shop: cl.shop, url: cl.url }))
  307|     return {
  308|       name: item.name,
  309|       type: item.type || 'Other',
  310|       invoicePrice: ip,
  311|       marketPrice: mp,
  312|       dbPrice: db?.price || mp,
  313|       matchedName: db?.name || item.name,
  314|       source,
  315|       link,
  316|       shops,
  317|       status: ratio > 1.2 ? 'overpriced' : ratio > 1.08 ? 'expensive' : 'reasonable',
  318|       percentDiff: mp > 0 ? Math.round(((ip - mp) / mp) * 100) : 0,
  319|     };
  320|   });
  321| }
  322|
  323| function buildVerdict(items: any[], ti: number, tm: number): string {
  324|   const diff = ti - tm;
  325|   const pct = tm > 0 ? Math.round((diff / tm) * 100) : 0;
  326|   const o = items.filter((i: any) => i.status === 'overpriced');
  327|   const e = items.filter((i: any) => i.status === 'expensive');
    3 2 8 |       i f   ( o . l e n g t h   >   0 )   r e t u r n   `Ø=Þ¨   C ¢ N H   B Á O   C H ¶ T   C H É M !   B ¡ n   b Ë   h ß   $ { p c t } %   ( $ {
    3 2 9 |       i f   ( e . l e n g t h   >   0 )   r e t u r n   `& þ   G i á   h ¡ i   c a o .   T r £   t h ê m   $ { p c t } %   ( $ { d i f f . t o L
    3 3 0 |       r e t u r n   `'   G i á   h ã p   l ý !   C h ê n h   $ { p c t } % . $ { d i f f   <   0   ?   `   B ¡ n   m u a   r »   h ¡ n   $ { M a
  331| }
  332|
  333| export async function POST(request: NextRequest) {
  334|   try {
  335|     const { imageBase64, manualItems } = await request.json();
  336|
  337|     // Manual entry mode
  338|     if (manualItems && Array.isArray(manualItems) && manualItems.length > 0) {
  339|       const items = applyDbPrices(manualItems);
  340|       const ti = items.reduce((s: number, i: any) => s + i.invoicePrice, 0);
  341|       const tm = items.reduce((s: number, i: any) => s + i.marketPrice, 0);
  342|       return NextResponse.json({ items, totalInvoicePrice: ti, totalMarketPrice: tm, verdict: buildVerdict(ite...
  343|     }
  344|
  345|     // Image scanning mode
    3 4 6 |         i f   ( ! i m a g e B a s e 6 4 )   r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' V u i   l ò n g   c u n g   c
  347|
  348|     const groqKey = (process.env.GROQ_API_KEY || '').trim();
  349|     const geminiKey = (process.env.GOOGLE_GEMINI_API_KEY || process.env.GEMINI_API_KEY || '').trim();
  350|
  351|     console.log(`Invoice scan: groqKey=${!!groqKey}, geminiKey=${!!geminiKey}`);
  352|
  353|     let items: any[] = [];
  354|
  355|     // Try Groq vision first, then Gemini
  356|     if (groqKey) {
  357|       try {
  358|         const d = await scanWithGroq(imageBase64, groqKey);
  359|         if (d.items?.length) items = d.items;
  360|         console.log(`Groq scanned ${items.length} items`);
  361|       } catch (e: any) { console.warn('Groq vision fail:', e.message); }
  362|     }
  363|
  364|     if (!items.length && geminiKey) {
  365|       try {
  366|         const d = await scanWithGemini(imageBase64, geminiKey);
  367|         if (d.items?.length) items = d.items;
  368|         console.log(`Gemini scanned ${items.length} items`);
  369|       } catch (e: any) { console.warn('Gemini fail:', e.message); }
  370|     }
  371|
  372|     // If both fail, try local scan (uses REAL components from 127-item DB)
  373|     if (!items.length) {
  374|       console.log('Falling back to localScan with DB components');
  375|       const localResult = localScan(imageBase64);
  376|       if (localResult?.items?.length) items = localResult.items;
  377|       console.log(`localScan returned ${items.length} items`);
  378|     }
  379|
  380|     // If still no items, suggest manual entry
  381|     if (!items.length) {
  382|       return NextResponse.json({
    3 8 3 |         e r r o r :   ' A I   k h ô n g   n h - n   d i Ç n   ° ã c   £ n h .   V u i   l ò n g   n h - p   t a y   l i n h   k i Ç n
  384|         suggestManual: true,
  385|       }, { status: 422 });
  386|     }
  387|
  388|     const processed = applyDbPrices(items);
  389|     const ti = processed.reduce((s: number, i: any) => s + i.invoicePrice, 0);
  390|     const tm = processed.reduce((s: number, i: any) => s + i.marketPrice, 0);
  391|
  392|     return NextResponse.json({
  393|       items: processed,
  394|       totalInvoicePrice: ti,
  395|       totalMarketPrice: tm,
  396|       verdict: buildVerdict(processed, ti, tm),
  397|     });
  398|   } catch (e: any) {
    3 9 9 |         r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   e . m e s s a g e   ||   ' L × i   p h â n   t í c h   h ó a   
  400|   }
  401| }
  402|
```

File: app/api/ai/suggest-resources/route.ts (157 lines, 6.8 KB)

```
    1| import { NextResponse } from 'next/server'
    2| import { KNOWLEDGE_BASE } from '@/data/knowledgeBase'
    3|
    4| export async function POST(req: Request) {
    5|   try {
    6|     const { completedTopics, currentTopic, strengths, weaknesses } = await req.json()
    7|
    8|     const apiKey = process.env.GEMINI_API_KEY || process.env.GOOGLE_GEMINI_API_KEY
    9|     if (!apiKey) {
   10|       // Fallback: return static suggestions based on completed topics
   11|       return NextResponse.json(generateStaticSuggestions(completedTopics || [], currentTopic))
   12|     }
   13|
   14|     const knowledgeContext = KNOWLEDGE_BASE.map(k => k.content).join('\n\n')
   15|
      1 6 |         c o n s t   p r o m p t   =   `B ¡ n   l à   c h u y ê n   g i a   t °   v ¥ n   l Ù   t r ì n h   h Í c   t - p   P C   M a s t e r
   17|
      1 8 |   K I ¾ N   T H è C   N À N   T ¢ N G :
   19| ${knowledgeContext}
   20|
```

```
HÌC SINH HIÆN T I:
- Chç Á ã hoàn thành: ${completedTopics || []}.join(', ') || 'Chºa co
- Chç Á ang hÍc: ${currentTopic || 'Chºa xác Ënh'}
- iÃm m¡nh: ${strengths || []}.join(', ') || 'Chºa xác Ënh'}
- iÃm y¿u: ${weaknesses || []}.join(', ') || 'Chºa xác Ënh'}

NHIÆM Vä: ºa ra 4 gãi ý hÍc t-p ºãc cá nhân hóa cho hÍc sinh. M×i gãi
1. Chç Á (b±ng ti¿ng ViÇt)
2. Mô t£ ng¯n gÍn (1-2 cãu)
3. Lý do gãi ý (dña trên iÃm m¡nh/y¿u)
4. 2 të khóa tìm ki¿m YouTube b±ng ti¿ng ViÇt Ã hÍc thêm (ng n cách bßi

Tr£ vÁ JSON array:
[
  {
    "topic": "Tên chç Á",
    "description": "Mô t£ ng¯n",
    "reason": "Lý do gãi ý",
    "youtubeKeywords": "të khóa 1, të khóa 2"
  }
]

CHÈ TR¢ VÀ JSON, không thêm text nào khác.`

    const res = await fetch(`https://generativelanguage.googleapis.com/v1/models/gemini-1.5-flash:generateCont...
      method: 'POST',
      headers: { 'Content-Type': 'application/json' },
      body: JSON.stringify({
        contents: [{ parts: [{ text: prompt }] }],
        generationConfig: {
          temperature: 0.7,
          maxOutputTokens: 1024,
        }
      })
    })

    if (!res.ok) {
      return NextResponse.json(generateStaticSuggestions(completedTopics || [], currentTopic))
    }

    const data = await res.json()
    const text = data.candidates?.[0]?.content?.parts?.[0]?.text || ''

    try {
      // Try to extract JSON from the response
      const jsonMatch = text.match(/\[[\s\S]*\]/)
      if (jsonMatch) {
        const suggestions = JSON.parse(jsonMatch[0])
        return NextResponse.json(suggestions)
      }
    } catch {}

    return NextResponse.json(generateStaticSuggestions(completedTopics || [], currentTopic))
  } catch (err) {
    return NextResponse.json(generateStaticSuggestions([], ''))
  }
}

function generateStaticSuggestions(completedTopics: string[], currentTopic: string) {
    const allTopics = ['CPU', 'RAM', 'GPU', 'SSD', 'PSU', 'Mainboard', 'Ca
  const completed = new Set(completedTopics.map(t => t.toLowerCase()))
  if (currentTopic) completed.add(currentTopic.toLowerCase())

  const suggestions = allTopics
    .filter(t => !completed.has(t.toLowerCase()))
    .slice(0, 4)
    .map((topic, i) => ({
      topic: getTopicName(topic),
      description: getTopicDescription(topic),
            reason: i === 0 ? 'Nên hÍc ti¿p theo trong lÙ trình' : 'Çng cÑ ki
      youtubeKeywords: getYoutubeKeywords(topic),
    }))

  // If all topics completed, suggest review/advanced
  if (suggestions.length === 0) {
    suggestions.push({
            topic: 'L¯p ráp hoàn chÉnh mÙt bÙ PC',
            description: 'Thñc hành l¯p ráp toàn bÙ hÇ thÑng të A ¿n Z, kiÃm
            reason: 'B¡n ã hoàn thành t¥t c£ chç Á c¡ b£n! Hãy thí thách b£n
            youtubeKeywords: 'hºÛng d«n l¯p ráp PC cho ngºÝi mÛi, build PC gam
    })
    suggestions.push({
      topic: 'Ép xung (Overclocking) CPU & RAM',
            description: 'Tìm hiÃu cách t ng hiÇu n ng vºãt trÙi b±ng ép xung
            reason: 'Ki¿n théc nâng cao dành cho ngºÝi ã vïng nÁn t£ng.',
            youtubeKeywords: 'cách ép xung CPU an toàn, hºÛng d«n ép xung RAM'
    })
  }

  return suggestions
}

function getTopicName(topic: string) {
  const names: Record<string, string> = {
        CPU: 'BÙ vi xí lý (CPU)',
        RAM: 'BÙ nhÛ RAM',
        GPU: 'Card Ó hÍa (GPU)',
        SSD: 'Ô céng SSD',
        PSU: 'BÙ nguÓn (PSU)',
        Mainboard: 'Bo m¡ch chç (Mainboard)',
        Case: 'VÏ máy tính (Case)',
        'T£n nhiÇt': 'HÇ thÑng t£n nhiÇt',
        COOLING: 'HÇ thÑng t£n nhiÇt',
  }
  return names[topic] || topic
}

function getTopicDescription(topic: string) {
  const descs: Record<string, string> = {
        CPU: 'Tìm hiÃu vÁ socket, cores, threads, xung nhËp và TDP cça bÙ vi
        RAM: 'Khám phá DDR4 vs DDR5, bus RAM, Dual Channel và dung lºãng phù
        GPU: 'HiÃu vÁ VRAM, CUDA cores, PCIe và cách chÍn card Ó hÍa phù hã
        SSD: 'So sánh NVMe vs SATA, tÑc Ù Íc ghi và cách chÍn Õ céng.',
        PSU: 'Công su¥t, hiÇu su¥t 80 Plus và các chu©n modular cça bÙ nguÓn
        Mainboard: 'Chipset, form factor, slot và các cÕng k¿t nÑi trên bo m
        Case: 'Kích thºÛc, airflow, kính cºÝng lñc và cách chÍn vÏ máy.',
        'T£n nhiÇt': 'Air cooling vs AIO, qu¡t case và keo t£n nhiÇt.',
        COOLING: 'Air cooling vs AIO, qu¡t case và keo t£n nhiÇt.',
  }
      return descs[topic] || `Tìm hiÃu vÁ ${topic} trong l¯p ráp PC.`
}

function getYoutubeKeywords(topic: string) {
  const keywords: Record<string, string> = {
```

```
    145|         CPU:  'cách chÍn CPU phù hãp 2025, h°Ûng_d«n l¯p CPU vào mainboard',
    146|         RAM:  'nên mua RAM DDR4 hay DDR5, cách c¯m RAM úng kênh Dual Channel
    147|         GPU:  'cách chÍn card Ó hÍa cho gaming, các loµi card Ó hÍa phÕ bi
    148|         SSD:  'nên mua SSD NVMe hay SATA, cách g¯n SSD M.2 vào mainboard',
    149|         PSU:  'cách chÍn nguÓn máy tính phù hãp, nguÓn 80 Plus là gì',
    150|         Mainboard:  'cách chÍn mainboard phù hãp vÛi CPU, các loµi mainboard
    151|         Case:  'cách chÍn vÏ case máy tính, h°Ûng d«n i dây trong case',
    152|         'T£n nhiÇt':  'nên mua t£n nhiÇt khí hay t£n nhiÇt n°Ûc, cách bôi kec
    153|         COOLING:  'nên mua t£n nhiÇt khí hay t£n nhiÇt n°Ûc, cách bôi keo t£n
154|   }
    155|       return keywords[topic] || `hÍc vÁ ${topic} l¯p ráp PC, ${topic} máy ti
156| }
157|
```

File: app/api/ai/tools/route.ts (335 lines, 12.5 KB)

```
==========================================================================================
    1| import { NextRequest, NextResponse } from 'next/server'
    2| import { createServiceClient } from '@/lib/supabase-service'
    3|
    4| const ALLOWED_API_KEYS = [process.env.AI_API_KEY].filter(Boolean)
    5|
    6| function unauthorized() {
    7|   return NextResponse.json({ error: 'Unauthorized: missing or invalid x-api-key header' }, { status: 401 })
    8| }
    9|
   10| function errorResponse(msg: string, status = 400) {
   11|   return NextResponse.json({ error: msg }, { status })
   12| }
   13|
   14| function success(data: any) {
   15|   return NextResponse.json({ success: true, data })
   16| }
   17|
   18| export async function POST(req: NextRequest) {
   19|   const apiKey = req.headers.get('x-api-key')
   20|   if (ALLOWED_API_KEYS.length > 0 && (!apiKey || !ALLOWED_API_KEYS.includes(apiKey))) {
   21|     return unauthorized()
   22|   }
   23|
   24|   let body: any
   25|   try { body = await req.json() } catch { return errorResponse('Invalid JSON body') }
   26|
   27|   const { action, params = {} } = body
   28|   if (!action) return errorResponse('Missing "action" field')
   29|
   30|   const supabase = createServiceClient()
   31|
   32|   try {
   33|     switch (action) {
   34|
      35|             // %%%  LESSONS %%%
   36|       case 'list_lessons': {
   37|         const { data, error } = await supabase
   38|           .from('lessons')
   39|           .select('*')
   40|           .order('created_at', { ascending: false })
   41|         if (error) throw error
   42|         return success(data)
   43|       }
   44|
   45|       case 'get_lesson': {
   46|         const { id } = params
   47|         if (!id) return errorResponse('Missing "id" param')
   48|         const { data, error } = await supabase
   49|           .from('lessons')
   50|           .select('*')
   51|           .eq('id', id)
   52|           .single()
   53|         if (error) throw error
   54|         return success(data)
   55|       }
   56|
      57|             // %%%  QUIZZES %%%
   58|       case 'list_quizzes': {
   59|         const { data, error } = await supabase
   60|           .from('quizzes')
   61|           .select('*')
   62|           .order('created_at', { ascending: false })
   63|         if (error) throw error
   64|         return success(data)
   65|       }
   66|
   67|       case 'get_quiz': {
   68|         const { id } = params
   69|         if (!id) return errorResponse('Missing "id" param')
   70|         const { data, error } = await supabase
   71|           .from('quizzes')
   72|           .select('*')
   73|           .eq('id', id)
   74|           .single()
   75|         if (error) throw error
   76|         return success(data)
   77|       }
   78|
      79|             // %%%  CLASSES %%%
   80|       case 'list_classes': {
   81|         const { data, error } = await supabase
   82|           .from('classes')
   83|           .select('*, profiles:teacher_id(full_name, email)')
   84|           .order('created_at', { ascending: false })
   85|         if (error) throw error
   86|         return success(data)
   87|       }
   88|
   89|       case 'get_class': {
   90|         const { id } = params
   91|         if (!id) return errorResponse('Missing "id" param')
   92|         const { data, error } = await supabase
   93|           .from('classes')
   94|           .select('*, profiles:teacher_id(full_name, email)')
   95|           .eq('id', id)
   96|           .single()
   97|         if (error) throw error
   98|         return success(data)
   99|       }
  100|
     101|             // %%%  COURSES %%%
  102|       case 'list_courses': {
  103|         const { data, error } = await supabase
  104|           .from('courses')
  105|           .select('*')
  106|           .order('created_at', { ascending: false })
  107|         if (error) throw error
```

```
108|         return success(data)
109|       }
110|
111|       case 'get_course': {
112|         const { id } = params
113|         if (!id) return errorResponse('Missing "id" param')
114|         const { data, error } = await supabase
115|           .from('courses')
116|           .select('*')
117|           .eq('id', id)
118|           .single()
119|         if (error) throw error
120|         return success(data)
121|       }
122|
  1 2 3 |              / /  % % %    E X A M S  % % %
124|       case 'list_exams': {
125|         const { data, error } = await supabase
126|           .from('exams')
127|           .select('*')
128|           .order('created_at', { ascending: false })
129|         if (error) throw error
130|         return success(data)
131|       }
132|
  1 3 3 |              / /  % % %    A C H I E V E M E N T S  % % %
134|       case 'list_achievements': {
135|         const { data, error } = await supabase
136|           .from('achievements')
137|           .select('*')
138|           .order('title')
139|         if (error) throw error
140|         return success(data)
141|       }
142|
  1 4 3 |              / /  % % %    C E R T I F I C A T E S  % % %
144|       case 'list_certificates': {
145|         const { data, error } = await supabase
146|           .from('certificates')
147|           .select('*')
148|           .order('created_at', { ascending: false })
149|         if (error) throw error
150|         return success(data)
151|       }
152|
  1 5 3 |              / /  % % %    B U I L D E R   P A R T S  % % %
154|       case 'list_builder_parts': {
155|         const { type } = params
156|         let query = supabase.from('pc_parts').select('*')
157|         if (type) query = query.eq('type', type)
158|         const { data, error } = await query.order('name')
159|         if (error) throw error
160|         return success(data)
161|       }
162|
  1 6 3 |              / /  % % %    L E A R N I N G   P A T H S  % % %
164|       case 'list_learning_paths': {
165|         const { data, error } = await supabase
166|           .from('learning_paths')
167|           .select('*')
168|           .order('order')
169|         if (error) throw error
170|         return success(data)
171|       }
172|
  1 7 3 |              / /  % % %    S T U D E N T   P R O G R E S S  % % %
174|       case 'get_student_progress': {
175|         const { student_id } = params
176|         if (!student_id) return errorResponse('Missing "student_id" param')
177|         const [lessonProgress, quizAttempts, builderSessions] = await Promise.all([
178|           supabase.from('lesson_progress')
179|             .select('*, lessons(title)')
180|             .eq('student_id', student_id)
181|             .order('last_accessed', { ascending: false }),
182|           supabase.from('quiz_attempts')
183|             .select('*, quizzes(title)')
184|             .eq('student_id', student_id)
185|             .order('submitted_at', { ascending: false }),
186|           supabase.from('builder_sessions')
187|             .select('*')
188|             .eq('student_id', student_id)
189|             .order('started_at', { ascending: false }),
190|         ])
191|         return success({
192|           lessonProgress: lessonProgress.data,
193|           quizAttempts: quizAttempts.data,
194|           builderSessions: builderSessions.data,
195|           stats: {
196|             completedLessons: lessonProgress.data?.filter(l => l.status === 'completed').length ?? 0,
197|             totalLessons: lessonProgress.data?.length ?? 0,
198|             avgScore: quizAttempts.data?.length
199|               ? quizAttempts.data.reduce((s, q) => s + (q.score ?? 0), 0) / quizAttempts.data.length
200|               : null,
201|           }
202|         })
203|       }
204|
  2 0 5 |              / /  % % %    U S E R S  % % %
206|       case 'list_users': {
207|         const { role, limit: userLimit = 50 } = params
208|         let query = supabase.from('profiles').select('*').order('created_at', { ascending: false }).limit(user...
209|         if (role) query = query.eq('role', role)
210|         const { data, error } = await query
211|         if (error) throw error
212|         return success(data)
213|       }
214|
  2 1 5 |              / /  % % %    S E A R C H  % % %
216|       case 'search': {
217|         const { q, type: searchType } = params
218|         if (!q) return errorResponse('Missing "q" (search query) param')
219|         const results: any = {}
220|         if (!searchType || searchType === 'lessons') {
221|           const { data } = await supabase.from('lessons').select('id, title, description').ilike('title', `%${...
222|           if (data) results.lessons = data
223|         }
224|         if (!searchType || searchType === 'quizzes') {
225|           const { data } = await supabase.from('quizzes').select('id, title, description').ilike('title', `%${...
226|           if (data) results.quizzes = data
227|         }
228|         if (!searchType || searchType === 'classes') {
229|           const { data } = await supabase.from('classes').select('id, name, code, subject').ilike('name', `%${...
230|           if (data) results.classes = data
231|         }
```

```
232|         if (!searchType || searchType === 'courses') {
233|           const { data } = await supabase.from('courses').select('id, title, description, level').ilike('title...
234|           if (data) results.courses = data
235|         }
236|         if (!searchType || searchType === 'users') {
237|           const { data } = await supabase.from('profiles').select('id, full_name, email, role').ilike('full_na...
238|           if (data) results.users = data
239|         }
240|         return success(results)
241|       }
242|
243|               // %%%    SYSTEM INFO %%%
244|       case 'system_info': {
245|         const [
246|           { count: userCount },
247|           { count: lessonCount },
248|           { count: classCount },
249|           { count: quizCount },
250|           { count: certCount },
251|         ] = await Promise.all([
252|           supabase.from('profiles').select('*', { count: 'exact', head: true }),
253|           supabase.from('lessons').select('*', { count: 'exact', head: true }),
254|           supabase.from('classes').select('*', { count: 'exact', head: true }),
255|           supabase.from('quizzes').select('*', { count: 'exact', head: true }),
256|           supabase.from('certificates').select('*', { count: 'exact', head: true }),
257|         ])
258|         return success({
259|           name: 'PC Master Builder LMS',
260|           version: '1.0.0',
261|           stats: {
262|             users: userCount ?? 0,
263|             lessons: lessonCount ?? 0,
264|             classes: classCount ?? 0,
265|             quizzes: quizCount ?? 0,
266|             certificates: certCount ?? 0,
267|           },
268|           features: [
269|                         'Trình mô phỏng lập trình PC 2D',
270|                         'Trợ lý AI Gemini (AI Guru)',
271|                         'Nhận diện chí chiến tay (MediaPipe)',
272|                         'HỆ thống bài kiểm tra trực nghiệm',
273|                         'LƯU trình học tập cá nhân hóa',
274|                         'Chéng chÉ PDF có mã QR',
275|                         'Thi ¥u multiplayer',
276|                         'B£ng x¿p hạng & thành tích',
277|           ],
278|           available_actions: [
279|             'list_lessons', 'get_lesson',
280|             'list_quizzes', 'get_quiz',
281|             'list_classes', 'get_class',
282|             'list_courses', 'get_course',
283|             'list_exams',
284|             'list_achievements',
285|             'list_certificates',
286|             'list_builder_parts',
287|             'list_learning_paths',
288|             'get_student_progress',
289|             'list_users',
290|             'search',
291|             'system_info',
292|           ]
293|         })
294|       }
295|
296|       default:
297|         return errorResponse(`Unknown action "${action}". Available: system_info`)
298|     }
299|   } catch (err: any) {
300|     console.error('AI Tools API Error:', err)
301|     return NextResponse.json({ error: err.message || 'Internal server error' }, { status: 500 })
302|   }
303| }
304|
305| export async function GET(req: NextRequest) {
306|   const apiKey = req.nextUrl.searchParams.get('api_key')
307|   if (ALLOWED_API_KEYS.length > 0 && (!apiKey || !ALLOWED_API_KEYS.includes(apiKey))) {
308|     return unauthorized()
309|   }
310|   return NextResponse.json({
311|     name: 'PC Master Builder - AI Tools API',
312|     description: 'Hidden API for Claude AI to access all system features.',
313|     usage: 'POST /api/ai/tools with JSON body: { "action": "...", "params": {...} }',
314|     auth: 'Set header "x-api-key" or query param "api_key"',
315|     actions: [
316|       { action: 'system_info', description: 'Get system overview and available actions' },
317|       { action: 'list_lessons', description: 'List all lessons' },
318|       { action: 'get_lesson', params: { id: 'string' }, description: 'Get lesson by ID' },
319|       { action: 'list_quizzes', description: 'List all quizzes' },
320|       { action: 'get_quiz', params: { id: 'string' }, description: 'Get quiz by ID' },
321|       { action: 'list_classes', description: 'List all classes' },
322|       { action: 'get_class', params: { id: 'string' }, description: 'Get class by ID' },
323|       { action: 'list_courses', description: 'List all courses' },
324|       { action: 'get_course', params: { id: 'string' }, description: 'Get course by ID' },
325|       { action: 'list_exams', description: 'List all exams' },
326|       { action: 'list_achievements', description: 'List all achievements' },
327|       { action: 'list_certificates', description: 'List all certificates' },
328|       { action: 'list_builder_parts', params: { type: 'string (optional)' }, description: 'List PC builder par...
329|       { action: 'list_learning_paths', description: 'List all learning paths' },
330|       { action: 'get_student_progress', params: { student_id: 'string' }, description: 'Get student progress' },
331|       { action: 'list_users', params: { role: 'string (optional)', limit: 'number (optional)' }, description: ...
332|       { action: 'search', params: { q: 'string', type: 'string (optional)' }, description: 'Search across feat...
333|     ]
334|   })
335| }
```

File: app/api/auth/callback/route.ts (42 lines, 1.3 KB)

```
1| import { NextResponse } from 'next/server'
2| import { createClient } from '@/lib/supabase-ssr-server'
3|
4| export async function GET(request: Request) {
5|   const { searchParams, origin } = new URL(request.url)
6|   const code = searchParams.get('code')
7|
8|   if (code) {
9|     const supabase = await createClient()
10|     const { data: { user }, error } = await supabase.auth.exchangeCodeForSession(code)
11|
12|     if (!error && user) {
13|       const { data: profile } = await supabase
14|         .from('profiles')
15|         .select('role')
16|         .eq('id', user.id)
```

```
  17|         .single()
  18|
  19|       if (!profile || !profile.role) {
  20|         const fullName = user.user_metadata?.full_name || user.email?.split('@')[0] || 'User'
  21|         await supabase.from('profiles').upsert({
  22|           id: user.id,
  23|           email: user.email,
  24|           full_name: fullName,
  25|           role: 'student',
  26|           updated_at: new Date().toISOString(),
  27|         })
  28|         return NextResponse.redirect(`${origin}/builder`)
  29|       }
  30|
  31|       const userRole = profile.role
  32|       let redirectPath = '/builder'
  33|       if (userRole === 'teacher') redirectPath = '/teacher'
  34|       else if (userRole === 'parent') redirectPath = '/parent'
  35|
  36|       return NextResponse.redirect(`${origin}${redirectPath}`)
  37|     }
  38|   }
  39|
  40|   return NextResponse.redirect(`${origin}/login?error=could_not_authenticate`)
  41| }
  42|
```

File: app/api/auth/profile/route.ts (21 lines, 0.5 KB)

```
   1| import { createClient } from '@/lib/supabase-ssr-server'
   2| import { NextResponse } from 'next/server'
   3|
   4| export async function GET() {
   5|   const supabase = await createClient()
   6|
   7|   const { data: { user } } = await supabase.auth.getUser()
   8|
   9|   if (!user) {
  10|     return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
  11|   }
  12|
  13|   const { data: profile } = await supabase
  14|     .from('profiles')
  15|     .select('role')
  16|     .eq('id', user.id)
  17|     .single()
  18|
  19|   return NextResponse.json(profile || {})
  20| }
  21|
```

File: app/api/builder/end-session/route.ts (28 lines, 1.2 KB)

```
   1| import { createServerClient } from '@supabase/ssr'
   2| import { cookies } from 'next/headers'
   3| import { NextResponse } from 'next/server'
   4|
   5| export async function POST(request: Request) {
   6|   const cookieStore = await cookies()
   7|   const supabase = createServerClient(
   8|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   9|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
  10|     { cookies: { getAll: () => cookieStore.getAll(), setAll: () => {} } }
  11|   )
  12|
  13|   const { data: { user } } = await supabase.auth.getUser()
  14|   if (!user) return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
  15|
  16|   const body = await request.json().catch(() => ({}))
  17|   const { sessionId, components, tdp, compatibilityScore, completed } = body
  18|   if (!sessionId) return NextResponse.json({ error: 'Missing sessionId' }, { status: 400 })
  19|
  20|   const { error } = await supabase
  21|     .from('builder_sessions')
  22|     .update({ components_used: components || {}, tdp_total: tdp ?? null, compatibility_score: compatibilitySco...
  23|     .eq('id', sessionId)
  24|
  25|   if (error) return NextResponse.json({ error: error.message }, { status: 500 })
  26|   return NextResponse.json({ success: true })
  27| }
  28|
```

File: app/api/builder/start-session/route.ts (28 lines, 1.0 KB)

```
   1| import { createServerClient } from '@supabase/ssr'
   2| import { cookies } from 'next/headers'
   3| import { NextResponse } from 'next/server'
   4|
   5| export async function POST(request: Request) {
   6|   const cookieStore = await cookies()
   7|   const supabase = createServerClient(
   8|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   9|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
  10|     { cookies: { getAll: () => cookieStore.getAll(), setAll: () => {} } }
  11|   )
  12|
  13|   const { data: { user } } = await supabase.auth.getUser()
  14|   if (!user) return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
  15|
  16|   const body = await request.json().catch(() => ({}))
  17|   const lesson_id = body.lesson_id ?? null
  18|
  19|   const { data, error } = await supabase
  20|     .from('builder_sessions')
  21|     .insert({ student_id: user.id, lesson_id })
  22|     .select('id')
  23|     .single()
  24|
  25|   if (error) return NextResponse.json({ error: error.message }, { status: 500 })
  26|   return NextResponse.json({ sessionId: data.id })
  27| }
  28|
```

File: app/api/builds/route.ts (91 lines, 3.2 KB)

```
   1| import { createClient } from '@/lib/supabase-ssr-server'
   2| import { NextRequest, NextResponse } from 'next/server'
   3|
```

```
export async function GET(req: NextRequest) {
  const supabase = await createClient()
  const { searchParams } = new URL(req.url)
  const id = searchParams.get('id')
  const userId = searchParams.get('userId')
  const publicOnly = searchParams.get('public') === 'true'

  if (id) {
    const { data, error } = await supabase
      .from('saved_builds')
      .select('*, cpu:products!cpu_id(*), gpu:products!gpu_id(*), mainboard:products!mainboard_id(*), psu:prod...
      .eq('id', id)
      .single()

    if (error) return NextResponse.json({ error: error.message }, { status: 500 })
    return NextResponse.json({ build: data })
  }

  let query = supabase
    .from('saved_builds')
    .select('id, name, compatibility_score, total_tdp, total_price, created_at, user_id')

  if (publicOnly) {
    query = query.eq('is_public', true)
  } else if (userId) {
    query = query.eq('user_id', userId)
  } else {
    const { data: { user } } = await supabase.auth.getUser()
    if (user) query = query.eq('user_id', user.id)
    else return NextResponse.json({ builds: [] })
  }

  const { data, error } = await query.order('created_at', { ascending: false }).limit(20)

  if (error) return NextResponse.json({ error: error.message }, { status: 500 })
  return NextResponse.json({ builds: data || [] })
}

export async function POST(req: NextRequest) {
  const supabase = await createClient()
  const { data: { user } } = await supabase.auth.getUser()
  if (!user) return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })

  const body = await req.json()
  const { data, error } = await supabase
    .from('saved_builds')
    .upsert({
      user_id: user.id,
      name: body.name || 'Build mÛi',
      cpu_id: body.cpu_id || null,
      gpu_id: body.gpu_id || null,
      mainboard_id: body.mainboard_id || null,
      ram_ids: body.ram_ids || [],
      psu_id: body.psu_id || null,
      case_id: body.case_id || null,
      cooler_id: body.cooler_id || null,
      ssd_ids: body.ssd_ids || [],
      compatibility_score: body.compatibility_score || 0,
      total_tdp: body.total_tdp || 0,
      total_price: body.total_price || 0,
      is_public: body.is_public || false,
    })
    .select('id')
    .single()

  if (error) return NextResponse.json({ error: error.message }, { status: 500 })
  return NextResponse.json({ id: data.id })
}

export async function DELETE(req: NextRequest) {
  const supabase = await createClient()
  const { data: { user } } = await supabase.auth.getUser()
  if (!user) return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })

  const { searchParams } = new URL(req.url)
  const id = searchParams.get('id')
  if (!id) return NextResponse.json({ error: 'Missing id' }, { status: 400 })

  const { error } = await supabase
    .from('saved_builds')
    .delete()
    .eq('id', id)
    .eq('user_id', user.id)

  if (error) return NextResponse.json({ error: error.message }, { status: 500 })
  return NextResponse.json({ success: true })
}
```

File: app/api/career-suggest/route.ts (420 lines, 25.7 KB)

```
import { NextRequest, NextResponse } from 'next/server';

const GROQ_API_URL = 'https://api.groq.com/openai/v1/chat/completions';
const GROQ_MODEL = 'llama-3.3-70b-versatile';

interface BuildItem {
  id: string; name: string; type: string; price: number; reason: string;
}

const CAREER_BUILDS: Record<string, { explanation: string; build: BuildItem[]; totalPrice: number; tips: strin...
  'ai engineer': {
    explanation: 'AI Engineer c§n c¥u hình m¡nh vÁ GPU Ã train model AI
    build: [
      { id: 'cpu_r9_7950x', name: 'AMD Ryzen 9 7950X', type: 'CPU', price: 14975000, reason: '16 nhân cho trai...
      {id: 'gpu_rtx_4090', name: 'NVIDIA RTX 4090 24GB', type: 'GPU', p
      {id: 'ram_d5_64G', name: '64GB (2x32GB) DDR5-6400', type: 'RAM', p
      {id: 'storage_2tb_ssd', name: '2TB NVMe Gen4', type: 'Storage', p
      {id: 'psu_1000w', name: '1000W 80+ Platinum', type: 'PSU', price:
      {id: 'mb_b650_amd', name: 'B650 Tomahawk WiFi (AM5)', type: 'Main
      {id: 'cooler_aio', name: 'T£n NhiÇt N°Ûc AIO 360mm', type: 'Coole
    ],
    totalPrice: 76275000,
    tips: 'Dùng thêm RAM 64GB+ n¿u làm viÇc vÛi dataset lÛn. Cân nh¯c th
  },
  'it engineer': {
    explanation: 'Kù s° IT c§n c¥u hình m¡nh Ã xí lý công viÇc l-p trìn
    build: [
      {id: 'cpu_i7_13700k', name: 'Intel Core i7-13700K', type: 'CPU',
      {id: 'gpu_rtx_4060', name: 'NVIDIA RTX 4060 8GB', type: 'GPU', pr
      {id: 'storage_2tb_ssd', name: '2TB NVMe Gen4', type: 'Storage', p
      {id: 'psu_750w', name: '750W 80+ Gold Fully Modular', type: 'PSU'
```

```
    3 3 |            {  i d :  ' m b _ z 7 9 0 ' ,  n a m e :  ' Z 7 9 0  A o r u s  M a s t e r  ( L G A 1 7 0 0 ) ' ,  t y p e :  ' M a i n b
    3 4 |            {  i d :  ' c o o l e r _ a i o ' ,  n a m e :  ' T £ n  N h i Ç t  N ° Ù c  A I O  3 6 0 m m ' ,  t y p e :  ' C o o l e
 35|     ],
 36|     totalPrice: 42250000,
    3 7 |        t i p s :  '  § u  t °  2 - 3  m à n  h ì n h  Ã  t n g  n n g  s u ¥ t .  N ê n  c ó  U P S  Ã  b £ o  v Ç  t
 38|   },
 39|   '3d designer': {
    4 0 |        e x p l a n a t i o n :  ' 3 D  D e s i g n e r  c § n  G P U  m ¡ n h  Ã  r e n d e r  Ó  h Í a ,  C P U  a  n h â n
 41|     build: [
 42|       { id: 'cpu_i9_14900k', name: 'Intel Core i9-14900K', type: 'CPU', price: 13750000, reason: '24 nhân cho ...
    4 3 |            {  i d :  ' g p u _ r t x _ 4 0 8 0 ' ,  n a m e :  ' N V I D I A  R T X  4 0 8 0  1 6 G B ' ,  t y p e :  ' G P U ' ,  p
    4 4 |            {  i d :  ' r a m _ d 5 _ 3 2 G ' ,  n a m e :  ' 3 2 G B  ( 2 x 1 6 G B )  D D R 5 - 6 0 0 0 ' ,  t y p e :  ' R A M ' ,
 45|       { id: 'storage_1tb_nvme_gen4', name: '1TB NVMe Gen4', type: 'Storage', price: 1800000, reason: 'Load pro...
    4 6 |            {  i d :  ' s t o r a g e _ 4 t b _ h d d ' ,  n a m e :  ' 4 T B  H D D  7 2 0 0 r p m ' ,  t y p e :  ' S t o r a g e ' ,
    4 7 |            {  i d :  ' p s u _ 8 5 0 w ' ,  n a m e :  ' 8 5 0 W  8 0 +  G o l d  F u l l y  M o d u l a r ' ,  t y p e :  ' P S U '
    4 8 |            {  i d :  ' m b _ z 7 9 0 ' ,  n a m e :  ' Z 7 9 0  A o r u s  M a s t e r  ( L G A 1 7 0 0 ) ' ,  t y p e :  ' M a i n b
    4 9 |            {  i d :  ' c o o l e r _ a i o ' ,  n a m e :  ' T £ n  N h i Ç t  N ° Ù c  A I O  3 6 0 m m ' ,  t y p e :  ' C o o l e
 50|     ],
 51|     totalPrice: 63800000,
    5 2 |        t i p s :  ' M à n  h ì n h  n ê n  c h Í n  l o ¡ i  2 7 "  2 K +  c ó  Ù  p h ç  m à u  c a o  ( A d o b e R G B  > 9
 53|   },
 54|   'video editor': {
    5 5 |        e x p l a n a t i o n :  ' V i d e o  E d i t o r  c § n  C P U  m ¡ n h  Ã  r e n d e r ,  G P U  h ×  t r ã  c o d e c ,
 56|     build: [
 57|       { id: 'cpu_i7_13700k', name: 'Intel Core i7-13700K', type: 'CPU', price: 9500000, reason: '16 nhân cho r...
    5 8 |            {  i d :  ' g p u _ r t x _ 4 0 7 0 ' ,  n a m e :  ' N V I D I A  R T X  4 0 7 0  1 2 G B ' ,  t y p e :  ' G P U ' ,  p
    5 9 |            {  i d :  ' r a m _ d 5 _ 3 2 G ' ,  n a m e :  ' 3 2 G B  ( 2 x 1 6 G B )  D D R 5 - 6 0 0 0 ' ,  t y p e :  ' R A M ' ,
 60|       { id: 'storage_2tb_ssd', name: '2TB NVMe Gen4', type: 'Storage', price: 3250000, reason: 'Load video nha...
    6 1 |            {  i d :  ' s t o r a g e _ 4 t b _ h d d ' ,  n a m e :  ' 4 T B  H D D  7 2 0 0 r p m ' ,  t y p e :  ' S t o r a g e ' ,
    6 2 |            {  i d :  ' p s u _ 7 5 0 w ' ,  n a m e :  ' 7 5 0 W  8 0 +  G o l d  F u l l y  M o d u l a r ' ,  t y p e :  ' P S U '
    6 3 |            {  i d :  ' m b _ b 6 6 0 m ' ,  n a m e :  ' B 6 6 0 M  P r o  ( I n t e l  L G A 1 7 0 0 ) ' ,  t y p e :  ' M a i n b o
 64|     ],
 65|     totalPrice: 36500000,
    6 6 |        t i p s :  ' ¯ u  t i ê n  m à n  h ì n h  4 K  v Û i  Ù  p h ç  m à u  c a o .  T h ê m  R A M  n ¿ u  e d i t  v i d
 67|   },
 68|   'streamer': {
    6 9 |        e x p l a n a t i o n :  ' S t r e a m e r / G a m e r  c § n  G P U  m ¡ n h  c h o  g a m e ,  C P U  ç  n h â n  c h o
 70|     build: [
 71|       { id: 'cpu_r7_7800x3d', name: 'AMD Ryzen 7 7800X3D', type: 'CPU', price: 10500000, reason: 'CPU gaming t...
    7 2 |            {  i d :  ' g p u _ r t x _ 4 0 7 0 ' ,  n a m e :  ' N V I D I A  R T X  4 0 7 0  1 2 G B ' ,  t y p e :  ' G P U ' ,  p
    7 3 |            {  i d :  ' r a m _ d 5 _ 3 2 G ' ,  n a m e :  ' 3 2 G B  ( 2 x 1 6 G B )  D D R 5 - 6 0 0 0 ' ,  t y p e :  ' R A M ' ,
    7 4 |            {  i d :  ' s t o r a g e _ 1 t b _ n v m e _ g e n 4 ' ,  n a m e :  ' 1 T B  N V M e  G e n 4 ' ,  t y p e :  ' S t o r a
    7 5 |            {  i d :  ' p s u _ 7 5 0 w ' ,  n a m e :  ' 7 5 0 W  8 0 +  G o l d  F u l l y  M o d u l a r ' ,  t y p e :  ' P S U '
    7 6 |            {  i d :  ' m b _ b 6 5 0 _ a m d ' ,  n a m e :  ' B 6 5 0  T o m a h a w k  W i F i  ( A M 5 ) ' ,  t y p e :  ' M a i n
    7 7 |            {  i d :  ' c o o l e r _ a i r ' ,  n a m e :  ' T £ n  N h i Ç t  K h í  T i ê u  C h u © n ' ,  t y p e :  ' C o o l e
 78|     ],
 79|     totalPrice: 36900000,
    8 0 |        t i p s :  '  § u  t °  w e b c a m  +  m i c r o p h o n e  c h ¥ t  l ° ã n g .  M à n  h ì n h  2 7 "  1 4 4 0 p  1 6 5
 81|   },
 82|   'coder': {
    8 3 |        e x p l a n a t i o n :  ' L - p  t r ì n h  v i ê n  c § n  C P U  m ¡ n h  Ã  c o m p i l e ,  R A M  l Û n  c h o  I D
 84|     build: [
 85|       { id: 'cpu_i5_13600k', name: 'Intel Core i5-13600K', type: 'CPU', price: 7000000, reason: '14 nhân cho c...
    8 6 |            {  i d :  ' g p u _ g t x _ 1 6 5 0 ' ,  n a m e :  ' N V I D I A  G T X  1 6 5 0  4 G B ' ,  t y p e :  ' G P U ' ,  p r
    8 7 |            {  i d :  ' r a m _ d 5 _ 3 2 G ' ,  n a m e :  ' 3 2 G B  ( 2 x 1 6 G B )  D D R 5 - 6 0 0 0 ' ,  t y p e :  ' R A M ' ,
 88|       { id: 'storage_1tb_nvme_gen4', name: '1TB NVMe Gen4', type: 'Storage', price: 1800000, reason: 'SSD siêu...
    8 9 |            {  i d :  ' p s u _ 5 0 0 w ' ,  n a m e :  ' 5 0 0 W  8 0 +  B r o n z e ' ,  t y p e :  ' P S U ' ,  p r i c e :  9 0 0
    9 0 |            {  i d :  ' m b _ b 6 6 0 m ' ,  n a m e :  ' B 6 6 0 M  P r o  ( I n t e l  L G A 1 7 0 0 ) ' ,  t y p e :  ' M a i n b o
 91|     ],
 92|     totalPrice: 18250000,
    9 3 |        t i p s :  '  § u  t °  2  m à n  h ì n h  Ã  t n g  n n g  s u ¥ t .  B à n  p h í m  c ¡  +  c h u Ù t  e r g o
 94|   },
 95|   'office worker': {
    9 6 |        e x p l a n a t i o n :  ' D â n  v  n  p h ò n g  c § n  m á y  Õ n  Ë n h ,  t i ¿ t  k i Ç m  i Ç n ,  ç  d ù n g
 97|     build: [
    9 8 |            {  i d :  ' c p u _ i 3 _ 1 2 1 0 0 ' ,  n a m e :  ' I n t e l  C o r e  i 3 - 1 2 1 0 0 F ' ,  t y p e :  ' C P U ' ,  p
    9 9 |            {  i d :  ' r a m _ d 4 _ 1 6 G ' ,  n a m e :  ' 1 6 G B  ( 2 x 8 G B )  D D R 4 - 3 2 0 0 ' ,  t y p e :  ' R A M ' ,  p
100|       { id: 'storage_500_ssd', name: '500GB NVMe Gen3', type: 'Storage', price: 700000, reason: 'SSD nhanh, kh...
  1 0 1 |            {  i d :  ' p s u _ 3 5 0 w ' ,  n a m e :  ' 3 5 0 W  P o w e r  S u p p l y ' ,  t y p e :  ' P S U ' ,  p r i c e :  3
102|       { id: 'mb_h510m_intel1200', name: 'H510M K (Intel LGA1200)', type: 'Mainboard', price: 1200000, reason: ...
103|     ],
104|     totalPrice: 5500000,
  1 0 5 |        t i p s :  ' T h ê m  m à n  h ì n h  2 4 "  I P S  Ã  b £ o  v Ç  m ¯ t .  C â n  n h ¯ c  t h ê m  S S D  5 0 0 G B
106|   },
107| };
108|
109| const MAC_BUILDS: Record<string, { explanation: string; model: string; build: BuildItem[]; totalPrice: number;...
110|   'coder': {
  1 1 1 |        e x p l a n a t i o n :  ' M a c B o o k  P r o  v Û i  c h i p  A p p l e  S i l i c o n  l à  l ñ a  c h Í n  t u y Ç t  v
112|     model: 'MacBook Pro 14" M4 Pro',
113|     build: [
114|       { id: 'mac_m4pro_cpu', name: 'Apple M4 Pro (12 CPU, 18 GPU)', type: 'CPU', price: 0, reason: 'Chip Apple...
  1 1 5 |            {  i d :  ' m a c _ m 4 p r o _ r a m ' ,  n a m e :  ' 2 4 G B  U n i f i e d  M e m o r y ' ,  t y p e :  ' R A M ' ,  p
  1 1 6 |            {  i d :  ' m a c _ m 4 p r o _ s s d ' ,  n a m e :  ' 5 1 2 G B  S S D ' ,  t y p e :  ' S t o r a g e ' ,  p r i c e :
117|     ],
118|     totalPrice: 39990000,
  1 1 9 |        t i p s :  ' N ¿ u  c § n  n h i Á u  R A M  h ¡ n ,  n â n g  l ê n  3 6 G B  h o · c  4 8 G B .  M à n  h ì n h  1 4 "
120|   },
121|   'video editor': {
  1 2 2 |        e x p l a n a t i o n :  ' M a c  S t u d i o  v Û i  M 4  M a x  h o · c  M a c B o o k  P r o  P r o  l à  l ñ a  c h Í n
123|     model: 'Mac Studio M4 Max',
124|     build: [
  1 2 5 |            {  i d :  ' m a c _ m 4 m a x _ c p u ' ,  n a m e :  ' A p p l e  M 4  M a x  ( 1 6  C P U ,  4 0  G P U ) ' ,  t y p e
  1 2 6 |            {  i d :  ' m a c _ m 4 m a x _ r a m ' ,  n a m e :  ' 6 4 G B  U n i f i e d  M e m o r y ' ,  t y p e :  ' R A M ' ,  p
  1 2 7 |            {  i d :  ' m a c _ m 4 m a x _ s s d ' ,  n a m e :  ' 1 T B  S S D ' ,  t y p e :  ' S t o r a g e ' ,  p r i c e :  0 ,
128|     ],
129|     totalPrice: 64990000,
  1 3 0 |        t i p s :  ' K ¿ t  h ã p  v Û i  m à n  h ì n h  P r o  D i s p l a y  X D R  h o · c  S t u d i o  D i s p l a y .  N â n
131|   },
132|   'office worker': {
  1 3 3 |        e x p l a n a t i o n :  ' M a c B o o k  A i r  M 4  l à  l ñ a  c h Í n  h o à n  h £ o  c h o  d â n  v  n  p h ò n g
134|     model: 'MacBook Air 13" M4',
135|     build: [
  1 3 6 |            {  i d :  ' m a c _ m 4 _ c p u ' ,  n a m e :  ' A p p l e  M 4  ( 8  C P U ,  1 0  G P U ) ' ,  t y p e :  ' C P U ' ,
  1 3 7 |            {  i d :  ' m a c _ m 4 _ r a m ' ,  n a m e :  ' 1 6 G B  U n i f i e d  M e m o r y ' ,  t y p e :  ' R A M ' ,  p r i c
  1 3 8 |            {  i d :  ' m a c _ m 4 _ s s d ' ,  n a m e :  ' 2 5 6 G B  S S D ' ,  t y p e :  ' S t o r a g e ' ,  p r i c e :  0 ,
139|     ],
140|     totalPrice: 21990000,
  1 4 1 |        t i p s :  ' M a c B o o k  A i r  c ñ c  k ó  p h ù  h ã p  c h o  s i n h  v i ê n  n h Ý  p i n  1 8  t i ¿ n g .  N ã
142|   },
143| };
144|
145| const SPELL_CORRECTIONS: Record<string, string> = {
  1 4 6 |      ' k y  t h u a t  v i e n ' :  ' k ù  t h u - t  v i ê n ' ,  ' k y  s u ' :  ' k ù  s ° ' ,  ' l a p  t r i n h ' :  ' l - p
  1 4 7 |      ' t h i e t  k e ' :  ' t h i ¿ t  k ¿ ' ,  ' d o  h o a ' :  ' Õ  h Í a ' ,  ' l a m  p h i m ' :  ' l à m  p h i m ' ,
  1 4 8 |      ' h o c  s i n h ' :  ' h Í c  s i n h ' ,  ' s i n h  v i e n ' :  ' s i n h  v i ê n ' ,  ' v a n  p h o n g ' :  ' v  n  p h
  1 4 9 |      ' n h a n  v i e n ' :  ' n h â n  v i ê n ' ,  ' q u a n  t r i ' :  ' q u £ n  t r Ë ' ,  ' h e  t h o n g ' :  ' h Ç  t h Ñ n
  1 5 0 |      ' m a y  t i n h ' :  ' m á y  t í n h ' ,  ' g a m e  t h u ' :  ' g a m e  t h ç ' ,  ' a i  e n g ' :  ' a i  e n g i n e e r
151|   'machine learning': 'machine learning', 'deep learning': 'deep learning',
152|   'data scientist': 'data scientist', 'web dev': 'web developer',
153| };
154|
155| function spellCheck(text: string): string {
156|   const lower = text.toLowerCase().trim();
```

```
157|   // Exact match
158|   if (SPELL_CORRECTIONS[lower]) return SPELL_CORRECTIONS[lower];
159|   // Word-by-word replacement
160|   const words = lower.split(/ /);
161|   const corrected = words.map(w => {
162|     // Check exact word
163|     if (SPELL_CORRECTIONS[w]) return SPELL_CORRECTIONS[w];
164|     // Check with simple edit distance
165|     for (const [key, val] of Object.entries(SPELL_CORRECTIONS)) {
166|       if (key.includes(w) || w.includes(key)) return val;
167|       const dist = levenshtein(w, key);
168|       if (dist <= 2) return val;
169|     }
170|     return w;
171|   });
172|   return corrected.join(' ');
173| }
174|
175| function levenshtein(a: string, b: string): number {
176|   const m = a.length, n = b.length;
177|   const dp: number[][] = Array.from({ length: m + 1 }, () => Array(n + 1).fill(0));
178|   for (let i = 0; i <= m; i++) dp[i][0] = i;
179|   for (let j = 0; j <= n; j++) dp[0][j] = j;
180|   for (let i = 1; i <= m; i++) {
181|     for (let j = 1; j <= n; j++) {
182|       dp[i][j] = a[i - 1] === b[j - 1] ? dp[i - 1][j - 1] : 1 + Math.min(dp[i - 1][j], dp[i][j - 1], dp[i - 1]...
183|     }
184|   }
185|   return dp[m][n];
186| }
187|
188| const KEYWORD_MAP: Record<string, string> = {
189|       'it engineer': 'it engineer', 'it': 'it engineer', 'ky su it': 'it eng
190|   'it support': 'it engineer', 'system admin': 'it engineer', 'quan tri he thong': 'it engineer',
191|       'qu£n trË hÇ thÑng': 'it engineer', 'network engineer': 'it engineer',
192|       'kù thu-t viên máy tính': 'it engineer', 'ky su cong nghe thong tin':
193|       'kù s° công nghÇ thông tin': 'it engineer', 'software engineer': 'code
194|       'developer': 'coder', 'lap trinh vien': 'coder', 'l-p trình viên': 'co
195|   'web developer': 'coder', 'programmer': 'coder', 'data scientist': 'ai engineer',
196|   'machine learning': 'ai engineer', 'deep learning': 'ai engineer', 'ai': 'ai engineer',
197|       'graphic designer': '3d designer', 'thiet ke do hoa': '3d designer',
198|   'game developer': '3d designer', 'game designer': '3d designer', 'lam phim': 'video editor',
199|   'làm phim': 'video editor', 'content creator': 'video editor', 'youtuber': 'streamer',
200|       'gamer': 'streamer', 'game thç': 'streamer', 'game thu': 'streamer',
201|       'hoc sinh': 'office worker', 'hÍc sinh': 'office worker', 'sinh vien':
202|       'sinh viên': 'office worker', 'van phong': 'office worker', 'v n phòng
203|   'nhan vien': 'office worker', 'nhân viên': 'office worker',
204|       'mac': '', 'macbook': '', 'apple': '', // Mac prefix !' empty for separ
205| }
206|
207| function analyzeCareer(careerName: string) {
208|   const name = careerName.toLowerCase().trim();
209|
210|   // Exact match first
211|   for (const [key, value] of Object.entries(CAREER_BUILDS)) {
212|     if (name === key || name.includes(key) || key.includes(name)) return { ...value, career: careerName };
213|   }
214|
215|   // Keyword map
216|   for (const [kw, mapped] of Object.entries(KEYWORD_MAP)) {
217|     if (name.includes(kw) && mapped) {
218|       const build = CAREER_BUILDS[mapped];
219|       if (build) return { ...build, career: careerName };
220|     }
221|   }
222|
223|   // Word-by-word matching
224|   const words = name.split(/ /);
225|   for (const [key, value] of Object.entries(CAREER_BUILDS)) {
226|     let matchedWords = 0;
227|     for (const w of words) {
228|       if (w.length > 2 && (key.includes(w) || w.includes(key))) matchedWords++;
229|     }
230|     if (matchedWords >= 1) return { ...value, career: careerName };
231|   }
232|
233|   return null;
234| }
235|
236| function analyzeMac(careerName: string) {
237|   const name = careerName.toLowerCase().trim();
238|   // Check if user explicitly wants Mac
239|   const wantsMac = name.includes('mac') || name.includes('apple');
240|   const mapped = wantsMac ? KEYWORD_MAP[name.split(/ /).find((w: string) => ![‘mac', 'apple', 'macbook'].inc...
241|
242|   for (const [key, value] of Object.entries(MAC_BUILDS)) {
243|     if (name.includes(key) || key.includes(name) || (mapped && key === mapped)) {
244|       return { ...value, career: careerName, isMac: true };
245|     }
246|   }
247|   return null;
248| }
249|
250| function defaultBuild(careerName: string) {
251|   return {
252|     career: careerName,
253|       explanation: `C¥u hình PC an ng phù hãp vÛi "${careerName}". ây
254|     build: [
255|       { id: 'cpu_r5_5600', name: 'AMD Ryzen 5 5600', type: 'CPU', price:
256|       { id: 'gpu_gtx_1650', name: 'NVIDIA GTX 1650 4GB', type: 'GPU', pr
257|     { id: 'ram_d4_16G', name: '16GB (2x8GB) DDR4-3200', type: 'RAM', price: 1000000, reason: 'RAM 16GB tiêu ...
258|       { id: 'storage_500_ssd', name: '500GB NVMe Gen3', type: 'Storage',
259|       { id: 'psu_500w', name: '500W 80+ Bronze', type: 'PSU', price: 90
260|       { id: 'mb_b450_amd', name: 'B450M DS3H (AMD AM4)', type: 'Mainboar
261|     ],
262|     totalPrice: 8200000,
263|       tips: 'Bin có thÃ nâng c¥p RAM lên 32GB và thêm SSD dung l°ãng lÛn n
264|   };
265| }
266|
267| function defaultMacBuild(careerName: string) {
268|   return {
269|     career: careerName,
270|     model: 'MacBook Air M4',
271|     isMac: true,
272|       explanation: `MacBook Air M4 là lña chÍn tuyÇt vÝi cho "${careerName
273|     build: [
274|       { id: 'mac_m4_base', name: 'Apple M4 (8 CPU, 10 GPU)', type: 'CPU', price: 0, reason: 'Chip Apple Silico...
275|       { id: 'mac_m4_ram', name: '16GB Unified Memory', type: 'RAM', pric
276|       { id: 'mac_m4_ssd', name: '256GB SSD', type: 'Storage', price: 0,
277|     ],
278|     totalPrice: 21990000,
279|       tips: 'MacBook Air cñc kó phù hãp cho công viÇc v n phòng và hÍc t-p
280|   };
```

```
281| }
282|
283| async function callGroq(careerName: string, customCondition?: string): Promise<any | null> {
284|   const apiKey = process.env.GROQ_API_KEY || '';
285|   if (!apiKey) return null;
286|   try {
   2 8 7 |          l e t   u s e r C o n t e n t   =   `N g ° Ý i   d ù n g   c ó   ° Û c   m ¡   n g h Á   n g h i Ç p :   " $ { c a r e e r N a m e } '
288|
289|     if (customCondition) {
   2 9 0 |              u s e r C o n t e n t   + =   ` \ n \ n N G ¯ Ü I   D Ù N G   C Ó   Y Ê U   C ¦ U   T H Ê M :   " $ { c u s t o m C o n d i t i o r
291|     }
292|
   2 9 3 |          u s e r C o n t e n t   + =   ` \ n \ n T r £   v Á   J S O N   C H Í N H   X Á C : \ n { " c a r e e r " : " T ê n   n g h Á   n g h i
294|
295|     const r = await fetch(GROQ_API_URL, {
296|       method: 'POST',
297|       headers: { 'Content-Type': 'application/json', 'Authorization': `Bearer ${apiKey}` },
298|       body: JSON.stringify({
299|         model: GROQ_MODEL,
300|         messages: [
   3 0 1 |           {   r o l e :   ' s y s t e m ' ,   c o n t e n t :   ' B ¡ n   l à   c h u y ê n   g i a   t °   v ¥ n   c ¥ u   h ì n h
302|           { role: 'user', content: userContent }
303|         ],
304|         temperature: 0.4,
305|         max_tokens: 4096,
306|       }),
307|     });
308|     if (!r.ok) return null;
309|     const data = await r.json();
310|     const text = data.choices?.[0]?.message?.content;
311|     if (!text) return null;
312|     const cleaned = text.replace(/```json/g, '').replace(/```/g, '').trim();
313|     return JSON.parse(cleaned);
314|   } catch { return null; }
315| }
316|
317| export async function POST(request: NextRequest) {
318|   try {
319|     const { career, customDream, customCondition, preferMac } = await request.json();
320|     let careerName = career || customDream;
   3 2 1 |          i f   ( ! c a r e e r N a m e )   r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' V u i   l ò n g   n h - p   ° Ú
322|
323|     // Spell check
324|     const corrected = spellCheck(careerName);
325|     if (corrected !== careerName.toLowerCase().trim()) careerName = corrected;
326|
327|     const wantsMac = preferMac || careerName.toLowerCase().includes('mac') || careerName.toLowerCase().include...
328|
329|     let result = null;
330|     let macResult = null;
331|
332|     // If user wants Mac, try Mac analysis first
333|     if (wantsMac) {
334|       macResult = analyzeMac(careerName);
335|       if (!macResult) {
336|         const groqResult = await callGroq(careerName + ' (Mac/Apple)', customCondition);
337|         if (groqResult) macResult = { ...groqResult, isMac: true };
338|       }
339|       if (!macResult) macResult = defaultMacBuild(careerName);
340|     }
341|
342|     // Get Windows PC build
343|     result = await callGroq(careerName, customCondition);
344|     if (!result) {
345|       result = analyzeCareer(careerName) || defaultBuild(careerName);
346|     }
347|
348|     const enrich = (items: BuildItem[]) => items.map((item: BuildItem) => ({
349|       ...item, image: getComponentImage(item.type),
350|     }));
351|
352|     const response: any = { ...result, build: enrich(result.build) };
353|
354|     if (macResult) {
355|       response.macBuild = macResult.isMac ? {
356|         ...macResult,
357|         build: enrich(macResult.build || []),
358|       } : null;
359|     }
360|
361|     return NextResponse.json(response);
362|   } catch (e: any) {
   3 6 3 |          r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' K h ô n g   t h Ã   g ã i   ý   c ¥ u   h ì n h .   V u i   l ò r
364|   }
365| }
366|
367| const GEARVN_LINKS: Record<string, string> = {
368|   CPU: 'https://gearvn.com/collections/cpu-bo-vi-xu-ly',
369|   GPU: 'https://gearvn.com/collections/vga-card-man-hinh',
370|   RAM: 'https://gearvn.com/collections/ram-desktop',
371|   Mainboard: 'https://gearvn.com/collections/mainboard-bo-mach-chu',
372|   Storage: 'https://gearvn.com/collections/ssd-o-cung-ran',
373|   PSU: 'https://gearvn.com/collections/psu-nguon-may-tinh',
374|   Cooler: 'https://gearvn.com/collections/tan-nhiet',
375|   Case: 'https://gearvn.com/collections/case-vo-may-tinh',
376|   Monitor: 'https://gearvn.com/collections/man-hinh',
377| };
378|
379| function getGearVnLink(item: BuildItem): string {
380|   const name = (item.name || '').toLowerCase();
381|   // Try to find specific product link via search
382|   if (name.includes('rtx 5090')) return 'https://gearvn.com/products/nvidia-geforce-rtx-5090';
383|   if (name.includes('rtx 5080')) return 'https://gearvn.com/products/nvidia-geforce-rtx-5080';
384|   if (name.includes('rtx 4090')) return 'https://gearvn.com/products/nvidia-geforce-rtx-4090';
385|   if (name.includes('rtx 4080')) return 'https://gearvn.com/products/nvidia-geforce-rtx-4080';
386|   if (name.includes('rtx 4070')) return 'https://gearvn.com/products/nvidia-geforce-rtx-4070';
387|   if (name.includes('rtx 4060')) return 'https://gearvn.com/products/nvidia-geforce-rtx-4060';
388|   if (name.includes('rtx 3060')) return 'https://gearvn.com/products/nvidia-geforce-rtx-3060';
389|   if (name.includes('rx 7900')) return 'https://gearvn.com/products/amd-radeon-rx-7900xtx';
390|   if (name.includes('rx 7800')) return 'https://gearvn.com/products/amd-radeon-rx-7800xt';
391|   if (name.includes('rx 7700')) return 'https://gearvn.com/products/amd-radeon-rx-7700xt';
392|   if (name.includes('gtx 1650') || name.includes('gtx1650')) return 'https://gearvn.com/products/nvidia-geforc...
393|   if (name.includes('core i9') || name.includes('i9-')) return 'https://gearvn.com/products/intel-core-i9-1490...
394|   if (name.includes('core i7') || name.includes('i7-')) return 'https://gearvn.com/products/intel-core-i7-1470...
395|   if (name.includes('core i5') || name.includes('i5-')) return 'https://gearvn.com/products/intel-core-i5-1460...
396|   if (name.includes('core i3') || name.includes('i3-')) return 'https://gearvn.com/products/intel-core-i3-1410...
397|   if (name.includes('ryzen 9') || name.includes('r9 ')) return 'https://gearvn.com/products/amd-ryzen-9-7950x';
398|   if (name.includes('ryzen 7') || name.includes('r7 ')) return 'https://gearvn.com/products/amd-ryzen-7-7800x3d';
399|   if (name.includes('ryzen 5') || name.includes('r5 ')) return 'https://gearvn.com/products/amd-ryzen-5-7600x';
400|   if (name.includes('ddr5') || name.includes('ddr5')) return 'https://gearvn.com/collections/ram-desktop-ddr5';
401|   if (name.includes('ddr4') || name.includes('ddr4')) return 'https://gearvn.com/collections/ram-desktop-ddr4';
402|   if (name.includes('nvme') || name.includes('ssd')) return 'https://gearvn.com/collections/ssd-nvme';
403|   if (name.includes('macbook') || name.includes('mac book')) return 'https://gearvn.com/collections/macbook';
404|   if (name.includes('mac studio')) return 'https://gearvn.com/collections/mac-studio';
```

```
  405|   if (name.includes('macbook air')) return 'https://gearvn.com/collections/macbook-air';
  406|   if (name.includes('macbook pro')) return 'https://gearvn.com/collections/macbook-pro';
  407|   // Fallback by type
  408|   return GEARVN_LINKS[item.type] || 'https://gearvn.com';
  409| }
  410|
  411| function getComponentImage(type: string): string {
  412|   const map: Record<string, string> = {
  413|     CPU: '/images/cpu_amd_front.png', GPU: '/images/gpu_rtx_5090_front.png',
  414|     RAM: '/images/ddr5_ram_front.png', Storage: '/images/nvme_ssd_front.png',
  415|     PSU: '/images/psu_front.png', Cooler: '/images/air_cooler_front.png',
  416|     Mainboard: '/images/mainboard_front.png',
  417|   };
  418|   return map[type] || '/images/mainboard_front.png';
  419| }
  420|
```

File: app/api/challenges/route.ts (124 lines, 4.6 KB)

```
==========================================================================================
    1| import { NextRequest, NextResponse } from 'next/server'
    2| import { createClient } from '@/lib/supabase-ssr-server'
    3|
        4 |   c o n s t   C H A L L E N G E S _ S Y S T E M _ P R O M P T   =   ` B ¡ n   l à   A I   t ¡ o   n h i Ç m   v å   ( Q u e s t   G e n e r a t
        5 |   N h i Ç m   v å   c ç a   b ¡ n   l à   t ¡ o   R A   1 0   N H I Æ M   V ä   ( C H A L L E N G E S )   m × i   n g à y   d ñ a   t r ê n   t ¥
        6 |   M × i   n h i Ç m   v å   p h £ i   t h ñ c   t ¿ ,   c ó   t h Ã   t h ñ c   h i Ç n   ° ã c   t r ê n   w e b ,   v à   t   n g   X P .
    7|
        8 |   C á c   t í n h   n   n g   c ç a   w e b :
        9 |   1 .   L   p   r á p   P C   ( P C   B u i l d e r )   -   K é o   t h £   l i n h   k i Ç n ,   k i Ã m   t r a   t ° ¡ n g   t h í c h
      1 0 |   2 .   C h © n   o á n   P C   ( D i a g n o s i s )   -   M ô   t £   l × i ,   A I   c h © n   o á n
      1 1 |   3 .   C à i   · t   W i n d o w s   1 1   -   M ô   p h Ï n g   c à i   W i n 1 1
      1 2 |   4 .   T r a   g i á   l i n h   k i Ç n   -   S o   s á n h   g i á   l i n h   k i Ç n   P C
      1 3 |   5 .   Q u i z   k i ¿ n   t h é c   -   B à i   t r   c   n g h i Ç m   t i n   h Í c
      1 4 |   6 .   T h i   t h í   ( E x a m )   -   T h i   c ó   g i á m   s á t
      1 5 |   7 .   G ã i   ý   m á y   t í n h   ( P C   S u g g e s t )   -   Á   x u ¥ t   c ¥ u   h ì n h
      1 6 |   8 .   X e m   b à i   g i £ n g   ( L e s s o n s )   -   H Í c   l ý   t h u y ¿ t
      1 7 |   9 .   T h £ o   l u - n   ( D i s c u s s i o n )   -   H Ï i   á p   t r ê n   d i Ã n   à n
      1 8 |   1 0 .   Ë n h   h ° Û n g   n g h Á   n g h i Ç p   ( C a r e e r )   -   Q u i z   n g h Á   n g h i Ç p
   19|
      2 0 |   L u - t :
      2 1 |   -   1 0   n h i Ç m   v å / n g à y ,   a   d ¡ n g   c á c   t í n h   n   n g
      2 2 |   -   M × i   n h i Ç m   v å   c ó :   t i t l e ,   d e s c r i p t i o n ,   t y p e ,   d i f f i c u l t y   ( e a s y / m e d i u m / h a r
      2 3 |   -   D ¡ n g   J S O N   a r r a y   t h u § n   t ú y ,   k h ô n g   m a r k d o w n `
   24|
   25| export async function GET(request: NextRequest) {
   26|   try {
   27|     const supabase = await createClient()
   28|     const { data: { user } } = await supabase.auth.getUser()
   29|     if (!user) {
   30|       return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
   31|     }
   32|
   33|     const { data: todayQuests } = await supabase
   34|       .from('daily_quests')
   35|       .select('*')
   36|       .eq('is_active', true)
   37|       .gte('created_at', new Date().toISOString().slice(0, 10))
   38|       .limit(10)
   39|
   40|     if (todayQuests && todayQuests.length >= 10) {
   41|       return NextResponse.json({ quests: todayQuests, cached: true })
   42|     }
   43|
   44|     const apiKey = process.env.GOOGLE_GEMINI_API_KEY || process.env.GEMINI_API_KEY
   45|     if (!apiKey) {
   46|       const { data: fallbackQuests } = await supabase
   47|         .from('daily_quests')
   48|         .select('*')
   49|         .eq('is_active', true)
   50|         .limit(10)
   51|       return NextResponse.json({ quests: fallbackQuests || [], cached: true, fallback: true })
   52|     }
   53|
   54|     const res = await fetch(`https://generativelanguage.googleapis.com/v1/models/gemini-1.5-flash:generateCont...
   55|       method: 'POST',
   56|       headers: { 'Content-Type': 'application/json' },
   57|       body: JSON.stringify({
   58|         contents: [{
   59|
      6 0 |                         t e x t :   ` $ { C H A L L E N G E S _ S Y S T E M _ P R O M P T } \ n \ n H ô m   n a y   l à   $ { n e w   D a t e (
   61|           }]
   62|         }],
   63|         generationConfig: { temperature: 0.8, maxOutputTokens: 2048 }
   64|       })
   65|     })
   66|
   67|     if (!res.ok) {
   68|       const { data: fallbackQuests } = await supabase
   69|         .from('daily_quests')
   70|         .select('*')
   71|         .eq('is_active', true)
   72|         .limit(10)
   73|       return NextResponse.json({ quests: fallbackQuests || [], cached: true, fallback: true })
   74|     }
   75|
   76|     const data = await res.json()
   77|     const text = data?.candidates?.[0]?.content?.parts?.[0]?.text || '[]'
   78|     const jsonMatch = text.match(/\[[\s\S]*\]/)
   79|     const jsonStr = jsonMatch ? jsonMatch[0] : '[]'
   80|
   81|     let quests: any[]
   82|     try {
   83|       quests = JSON.parse(jsonStr)
   84|
   85|       for (const q of quests) {
   86|         const { data: existing } = await supabase
   87|           .from('daily_quests')
   88|           .select('id')
   89|           .eq('title', q.title)
   90|           .gte('created_at', new Date().toISOString().slice(0, 10))
   91|           .single()
   92|
   93|         if (!existing) {
   94|           await supabase.from('daily_quests').insert({
   95|             title: q.title,
   96|             description: q.description,
   97|             xp_reward: q.xp_reward || 10,
   98|             type: q.type || 'daily',
   99|             difficulty: q.difficulty || 'easy',
     1 0 0 |                         i c o n :   q . i c o n   | |   'Ø=ÜË ' ,
  101|             requirement_type: q.requirement_type || 'lesson',
  102|             requirement_value: q.requirement_value || 1,
  103|             is_active: true,
  104|             expires_at: new Date(Date.now() + 86400000).toISOString(),
```

```
105|          })
106|        }
107|      }
108|    } catch {
109|      quests = []
110|    }
111|
112|    const { data: savedQuests } = await supabase
113|      .from('daily_quests')
114|      .select('*')
115|      .eq('is_active', true)
116|      .limit(10)
117|
118|    return NextResponse.json({ quests: savedQuests || quests || [], cached: false })
119|  } catch (error: any) {
120|    console.error('Error generating challenges:', error)
121|    return NextResponse.json({ error: 'Failed to generate challenges' }, { status: 500 })
122|  }
123| }
124|
```

File: app/api/chat/route.js (4 lines, 0.1 KB)

```
==========================================================================================
  1| export async function POST() {
  2|   return NextResponse.json({ reply: 'Vui lòng sí dẫng endpoint /api/ai/chat'
  3| }
  4|
```

File: app/api/classes/submit/route.ts (63 lines, 1.9 KB)

```
==========================================================================================
  1| import { createClient } from '@/lib/supabase-ssr-server';
  2| import { NextResponse } from 'next/server';
  3| import { autoGrade } from '@/lib/grading/auto-grade';
  4|
  5| export async function POST(request: Request) {
  6|   try {
  7|     const supabase = await createClient();
  8|     const { data: { user } } = await supabase.auth.getUser();
  9|
 10|     if (!user) {
 11|       return NextResponse.json({ error: 'Unauthorized' }, { status: 401 });
 12|     }
 13|
 14|     const body = await request.json();
 15|     const { assignment_id, class_id, pc_config } = body;
 16|
 17|     // 1. Fetch assignment requirements
 18|     const { data: assignment, error: asgError } = await supabase
 19|       .from('assignments')
 20|       .select('*')
 21|       .eq('id', assignment_id)
 22|       .single();
 23|
 24|     if (asgError || !assignment) {
 25|       return NextResponse.json({ error: 'Assignment not found' }, { status: 404 });
 26|     }
 27|
 28|     // 2. Auto-grade
 29|     const gradingResult = autoGrade(pc_config, assignment.requirements, assignment.max_score);
 30|
 31|     // 3. Check if late
 32|     const isLate = assignment.deadline ? new Date() > new Date(assignment.deadline) : false;
 33|
 34|     // 4. Save submission
 35|     const { data: submission, error: subError } = await supabase
 36|       .from('submissions')
 37|       .upsert({
 38|         assignment_id,
 39|         student_id: user.id,
 40|         class_id,
 41|         pc_config,
 42|         auto_score: gradingResult.score,
 43|         total_score: gradingResult.score, // Ban §u tÕng iÃm b±ng iÃm
 44|         is_late: isLate,
 45|         submitted_at: new Date().toISOString()
 46|       })
 47|       .select()
 48|       .single();
 49|
 50|     if (subError) throw subError;
 51|
 52|     return NextResponse.json({
 53|       success: true,
 54|       submission,
 55|       gradingResult
 56|     });
 57|
 58|   } catch (err: any) {
 59|     console.error('Submission API error:', err);
 60|     return NextResponse.json({ error: err.message }, { status: 500 });
 61|   }
 62| }
 63|
```

File: app/api/components/lock/route.ts (67 lines, 2.1 KB)

```
==========================================================================================
  1| import { NextResponse } from 'next/server';
  2| import { createServiceClient } from '@/lib/supabase-service';
  3|
  4| export async function POST(request: Request) {
  5|   try {
  6|     const { componentId, userId, action } = await request.json();
  7|     const supabase = createServiceClient();
  8|
  9|     if (action === 'lock') {
 10|       const expiresAt = new Date(Date.now() + 5 * 60 * 1000).toISOString();
 11|       const { data: existing } = await supabase
 12|         .from('components')
 13|         .select('locked_by, lock_expires_at')
 14|         .eq('id', componentId)
 15|         .single();
 16|
 17|       if (existing?.locked_by && existing.locked_by !== userId) {
 18|         const lockExpired = new Date(existing.lock_expires_at) < new Date();
 19|         if (!lockExpired) {
 20|           const { data: locker } = await supabase
 21|             .from('profiles')
 22|             .select('full_name')
 23|             .eq('id', existing.locked_by)
 24|             .single();
```

```
  25|           return NextResponse.json({
  26|             locked: false,
  27|             lockedBy: locker?.full_name || 'someone',
  28|             message: 'Component is being edited by another user',
  29|           }, { status: 409 });
  30|         }
  31|       }
  32|
  33|       await supabase
  34|         .from('components')
  35|         .update({ locked_by: userId, locked_at: new Date().toISOString(), lock_expires_at: expiresAt })
  36|         .eq('id', componentId);
  37|
  38|       return NextResponse.json({ locked: true });
  39|     }
  40|
  41|     if (action === 'release') {
  42|       await supabase
  43|         .from('components')
  44|         .update({ locked_by: null, locked_at: null, lock_expires_at: null })
  45|         .eq('id', componentId);
  46|
  47|       return NextResponse.json({ released: true });
  48|     }
  49|
  50|     if (action === 'heartbeat') {
  51|       const expiresAt = new Date(Date.now() + 5 * 60 * 1000).toISOString();
  52|       await supabase
  53|         .from('components')
  54|         .update({ lock_expires_at: expiresAt })
  55|         .eq('id', componentId)
  56|         .eq('locked_by', userId);
  57|
  58|       return NextResponse.json({ extended: true });
  59|     }
  60|
  61|     return NextResponse.json({ error: 'Invalid action' }, { status: 400 });
  62|   } catch (err) {
  63|     console.error('Lock error:', err);
  64|     return NextResponse.json({ error: 'Internal error' }, { status: 500 });
  65|   }
  66| }
  67|
```

File: app/api/components/notify/route.ts (38 lines, 1.4 KB)

```
   1| import { NextResponse } from 'next/server';
   2| import { createServiceClient } from '@/lib/supabase-service';
   3|
   4| export async function POST(request: Request) {
   5|   try {
   6|     const { componentId, componentName, action } = await request.json();
   7|     const supabase = createServiceClient();
   8|
   9|     if (action === 'published') {
  10 |             / /  G h i  n o t i f i c a t i o n  v à o  b £ n g  n o t i f i c a t i o n s
  11|       const { error } = await supabase.from('notifications').insert({
  12|         type: 'component_published',
  13|         title: 'New component published',
  14|         content: `New component "${componentName}" has been published and is ready to use.`,
  15|         metadata: { componentId, componentName },
  16|         created_at: new Date().toISOString(),
  17|       });
  18|       if (error) console.error('Notify error:', error);
  19|     }
  20|
  21|     if (action === 'updated') {
  22|       const { error } = await supabase.from('notifications').insert({
  23|         type: 'component_updated',
  24|         title: 'Component specs updated',
  25|         content: `Component "${componentName}" specs were updated. Please re-check compatibility.`,
  26|         metadata: { componentId, componentName },
  27|         created_at: new Date().toISOString(),
  28|       });
  29|       if (error) console.error('Notify error:', error);
  30|     }
  31|
  32|     return NextResponse.json({ ok: true });
  33|   } catch (err) {
  34|     console.error('Notify error:', err);
  35|     return NextResponse.json({ error: 'Internal error' }, { status: 500 });
  36|   }
  37| }
  38|
```

File: app/api/daily-quiz/route.ts (151 lines, 4.3 KB)

```
   1| import { NextRequest, NextResponse } from 'next/server'
   2| import { createClient } from '@/lib/supabase-ssr-server'
   3| import { FULL_QUIZ_BANK } from '@/data/quiz-bank-full'
   4| import { shuffleArray } from '@/lib/quiz-engine'
   5|
   6| const TOPICS = Object.values(FULL_QUIZ_BANK)
   7| const START_DATE = new Date('2026-06-01')
   8|
   9| function getTodayTopicIndex(): number {
  10|   const now = new Date()
  11|   const diffMs = now.getTime() - START_DATE.getTime()
  12|   const diffDays = Math.floor(diffMs / (1000 * 60 * 60 * 24))
  13|   return ((diffDays % TOPICS.length) + TOPICS.length) % TOPICS.length
  14| }
  15|
  16| export async function GET(request: NextRequest) {
  17|   const supabase = await createClient()
  18|   const { data: { user } } = await supabase.auth.getUser()
  19|
  20|   const { searchParams } = new URL(request.url)
  21|   const topicId = searchParams.get('topicId')
  22|   const todayIndex = getTodayTopicIndex()
  23|   const todayTopic = TOPICS[todayIndex]
  24|
  25|   if (!topicId) {
  26|     let completedTopicIds: string[] = []
  27|     if (user) {
  28|       const { data: txs } = await supabase
  29|         .from('xp_transactions')
  30|         .select('reference_id')
  31|         .eq('user_id', user.id)
  32|         .eq('reference_type', 'daily_quiz')
  33|       completedTopicIds = txs?.map(t => t.reference_id).filter(Boolean) || []
  34|     }
```

```
  35|
  36|     return NextResponse.json({
  37|       todayIndex,
  38|       todayTopicId: todayTopic.id,
  39|       todayTopic,
  40|       topics: TOPICS,
  41|       completedTopicIds,
  42|       isTodayCompleted: completedTopicIds.includes(todayTopic.id),
  43|     })
  44|   }
  45|
  46|   const topic = TOPICS.find(t => t.id === topicId)
  47|   if (!topic) {
  48|     return NextResponse.json({ error: 'Topic not found' }, { status: 404 })
  49|   }
  50|
  51|   let completed = false
  52|   if (user) {
  53|     const { data: existing } = await supabase
  54|       .from('xp_transactions')
  55|       .select('id')
  56|       .eq('user_id', user.id)
  57|       .eq('reference_type', 'daily_quiz')
  58|       .eq('reference_id', topicId)
  59|       .maybeSingle()
  60|     completed = !!existing
  61|   }
  62|
  63|   const questions = shuffleArray(topic.questions).slice(0, 10).map(q => ({
  64|     id: q.id,
  65|     text: q.text,
  66|     question: q.text,
  67|     options: q.options,
  68|     correct: q.correct,
  69|     explanation: q.explanation,
  70|   }))
  71|
  72|   return NextResponse.json({
  73|     topic,
  74|     questions,
  75|     completed,
  76|     isToday: topicId === todayTopic.id,
  77|   })
  78| }
  79|
  80| export async function POST(request: NextRequest) {
  81|   const supabase = await createClient()
  82|   const { data: { user } } = await supabase.auth.getUser()
  83|   if (!user) {
  84|     return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
  85|   }
  86|
  87|   const { topicId, score, total, xpEarned } = await request.json()
  88|
  89|   if (!topicId || xpEarned === undefined) {
  90|     return NextResponse.json({ error: 'Missing required fields' }, { status: 400 })
  91|   }
  92|
  93|   const cappedXp = Math.min(xpEarned, 50)
  94|
  95|   const { error: txErr } = await supabase
  96|     .from('xp_transactions')
  97|     .insert({
  98|       user_id: user.id,
  99|       amount: cappedXp,
 100|       reason: `Quiz hàng ngày: ${topicId} - ${score}/${total}`,
 101|       reference_type: 'daily_quiz',
 102|       reference_id: topicId,
 103|     })
 104|     .select('id')
 105|     .single()
 106|
 107|   if (txErr) {
 108|     return NextResponse.json({ error: txErr.message }, { status: 500 })
 109|   }
 110|
 111|   const { data: profile } = await supabase
 112|     .from('profiles')
 113|     .select('xp, level')
 114|     .eq('id', user.id)
 115|     .single()
 116|
 117|   const newXp = (profile?.xp || 0) + cappedXp
 118|   const now = new Date().toISOString()
 119|
 120|   let newLevel = 1
 121|   const levels = [0, 100, 300, 600, 1000, 1600, 2400, 3400, 4600, 6000, 8000, 10000, 13000, 17000, 22000, 2800...
 122|   for (let i = levels.length - 1; i >= 0; i--) {
 123|     if (newXp >= levels[i]) { newLevel = i + 1; break }
 124|   }
 125|
 126|   await supabase.from('profiles').update({ xp: newXp, level: newLevel, updated_at: now }).eq('id', user.id)
 127|
 128|   await supabase.from('leaderboard_cache').upsert({
 129|     user_id: user.id, total_xp: newXp, level: newLevel, updated_at: now,
 130|   }, { onConflict: 'user_id' })
 131|
 132|   await supabase.from('learning_stats').upsert({
 133|     user_id: user.id, total_xp: newXp, updated_at: now,
 134|   }, { onConflict: 'user_id' })
 135|
 136|   if (newLevel > (profile?.level || 1)) {
 137|     await supabase.from('notifications').insert({
   138 |               u s e r _ i d :   u s e r . i d ,   t y p e :   ' s u c c e s s ' ,   t i t l e :   ' L ê n   C ¥ p ! ' ,
   139 |               b o d y :   ` C h ú c   m ë n g !   B ¡ n   ã   ¡ t   c ¥ p   $ { n e w L e v e l } ! ` ,
 140|       data: { level: newLevel },
 141|     })
 142|   }
 143|
 144|   return NextResponse.json({
 145|     success: true,
 146|     xpAwarded: cappedXp,
 147|     newTotalXp: newXp,
 148|     newLevel,
 149|   })
 150| }
 151|
```

File: app/api/debug-role/route.ts (128 lines, 4.3 KB)

```
==========================================================================================
   1| import { createClient } from '@/lib/supabase-ssr-server'
   2| import { NextResponse } from 'next/server'
   3|
```

```
 4| export async function GET(request: Request) {
 5|   const requestUrl = new URL(request.url)
 6|   const role = requestUrl.searchParams.get('role')
 7|
 8|   if (!role || ![['student', 'teacher', 'parent', 'admin'].includes(role)) {
 9|     return NextResponse.json({
   1 0 |             e r r o r :   ' V u i   l ò n g   c u n g   c ¥ p   r o l e   h ã p   l Ç :   s t u d e n t ,   t e a c h e r ,   p a r e n t ,   h
11|     }, { status: 400 })
12|   }
13|
14|   const supabase = await createClient()
15|   const { data: { user } } = await supabase.auth.getUser()
16|
17|   if (!user) {
   1 8 |         r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' B ¡ n   c h ° a     n g   n h - p ! '   } ,   {   s t a t u s :
19|   }
20|
   2 1 |       / /   1 .   K i Ã m   t r a   x e m   p r o f i l e   ã   t Ó n   t ¡ i   c h ° a
22|   const { data: existingProfile } = await supabase
23|     .from('profiles')
24|     .select('id, full_name')
25|     .eq('id', user.id)
26|     .maybeSingle()
27|
28|   let dbError = null
29|
30|   if (existingProfile) {
   3 1 |         / /   N ¿ u   ã   c ó   p r o f i l e ,   c h É   U P D A T E   t r ° Ý n g   r o l e   ( k h ô n g   c h ¡ m   v à o   f u l l _ n a
32|     const { error } = await supabase
33|       .from('profiles')
34|       .update({
35|         role: role,
36|         updated_at: new Date().toISOString()
37|       })
38|       .eq('id', user.id)
39|     dbError = error
40|   } else {
   4 1 |         / /   N ¿ u   c h ° a   c ó   p r o f i l e ,   t ¡ o   m Û i   h o à n   c h É n h   v à   l ¥ y   f u l l _ n a m e   t ë   m e t a d
42|     const fullName = user.user_metadata?.full_name || user.email?.split('@')[0] || 'User'
43|     const { error } = await supabase
44|       .from('profiles')
45|       .insert({
46|         id: user.id,
47|         email: user.email,
48|         full_name: fullName,
49|         role: role,
50|         updated_at: new Date().toISOString()
51|       })
52|     dbError = error
53|   }
54|
55|   if (dbError) {
56|     return NextResponse.json({
   5 7 |             e r r o r :   ' C - p   n h - t   d a t a b a s e   t h ¥ t   b ¡ i ! ' ,
58|       details: dbError.message,
   5 9 |             t i p :   ' H ã y   c h ¯ c   c h ¯ n   r ± n g   b ¡ n   ã   c h ¡ y   c á c   c â u   l Ç n h   S Q L   p h â n   q u y Á n   R
60|     }, { status: 500 })
61|   }
62|
   6 3 |       / /   Ó n g   t h Ý i   c - p   n h - t   c £   m e t a d a t a   c ç a   U s e r   A u t h   Ã   Ó n g   b Ù   h o à n   t o à n
64|   await supabase.auth.updateUser({
65|     data: { role: role }
66|   })
67|
   6 8 |       / /   T r £   v Á   k ¿ t   q u £   t h à n h   c ô n g   v à   c h u y Ã n   h ° Û n g   v Á   d a s h b o a r d   t ° ¡ n g   é n g
69|   const redirectUrl = role === 'student' ? '/builder' : `/${role}`
70|
   7 1 |       / /   T r £   v Á   H T M L   t ñ   Ù n g   c h u y Ã n   h ° Û n g   c ñ c   k ó   m ° ã t   m à
72|   return new NextResponse(
73|     `<html>
74|       <head>
   7 5 |             < t i t l e >   a n g   c h u y Ã n   h ° Û n g . . . < / t i t l e >
76|         <meta http-equiv="refresh" content="2;url=${redirectUrl}" />
77|         <style>
78|           body {
79|             background-color: #0f0f1a;
80|             color: #ffffff;
81|             font-family: -apple-system, BlinkMacSystemFont, "Segoe UI", Roboto, Helvetica, Arial, sans-serif;
82|             display: flex;
83|             flex-direction: column;
84|             align-items: center;
85|             justify-content: center;
86|             height: 100vh;
87|             margin: 0;
88|           }
89|           .card {
90|             background: rgba(22, 33, 62, 0.5);
91|             border: 1px solid rgba(0, 210, 160, 0.2);
92|             padding: 40px;
93|             border-radius: 20px;
94|             text-align: center;
95|             box-shadow: 0 10px 30px rgba(0,0,0,0.5);
96|             max-width: 400px;
97|           }
98|           .spinner {
99|             border: 4px solid rgba(255, 255, 255, 0.1);
100|             width: 36px;
101|             height: 36px;
102|             border-radius: 50%;
103|             border-left-color: #00d2a0;
104|             animation: spin 1s linear infinite;
105|             margin: 20px auto;
106|           }
107|           @keyframes spin { 0% { transform: rotate(0deg); } 100% { transform: rotate(360deg); } }
108|           h2 { color: #00d2a0; margin-top: 0; }
109|           p { color: #a0aec0; font-size: 14px; }
110|         </style>
111|       </head>
112|       <body>
113|         <div class="card">
   1 1 4 |                 < h 2 > K í c h   h o ¡ t   v a i   t r ò   t h à n h   c ô n g !  Ø<ß‰ < / h 2 >
   1 1 5 |                 < p > T à i   k h o £ n   c ç a   b ¡ n   < s t r o n g > $ { u s e r . e m a i l } < / s t r o n g >   ã   ° ã c   c h
116|           <div class="spinner"></div>
   1 1 7 |                 < p >   a n g   t ñ   Ù n g   ° a   b ¡ n   v Á   t r a n g   D a s h b o a r d   c ç a   b ¡ n . . . < / p >
118|         </div>
119|       </body>
120|     </html>`,
121|     {
122|       headers: {
123|         'Content-Type': 'text/html; charset=utf-8',
124|       },
125|     }
126|   )
127| }
```

```
  128|
----------------------------------------------------------------------------------------------------
```

File: app/api/lesson-ai/route.js (50 lines, 2.2 KB)

```
====================================================================================================
    1| import { GoogleGenerativeAI } from "@google/generative-ai";
    2|
    3| const genAI = new GoogleGenerativeAI(process.env.GEMINI_API_KEY || process.env.GOOGLE_GEMINI_API_KEY);
    4|
    5| export async function POST(req) {
    6|     try {
    7|         const { lessonTitle, sections, type } = await req.json();
    8|
    9|         // Build context ONLY from actual lesson content
   10|         const textContent = (sections || [])
   11|             .map(s => {
   12|                 if (s.type === 'text') return `[${s.title}]\n${s.content}`;
   13|                 if (s.type === 'video') return `[Video: ${s.title}]`;
      1 4 |                                 i f   ( s . t y p e   = = =   ' p d f ' )   r e t u r n   ` [ T à i   l i Ç u   P D F :   $ { s . t i t l e } ]
      1 5 |                                 i f   ( s . t y p e   = = =   ' i m a g e ' )   r e t u r n   ` [ H ì n h   £ n h :   $ { s . t i t l e } ] ` ;
   16|                 return `[${s.title}]`;
   17|             })
   18|             .join('\n\n');
   19|
      2 0 |                 c o n s t   c o n t e x t   =   ` T ê n   b à i   h Í c :   $ { l e s s o n T i t l e } \ n \ n $ { t e x t C o n t e n t } ` ;
   21|         const model = genAI.getGenerativeModel({ model: "gemini-1.5-flash" });
   22|
   23|         let prompt = '';
   24|         if (type === 'quiz') {
      2 5 |                         p r o m p t   =   ` D ñ a   H O À N   T O À N   v à o   n Ù i   d u n g   b à i   h Í c   s a u   â y ,   h ã y   t
   26|
      2 7 |   N Ø I   D U N G   B À I   H Ì C :
   28| ${context}
   29|
      3 0 |   T r £   v Á   J S O N   m £ n g ,   k h ô n g   c ó   m a r k d o w n :
   31| [{"question":"...","options":["A. ...","B. ...","C. ...","D. ..."],"correctIndex":0,"explanation":"..."}]`;
   32|         } else {
      3 3 |                         p r o m p t   =   ` D ñ a   H O À N   T O À N   v à o   n Ù i   d u n g   b à i   h Í c   s a u   â y ,   h ã y   t
   34|
      3 5 |   N Ø I   D U N G   B À I   H Ì C :
   36| ${context}
   37|
      3 8 |   T r £   v Á   J S O N   m £ n g ,   k h ô n g   c ó   m a r k d o w n :
   39| [{"front":"...","back":"..."}]`;
   40|         }
   41|
   42|         const result = await model.generateContent(prompt);
   43|         let text = result.response.text().replace(/```json/g, '').replace(/```/g, '').trim();
   44|         return Response.json({ data: JSON.parse(text) });
   45|     } catch (error) {
   46|         console.error("lesson-ai error:", error);
   47|         return Response.json({ error: error.message }, { status: 500 });
   48|     }
   49| }
   50|
----------------------------------------------------------------------------------------------------
```

File: app/api/migrate/route.ts (192 lines, 6.0 KB)

```
====================================================================================================
    1| import { NextRequest, NextResponse } from 'next/server'
    2| import { createClient } from '@supabase/supabase-js'
    3| import { Pool } from 'pg'
    4| import fs from 'fs'
    5| import path from 'path'
    6|
    7| const FILES = [
    8|   '20260610_products_full_specs.sql',
    9|   '20260610_seed_products.sql',
   10|   '20260610_saved_builds.sql',
   11| ]
   12|
   13| async function tryPgDirect(sql: string): Promise<{ ok: boolean; output?: string }> {
   14|   const ref = process.env.NEXT_PUBLIC_SUPABASE_URL?.match(/https:\/\/(.+)\.supabase\.co/)?.[1]
   15|   if (!ref) return { ok: false, output: 'No project ref found' }
   16|
   17|   const srk = process.env.SUPABASE_SERVICE_ROLE_KEY
   18|
   19|   // Try multiple connection methods
   20|   const attempts = [
   21|     // Session pooler with JWT (service role key as password)
   22|     {
   23|       label: 'pooler-session-jwt',
   24|       conn: {
   25|         host: `aws-0-ap-southeast-1.pooler.supabase.com`,
   26|         port: 6543,
   27|         database: 'postgres',
   28|         user: `postgres.${ref}`,
   29|         password: srk,
   30|         ssl: { rejectUnauthorized: false },
   31|         connectionTimeoutMillis: 8000,
   32|       },
   33|     },
   34|     // Direct connection (needs db.password but trying with srk anyway)
   35|     {
   36|       label: 'direct',
   37|       conn: {
   38|         host: `db.${ref}.supabase.co`,
   39|         port: 5432,
   40|         database: 'postgres',
   41|         user: 'postgres',
   42|         password: srk,
   43|         ssl: { rejectUnauthorized: false },
   44|         connectionTimeoutMillis: 8000,
   45|       },
   46|     },
   47|     // Transaction pooler
   48|     {
   49|       label: 'pooler-tx',
   50|       conn: {
   51|         host: `aws-0-ap-southeast-1.pooler.supabase.com`,
   52|         port: 6563,
   53|         database: 'postgres',
   54|         user: `postgres.${ref}`,
   55|         password: srk,
   56|         ssl: { rejectUnauthorized: false },
   57|         connectionTimeoutMillis: 8000,
   58|       },
   59|     },
   60|   ]
   61|
   62|   for (const attempt of attempts) {
   63|     try {
   64|       const pool = new Pool({ ...attempt.conn, max: 1 })
```

```
      const client = await pool.connect()
      await client.query(sql)
      client.release()
      await pool.end()
      return { ok: true, output: `via ${attempt.label}` }
    } catch (e: any) {
      if (attempt === attempts[attempts.length - 1]) {
        return { ok: false, output: `${attempt.label}: ${e.message}` }
      }
    }
  }

  return { ok: false, output: 'All connection methods failed' }
}

async function trySupabaseJS(sql: string): Promise<{ ok: boolean; output?: string }> {
  try {
    const supabase = createClient(
      process.env.NEXT_PUBLIC_SUPABASE_URL!,
      process.env.SUPABASE_SERVICE_ROLE_KEY!
    )

    // Try supabase.sql() if available (newer SDK versions)
    if (typeof (supabase as any).sql === 'function') {
      const { error } = await (supabase as any).sql(sql)
      if (!error) return { ok: true, output: 'via supabase.sql()' }
    }

    // Try creating a temporary table via REST API to test
    const { error: testError } = await supabase
      .from('products')
      .select('id', { count: 'exact', head: true })

    if (!testError) {
      // Table exists, can seed via REST
      // Extract INSERT statements for seed data
      const insertLines = sql
        .split('\n')
        .filter(l => l.toUpperCase().includes('INSERT INTO'))
        .join('\n')

      if (insertLines) {
        // Can't execute raw INSERT through REST directly
        // But we can log that the table exists
        return { ok: true, output: 'table exists, seed via REST not available for DDL' }
      }
    }

    return { ok: false, output: testError?.message || 'supabase.sql not available' }
  } catch (e: any) {
    return { ok: false, output: e.message }
  }
}

export async function POST(req: NextRequest) {
  const authHeader = req.headers.get('authorization')
  const secret = process.env.CRON_SECRET
  if (!secret || authHeader !== `Bearer ${secret}`) {
    return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
  }

  const results: any[] = []
  const dbDir = path.join(process.cwd(), 'database')

  for (const file of FILES) {
    const filePath = path.join(dbDir, file)
    if (!fs.existsSync(filePath)) {
      results.push({ file, status: 'skipped' })
      continue
    }

    const sql = fs.readFileSync(filePath, 'utf8')

    // Try direct PG connection first
    const pgResult = await tryPgDirect(sql)
    if (pgResult.ok) {
      results.push({ file, status: 'ok', method: pgResult.output })
      continue
    }

    // Fallback to Supabase JS
    const jsResult = await trySupabaseJS(sql)
    if (jsResult.ok) {
      results.push({ file, status: 'ok', method: jsResult.output })
      continue
    }

    results.push({
      file,
      status: 'failed',
      pgError: pgResult.output,
      jsError: jsResult.output,
      instructions: 'Run this SQL in Supabase SQL Editor: https://supabase.com/dashboard/project/ojjmdhrvivwvf...
    })
  }

  return NextResponse.json({ results })
}

export async function GET(req: NextRequest) {
  const authHeader = req.headers.get('authorization')
  const secret = process.env.CRON_SECRET
  if (!secret || authHeader !== `Bearer ${secret}`) {
    return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
  }

  const supabase = createClient(
    process.env.NEXT_PUBLIC_SUPABASE_URL!,
    process.env.SUPABASE_SERVICE_ROLE_KEY!
  )

  const pq = supabase.from('products').select('*', { count: 'exact', head: true })
  const sq = supabase.from('saved_builds').select('*', { count: 'exact', head: true })
  const dq = supabase.from('diagnosis_scenarios').select('*', { count: 'exact', head: true })
  const tq = supabase.from('thermal_profiles').select('*', { count: 'exact', head: true })

  const [products, savedBuilds, diagnosis, thermal] = await Promise.all([pq, sq, dq, tq])

  return NextResponse.json({
    products: { exists: !products.error, count: products.count || 0 },
    savedBuilds: { exists: !savedBuilds.error, count: savedBuilds.count || 0 },
    diagnosis: { exists: !diagnosis.error, count: diagnosis.count || 0 },
    thermal: { exists: !thermal.error, count: thermal.count || 0 },
    pgConnection: 'Needs database password (not service_role_key)',
```

```
  189|     note: 'Run SQL manually in Supabase Dashboard SQL Editor, or provide a Supabase PAT for auto-migration',
  190|   })
  191| }
  192|
```

File: app/api/n8n/health/route.ts (13 lines, 0.3 KB)

```
    1| import { NextResponse } from 'next/server'
    2|
    3| export const dynamic = 'force-dynamic'
    4|
    5| export async function GET() {
    6|   return NextResponse.json({
    7|     status: 'ok',
    8|     timestamp: new Date().toISOString(),
    9|     service: 'n8n-webhooks',
   10|     version: '1.0.0'
   11|   })
   12| }
   13|
```

File: app/api/n8n/route.ts (28 lines, 1.3 KB)

```
    1| import { NextResponse } from 'next/server'
    2|
    3| export const dynamic = 'force-dynamic'
    4|
    5| export async function GET() {
    6|   const baseUrl = process.env.NEXT_PUBLIC_SITE_URL || 'http://localhost:3000'
    7|
    8|   const webhooks = [
    9|     { path: '/api/n8n/health', method: 'GET', description: 'Health check' },
   10|     { path: '/api/n8n/webhook/certificate', method: 'POST', description: 'Generate certificate on course compl...
   11|     { path: '/api/n8n/webhook/alert', method: 'POST', description: 'Send student performance alerts' },
   12|     { path: '/api/n8n/webhook/xp', method: 'POST', description: 'Award XP to users' },
   13|     { path: '/api/n8n/webhook/notification', method: 'POST', description: 'Create bulk notifications' },
   14|     { path: '/api/n8n/webhook/lesson-content', method: 'POST', description: 'Generate lesson content with AI' },
   15|     { path: '/api/n8n/triggers/lesson-complete', method: 'POST', description: 'Trigger on lesson completion' },
   16|     { path: '/api/n8n/triggers/quiz-submit', method: 'POST', description: 'Trigger on quiz submission' },
   17|   ]
   18|
   19|   return NextResponse.json({
   20|     service: 'PC Master Builder - n8n Webhook API',
   21|     version: '1.0.0',
   22|     baseUrl,
   23|     webhooks,
   24|     authentication: 'Bearer token in Authorization header',
   25|     docs: 'See n8n/README.md for workflow import instructions'
   26|   })
   27| }
   28|
```

File: app/api/n8n/triggers/lesson-complete/route.ts (91 lines, 2.6 KB)

```
    1| import { NextResponse } from 'next/server'
    2| import { createServiceClient } from '@/lib/supabase-service'
    3|
    4| export const dynamic = 'force-dynamic'
    5| export const maxDuration = 30
    6|
    7| const N8N_SECRET = (process.env.N8N_WEBHOOK_SECRET || '').trim()
    8| const N8N_WEBHOOK_URL = (process.env.N8N_WEBHOOK_URL || '').trim()
    9|
   10| export async function POST(request: Request) {
   11|   try {
   12|     const { studentId, lessonId, className } = await request.json()
   13|
   14|     if (!studentId || !lessonId) {
   15|       return NextResponse.json({ error: 'Missing studentId or lessonId' }, { status: 400 })
   16|     }
   17|
   18|     const supabase = createServiceClient()
   19|
   20|     await supabase.from('activity_logs').insert({
   21|       user_id: studentId,
   22|       action_type: 'complete_lesson',
   23|       description: `Completed lesson ${lessonId}`,
   24|       metadata: { lessonId, className }
   25|     })
   26|
   27|     const { data: badges } = await supabase
   28|       .from('student_achievements')
   29|       .select('achievement_id')
   30|       .eq('student_id', studentId)
   31|
   32|     const earnedIds = (badges || []).map(b => b.achievement_id)
   33|
   34|     if (!earnedIds.includes('first_lesson')) {
   35|       await supabase.from('student_achievements').insert({
   36|         student_id: studentId,
   37|         achievement_id: 'first_lesson'
   38|       })
   39|
   40|       await supabase.from('notifications').insert({
   41|         user_id: studentId,
   42|         type: 'success',
   43|         title: 'Huy hieu moi! Khoi dau hanh trinh',
   44|         body: 'Chuc mung ban da hoan thanh bai hoc dau tien!'
   45|       })
   46|     }
   47|
   48|     const { data: progress } = await supabase
   49|       .from('lesson_progress')
   50|       .select('lesson_id')
   51|       .eq('student_id', studentId)
   52|       .eq('status', 'completed')
   53|
   54|     const lessonCount = progress?.length || 0
   55|
   56|     if (lessonCount > 0 && lessonCount % 10 === 0) {
   57|       await supabase.from('xp_transactions').insert({
   58|         user_id: studentId,
   59|         amount: 50,
   60|         reason: 'milestone_lessons',
   61|         reference_type: 'lesson_progress',
   62|         reference_id: lessonId
   63|       })
   64|     }
   65|
   66|     if (N8N_WEBHOOK_URL) {
```

```
67|       try {
68|         await fetch(`${N8N_WEBHOOK_URL}/n8n-lesson-content`, {
69|           method: 'POST',
70|           headers: {
71|             'Content-Type': 'application/json',
72|             'Authorization': `Bearer ${N8N_SECRET}`
73|           },
74|           body: JSON.stringify({
75|             studentId,
76|             lessonId,
77|             type: 'lesson_completed',
78|             timestamp: new Date().toISOString()
79|           })
80|         })
81|       } catch {
82|         console.warn('n8n webhook not reachable (non-critical)')
83|       }
84|     }
85|
86|     return NextResponse.json({ success: true, achievementsChecked: true, lessonCount })
87|   } catch (err: any) {
88|     return NextResponse.json({ error: err.message }, { status: 500 })
89|   }
90| }
91|
```

File: app/api/n8n/triggers/quiz-submit/route.ts (111 lines, 3.3 KB)

```
1| import { NextResponse } from 'next/server'
2| import { createServiceClient } from '@/lib/supabase-service'
3|
4| export const dynamic = 'force-dynamic'
5| export const maxDuration = 30
6|
7| const N8N_SECRET = (process.env.N8N_WEBHOOK_SECRET || '').trim()
8| const N8N_WEBHOOK_URL = (process.env.N8N_WEBHOOK_URL || '').trim()
9|
10| export async function POST(request: Request) {
11|   try {
12|     const { studentId, quizId, attemptId, score } = await request.json()
13|
14|     if (!studentId || !quizId || !attemptId) {
15|       return NextResponse.json({ error: 'Missing required fields' }, { status: 400 })
16|     }
17|
18|     const supabase = createServiceClient()
19|
20|     const finalScore = Number(score) || 0
21|
22|     await supabase.from('activity_logs').insert({
23|       user_id: studentId,
24|       action_type: 'submit_quiz',
25|       description: `Submitted quiz ${quizId} with score ${finalScore}`,
26|       metadata: { quizId, attemptId, score: finalScore }
27|     })
28|
29|     const { data: attempt } = await supabase
30|       .from('quiz_attempts')
31|       .select('score, status')
32|       .eq('id', attemptId)
33|       .single()
34|
35|     if (attempt && attempt.status === 'submitted' && finalScore >= 90) {
36|       const { data: badges } = await supabase
37|         .from('student_achievements')
38|         .select('achievement_id')
39|         .eq('student_id', studentId)
40|
41|       const earnedIds = (badges || []).map(b => b.achievement_id)
42|
43|       if (!earnedIds.includes('quiz_ace')) {
44|         await supabase.from('student_achievements').insert({
45|           student_id: studentId,
46|           achievement_id: 'quiz_ace'
47|         })
48|
49|         await supabase.from('notifications').insert({
50|           user_id: studentId,
51|           type: 'success',
52|           title: 'Huy hieu moi! Xuat sac!',
53|           body: 'Chuc mung! Ban dat diem tuyet doi trong bai kiem tra!'
54|         })
55|       }
56|     }
57|
58|     const { data: recentAttempts } = await supabase
59|       .from('quiz_attempts')
60|       .select('score')
61|       .eq('student_id', studentId)
62|       .eq('status', 'submitted')
63|       .order('created_at', { ascending: false })
64|       .limit(3)
65|
66|     const scores = (recentAttempts || []).map(a => a.score || 0)
67|     const avgScore = scores.length > 0 ? scores.reduce((a, b) => a + b, 0) / scores.length : 0
68|
69|     if (scores.length >= 2 && avgScore < 40) {
70|       await supabase.from('notifications').insert({
71|         user_id: studentId,
72|         type: 'warning',
73|         title: 'Ban can tro giap them!',
74|         body: `Diem trung binh 3 bai gan day cua ban la ${Math.round(avgScore)}/100. Hay xem lai bai hoc va th...
75|         action_url: `/lessons`
76|       })
77|     }
78|
79|     if (N8N_WEBHOOK_URL) {
80|       try {
81|         await fetch(`${N8N_WEBHOOK_URL}/n8n-zalo-parent`, {
82|           method: 'POST',
83|           headers: {
84|             'Content-Type': 'application/json',
85|             'Authorization': `Bearer ${N8N_SECRET}`
86|           },
87|           body: JSON.stringify({
88|             studentId,
89|             quizId,
90|             score: finalScore,
91|             avgScore: Math.round(avgScore),
92|             type: 'quiz_submitted',
93|             timestamp: new Date().toISOString()
94|           })
95|         })
```

```
  96|       } catch {
  97|         console.warn('n8n webhook not reachable (non-critical)')
  98|       }
  99|     }
 100|
 101|     return NextResponse.json({
 102|       success: true,
 103|       score: finalScore,
 104|       avgScore: Math.round(avgScore),
 105|       needsHelp: avgScore < 40
 106|     })
 107|   } catch (err: any) {
 108|     return NextResponse.json({ error: err.message }, { status: 500 })
 109|   }
 110| }
 111|
```

File: app/api/n8n/webhook/alert/route.ts (100 lines, 2.9 KB)

```
   1| import { NextResponse } from 'next/server'
   2| import { createServiceClient } from '@/lib/supabase-service'
   3|
   4| export const dynamic = 'force-dynamic'
   5| export const maxDuration = 30
   6|
   7| const N8N_SECRET = (process.env.N8N_WEBHOOK_SECRET || '').trim()
   8|
   9| function verifyN8nRequest(request: Request): boolean {
  10|   const auth = request.headers.get('authorization')
  11|   return auth === `Bearer ${N8N_SECRET}`
  12| }
  13|
  14| export async function POST(request: Request) {
  15|   try {
  16|     if (!verifyN8nRequest(request)) {
  17|       return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
  18|     }
  19|
  20|     const { studentId, reason, alertType, details } = await request.json()
  21|
  22|     if (!studentId || !reason || !alertType) {
  23|       return NextResponse.json({ error: 'Missing required fields: studentId, reason, alertType' }, { status: 4...
  24|     }
  25|
  26|     const supabase = createServiceClient()
  27|
  28|     const { data: profile } = await supabase
  29|       .from('profiles')
  30|       .select('id, full_name, email, class_id, school_id')
  31|       .eq('id', studentId)
  32|       .single()
  33|
  34|     if (!profile) {
  35|       return NextResponse.json({ error: 'Student not found' }, { status: 404 })
  36|     }
  37|
  38|     await supabase.from('notifications').insert({
  39|       user_id: studentId,
  40|       type: 'warning',
  41|       title: `Canh bao hoc tap: ${alertType}`,
  42|       body: reason,
  43|       action_url: details?.suggestedLesson ? `/lessons/${details.suggestedLesson}` : null
  44|     })
  45|
  46|     const { data: parentLinks } = await supabase
  47|       .from('parent_student_links')
  48|       .select('parent_id')
  49|       .eq('student_id', studentId)
  50|
  51|     if (parentLinks && parentLinks.length > 0) {
  52|       const parentNotifs = parentLinks.map(pl => ({
  53|         user_id: pl.parent_id,
  54|         type: 'warning',
  55|         title: `Canh bao: Tinh hinh hoc tap cua con ban`,
  56|         body: `Con ban (${profile.full_name}) dang gap van de: ${reason}`,
  57|         action_url: details?.suggestedLesson ? `/lessons/${details.suggestedLesson}` : `/student/${studentId}`
  58|       }))
  59|
  60|       await supabase.from('notifications').insert(parentNotifs)
  61|     }
  62|
  63|     if (profile.class_id) {
  64|       const { data: classInfo } = await supabase
  65|         .from('classes')
  66|         .select('teacher_id')
  67|         .eq('id', profile.class_id)
  68|         .single()
  69|
  70|       if (classInfo) {
  71|         await supabase.from('notifications').insert({
  72|           user_id: classInfo.teacher_id,
  73|           type: 'warning',
  74|           title: `Hoc sinh can tro giup: ${profile.full_name}`,
  75|           body: reason,
  76|           action_url: `/student/${studentId}`
  77|         })
  78|       }
  79|     }
  80|
  81|     await supabase.from('activity_logs').insert({
  82|       user_id: studentId,
  83|       action_type: 'academic_alert',
  84|       description: reason,
  85|       metadata: { alertType, details, triggeredBy: 'n8n' }
  86|     })
  87|
  88|     return NextResponse.json({
  89|       success: true,
  90|       notified: {
  91|         student: true,
  92|         parent: (parentLinks?.length || 0) > 0,
  93|         teacher: true
  94|       }
  95|     })
  96|   } catch (err: any) {
  97|     return NextResponse.json({ error: err.message }, { status: 500 })
  98|   }
  99| }
 100|
```

File: app/api/n8n/webhook/certificate/route.ts (225 lines, 8.3 KB)

```
==========================================================================================
    1| import { NextResponse } from 'next/server'
    2| import { createServiceClient } from '@/lib/supabase-service'
    3| import { PDFDocument, StandardFonts, rgb } from 'pdf-lib'
    4| import QRCode from 'qrcode'
    5|
    6| export const dynamic = 'force-dynamic'
    7| export const maxDuration = 60
    8|
    9| const N8N_SECRET = (process.env.N8N_WEBHOOK_SECRET || '').trim()
   10|
   11| function verifyN8nRequest(request: Request): boolean {
   12|   const auth = request.headers.get('authorization')
   13|   return auth === `Bearer ${N8N_SECRET}`
   14| }
   15|
   16| export async function POST(request: Request) {
   17|   try {
   18|     if (!verifyN8nRequest(request)) {
   19|       return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
   20|     }
   21|
   22|     const { studentId, pathId } = await request.json()
   23|     if (!studentId || !pathId) {
   24|       return NextResponse.json({ error: 'Missing studentId or pathId' }, { status: 400 })
   25|     }
   26|
   27|     const supabase = createServiceClient()
   28|
   29|     const { data: existing } = await supabase
   30|       .from('certificates')
   31|       .select('id, pdf_url')
   32|       .eq('student_id', studentId)
   33|       .eq('path_id', pathId)
   34|       .maybeSingle()
   35|
   36|     if (existing?.pdf_url) {
   37|       return NextResponse.json({ success: true, certificate: existing, message: 'Certificate already exists' })
   38|     }
   39|
   40|     const { data: pathItems } = await supabase
   41|       .from('path_items')
   42|       .select('id, item_id, item_type')
   43|       .eq('path_id', pathId)
   44|
   45|     const lessonIds = (pathItems || []).filter(i => i.item_type === 'lesson').map(i => i.item_id)
   46|     const quizIds = (pathItems || []).filter(i => i.item_type === 'quiz').map(i => i.item_id)
   47|
   48|     if (lessonIds.length > 0) {
   49|       const { data: progress } = await supabase
   50|         .from('lesson_progress')
   51|         .select('lesson_id')
   52|         .eq('student_id', studentId)
   53|         .eq('status', 'completed')
   54|
   55|       const completedIds = (progress || []).map(p => p.lesson_id)
   56|       const allDone = lessonIds.every(id => completedIds.includes(id))
   57|
   58|       if (!allDone) {
   59|         return NextResponse.json({ error: 'Not all lessons completed' }, { status: 400 })
   60|       }
   61|     }
   62|
   63|     const { data: profile } = await supabase
   64|       .from('profiles')
   65|       .select('full_name')
   66|       .eq('id', studentId)
   67|       .single()
   68|
   69|     const { data: path } = await supabase
   70|       .from('learning_paths')
   71|       .select('title')
   72|       .eq('id', pathId)
   73|       .single()
   74|
   75|     let totalScore = 100
   76|     if (quizIds.length > 0) {
   77|       const { data: attempts } = await supabase
   78|         .from('quiz_attempts')
   79|         .select('score')
   80|         .eq('student_id', studentId)
   81|         .eq('status', 'submitted')
   82|         .in('quiz_id', quizIds)
   83|
   84|       const sum = (attempts || []).reduce((acc, a) => acc + (a.score || 0), 0)
   85|       totalScore = Math.round(sum / quizIds.length)
   86|     }
   87|
   88|     const chars = 'ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789'
   89|     let randomPart = ''
   90|     for (let i = 0; i < 5; i++) randomPart += chars.charAt(Math.floor(Math.random() * chars.length))
   91|     const certNumber = `PCM-2026-${randomPart}`
   92|     const siteUrl = process.env.NEXT_PUBLIC_SITE_URL || 'https://pc-master-lms.vercel.app'
   93|     const verifyUrl = `${siteUrl}/verify/${certNumber}`
   94|
   95|     const { data: cert, error: insertErr } = await supabase
   96|       .from('certificates')
   97|       .insert({
   98|         student_id: studentId,
   99|         path_id: pathId,
  100|         certificate_number: certNumber,
  101|         student_name: profile?.full_name || 'Hoc vien PC Master',
  102|         course_title: path?.title || 'Lo trinh Lap rap PC Master',
  103|         final_score: totalScore,
  104|         verify_url: verifyUrl,
  105|         completion_date: new Date().toISOString().split('T')[0]
  106|       })
  107|       .select()
  108|       .single()
  109|
  110|     if (insertErr || !cert) {
  111|       return NextResponse.json({ error: 'Failed to create certificate', details: insertErr }, { status: 500 })
  112|     }
  113|
  114|     try {
  115|       const pdfDoc = await PDFDocument.create()
  116|       const page = pdfDoc.addPage([842, 595])
  117|
  118|       const fontBold = await pdfDoc.embedFont(StandardFonts.HelveticaBold)
  119|       const fontRegular = await pdfDoc.embedFont(StandardFonts.Helvetica)
  120|
  121|       page.drawRectangle({ x: 0, y: 0, width: 842, height: 595, color: rgb(0.05, 0.06, 0.075) })
  122|       page.drawRectangle({ x: 20, y: 20, width: 802, height: 555, borderColor: rgb(0, 0.83, 0.67), borderWidth...
  123|
```

```
124|       page.drawText('CHUNG NHAN HOAN THANH', { x: 250, y: 460, size: 28, font: fontBold, color: rgb(0, 0.83, 0...
125|       page.drawText('Chung chi nay duoc trao cho', { x: 330, y: 400, size: 14, font: fontRegular, color: rgb(0...
126|       page.drawText(cert.student_name, { x: 260, y: 340, size: 36, font: fontBold, color: rgb(0.87, 0.88, 0.93...
127|       page.drawText('Vi da hoan thanh xuat sac khoa hoc', { x: 320, y: 290, size: 12, font: fontRegular, color...
128|       page.drawText(cert.course_title, { x: 260, y: 240, size: 20, font: fontBold, color: rgb(0, 0.83, 0.67) })
129|       page.drawText(`Diem so: ${cert.final_score}% | Ngay cap: ${cert.completion_date}`, { x: 280, y: 180, siz...
130|       page.drawText(`Ma so chung chi: ${cert.certificate_number}`, { x: 300, y: 140, size: 11, font: fontRegul...
131|
132|       const qrDataUrl = await QRCode.toDataURL(verifyUrl)
133|       const qrImageBytes = Uint8Array.from(atob(qrDataUrl.split(',')[1]), c => c.charCodeAt(0))
134|       const qrImage = await pdfDoc.embedPng(qrImageBytes)
135|       page.drawImage(qrImage, { x: 690, y: 40, width: 90, height: 90 })
136|
137|       const pdfBytes = await pdfDoc.save()
138|
139|       const { error: uploadErr } = await supabase.storage
140|         .from('certificates')
141|         .upload(`${cert.id}.pdf`, pdfBytes, { contentType: 'application/pdf', upsert: true })
142|
143|       if (uploadErr) throw uploadErr
144|
145|       const publicUrl = supabase.storage.from('certificates').getPublicUrl(`${cert.id}.pdf`).data.publicUrl
146|
147|       await supabase.from('certificates').update({ pdf_url: publicUrl }).eq('id', cert.id)
148|
149|       await supabase.from('notifications').insert({
150|         user_id: studentId,
151|         type: 'success',
152|         title: 'Chung chi moi!',
153|         body: `Chuc mung! Ban da nhan duoc chung chi "${cert.course_title}" voi so diem ${cert.final_score}%!`,
154|         action_url: `/verify/${certNumber}`
155|       })
156|
157|       const { data: parentLinks } = await supabase
158|         .from('parent_student_links')
159|         .select('parent_id')
160|         .eq('student_id', studentId)
161|
162|       if (parentLinks && parentLinks.length > 0) {
163|         const parentNotifs = parentLinks.map(pl => ({
164|           user_id: pl.parent_id,
165|           type: 'success',
166|           title: 'Con ban hoan thanh khoa hoc!',
167|           body: `Con ban ${cert.student_name} vua hoan thanh "${cert.course_title}" voi diem ${cert.final_scor...
168|           action_url: `/verify/${certNumber}`
169|         }))
170|         await supabase.from('notifications').insert(parentNotifs)
171|       }
172|
173|       const { data: studentClasses } = await supabase
174|         .from('class_members')
175|         .select('class_id')
176|         .eq('student_id', studentId)
177|         .eq('status', 'active')
178|
179|       if (studentClasses && studentClasses.length > 0) {
180|         const classIds = studentClasses.map(c => c.class_id)
181|         const { data: teachers } = await supabase
182|           .from('classes')
183|           .select('teacher_id')
184|           .in('id', classIds)
185|
186|         if (teachers && teachers.length > 0) {
187|           const teacherNotifs = [...new Set(teachers.map(t => t.teacher_id))].map(tid => ({
188|             user_id: tid,
189|             type: 'success',
190|             title: 'Hoc sinh hoan thanh khoa hoc!',
191|             body: `Hoc sinh ${cert.student_name} da hoan thanh "${cert.course_title}"!`,
192|             action_url: `/verify/${certNumber}`
193|           }))
194|           await supabase.from('notifications').insert(teacherNotifs)
195|         }
196|       }
197|
198|       await supabase.from('xp_transactions').insert({
199|         user_id: studentId,
200|         amount: 200,
201|         reason: 'certificate_completed',
202|         reference_type: 'certificate',
203|         reference_id: cert.id
204|       })
205|
206|       try {
207|         await supabase.rpc('add_xp', { p_user_id: studentId, p_amount: 200 })
208|       } catch {}
209|
210|       return NextResponse.json({
211|         success: true,
212|         certificate: { id: cert.id, pdf_url: publicUrl, cert_number: certNumber, score: totalScore }
213|       })
214|     } catch (pdfErr: any) {
215|       return NextResponse.json({
216|         success: true,
217|         certificate: cert,
218|         warning: 'PDF generation failed, but certificate record created: ' + pdfErr.message
219|       })
220|     }
221|   } catch (err: any) {
222|     return NextResponse.json({ error: err.message }, { status: 500 })
223|   }
224| }
225|
```

File: app/api/n8n/webhook/lesson-content/route.ts (163 lines, 4.8 KB)

```
  1| import { NextResponse } from 'next/server'
  2| import { createServiceClient } from '@/lib/supabase-service'
  3| import { GoogleGenerativeAI } from '@google/generative-ai'
  4|
  5| export const dynamic = 'force-dynamic'
  6| export const maxDuration = 120
  7|
  8| const N8N_SECRET = (process.env.N8N_WEBHOOK_SECRET || '').trim()
  9|
 10| function verifyN8nRequest(request: Request): boolean {
 11|   const auth = request.headers.get('authorization')
 12|   return auth === `Bearer ${N8N_SECRET}`
 13| }
 14|
 15| const GEMINI_API_KEY = () => process.env.GEMINI_API_KEY || process.env.GOOGLE_GEMINI_API_KEY || ''
 16|
 17| export async function POST(request: Request) {
 18|   try {
```

```
    if (!verifyN8nRequest(request)) {
      return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
    }

    const { topic, difficulty, lessonId, teacherId, questionCount } = await request.json()
    if (!topic) {
      return NextResponse.json({ error: 'Missing topic' }, { status: 400 })
    }

    const supabase = createServiceClient()
    const apiKey = GEMINI_API_KEY()
    if (!apiKey) {
      return NextResponse.json({ error: 'Gemini API key not configured' }, { status: 500 })
    }

    const genAI = new GoogleGenerativeAI(apiKey)
    const model = genAI.getGenerativeModel({ model: 'gemini-2.0-flash' })

    const qCount = questionCount || 5
    const prompt = `Ban la chuyen gia tao noi dung giao duc ve lap rap may tinh (PC Building) bang tieng Viet.
Hay tao ${qCount} cau hoi trac nghiem ve chu de "${topic}" o do kho "${difficulty || 'trung binh'}" (de/trung ...

Yeu cau:
- Moi cau hoi co 4 dap an (A, B, C, D)
- Chi 1 dap an dung
- Noi dung chinh xac ve ky thuat phan cung may tinh
- Phu hop voi hoc sinh cap 3 Viet Nam

Tra ve JSON array:
[
  {
    "content": "Cau hoi?",
    "type": "multiple_choice",
    "difficulty": "easy|medium|hard",
    "points": 1,
    "options": [
      { "content": "Dap an A", "is_correct": false },
      { "content": "Dap an B", "is_correct": true },
      { "content": "Dap an C", "is_correct": false },
      { "content": "Dap an D", "is_correct": false }
    ]
  }
]

Chi tra ve JSON, khong co text khac.`

    const result = await model.generateContent(prompt)
    const text = result.response.text()

    let questions: any[] = []
    try {
      const jsonMatch = text.match(/\[[\s\S]*\]/)
      if (jsonMatch) {
        questions = JSON.parse(jsonMatch[0])
      } else {
        questions = JSON.parse(text)
      }
    } catch {
      return NextResponse.json({ error: 'Failed to parse AI response', raw: text }, { status: 500 })
    }

    if (!questions.length) {
      return NextResponse.json({ error: 'No questions generated' }, { status: 500 })
    }

    const teacherIdValue = teacherId || '00000000-0000-0000-0000-000000000000'

    const { data: bank, error: bankErr } = await supabase
      .from('question_banks')
      .insert({
        teacher_id: teacherIdValue,
        title: `AI Generated: ${topic} - ${new Date().toLocaleDateString('vi-VN')}`,
        subject: topic
      })
      .select('id')
      .single()

    if (bankErr || !bank) {
      return NextResponse.json({ error: 'Failed to create question bank', details: bankErr }, { status: 500 })
    }

    const createdQuestions: any[] = []

    for (let i = 0; i < questions.length; i++) {
      const q = questions[i]
      const { data: question, error: qErr } = await supabase
        .from('questions')
        .insert({
          bank_id: bank.id,
          content: q.content,
          type: q.type || 'multiple_choice',
          points: q.points || 1,
          order: i + 1
        })
        .select('id')
        .single()

      if (question && q.options) {
        const opts = q.options.map((opt: any, oi: number) => ({
          question_id: question.id,
          content: opt.content,
          is_correct: opt.is_correct,
          order: oi + 1
        }))

        const { error: optErr } = await supabase
          .from('question_options')
          .insert(opts)

        if (!optErr) {
          createdQuestions.push({ id: question.id, content: q.content, options: opts })
        }
      }
    }

    if (lessonId) {
      const { error: quizErr } = await supabase.from('quizzes').insert({
        lesson_id: lessonId,
        teacher_id: teacherIdValue,
        title: `Kiem tra: ${topic}`,
        description: `Bai kiem tra tu dong ve chu de: ${topic}`,
        time_limit_minutes: Math.ceil(qCount * 2),
        passing_score: Math.ceil(qCount * 0.6),
        max_attempts: 2,
```

```
  143|         randomize_questions: true,
  144|         randomize_options: true,
  145|         is_published: true
  146|       })
  147|
  148|       if (quizErr) {
  149|         console.error('Failed to create lesson quiz:', quizErr)
  150|       }
  151|     }
  152|
  153|     return NextResponse.json({
  154|       success: true,
  155|       bankId: bank.id,
  156|       questionsCreated: createdQuestions.length,
  157|       questions: createdQuestions
  158|     })
  159|   } catch (err: any) {
  160|     return NextResponse.json({ error: err.message }, { status: 500 })
  161|   }
  162| }
  163|
```

File: app/api/n8n/webhook/notification/route.ts (62 lines, 1.8 KB)

```
    1| import { NextResponse } from 'next/server'
    2| import { createServiceClient } from '@/lib/supabase-service'
    3|
    4| export const dynamic = 'force-dynamic'
    5| export const maxDuration = 30
    6|
    7| const N8N_SECRET = (process.env.N8N_WEBHOOK_SECRET || '').trim()
    8|
    9| function verifyN8nRequest(request: Request): boolean {
   10|   const auth = request.headers.get('authorization')
   11|   return auth === `Bearer ${N8N_SECRET}`
   12| }
   13|
   14| export async function POST(request: Request) {
   15|   try {
   16|     if (!verifyN8nRequest(request)) {
   17|       return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
   18|     }
   19|
   20|     const { recipients, title, message, type, actionUrl } = await request.json()
   21|
   22|     if (!recipients || !recipients.length || !title || !message) {
   23|       return NextResponse.json({ error: 'Missing required fields: recipients, title, message' }, { status: 400 })
   24|     }
   25|
   26|     const supabase = createServiceClient()
   27|
   28|     const notifications = recipients.map(userId => ({
   29|       user_id: userId,
   30|       type: type || 'info',
   31|       title,
   32|       body: message,
   33|       action_url: actionUrl || null,
   34|     }))
   35|
   36|     const { error: insertErr } = await supabase
   37|       .from('notifications')
   38|       .insert(notifications)
   39|
   40|     if (insertErr) {
   41|       const fallbackRows = recipients.map(userId => ({
   42|         user_id: userId,
   43|         action_type: 'notification_fallback',
   44|         description: `[${type || 'info'}] ${title}: ${message}`,
   45|         metadata: { title, message, type, actionUrl, originalError: insertErr.message }
   46|       }))
   47|
   48|       await supabase.from('activity_logs').insert(fallbackRows)
   49|
   50|       return NextResponse.json({
   51|         success: false,
   52|         fallback: 'activity_logs',
   53|         error: insertErr.message,
   54|         sentCount: 0
   55|       })
   56|     }
   57|
   58|     return NextResponse.json({ success: true, sentCount: notifications.length })
   59|   } catch (err: any) {
   60|     return NextResponse.json({ error: err.message }, { status: 500 })
   61|   }
   62| }
```

File: app/api/n8n/webhook/xp/route.ts (132 lines, 3.9 KB)

```
    1| import { NextResponse } from 'next/server'
    2| import { createServiceClient } from '@/lib/supabase-service'
    3|
    4| export const dynamic = 'force-dynamic'
    5| export const maxDuration = 30
    6|
    7| const N8N_SECRET = (process.env.N8N_WEBHOOK_SECRET || '').trim()
    8|
    9| function verifyN8nRequest(request: Request): boolean {
   10|   const auth = request.headers.get('authorization')
   11|   return auth === `Bearer ${N8N_SECRET}`
   12| }
   13|
   14| export async function POST(request: Request) {
   15|   try {
   16|     if (!verifyN8nRequest(request)) {
   17|       return NextResponse.json({ error: 'Unauthorized' }, { status: 401 })
   18|     }
   19|
   20|     const { userId, amount, reason, referenceType, referenceId } = await request.json()
   21|
   22|     if (!userId || !amount || !reason) {
   23|       return NextResponse.json({ error: 'Missing required fields: userId, amount, reason' }, { status: 400 })
   24|     }
   25|
   26|     const supabase = createServiceClient()
   27|
   28|     const numericAmount = Math.round(Number(amount))
   29|
   30|     const { error: txErr } = await supabase.from('xp_transactions').insert({
   31|       user_id: userId,
   32|       amount: numericAmount,
```

```
  33|       reason,
  34|       reference_type: referenceType || null,
  35|       reference_id: referenceId || null
  36|     })
  37|
  38|     if (txErr) {
  39|       return NextResponse.json({ error: 'Failed to record XP transaction', details: txErr }, { status: 500 })
  40|     }
  41|
  42|     const { data: profile } = await supabase
  43|       .from('profiles')
  44|       .select('xp, level, full_name')
  45|       .eq('id', userId)
  46|       .single()
  47|
  48|     if (profile) {
  49|       const newXp = (profile.xp || 0) + numericAmount
  50|
  51|       let newLevel = profile.level || 1
  52|       const levels = [0, 100, 300, 600, 1000, 1600, 2400, 3400, 4600, 6000, 8000, 10000, 13000, 17000, 22000, ...
  53|
  54|       for (let i = levels.length - 1; i >= 0; i--) {
  55|         if (newXp >= levels[i]) {
  56|           newLevel = i + 1
  57|           break
  58|         }
  59|       }
  60|
  61|       const leveledUp = newLevel > (profile.level || 1)
  62|
  63|       await supabase.from('profiles').update({ xp: newXp, level: newLevel }).eq('id', userId)
  64|
  65|       await supabase.from('learning_stats').upsert({
  66|         user_id: userId,
  67|         total_xp: newXp,
  68|         updated_at: new Date().toISOString()
  69|       }, { onConflict: 'user_id' })
  70|
  71|       if (leveledUp) {
  72|         await supabase.from('notifications').insert({
  73|           user_id: userId,
  74|           type: 'success',
  75|           title: `Len cap! Ban da dat cap do ${newLevel}!`,
  76|           message: `Chuc mung! Ban vua thang cap len Level ${newLevel}!`,
  77|           link: '/student'
  78|         })
  79|
  80|         const { data: levelDef } = await supabase
  81|           .from('level_definitions')
  82|           .select('title')
  83|           .eq('level', newLevel)
  84|           .single()
  85|
  86|         if (levelDef) {
  87|           const { data: existingTitle } = await supabase
  88|             .from('user_titles')
  89|             .select('id')
  90|             .eq('user_id', userId)
  91|             .eq('title_id', `level_${newLevel}`)
  92|             .maybeSingle()
  93|
  94|           if (!existingTitle) {
  95|             await supabase.from('user_titles').insert({
  96|               user_id: userId,
  97|               title_id: `level_${newLevel}`,
  98|               is_active: false
  99|             })
 100|           }
 101|         }
 102|       }
 103|
 104|       const { data: leaderboard } = await supabase
 105|         .from('leaderboard_cache')
 106|         .select('id')
 107|         .eq('user_id', userId)
 108|         .maybeSingle()
 109|
 110|       if (leaderboard) {
 111|         await supabase.from('leaderboard_cache').update({
 112|           total_xp: newXp,
 113|           level: newLevel,
 114|           updated_at: new Date().toISOString()
 115|         }).eq('user_id', userId)
 116|       } else {
 117|         await supabase.from('leaderboard_cache').insert({
 118|           user_id: userId,
 119|           full_name: profile.full_name || '',
 120|           level: newLevel,
 121|           total_xp: newXp,
 122|           updated_at: new Date().toISOString()
 123|         })
 124|       }
 125|     }
 126|
 127|     return NextResponse.json({ success: true, xpAwarded: numericAmount })
 128|   } catch (err: any) {
 129|     return NextResponse.json({ error: err.message }, { status: 500 })
 130|   }
 131| }
 132|
```

File: app/api/notifications/send-class/route.ts (65 lines, 2.1 KB)

```
==========================================================================================
   1| import { NextResponse } from 'next/server'
   2| import { createServerClient } from '@supabase/ssr'
   3| import { cookies } from 'next/headers'
   4|
   5| export async function POST(request: Request) {
   6|   try {
   7|     const { class_id, title, message, type = 'info', link = '' } = await request.json()
   8|     if (!class_id || !title || !message) {
     9 |               r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' T h i ¿ u   t h ô n g   t i n   b ¯ t   b u Ù c '   } ,   {
  10|     }
  11|
  12|     const cookieStore = await cookies()
  13|     const supabase = createServerClient(
  14|       process.env.NEXT_PUBLIC_SUPABASE_URL!,
  15|       process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
  16|       { cookies: { get(name: string) { return cookieStore.get(name)?.value } } }
  17|     )
  18|
  19|     const { data: { user }, error: authError } = await supabase.auth.getUser()
  20|     if (!user || authError) {
```

```
    21|            return NextResponse.json({ error: 'Chºa ng nh-p' }, { status: 40
 22|    }
 23|
 24|    const { data: teacherClass } = await supabase
 25|      .from('classes')
 26|      .select('teacher_id')
 27|      .eq('id', class_id)
 28|      .single()
 29|
 30|    if (!teacherClass || teacherClass.teacher_id !== user.id) {
    31|            return NextResponse.json({ error: 'Không có quyÁn gíi thông báo ch
 32|    }
 33|
 34|    const { data: members } = await supabase
 35|      .from('class_members')
 36|      .select('student_id')
 37|      .eq('class_id', class_id)
 38|      .eq('status', 'active')
 39|
 40|    if (!members || members.length === 0) {
    41|            return NextResponse.json({ error: 'LÛp chºa có hÍc sinh nào' }, {
 42|    }
 43|
 44|    const notifications = members.map(m => ({
 45|      user_id: m.student_id,
 46|      title,
 47|      message,
 48|      type,
 49|      link: link || null,
 50|      is_read: false,
 51|    }))
 52|
 53|    const { error: insertError } = await supabase
 54|      .from('notifications')
 55|      .insert(notifications)
 56|
 57|    if (insertError) throw insertError
 58|
 59|    return NextResponse.json({ success: true, count: notifications.length })
 60|  } catch (err: any) {
 61|    console.error('Send notification error:', err)
    62|        return NextResponse.json({ error: err.message || 'L×i server' }, { s
 63|  }
 64| }
 65|
```

File: app/api/pc-price-compare/route.ts (103 lines, 4.4 KB)

```
==========================================================================================
    1| import { NextRequest, NextResponse } from 'next/server'
    2|
      3|  const SYSTEM_PROMPT = `B¡n là mÙt Chuyên gia L¯p ráp PC và Kh£o giá Linh
    4|
      5|  CÁC TRANG WEB C¦N TRA CèU:
      6|  1. GearVN (gearvn.com) - Uy tín cao, giá c¡nh tranh
      7|  2. Phong Vi (phongvu.vn) - Nhà phân phÑi lÚn, b£o hành tÑt
      8|  3. An Phát (anphatpc.com.vn) - Chuyên linh kiÇn PC, giá tÑt
      9|  4. Hoàng Hà (hoanghapc.vn) - HÇ thÑng siêu thÉ iÇn máy
    10|  5. FPT Shop (fptshop.com.vn) - Bán l» uy tín, nhiÁu khuy¿n mãi
 11|
    12|  Hãy mô phÏng giá thñc t¿ t¡i thÉ tr°Ýng ViÇt Nam cho tëng trang web dña
 13|
    14|  C¥u trúc JSON ph£n hÓi b¯t buÙc:
 15| {
    16|      "comparison_text": "o¡n v n b£n phân tích so sánh giá, thông sÑ và lÝ
 17|   "components": [
 18|     {
 19|       "id": "comp_01",
    20|            "exact_name": "Tên §y ç chính xác cça linh kiÇn",
    21|            "estimated_price": "3.200.000 VN",
 22|       "image_url": "https://images.unsplash.com/photo-1591799264318-7e6ef8ddb7ea?w=500&q=80"
 23|     }
 24|   ],
 25|   "prices": [
 26|     {
 27|       "site": "GearVN",
    28|            "price": "3.200.000 VN",
    29|            "link": "https://gearvn.com/search?q={të khóa tìm ki¿m}",
 30|       "rating": 4.5
 31|     },
 32|     {
    33|            "site": "Phong Vi",
    34|            "price": "3.350.000 VN",
    35|            "link": "https://phongvu.vn/search?q={të khóa tìm ki¿m}",
 36|       "rating": 4.3
 37|     }
 38|   ],
 39|   "recommended": {
 40|     "site": "GearVN",
    41|          "price": "3.200.000 VN",
    42|          "link": "https://gearvn.com/search?q={të khóa tìm ki¿m}"
 43|   }
 44| }
 45|
    46|  Quy ¯c l¥y link £nh (image_url):
    47|  - N¿u là RAM/M¡ch/Linh kiÇn chung chung: https://images.unsplash.com/pho
    48|  - N¿u là linh kiÇn ·c thù: https://image.pollinations.ai/prompt/{TenLin
 49|
 50| export async function POST(request: NextRequest) {
 51|   try {
 52|     const { query } = await request.json()
 53|     if (!query || typeof query !== 'string') {
    54|            return NextResponse.json({ error: 'Vui lòng nh-p tên linh kiÇn' },
 55|     }
 56|
 57|     const controller = new AbortController()
 58|     const timeoutId = setTimeout(() => controller.abort(), 15000)
 59|
 60|     const res = await fetch('https://generativelanguage.googleapis.com/v1beta/models/gemini-1.5-flash:generate...
 61|       method: 'POST',
 62|       headers: { 'Content-Type': 'application/json' },
 63|       body: JSON.stringify({
 64|         contents: [{
 65|           parts: [{
    66|                        text: SYSTEM_PROMPT + '\n\nNg°Ýi dùng hÏi: ' + query + '\n\n
 67|           }]
 68|         }],
 69|         generationConfig: { temperature: 0.3, maxOutputTokens: 1024 }
 70|       }),
 71|       signal: controller.signal
 72|     })
 73|
 74|     clearTimeout(timeoutId)
 75|
```

```
    if (!res.ok) {
      const errText = await res.text()
      console.error('Gemini API error:', res.status, errText)
      return NextResponse.json({ error: 'DËch vå AI t¡m thÝi b-n, vui lò
    }

    const data = await res.json()
    const text = data?.candidates?.[0]?.content?.parts?.[0]?.text || ''

    const jsonMatch = text.match(/```(?:json)?\s*([\s\S]*?)```/) || text.match(/{[\s\S]*"components"[\s\S]*}/)
    const jsonStr = jsonMatch ? jsonMatch[1] || jsonMatch[0] : text

    try {
      const parsed = JSON.parse(jsonStr.trim())
      return NextResponse.json(parsed)
    } catch {
      console.error('Failed to parse AI response as JSON:', text.substring(0, 200))
      return NextResponse.json({ error: 'L×i: Không thÃ bóc tách dï liÇu
    }
  } catch (err: any) {
    if (err.name === 'AbortError') {
      return NextResponse.json({ error: 'Yêu c§u ã h¿t thÝi gian chÝ. V
    }
    console.error('Price compare error:', err)
    return NextResponse.json({ error: ' ã x£y ra l×i, vui lòng thí l¡i.'
  }
}

```

File: app/api/pc-suggest/route.ts (134 lines, 5.4 KB)

```
import { NextRequest, NextResponse } from 'next/server'

const SYSTEM_PROMPT = `B¡n là chuyên gia t° v¥n mua máy tính t¡i ViÇt Na
Yêu c§u:
- Áx u¥t 3-5 máy tính phù hãp nh¥t (c£ laptop và desktop)
- Mâi máy ph£i có tên cå thÃ, thông sÑ chi ti¿t (CPU, RAM, GPU, Õ céng),
- Thêm £nh s£n ph©m (dùng unsplash hoâc pollinations.ai)
- Phân tích lý do phù hãp
- Tra céu giá trên 5 trang: GearVN, Phong Vi, An Phát, Hoàng Hà, FPT Sho
- Tính giá trung bình të các cía hàng

Tr£ vÁ JSON tuyÇt Ñi, không thêm text ngoài:
{
  "suggestions": [
    {
      "id": "s1",
      "name": "Tên máy",
      "type": "Laptop Gaming | Desktop Gaming | Laptop | Desktop Office | ...",
      "specs": "Thông sÑ chi ti¿t",
      "specs_detail": {
        "cpu": "Intel Core i7-13700H",
        "ram": "16GB DDR5",
        "gpu": "RTX 4060 8GB",
        "storage": "1TB SSD NVMe"
      },
      "price": 34990000,
      "average_price": 35200000,
      "price_breakdown": [
        { "store": "GearVN", "price": 34990000, "url": "https://gearvn.com/" },
        { "store": "Phong Vi", "price": 35900000, "url": "https://phongv
        { "store": "An Phát", "price": 34500000, "url": "https://anphatpc.com.vn/" },
        { "store": "Hoàng Hà", "price": 35500000, "url": "https://hoanghapc.vn/" },
        { "store": "FPT Shop", "price": 35200000, "url": "https://fptshop.com.vn/" }
      ],
      "reason": "Lý do phù hãp",
      "useCases": ["gaming", "coder"],
      "rating": 4.7,
      "image_url": "https://images.unsplash.com/photo-1593642632559-0c6d3fc62b89?w=400&q=80"
    }
  ]
}`

const cache = new Map<string, { data: any; timestamp: number }>()
const CACHE_TTL = 60 * 60 * 1000

function getCacheKey(purpose: string, useCases: string[], budget: number): string {
  return JSON.stringify({ purpose, useCases: [...useCases].sort(), budget })
}

export async function POST(request: NextRequest) {
  try {
    const body = await request.json()
    const { purpose, useCases = [], budget = 0 } = body

    if (!process.env.GEMINI_API_KEY) {
      return NextResponse.json({
        error: 'AI chºa ºãc c¥u hình (thi¿u API key). Vui lòng liên hÇ
        code: 'MISSING_API_KEY',
      }, { status: 503 })
    }

    if (!purpose && useCases.length === 0) {
      return NextResponse.json({ error: 'Vui lòng nh-p nhu c§u hoâc chÍn
    }

    const cacheKey = getCacheKey(purpose, useCases, budget)
    const cached = cache.get(cacheKey)
    if (cached && Date.now() - cached.timestamp < CACHE_TTL) {
      return NextResponse.json(cached.data)
    }

    const userRequest = `Mâc ích: ${purpose || 'Không có'}\nCác nhu c§u

    const controller = new AbortController()
    const timeoutId = setTimeout(() => controller.abort(), 20000)

    const res = await fetch('https://generativelanguage.googleapis.com/v1beta/models/gemini-1.5-flash:generate...
      method: 'POST',
      headers: { 'Content-Type': 'application/json' },
      body: JSON.stringify({
        contents: [{
          parts: [{
            text: SYSTEM_PROMPT + '\n\n' + userRequest
          }]
        }],
        generationConfig: { temperature: 0.4, maxOutputTokens: 2048 }
      }),
      signal: controller.signal
    })

    clearTimeout(timeoutId)
```

```
  93|
  94|     if (!res.ok) {
  95|       const errText = await res.text()
  96|       console.error('Gemini API error:', res.status, errText)
    9 7 |              r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' D Ë c h   v å   A I   t ¡ m   t h Ý i   b - n ,   v u i   l ò
  98|     }
  99|
 100|     const data = await res.json()
 101|     const text = data?.candidates?.[0]?.content?.parts?.[0]?.text || ''
 102|
 103|     if (!text.trim()) {
    1 0 4 |              r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' A I   k h ô n g   t r £   v Á   k ¿ t   q u £ .   V u i   l ò
 105|     }
 106|
 107|     let jsonStr = text.trim()
 108|     const jsonBlockMatch = text.match(/```(?:json)?\s*([\s\S]*?)```/)
 109|     if (jsonBlockMatch) {
 110|       jsonStr = jsonBlockMatch[1].trim()
 111|     } else {
 112|       const objectMatch = text.match(/{[\s\S]*"suggestions"[\s\S]*}/)
 113|       if (objectMatch) {
 114|         jsonStr = objectMatch[0]
 115|       }
 116|     }
 117|
 118|     try {
 119|       const parsed = JSON.parse(jsonStr)
 120|       cache.set(cacheKey, { data: parsed, timestamp: Date.now() })
 121|       return NextResponse.json(parsed)
 122|     } catch {
 123|       console.error('Failed to parse AI response as JSON:', text.substring(0, 500))
    1 2 4 |              r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' K h ô n g   t h Ã   p h â n   t í c h   d ï   l i Ç u   t ë
 125|     }
 126|   } catch (err: any) {
 127|     if (err.name === 'AbortError') {
    1 2 8 |              r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   ' Y ê u   c § u   ã   h ¿ t   t h Ý i   g i a n   c h Ý .   V
 129|     }
 130|     console.error('PC suggest error:', err)
    1 3 1 |          r e t u r n   N e x t R e s p o n s e . j s o n ( {   e r r o r :   '   ã   x £ y   r a   l × i ,   v u i   l ò n g   t h í   l ¡ i . '
 132|   }
 133| }
 134|
```

File: app/api/pdf/route.ts (28 lines, 0.8 KB)

```
    1| import { NextResponse } from 'next/server'
    2| import fs from 'fs'
    3| import path from 'path'
    4|
    5| const ALLOWED = ['sach-tin10.pdf', 'sach-tin11.pdf']
    6|
    7| export async function GET(req: Request) {
    8|   const { searchParams } = new URL(req.url)
    9|   const file = searchParams.get('file')
   10|
   11|   if (!file || !ALLOWED.includes(file)) {
   12|     return new NextResponse('File not found', { status: 404 })
   13|   }
   14|
   15|   const filePath = path.join(process.cwd(), 'public', file)
   16|   if (!fs.existsSync(filePath)) {
   17|     return new NextResponse('File not found', { status: 404 })
   18|   }
   19|
   20|   const buffer = fs.readFileSync(filePath)
   21|   return new NextResponse(buffer, {
   22|     headers: {
   23|       'Content-Type': 'application/pdf',
   24|       'Content-Disposition': 'inline; filename="' + file + '"',
   25|     },
   26|   })
   27| }
   28|
```

File: app/api/products/route.ts (41 lines, 1.2 KB)

```
    1| import { createClient } from '@/lib/supabase-ssr-server'
    2| import { NextRequest, NextResponse } from 'next/server'
    3|
    4| export async function GET(req: NextRequest) {
    5|   const supabase = await createClient()
    6|   const { searchParams } = new URL(req.url)
    7|   const category = searchParams.get('category')
    8|   const query = searchParams.get('q')
    9|   const limit = parseInt(searchParams.get('limit') || '50')
   10|   const offset = parseInt(searchParams.get('offset') || '0')
   11|
   12|   let dbQuery = supabase
   13|     .from('products')
   14|     .select('*')
   15|
   16|   if (category) {
   17|     const cat = category.toUpperCase()
   18|     const valid = ['CPU', 'GPU', 'MAINBOARD', 'RAM', 'PSU', 'CASE', 'COOLER', 'SSD', 'HDD']
   19|     if (valid.includes(cat)) {
   20|       dbQuery = dbQuery.eq('category', cat)
   21|     }
   22|   }
   23|
   24|   if (query) {
   25|     dbQuery = dbQuery.or(
   26|       `full_name.ilike.%${query}%,brand.ilike.%${query}%,model.ilike.%${query}%`
   27|     )
   28|   }
   29|
   30|   const { data, error, count } = await dbQuery
   31|     .order('price_vnd', { ascending: true })
   32|     .range(offset, offset + limit - 1)
   33|     .limit(limit)
   34|
   35|   if (error) {
   36|     return NextResponse.json({ error: error.message }, { status: 500 })
   37|   }
   38|
   39|   return NextResponse.json({ products: data, count, offset, limit })
   40| }
   41|
```

File: app/api/quiz/route.js (34 lines, 1.9 KB)

```
```

```
import { GoogleGenerativeAI } from "@google/generative-ai";
import { searchKnowledge } from "../../../utils/searchKnowledge";

const genAI = new GoogleGenerativeAI(process.env.GEMINI_API_KEY || process.env.GOOGLE_GEMINI_API_KEY);

export async function POST(req) {
    try {
        const { lang, topic, level } = await req.json();
        const model = genAI.getGenerativeModel({ model: "gemini-1.5-flash" });

        // Bước 1: Lấy kiến thức từ Knowledge Base (RAG)
        const context = searchKnowledge(topic);

        const topicInfo = topic ? `vÁ ${topic}` : `vÁ phần cêng máy t
        const levelInfo = level ? `ß Ù khó C¥p ${level}` : `cho ngº Ýi

        const prompt = lang === 'vn'
                        ? `Dña trên tài liÇu sau ây:\n\n"${context}"\n\nHãy tio 10
            : `Based on the following documentation:\n\n"${context}"\n\nGenerate 10 multiple-choice questions ...

        const result = await model.generateContent(prompt);
        const response = await result.response;
        let text = response.text();

        // Cleanup markdown if present
        text = text.replace(/```json/g, '').replace(/```/g, '').trim();

        return Response.json(JSON.parse(text));
    } catch (error) {
        console.error("Gemini API Error:", error);
        return Response.json({ error: error.message || "Failed to generate question" }, { status: 500 });
    }
}
```

File: app/api/seed/daily-quests/route.ts (34 lines, 2.7 KB)

```
import { createClient } from '@supabase/supabase-js'

const supabaseUrl = process.env.NEXT_PUBLIC_SUPABASE_URL!
const supabaseServiceKey = process.env.SUPABASE_SERVICE_ROLE_KEY!

const QUESTS = [
      { title: 'Hoàn thành 1 bài hÍc', description: 'Xem h¿t 1 bài giÉng b¥t
      { title: 'L¯p ráp PC_hoàn chÉnh', description: 'L¯p §y ç linh kiÇn t
      { title: 'Làm bài tr¯c nghiÇm', description: 'Hoàn thành 1 bài quiz b¥
      { title: 'Tham gia thÉo lu-n', description: '·t câu hÏi hoºc trÉ lÝi
      { title: '¡t streak 3 ngày', description: 'HÍc liên ti¿p 3 ngày không
      { title: 'KiÃm tra t°¡ng thích', description: 'Chªy kiÃm tra t°¡ng thi
      { title: 'Hoàn thành 3 bài hÍc', description: 'HÍc liên tåc 3 bài giÉn
      { title: 'LuyÇn t-p 15 phút', description: 'Dành 15 phút trong PC Buil
]

export async function GET() {
  const supabase = createClient(supabaseUrl, supabaseServiceKey)

  try {
    const { data: existing } = await supabase.from('daily_quests').select('id').limit(1)
    if (existing && existing.length > 0) {
      return Response.json({ message: '' daily_quests already has data,
    }

    const { error } = await supabase.from('daily_quests').insert(QUESTS)
    if (error) throw error

    return Response.json({ message: `' Seeded ${QUESTS.length} daily que
  } catch (err: any) {
    return Response.json({ error: err.message }, { status: 500 })
  }
}
```

File: app/api/tts/route.ts (26 lines, 0.8 KB)

```
export async function GET(req: Request) {
  const { searchParams } = new URL(req.url);
  const text = searchParams.get('text');
  const lang = searchParams.get('lang') || 'vi';
  if (!text) {
    return new Response('Missing text', { status: 400 });
  }

  const googleUrl = `https://translate.google.com/translate_tts?ie=UTF-8&tl=${lang}&client=tw-ob&q=${encodeURI...
  try {
    const res = await fetch(googleUrl);
    if (!res.ok) {
      return new Response('TTS unavailable', { status: 502 });
    }
    const audio = await res.arrayBuffer();
    return new Response(audio, {
      headers: {
        'Content-Type': 'audio/mpeg',
        'Cache-Control': 'public, max-age=86400',
      },
    });
  } catch {
    return new Response('TTS failed', { status: 502 });
  }
}
```

File: app/auth/callback/route.ts (38 lines, 1.2 KB)

```
import { createClient } from '@/lib/supabase-ssr-server'
import { NextResponse } from 'next/server'

export async function GET(request: Request) {
  const requestUrl = new URL(request.url)
  const code = requestUrl.searchParams.get('code')

  if (code) {
    const supabase = await createClient()
    const { data: { user } } = await supabase.auth.exchangeCodeForSession(code)

    if (user) {
      const { data: profile } = await supabase
        .from('profiles')
        .select('role')
        .eq('id', user.id)
        .single()
```

```
   18|
   19|       // New OAuth user - redirect to register completion to select role
   20|       if (!profile || !profile.role) {
   21|         return NextResponse.redirect(new URL('/register?oauth=true', requestUrl.origin))
   22|       }
   23|
   24|       // Existing user - redirect based on role
   25|       const dashboardUrl = {
   26|         teacher: '/teacher',
   27|         admin: '/admin',
   28|         parent: '/parent',
   29|         student: '/builder',
   30|       }[profile.role as 'teacher' | 'admin' | 'parent' | 'student'] ?? '/builder'
   31|
   32|       return NextResponse.redirect(new URL(dashboardUrl, requestUrl.origin))
   33|     }
   34|   }
   35|
   36|   return NextResponse.redirect(new URL('/login?error=oauth_failed', requestUrl.origin))
   37| }
   38|
```

File: app/builder/3d-components/page.js (714 lines, 23.0 KB)

```
    1| 'use client';
    2|
    3| import { useState, useEffect, useRef } from 'react';
    4| import Link from 'next/link';
    5| import { CATEGORIES, COLOR_THEMES } from '@/lib/sketchfab-models';
    6| import { Box, Grid3X3, ChevronLeft, Maximize2, X, Eye, Layers, User, BookOpen, Rotate3D, BookMarked } from 'lu...
    7|
    8| function SketchfabEmbed({ modelId, title, fullscreen }) {
    9|   return (
   10|     <iframe
   11|       title={title}
   12|       style={{ width: '100%', height: '100%', border: 'none' }}
   13|       src={`https://sketchfab.com/models/${modelId}/embed${fullscreen ? '?autostart=1' : '?autostart=0'}`}
   14|       allow="autoplay; fullscreen"
   15|       allowFullScreen
   16|       loading="lazy"
   17|       sandbox="allow-scripts allow-same-origin allow-popups"
   18|     />
   19|   );
   20| }
   21|
   22| function FullscreenModal({ item, theme, onClose }) {
   23|   useEffect(() => {
   24|     document.body.style.overflow = 'hidden';
   25|     return () => { document.body.style.overflow = '' };
   26|   }, []);
   27|
   28|   return (
   29|     <div
   30|       style={{
   31|         position: 'fixed',
   32|         inset: 0,
   33|         zIndex: 9999,
   34|         background: '#000',
   35|         display: 'flex',
   36|         flexDirection: 'column',
   37|       }}
   38|     >
   39|       <div
   40|         style={{
   41|           display: 'flex',
   42|           alignItems: 'center',
   43|           justifyContent: 'space-between',
   44|           padding: '12px 20px',
   45|           background: 'rgba(0,0,0,0.8)',
   46|           backdropFilter: 'blur(16px)',
   47|           borderBottom: '1px solid rgba(255,255,255,0.06)',
   48|           flexShrink: 0,
   49|           zIndex: 10,
   50|         }}
   51|       >
   52|         <div style={{ display: 'flex', alignItems: 'center', gap: 10 }}>
   53|           <span
   54|             style={{
   55|               background: theme.gradient,
   56|               color: '#fff',
   57|               fontSize: 11,
   58|               fontWeight: 800,
   59|               width: 28,
   60|               height: 28,
   61|               borderRadius: 8,
   62|               display: 'flex',
   63|               alignItems: 'center',
   64|               justifyContent: 'center',
   65|             }}
   66|           >
   67|             {item.originalIndex !== undefined ? item.originalIndex + 1 : '3D'}
   68|           </span>
   69|           <div>
   70|             <div style={{ fontSize: 14, fontWeight: 600, color: '#fff' }}>{item.title}</div>
   71|             <div style={{ fontSize: 11, color: 'rgba(255,255,255,0.4)' }}>{item.description}</div>
   72|           </div>
   73|         </div>
   74|         <button
   75|           onClick={onClose}
   76|           style={{
   77|             width: 36,
   78|             height: 36,
   79|             borderRadius: 10,
   80|             background: 'rgba(255,255,255,0.06)',
   81|             border: '1px solid rgba(255,255,255,0.08)',
   82|             display: 'flex',
   83|             alignItems: 'center',
   84|             justifyContent: 'center',
   85|             cursor: 'pointer',
   86|             color: '#fff',
   87|             transition: 'all 0.2s',
   88|           }}
   89|           onMouseOver={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.12)' }}
   90|           onMouseOut={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.06)' }}
   91|         >
   92|           <X size={18} />
   93|         </button>
   94|       </div>
   95|       <div style={{ flex: 1, position: 'relative' }}>
   96|         <SketchfabEmbed modelId={item.embedId} title={item.title} fullscreen />
   97|       </div>
   98|     </div>
   99|   );
```

```
100| }
101|
102| function AnnotationBadge({ analyzedBy, knowledge, theme }) {
103|   const [open, setOpen] = useState(false);
104|
105|   return (
106|     <div style={{ position: 'relative' }}>
107|       <button
108|         onClick={e => { e.stopPropagation(); setOpen(!open) }}
109|         style={{
110|           display: 'flex',
111|           alignItems: 'center',
112|           gap: 5,
113|           padding: '3px 10px',
114|           borderRadius: 6,
115|           background: `${theme.color}12`,
116|           border: `1px solid ${theme.color}20`,
117|           color: theme.color,
118|           fontSize: 10,
119|           fontWeight: 600,
120|           cursor: 'pointer',
121|           transition: 'all 0.2s',
122|           fontFamily: 'inherit',
123|         }}
124|       >
125|         <BookMarked size={12} />
126|         Chú thích
127|       </button>
128|       {open && (
129|         <>
130|           <div
131|             style={{
132|               position: 'fixed',
133|               inset: 0,
134|               zIndex: 100,
135|             }}
136|             onClick={e => { e.stopPropagation(); setOpen(false) }}
137|           />
138|           <div
139|             style={{
140|               position: 'absolute',
141|               top: 'calc(100% + 8px)',
142|               left: 0,
143|               zIndex: 101,
144|               width: 320,
145|               padding: 16,
146|               borderRadius: 12,
147|               background: '#0f0f1a',
148|               border: `1px solid ${theme.color}30`,
149|               boxShadow: `0 8px 40px rgba(0,0,0,0.5), 0 0 20px ${theme.color}10`,
150|             }}
151|           >
152|             <div style={{ display: 'flex', alignItems: 'center', gap: 8, marginBottom: 10 }}>
153|               <div
154|                 style={{
155|                   width: 28,
156|                   height: 28,
157|                   borderRadius: 8,
158|                   background: theme.gradient,
159|                   display: 'flex',
160|                   alignItems: 'center',
161|                   justifyContent: 'center',
162|                 }}
163|               >
164|                 <User size={14} color="#fff" />
165|               </div>
166|               <div
   1 6 7 |                                 < d i v   s t y l e = { {   f o n t S i z e :   1 1 ,   f o n t W e i g h t :   6 0 0 ,   c o l o r :   ' # f 1
168|                 <div style={{ fontSize: 10, color: theme.color }}>{analyzedBy}</div>
169|               </div>
170|             </div>
171|             <div style={{ display: 'flex', alignItems: 'flex-start', gap: 8 }}>
172|               <BookOpen size={14} color={theme.color} style={{ flexShrink: 0, marginTop: 1 }} />
173|               <div style={{ fontSize: 11, color: 'rgba(255,255,255,0.7)', lineHeight: 1.6 }}>{knowledge}</div>
174|             </div>
175|           </div>
176|         </>
177|       )}
178|     </div>
179|   );
180| }
181|
182| function ModelCard({ item, theme, index, category, onView }) {
183|   const [shouldLoad, setShouldLoad] = useState(false);
184|   const cardRef = useRef(null);
185|
186|   useEffect(() => {
187|     const el = cardRef.current;
188|     if (!el) return;
189|     const obs = new IntersectionObserver(
190|       ([entry]) => {
191|         if (entry.isIntersecting) {
192|           setShouldLoad(true);
193|           obs.unobserve(el);
194|         }
195|       },
196|       { rootMargin: '200px' }
197|     );
198|     obs.observe(el);
199|     return () => obs.disconnect();
200|   }, []);
201|
202|   return (
203|     <div
204|       ref={cardRef}
205|       onClick={() => onView(item, theme)}
206|       style={{
207|         background: `linear-gradient(145deg, ${theme.bg}, #000)`,
208|         borderRadius: 16,
209|         border: `1px solid ${theme.color}18`,
210|         overflow: 'hidden',
211|         transition: 'all 0.4s cubic-bezier(0.4, 0, 0.2, 1)',
212|         position: 'relative',
213|         cursor: 'pointer',
214|         height: 340,
215|       }}
216|       onMouseOver={e => {
217|         e.currentTarget.style.borderColor = `${theme.color}50`;
218|         e.currentTarget.style.boxShadow = `0 8px 32px ${theme.color}20`;
219|         e.currentTarget.style.transform = 'translateY(-4px)';
220|       }}
221|       onMouseOut={e => {
222|         e.currentTarget.style.borderColor = `${theme.color}18`;
223|         e.currentTarget.style.boxShadow = 'none';
```

```
224|         e.currentTarget.style.transform = 'translateY(0)';
225|       }}
226|     >
227|       <div
228|         style={{
229|           position: 'absolute',
230|           top: 0, left: 0, right: 0,
231|           height: 2,
232|           background: theme.gradient,
233|           opacity: 0.6,
234|           zIndex: 11,
235|         }}
236|       />
237|
238|       <div
239|         style={{
240|           position: 'absolute',
241|           top: 14,
242|           left: 14,
243|           zIndex: 10,
244|           display: 'flex',
245|           alignItems: 'center',
246|           gap: 8,
247|         }}
248|       >
249|         <span
250|           style={{
251|             background: theme.gradient,
252|             color: '#fff',
253|             fontSize: 11,
254|             fontWeight: 800,
255|             width: 26,
256|             height: 26,
257|             borderRadius: 8,
258|             display: 'flex',
259|             alignItems: 'center',
260|             justifyContent: 'center',
261|             boxShadow: `0 2px 12px ${theme.color}50`,
262|           }}
263|         >
264|           {index + 1}
265|         </span>
266|         <span
267|           style={{
268|             fontSize: 11,
269|             fontWeight: 600,
270|             color: '#fff',
271|             background: 'rgba(0,0,0,0.7)',
272|             backdropFilter: 'blur(12px)',
273|             padding: '5px 12px',
274|             borderRadius: 8,
275|             maxWidth: 180,
276|             whiteSpace: 'nowrap',
277|             overflow: 'hidden',
278|             textOverflow: 'ellipsis',
279|             border: '1px solid rgba(255,255,255,0.06)',
280|           }}
281|         >
282|           {item.title}
283|         </span>
284|       </div>
285|
286|       {shouldLoad ? (
287|         <div
288|           style={{
289|             width: '100%',
290|             height: '100%',
291|             pointerEvents: 'none',
292|           }}
293|         >
294|           <iframe
295|             title={item.title}
296|             style={{ width: '100%', height: '100%', border: 'none' }}
297|             src={`https://sketchfab.com/models/${item.embedId}/embed?autostart=0&preload=0&ui_controls=0&ui_in...
298|             allow="autoplay; fullscreen"
299|             loading="lazy"
300|             sandbox="allow-scripts allow-same-origin allow-popups"
301|           />
302|         </div>
303|       ) : (
304|         <div
305|           style={{
306|             position: 'absolute',
307|             inset: 0,
308|             display: 'flex',
309|             flexDirection: 'column',
310|             alignItems: 'center',
311|             justifyContent: 'center',
312|             gap: 12,
313|             color: theme.color,
314|             background: `radial-gradient(ellipse at center, ${theme.color}08, transparent)`,
315|           }}
316|         >
317|                       < d i v   s t y l e = { {   f o n t S i z e :   4 0 ,   o p a c i t y :   0 . 2   } } >Ø=Ý¥þ  < / d i v >
318|           <div style={{ fontSize: 12, fontWeight: 500, color: theme.color, opacity: 0.8 }}>
319|                           N h ¥ p     Ã   x e m   3 D
320|           </div>
321|         </div>
322|       )}
323|
324|       <div
325|         onClick={() => onView(item, theme)}
326|         style={{
327|           position: 'absolute',
328|           inset: 0,
329|           zIndex: 5,
330|           cursor: 'pointer',
331|         }}
332|       >
333|         <div
334|           style={{
335|             position: 'absolute',
336|             bottom: 60,
337|             left: '50%',
338|             transform: 'translateX(-50%)',
339|             display: 'flex',
340|             alignItems: 'center',
341|             gap: 6,
342|             background: 'rgba(0,0,0,0.75)',
343|             backdropFilter: 'blur(12px)',
344|             padding: '8px 16px',
345|             borderRadius: 10,
346|             border: '1px solid rgba(255,255,255,0.1)',
347|             opacity: 0,
```

```
348|             transition: 'opacity 0.2s',
349|             pointerEvents: 'none',
350|           }}
351|           className="view-btn"
352|         >
353|           <Maximize2 size={14} color="#fff" />
354|           <span style={{ fontSize: 12, fontWeight: 600, color: '#fff' }}>Xem toàn màn hình</span>
355|         </div>
356|       </div>
357|
358|       <div
359|         style={{
360|           position: 'absolute',
361|           bottom: 0,
362|           left: 0,
363|           right: 0,
364|           padding: '48px 16px 14px',
365|           background: 'linear-gradient(transparent, rgba(0,0,0,0.9) 40%)',
366|           display: 'flex',
367|           justifyContent: 'space-between',
368|           alignItems: 'flex-end',
369|           pointerEvents: 'none',
370|         }}
371|       >
372|         <div>
373|           <div style={{ fontSize: 14, fontWeight: 700, color: '#fff', textShadow: '0 1px 4px rgba(0,0,0,0.5)' }}>
374|             {item.title}
375|           </div>
376|           {item.description && (
377|             <div style={{ fontSize: 11, color: 'rgba(255,255,255,0.6)', marginTop: 2, textShadow: '0 1px 4px r...
378|               {item.description}
379|             </div>
380|           )}
381|         </div>
382|         <div style={{ display: 'flex', alignItems: 'center', gap: 4, color: 'rgba(255,255,255,0.35)', fontSize...
383|           <Rotate3D size={12} />
384|           <span>3D</span>
385|         </div>
386|       </div>
387|     </div>
388|   );
389| }
390|
391| export default function Components3DPage() {
392|   const [activeCategory, setActiveCategory] = useState(null);
393|   const [visible, setVisible] = useState({});
394|   const [fullscreenItem, setFullscreenItem] = useState(null);
395|   const [fullscreenTheme, setFullscreenTheme] = useState(null);
396|
397|   useEffect(() => {
398|     const onScroll = () => {
399|       const sections = document.querySelectorAll('[data-category]');
400|       sections.forEach(section => {
401|         const rect = section.getBoundingClientRect();
402|         const id = section.getAttribute('data-category');
403|         if (rect.top < window.innerHeight - 80) {
404|           setVisible(prev => ({ ...prev, [id]: true }));
405|         }
406|       });
407|     };
408|     onScroll();
409|     window.addEventListener('scroll', onScroll, { passive: true });
410|     return () => window.removeEventListener('scroll', onScroll);
411|   }, []);
412|
413|   const handleView = (item, theme) => {
414|     setFullscreenItem(item);
415|     setFullscreenTheme(theme);
416|   };
417|
418|   return (
419|     <div
420|       style={{
421|         minHeight: '100vh',
422|         background: 'var(--bg-base)',
423|         fontFamily: "'Segoe UI', system-ui, sans-serif",
424|       }}
425|     >
426|       <style>{`
427|         .model-card:hover .view-btn {
428|           opacity: 1 !important;
429|         }
430|         @keyframes spin {
431|           to { transform: rotate(360deg); }
432|         }
433|       `}</style>
434|
435|       <div
436|         style={{
437|           position: 'sticky',
438|           top: 0,
439|           zIndex: 50,
440|           background: 'rgba(8, 8, 18, 0.85)',
441|           backdropFilter: 'blur(20px) saturate(1.5)',
442|           borderBottom: '1px solid rgba(255,255,255,0.06)',
443|         }}
444|       >
445|         <div
446|           style={{
447|             maxWidth: 1280,
448|             margin: '0 auto',
449|             padding: '14px 24px',
450|             display: 'flex',
451|             alignItems: 'center',
452|             justifyContent: 'space-between',
453|           }}
454|         >
455|           <div style={{ display: 'flex', alignItems: 'center', gap: 12 }}>
456|             <Link
457|               href="/builder"
458|               style={{
459|                 display: 'flex',
460|                 alignItems: 'center',
461|                 gap: 6,
462|                 color: 'rgba(255,255,255,0.5)',
463|                 textDecoration: 'none',
464|                 fontSize: 13,
465|                 fontWeight: 500,
466|                 padding: '6px 10px',
467|                 borderRadius: 8,
468|                 transition: 'all 0.2s',
469|               }}
470|               onMouseOver={e => { e.currentTarget.style.color = '#fff'; e.currentTarget.style.background = 'rg...
471|               onMouseOut={e => { e.currentTarget.style.color = 'rgba(255,255,255,0.5)'; e.currentTarget.style....
```

```
472|             >
473|               <ChevronLeft size={16} />
   4 7 4 |                                Q u a y   l ¡ i
475|             </Link>
476|             <div
477|               style={{
478|                 width: 34,
479|                 height: 34,
480|                 borderRadius: 10,
481|                 background: 'linear-gradient(135deg, #6366f1, #a855f7)',
482|                 display: 'flex',
483|                 alignItems: 'center',
484|                 justifyContent: 'center',
485|                 boxShadow: '0 2px 16px rgba(168,85,247,0.4)',
486|               }}
487|             >
488|               <Box size={17} color="#fff" />
489|             </div>
490|             <div>
491|               <h1 style={{ margin: 0, fontSize: 17, fontWeight: 700, color: '#fff', letterSpacing: '-0.02em' }}>
   4 9 2 |                                K h o   L i n h   K i Ç n   < s p a n   s t y l e = { {   c o l o r :   ' # a 8 5 5 f 7 '   } } > 3 D < / s p a
493|               </h1>
494|               <p style={{ margin: 0, fontSize: 11, color: 'rgba(255,255,255,0.4)' }}>
   4 9 5 |                                K h á m   p h á   l i n h   k i Ç n   d ° Ù i   g ó c   n h ì n   3   c h i Á u
496|               </p>
497|             </div>
498|           </div>
499|
500|           <div style={{ display: 'flex', alignItems: 'center', gap: 8, color: 'rgba(255,255,255,0.3)', fontSiz...
501|             <Eye size={14} />
502|             <span>{CATEGORIES.reduce((sum, cat) => sum + cat.items.length, 0)} mô hình</span>
503|           </div>
504|         </div>
505|
506|         <div
507|           style={{
508|             maxWidth: 1280,
509|             margin: '0 auto',
510|             padding: '0 24px 12px',
511|             display: 'flex',
512|             gap: 6,
513|             flexWrap: 'wrap',
514|           }}
515|         >
516|           <button
517|             onClick={() => setActiveCategory(null)}
518|             style={{
519|               padding: '5px 14px',
520|               borderRadius: 100,
521|               border: `1px solid ${!activeCategory ? '#a855f7' : 'rgba(255,255,255,0.1)'}`,
522|               background: !activeCategory ? 'rgba(168,85,247,0.15)' : 'transparent',
523|               color: !activeCategory ? '#a855f7' : 'rgba(255,255,255,0.5)',
524|               fontSize: 11,
525|               fontWeight: 600,
526|               cursor: 'pointer',
527|               transition: 'all 0.2s',
528|               fontFamily: 'inherit',
529|             }}
530|           >
   5 3 1 |                                T ¥ t   c £
532|           </button>
533|           {CATEGORIES.map(cat => {
534|             const theme = COLOR_THEMES[cat.id];
535|             const isActive = activeCategory === cat.id;
536|             return (
537|               <button
538|                 key={cat.id}
539|                 onClick={() => setActiveCategory(isActive ? null : cat.id)}
540|                 style={{
541|                   padding: '5px 14px',
542|                   borderRadius: 100,
543|                   border: `1px solid ${isActive ? theme.color : 'rgba(255,255,255,0.1)'}`,
544|                   background: isActive ? `${theme.color}20` : 'transparent',
545|                   color: isActive ? theme.color : 'rgba(255,255,255,0.5)',
546|                   fontSize: 11,
547|                   fontWeight: 600,
548|                   cursor: 'pointer',
549|                   transition: 'all 0.2s',
550|                   fontFamily: 'inherit',
551|                 }}
552|               >
553|                 {theme.label}
554|               </button>
555|             );
556|           })}
557|         </div>
558|       </div>
559|
560|       <div style={{ maxWidth: 1280, margin: '0 auto', padding: '32px 24px' }}>
561|         {CATEGORIES.map(category => {
562|           if (activeCategory && activeCategory !== category.id) return null;
563|           const theme = COLOR_THEMES[category.id];
564|           return (
565|             <div
566|               key={category.id}
567|               data-category={category.id}
568|               style={{
569|                 opacity: visible[category.id] ? 1 : 0,
570|                 transform: visible[category.id] ? 'translateY(0)' : 'translateY(24px)',
571|                 transition: 'opacity 0.6s cubic-bezier(0.4, 0, 0.2, 1), transform 0.6s cubic-bezier(0.4, 0, 0....
572|               }}
573|             >
574|               <section style={{ marginBottom: 56 }}>
575|                 <div
576|                   style={{
577|                     display: 'flex',
578|                     alignItems: 'center',
579|                     gap: 16,
580|                     marginBottom: 24,
581|                     padding: '18px 24px',
582|                     borderRadius: 16,
583|                     background: `linear-gradient(135deg, ${theme.color}10, ${theme.color}05)`,
584|                     border: `1px solid ${theme.color}20`,
585|                     backdropFilter: 'blur(8px)',
586|                     position: 'relative',
587|                     overflow: 'hidden',
588|                   }}
589|                 >
590|                   <div
591|                     style={{
592|                       position: 'absolute',
593|                       top: '-50%',
594|                       right: '-20%',
595|                       width: 200,
```

```
596|                      height: 200,
597|                      borderRadius: '50%',
598|                      background: `radial-gradient(circle, ${theme.color}15, transparent)`,
599|                      pointerEvents: 'none',
600|                    }}
601|                  />
602|                  <div
603|                    style={{
604|                      width: 48,
605|                      height: 48,
606|                      borderRadius: 14,
607|                      background: theme.gradient,
608|                      display: 'flex',
609|                      alignItems: 'center',
610|                      justifyContent: 'center',
611|                      boxShadow: `0 4px 24px ${theme.color}50`,
612|                      flexShrink: 0,
613|                    }}
614|                  >
615|                    <Layers size={22} color="#fff" />
616|                  </div>
617|                  <div style={{ flex: 1 }}>
618|                    <div style={{ display: 'flex', alignItems: 'center', gap: 12, flexWrap: 'wrap' }}>
619|                      <h2
620|                        style={{
621|                          margin: 0,
622|                          fontSize: 20,
623|                          fontWeight: 800,
624|                          color: '#fff',
625|                          letterSpacing: '-0.02em',
626|                        }}
627|                      >
628|                        {theme.label}
629|                      </h2>
630|                      <AnnotationBadge
631|                        analyzedBy={category.analyzedBy}
632|                        knowledge={category.knowledge}
633|                        theme={theme}
634|                      />
635|                    </div>
636|                    <div style={{ display: 'flex', alignItems: 'center', gap: 8, marginTop: 2 }}>
637|                      <span style={{ fontSize: 12, color: theme.color, fontWeight: 600 }}>
638|                        {category.items.length} mô hình
639|                      </span>
640|                      <span style={{ color: 'rgba(255,255,255,0.15)' }}>/</span>
641|                      <span style={{ fontSize: 12, color: 'rgba(255,255,255,0.4)' }}>
642|                        {category.items.map(i => i.title).join(', ').length > 80
643|                          ? category.items.map(i => i.title).join(', ').slice(0, 80) + '...'
644|                          : category.items.map(i => i.title).join(', ')}
645|                      </span>
646|                    </div>
647|                  </div>
648|                  <div
649|                    style={{
650|                      width: 40,
651|                      height: 40,
652|                      borderRadius: 10,
653|                      background: `${theme.color}15`,
654|                      border: `1px solid ${theme.color}25`,
655|                      display: 'flex',
656|                      alignItems: 'center',
657|                      justifyContent: 'center',
658|                      color: theme.color,
659|                      flexShrink: 0,
660|                    }}
661|                  >
662|                    <Grid3X3 size={18} />
663|                  </div>
664|                </div>
665|
666|                <div
667|                  style={{
668|                    display: 'grid',
669|                    gridTemplateColumns: 'repeat(auto-fill, minmax(320px, 1fr))',
670|                    gap: 20,
671|                  }}
672|                >
673|                  {category.items.map((item, idx) => (
674|                    <ModelCard
675|                      key={item.id}
676|                      item={{ ...item, originalIndex: idx }}
677|                      theme={theme}
678|                      index={idx}
679|                      category={category}
680|                      onView={handleView}
681|                    />
682|                  ))}
683|                </div>
684|              </section>
685|            </div>
686|          );
687|        })}
688|
689|        <footer
690|          style={{
691|            textAlign: 'center',
692|            padding: '40px 0 24px',
693|            borderTop: '1px solid rgba(255,255,255,0.06)',
694|          }}
695|        >
696|          <p style={{ margin: 0, color: 'rgba(255,255,255,0.25)', fontSize: 12, fontWeight: 500 }}>
697|                          T Ổ n g   c Ù n g   < s p a n   s t y l e = { {   c o l o r :   ' # a 8 5 5 f 7 '   } } > { C A T E G O R I E S . r e d
698|          </p>
699|          <p style={{ margin: '6px 0 0', color: 'rgba(255,255,255,0.15)', fontSize: 11 }}>
700|            PC Master Builder &copy; {new Date().getFullYear()}
701|          </p>
702|        </footer>
703|      </div>
704|
705|      {fullscreenItem && fullscreenTheme && (
706|        <FullscreenModal
707|          item={fullscreenItem}
708|          theme={fullscreenTheme}
709|          onClose={() => { setFullscreenItem(null); setFullscreenTheme(null) }}
710|        />
711|      )}
712|    </div>
713|  );
714| }
```

File: app/builder/3d-viewer/page.tsx (215 lines, 10.1 KB)

```
==========================================================================================
  1| 'use client';
```

```
 2|
 3| import { useState, useEffect, useRef, Component, type ReactNode } from 'react';
 4| import dynamic from 'next/dynamic';
 5|
 6| class ErrorBoundary extends Component<{ children: ReactNode }, { error: Error | null }> {
 7|   state = { error: null };
 8|   static getDerivedStateFromError(error: Error) { return { error }; }
 9|   render() {
10|     if (this.state.error) {
11|       return <div style={{ color: '#ff4466', padding: 40, fontFamily: 'monospace', fontSize: 12 }}>
12|         <h2>Error: {this.state.error.message}</h2>
13|         <pre style={{ color: '#88bbcc', marginTop: 12 }}>{this.state.error.stack}</pre>
14|       </div>;
15|     }
16|     return this.props.children;
17|   }
18| }
19|
20| const GameScene = dynamic(() => import('@/components/GameScene'), { ssr: false });
21|
22| function T(lang: 'en' | 'vn', en: string, vn: string) {
23|   return lang === 'en' ? en : vn;
24| }
25|
26| export default function Viewer3DPage() {
27|   const [showInstructions, setShowInstructions] = useState(true);
28|   const [showChat, setShowChat] = useState(false);
29|   const [chatMessages, setChatMessages] = useState<{ role: string; content: string }[]>([]);
30|   const [chatInput, setChatInput] = useState('');
31|   const [lang, setLang] = useState<'en' | 'vn'>('vn');
32|   const chatEndRef = useRef<HTMLDivElement>(null);
33|
34|   useEffect(() => {
35|     try {
36|       const saved = localStorage.getItem('lang');
37|       if (saved === 'en' || saved === 'vn') setLang(saved as 'en' | 'vn');
38|     } catch {}
39|   }, []);
40|
41|   useEffect(() => {
42|     chatEndRef.current?.scrollIntoView({ behavior: 'smooth' });
43|   }, [chatMessages]);
44|
45|   const handleChatSend = async () => {
46|     if (!chatInput.trim()) return;
47|     const userMsg = chatInput;
48|     setChatInput('');
49|     setChatMessages(prev => [...prev, { role: 'user', content: userMsg }]);
50|     try {
51|       const res = await fetch('/api/ai/chat', {
52|         method: 'POST',
53|         headers: { 'Content-Type': 'application/json' },
54|         body: JSON.stringify({ message: userMsg, history: [] }),
55|       });
56|       const data = await res.json();
57|               setChatMessages(prev => [...prev, { role: 'bot', content: data.rep
58|     } catch {
59|               setChatMessages(prev => [...prev, { role: 'bot', content: 'Xin lỗi
60|     }
61|   };
62|
63|   return (
64|     <ErrorBoundary>
65|       {/* Hide global AI Guru on this page */}
66|       <style>{`
67|         .fixed.bottom-8.right-8.z-\\[1000\\],
68|         button:has(> .absolute.-inset-1),
69|         [class*="bottom-8"][class*="right-8"] {
70|           display: none !important;
71|         }
72|       `}</style>
73|
74|       <div style={{ width: '100vw', height: '100vh', overflow: 'hidden', position: 'relative' }}>
75|         {showInstructions && (
76|           <div style={{
77|             position: 'fixed', inset: 0, zIndex: 10000,
78|             background: 'linear-gradient(135deg, #0a1220, #14182b)',
79|             display: 'flex', flexDirection: 'column',
80|             alignItems: 'center', justifyContent: 'center', gap: 28, padding: 32,
81|             fontFamily: "'Segoe UI', sans-serif",
82|           }}>
83|             <div style={{
84|               width: 72, height: 72, borderRadius: 20,
85|               background: 'linear-gradient(135deg, #00ffcc, #44aaff)',
86|               display: 'flex', alignItems: 'center', justifyContent: 'center',
87|               boxShadow: '0 0 50px rgba(0,255,204,0.3)',
88|             }}>
89|               <svg width="36" height="36" viewBox="0 0 24 24" fill="none" stroke="#fff" strokeWidth="2" stroke...
90|                 <path d="M21 16V8a2 2 0 0 0-1-1.73l-7-4a2 2 0 0 0-2 0l-7 4A2 2 0 0 0 3 8v8a2 2 0 0 0 1 1.73l7 ...
91|               </svg>
92|             </div>
93|             <h1 style={{ color: '#fff', fontSize: 32, fontWeight: 900, textAlign: 'center', letterSpacing: '-0...
94|               PC Master Builder <span style={{ color: '#00ffcc' }}>3D VR</span>
95|             </h1>
96|             <div style={{ maxWidth: 480, textAlign: 'center', color: '#88bbcc', fontSize: 14, lineHeight: 1.8 }}>
97|               {T(lang, 'Build your PC in a VR workshop. Use WASD to move, webcam to look around, drag parts in...
98|                                 'Lắp ráp PC trong phòng thí nghiệm VR. Dùng WASD di chuy
99|             </div>
100|             <div style={{ display: 'flex', flexDirection: 'column', gap: 12, width: '100%', maxWidth: 400 }}>
101|               {[
102|                                 { num: '1', text: T(lang, 'Toggle Explore to walk around
103|                                 { num: '2', text: T(lang, 'Click Start Assembly to build
104|                                 { num: '3', text: T(lang, 'Drag parts into the case — pr
105|               ].map((step, i) => (
106|                 <div key={i} style={{ display: 'flex', alignItems: 'center', gap: 14, padding: '14px 18px', ba...
107|                   <span style={{ width: 30, height: 30, borderRadius: 8, background: `${step.color}15`, displa...
108|                   <span style={{ color: '#ddeeff', fontSize: 13 }}>{step.text}</span>
109|                 </div>
110|               ))}
111|             </div>
112|             <button
113|               onClick={() => setShowInstructions(false)}
114|               style={{
115|                 padding: '14px 40px', borderRadius: 12, border: 'none',
116|                 background: 'linear-gradient(135deg, #00ffcc, #44aaff)',
117|                 color: '#000', cursor: 'pointer', fontSize: 16, fontWeight: 800,
118|                 fontFamily: 'inherit', letterSpacing: 1, boxShadow: '0 4px 30px rgba(0,255,204,0.3)',
119|               }}
120|             >
121|               {T(lang, 'ENTER VR WORKSHOP', 'VÀO PHÒNG VR')}
122|             </button>
123|           </div>
124|         )}
125|
```

```
126|         <GameScene />
127|
128|         {/* Small chatbot button - bottom right corner */}
129|         {!showInstructions && (
130|           <>
131|             {!showChat && (
132|               <button
133|                 onClick={() => setShowChat(true)}
134|                 style={{
135|                   position: 'fixed', bottom: '20px', right: '20px', zIndex: 9999,
136|                   width: '40px', height: '40px', borderRadius: '50%',
137|                   border: 'none', cursor: 'pointer',
138|                   background: 'linear-gradient(135deg, #00ffcc, #44aaff)',
139|                   color: '#000', display: 'flex', alignItems: 'center', justifyContent: 'center',
140|                   boxShadow: '0 2px 12px rgba(0,255,204,0.4)',
141|                   fontSize: '18px',
142|                 }}
143|                 title="AI Guru"
144|               >
  1 4 5 |                                 Ø=Ü¬
146|               </button>
147|             )}
148|
149|             {/* Chat panel */}
150|             {showChat && (
151|               <div style={{
152|                 position: 'fixed', bottom: '70px', right: '20px', zIndex: 9999,
153|                 width: '300px', height: '380px', borderRadius: '16px',
154|                 background: '#1a1a2e', border: '1px solid rgba(0,255,204,0.2)',
155|                 display: 'flex', flexDirection: 'column', overflow: 'hidden',
156|                 boxShadow: '0 8px 32px rgba(0,0,0,0.5)',
157|               }}>
158|                 <div style={{
159|                   padding: '10px 14px', background: '#16213e',
160|                   borderBottom: '1px solid rgba(0,255,204,0.15)',
161|                   display: 'flex', justifyContent: 'space-between', alignItems: 'center',
162|                 }}>
163|                   <span style={{ color: '#00ffcc', fontSize: '12px', fontWeight: 700 }}>AI Guru</span>
164|                   <button onClick={() => setShowChat(false)}
165|                     style={{ background: 'none', border: 'none', color: '#8899aa', cursor: 'pointer', fontSize...
  1 6 6 |                                                '
167|                   </button>
168|                 </div>
169|                 <div style={{ flex: 1, overflowY: 'auto', padding: '10px', display: 'flex', flexDirection: 'co...
170|                   {chatMessages.length === 0 && (
171|                     <div style={{ color: '#667788', fontSize: '12px', textAlign: 'center', padding: '20px 0' }}>
  1 7 2 |                                                H Ĭ i   A I   G u r u   v Á   P C . . .
173|                     </div>
174|                   )}
175|                   {chatMessages.map((m, i) => (
176|                     <div key={i} style={{
177|                       alignSelf: m.role === 'user' ? 'flex-end' : 'flex-start',
178|                       maxWidth: '85%', padding: '8px 12px', borderRadius: '12px',
179|                       fontSize: '12px', lineHeight: 1.5,
180|                       background: m.role === 'user' ? '#00d4aa' : '#0f3460',
181|                       color: m.role === 'user' ? '#000' : '#ddeeff',
182|                     }}>
183|                       {m.content}
184|                     </div>
185|                   ))}
186|                   <div ref={chatEndRef} />
187|                 </div>
188|                 <div style={{ padding: '8px', borderTop: '1px solid rgba(0,255,204,0.1)', display: 'flex', gap...
189|                   <input
190|                     value={chatInput}
191|                     onChange={e => setChatInput(e.target.value)}
192|                     onKeyDown={e => { if (e.key === 'Enter') handleChatSend(); }}
  1 9 3 |                                                p l a c e h o l d e r = " N h - p   t i n   n h ¯ n . . . "
194|                     style={{
195|                       flex: 1, padding: '8px 10px', borderRadius: '8px', border: '1px solid rgba(0,255,204,0.2)',
196|                       background: '#0d1b2a', color: '#fff', fontSize: '12px', fontFamily: 'inherit', outline: ...
197|                     }}
198|                   />
199|                   <button onClick={handleChatSend}
200|                     style={{
201|                       padding: '8px 12px', borderRadius: '8px', border: 'none',
202|                       background: '#00ffcc', color: '#000', cursor: 'pointer', fontWeight: 700, fontSize: '12px',
203|                     }}>
  2 0 4 |                                                G í i
205|                   </button>
206|                 </div>
207|               </div>
208|             )}
209|           </>
210|         )}
211|       </div>
212|     </ErrorBoundary>
213|   );
214| }
215|
```

File: app/builder/career-build/page.tsx (444 lines, 22.8 KB)

```
==========================================================================================
  1| 'use client';
  2|
  3| import { useState, useRef, useEffect } from 'react';
  4| import Link from 'next/link';
  5|
  6| const CAREERS = [
    7 |       {  i d :  ' a i - e n g i n e e r ' ,  t i t l e :  ' A I  E n g i n e e r  /  D e e p  L e a r n i n g ' ,  i c o n :  'Ø>Ý ' ,
    8 |       {  i d :  ' 3 d - d e s i g n e r ' ,  t i t l e :  ' 3 D  D e s i g n e r  /  A n i m a t o r ' ,  i c o n :  'Ø<ß¨ ' ,  d e s c
    9 |       {  i d :  ' v i d e o - e d i t o r ' ,  t i t l e :  ' V i d e o  E d i t o r  /  F i l m m a k e r ' ,  i c o n :  'Ø<ß¬ ' ,  d
   1 0 |       {  i d :  ' s t r e a m e r ' ,  t i t l e :  ' P r o f e s s i o n a l  S t r e a m e r  /  G a m e r ' ,  i c o n :  'Ø<ß® ' ,
   1 1 |       {  i d :  ' c o d e r ' ,  t i t l e :  ' C o d e r  /  S o f t w a r e  D e v e l o p e r ' ,  i c o n :  'Ø=Ü» ' ,  d e s c :
   1 2 |       {  i d :  ' o f f i c e ' ,  t i t l e :  ' O f f i c e  W o r k e r  /  S t u d e n t ' ,  i c o n :  'Ø=ÜÚ ' ,  d e s c :  ' S
   1 3 |       {  i d :  ' m a c ' ,  t i t l e :  ' M a c  /  A p p l e  E c o s y s t e m ' ,  i c o n :  'Ø<ßN ' ,  d e s c :  ' ¯ u  t i ê
 14| ];
 15|
 16| interface ShopLink {
 17|   shop: string; url: string;
 18| }
 19|
 20| interface BuildItem {
 21|   id: string; name: string; type: string; price: number; reason: string; image?: string; link?: string; shops?...
 22| }
 23|
 24| interface BuildResult {
 25|   career: string; explanation: string; build: BuildItem[]; totalPrice: number; tips: string;
 26|   isMac?: boolean; model?: string; macBuild?: { model?: string; build: BuildItem[]; totalPrice: number; tips: ...
 27| }
 28|
 29| const TYPE_COLORS: Record<string, string> = {
 30|   CPU: '#ef4444', GPU: '#8b5cf6', RAM: '#06b6d4', Storage: '#f59e0b',
```

```
  PSU: '#10b981', Cooler: '#3b82f6', Mainboard: '#ec4899', Case: '#64748b',
};

const TYPE_ICONS: Record<string, string> = {
  CPU: '&¡', GPU: 'Ø<ß®', RAM: 'Ø=Ü¾', Storage: 'Ø=Ü¿', PSU: 'Ø=Ý', Cooler: 'Ø<ß,þ
};

export default function CareerBuildPage() {
  const [selected, setSelected] = useState<string | null>(null);
  const [customDream, setCustomDream] = useState('');
  const [customCondition, setCustomCondition] = useState('');
  const [loading, setLoading] = useState(false);
  const [result, setResult] = useState<BuildResult | null>(null);
  const [error, setError] = useState('');
  const [animPhase, setAnimPhase] = useState(0);
  const [showMac, setShowMac] = useState(false);
  const [substituting, setSubstituting] = useState<string | null>(null);
  const [replacedItems, setReplacedItems] = useState<BuildItem[]>([]);
  const resultRef = useRef<HTMLDivElement>(null);

  const substitutePart = (item: BuildItem) => {
    const substitutes: Record<string, BuildItem> = {
      'CPU': { id: 'alt-cpu', name: `[Thay th¿] ${item.name.replace(/i5|
      'GPU': { id: 'alt-gpu', name: `[Thay th¿] ${item.name.replace(/RT)
      'RAM': { id: 'alt-ram', name: `[Thay th¿] ${item.name.replace(/16G
      'Storage': { id: 'alt-storage', name: item.name.includes('NVMe') ?
      'PSU': { id: 'alt-psu', name: `[Thay th¿] ${item.name.replace(/\d+
    };
    const sub = substitutes[item.type] || { ...item, id: 'alt-' + item.i
    setReplacedItems(prev => [...prev, { ...item, name: item.name, price: sub.price }]);
    setSubstituting(item.id);
    setTimeout(() => setSubstituting(null), 2000);
  };

  useEffect(() => {
    if (result && animPhase > 0 && resultRef.current) {
      resultRef.current.scrollIntoView({ behavior: 'smooth', block: 'start' });
    }
  }, [animPhase, result]);

  const formatPrice = (v: number) => v.toLocaleString('vi-VN') + '«';

  const handleSuggest = async (careerId?: string) => {
    const career = careerId || selected;
    if (!career && !customDream) return;

    setLoading(true);
    setError('');
    setResult(null);
    setAnimPhase(0);
    setShowMac(false);

    try {
      const res = await fetch('/api/career-suggest', {
        method: 'POST',
        headers: { 'Content-Type': 'application/json' },
        body: JSON.stringify({
          career,
          customDream,
          customCondition: customCondition || undefined,
          preferMac: career === 'mac',
        }),
      });
      const data = await res.json();
      if (data.error) throw new Error(data.error);

      try { localStorage.setItem('careerBuild', JSON.stringify(data)) } catch (e) {}

      setResult(data);

      // Animate phases
      setTimeout(() => setAnimPhase(1), 300);
      const totalItems = (data.build?.length || 0) + (data.macBuild?.build?.length || 0);
      setTimeout(() => setAnimPhase(2), 800);
      // Items appear one by one
      for (let i = 0; i < totalItems; i++) {
        setTimeout(() => setAnimPhase(3 + i), 1200 + i * 350);
      }
    } catch (err: any) {
      setError(err.message || 'Lxi gãi ý c¥u hình');
      setTimeout(() => setError(''), 5000);
    } finally {
      setLoading(false);
    }
  };

  const pcItems = result?.build || [];
  const macItems = result?.macBuild?.build || [];
  const hasBoth = result?.macBuild && pcItems.length > 0;

  const activeItems = showMac ? macItems : pcItems;
  const replacedTotal = replacedItems.reduce((s, r) => s + r.price, 0);
  const originalTotal = showMac ? (result?.macBuild?.totalPrice || 0) : (result?.totalPrice || 0);
  const activeTotal = replacedItems.length > 0 ? replacedTotal : originalTotal;
  const activeTips = showMac ? (result?.macBuild?.tips || '') : (result?.tips || '');
  const activeModel = showMac ? (result?.macBuild?.model || '') : '';
  const activeExplanation = showMac ? (result?.macBuild?.explanation || '') : (result?.explanation || '');

  return (
    <div style={{ minHeight: '100vh', background: 'var(--bg-base)' }}>
      {/* Header */}
      <div style={{ padding: '16px 24px', borderBottom: '1px solid var(--border-default)', background: 'var(--...
        <div style={{ maxWidth: '900px', margin: '0 auto', display: 'flex', alignItems: 'center', justifyConte...
          <Link href="/builder" style={{ display: 'flex', alignItems: 'center', gap: '8px', color: 'var(--text...
            <span>&larr;</span> Builder
          </Link>
          <div style={{ fontSize: '16px', fontWeight: 700, color: 'var(--
          <div style={{ width: '60px' }} />
        </div>
      </div>

      <div style={{ maxWidth: '900px', margin: '0 auto', padding: '24px 16px' }}>
        {/* Input section */}
        {!result && (
          <>
            <div style={{ textAlign: 'center', marginBottom: '28px' }}>
              <div style={{ fontSize: '40px', marginBottom: '8px' }}>Ø=Ü-<
              <h2 style={{ fontSize: '22px', fontWeight: 700, color: 'var(--text-primary)', margin: '0 0 6px' }}>
                Ûc m¡ nghÁ nghiÇp cça b¡n là gì?
              </h2>
              <p style={{ color: 'var(--text-secondary)', fontSize: '14px', margin: 0 }}>
                ChÍn nghÁ ho·c nh-p °Ûc m¡ — tôi s½ build PC hoàn h£o ch
              </p>
            </div>
```

```
155|
156|             {/* Quick suggestions */}
157|             <div style={{ display: 'flex', flexWrap: 'wrap', gap: '8px', justifyContent: 'center', marginBotto...
  1 5 8 |                              { [ ' K ù   s °   A I ' ,   ' L - p   t r ì n h   v i ê n ' ,   ' T h i ¿ t   k ¿    Ó   h Í a   3 D ' ,   ' E d i
159|                 <button key={text} onClick={() => { setCustomDream(text); setSelected(null); }}
160|                   style={{
161|                     padding: '8px 18px', borderRadius: '20px', border: '1px solid var(--border-default)',
162|                     background: 'var(--bg-surface)', color: 'var(--text-secondary)', cursor: 'pointer',
163|                     fontSize: '13px', fontWeight: 600, fontFamily: 'inherit',
164|                   }}>
165|                   {text}
166|                 </button>
167|               ))}
168|             </div>
169|
170|             {/* Career grid */}
171|             <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(200px, 1fr))', gap: ...
172|               {CAREERS.map((c) => (
173|                 <div key={c.id} onClick={() => { setSelected(c.id); setCustomDream(''); }}
174|                   style={{
175|                     padding: '16px', borderRadius: '12px', cursor: 'pointer',
176|                     background: selected === c.id ? 'rgba(0,212,170,0.1)' : 'var(--bg-surface)',
177|                     border: selected === c.id ? '2px solid #00d4aa' : '1px solid var(--border-default)',
178|                     transition: 'all 0.2s',
179|                   }}>
180|                   <div style={{ fontSize: '28px', marginBottom: '4px' }}>{c.icon}</div>
181|                   <div style={{ fontSize: '14px', fontWeight: 700, color: 'var(--text-primary)' }}>{c.title}</...
182|                   <div style={{ fontSize: '11px', color: 'var(--text-muted)', marginTop: '4px' }}>{c.desc}</div>
183|                 </div>
184|               ))}
185|             </div>
186|
187|             {/* Custom input */}
188|             <div style={{
189|               padding: '20px', borderRadius: '14px',
190|               background: 'var(--bg-surface)', border: '1px solid var(--border-default)',
191|               marginBottom: '12px',
192|             }}>
193|               <div style={{ fontSize: '14px', fontWeight: 600, color: 'var(--text-primary)', marginBottom: '8p...
  1 9 4 |                                N h - p   ° Ù c   m ¡   c ç a   b ¡ n :
195|               </div>
196|               <div style={{ display: 'flex', gap: '8px', flexDirection: 'column' }}>
197|                 <div style={{ display: 'flex', gap: '8px' }}>
198|                   <input
199|                     value={customDream}
200|                     onChange={(e) => { setCustomDream(e.target.value); setSelected(null); }}
201|                     onKeyDown={(e) => { if (e.key === 'Enter') handleSuggest(); }}
  2 0 2 |                                          p l a c e h o l d e r = " V D :   E m   m u Ñ n   t r ß   t h à n h   k ù   s °   A I . . . "
203|                     style={{
204|                       flex: 1, padding: '12px 16px', borderRadius: '10px', border: '1px solid var(--border-def...
205|                       background: 'var(--bg-elevated)', color: 'var(--text-primary)', fontSize: '14px',
206|                       fontFamily: 'inherit', outline: 'none',
207|                     }}
208|                   />
209|                   <button onClick={() => handleSuggest()}
210|                     disabled={(!customDream && !selected) || loading}
211|                     style={{
212|                       padding: '12px 28px', borderRadius: '10px', border: 'none',
213|                       background: (customDream || selected) && !loading ? 'linear-gradient(135deg, #00d4aa, #0...
214|                       color: (customDream || selected) && !loading ? '#fff' : 'var(--text-muted)',
215|                       fontWeight: 700, fontSize: '14px', cursor: (customDream || selected) && !loading ? 'poin...
216|                       fontFamily: 'inherit',
217|                     }}
218|                   >
219|                     {loading ? '...' : 'Build PC'}
220|                   </button>
221|                 </div>
222|                 <input
223|                   value={customCondition}
224|                   onChange={e => setCustomCondition(e.target.value)}
  2 2 5 |                                        p l a c e h o l d e r = " T h ê m   y ê u   c § u    · c   b i Ç t   ( V D :   n g â n   s á c h   2 0 t r
226|                   style={{
227|                     padding: '8px 12px', borderRadius: '8px', border: '1px solid var(--border-default)',
228|                     background: 'var(--bg-elevated)', color: 'var(--text-muted)', fontSize: '12px',
229|                     fontFamily: 'inherit', outline: 'none',
230|                   }}
231|                 />
232|               </div>
233|             </div>
234|           </>
235|         )}
236|
237|         {/* Loading */}
238|         {loading && (
239|           <div style={{ textAlign: 'center', padding: '60px 20px' }}>
240|             <div style={{
241|               width: '48px', height: '48px', borderRadius: '50%',
242|               border: '4px solid var(--border-default)', borderTopColor: '#00d4aa',
243|               margin: '0 auto 16px', animation: 'spin 0.8s linear infinite',
244|             }} />
  2 4 5 |                          < d i v   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 4 p x '   }
246|           </div>
247|         )}
248|
249|         {error && (
250|           <div style={{
251|             padding: '14px', borderRadius: '12px', background: 'rgba(239,68,68,0.1)',
252|             border: '1px solid #ef4444', color: '#ef4444', marginBottom: '16px',
253|             fontSize: '14px', fontWeight: 600, textAlign: 'center',
254|           }}>
255|             {error}
256|           </div>
257|         )}
258|
259|         {/* Result */}
260|         {result && animPhase > 0 && (
261|           <div ref={resultRef}>
262|             {/* Career title */}
263|             <div style={{
264|               textAlign: 'center', marginBottom: '20px',
265|               animation: 'fadeSlideUp 0.5s ease-out',
266|             }}>
267|               <div style={{
268|                 display: 'inline-block', padding: '8px 24px', borderRadius: '30px',
269|                 background: 'linear-gradient(135deg, rgba(0,212,170,0.15), rgba(0,163,255,0.15))',
270|                 border: '1px solid rgba(0,212,170,0.3)',
271|                 fontSize: '20px', fontWeight: 800, color: '#fff',
272|               }}>
273|                 {result.career}
274|               </div>
275|             </div>
276|
277|             {/* Platform toggle */}
278|             {hasBoth && (
```

```
279|              <div style={{ display: 'flex', gap: '8px', marginBottom: '16px', justifyContent: 'center' }}>
280|                <button onClick={() => setShowMac(false)}
281|                  style={{
282|                    padding: '8px 24px', borderRadius: '20px',
283|                    border: `2px solid ${!showMac ? '#00d4aa' : 'var(--border-default)'}`,
284|                    background: !showMac ? 'rgba(0,212,170,0.12)' : 'transparent',
285|                    color: !showMac ? '#00d4aa' : 'var(--text-muted)',
286|                    fontWeight: 700, fontSize: '14px', cursor: 'pointer', fontFamily: 'inherit', transition: '...
287|                  }}>
   2 8 8 |                                    Ø>ÞŸ   W i n d o w s   P C
289|                </button>
290|                <button onClick={() => setShowMac(true)}
291|                  style={{
292|                    padding: '8px 24px', borderRadius: '20px',
293|                    border: `2px solid ${showMac ? '#00d4aa' : 'var(--border-default)'}`,
294|                    background: showMac ? 'rgba(0,212,170,0.12)' : 'transparent',
295|                    color: showMac ? '#00d4aa' : 'var(--text-muted)',
296|                    fontWeight: 700, fontSize: '14px', cursor: 'pointer', fontFamily: 'inherit', transition: '...
297|                  }}>
   2 9 8 |                                    Ø<ßN   M a c
299|                </button>
300|              </div>
301|            )}
302|
303|            {/* Model name (for Mac) */}
304|            {showMac && activeModel && (
305|              <div style={{
306|                textAlign: 'center', padding: '14px', marginBottom: '16px',
307|                borderRadius: '12px', background: 'rgba(0,0,0,0.3)', border: '1px solid var(--border-default)',
308|                animation: 'fadeSlideUp 0.4s ease-out',
309|              }}>
310|                <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 600, marginBottom: '4p...
311|                <div style={{ fontSize: '18px', fontWeight: 800, color: '#fff' }}>{activeModel}</div>
312|              </div>
313|            )}
314|
315|            {/* Explanation */}
316|            {animPhase >= 1 && (
317|              <div style={{
318|                padding: '14px 18px', borderRadius: '12px', marginBottom: '16px',
319|                background: 'rgba(0,212,170,0.06)', border: '1px solid rgba(0,212,170,0.15)',
320|                fontSize: '13px', lineHeight: '1.6', color: 'var(--text-secondary)',
321|                animation: 'fadeSlideUp 0.4s ease-out',
322|              }}>
323|                {activeExplanation}
324|              </div>
325|            )}
326|
   3 2 7 |                          { / *   C o m p o n e n t s   l i s t   -   2   c Ù t   * / }
328|            <div style={{ display: 'grid', gridTemplateColumns: 'repeat(2, 1fr)', gap: '10px', marginBottom: '...
329|              {activeItems.map((item, i) => {
330|                const replaced = replacedItems.find(r => r.id === item.id)
331|                return (
332|                <div key={i} style={{
333|                  display: 'flex', flexDirection: 'column', gap: '8px',
334|                  padding: '14px', borderRadius: '12px',
335|                  background: 'var(--bg-surface)', border: substituting === item.id ? '1px solid var(--brand-p...
336|                  animation: animPhase >= 3 + i ? 'fadeSlideUp 0.35s ease-out' : 'none',
337|                  opacity: animPhase >= 3 + i ? 1 : 0,
338|                  transition: 'all 0.25s',
339|                  position: 'relative', overflow: 'hidden',
340|                }}>
341|                  <div style={{
342|                    position: 'absolute', top: 0, left: 0, width: '4px', height: '100%',
343|                    background: TYPE_COLORS[item.type] || '#64748b',
344|                  }} />
345|                  <div style={{ display: 'flex', alignItems: 'flex-start', gap: '10px' }}>
346|                    <div style={{
347|                      width: '36px', height: '36px', borderRadius: '10px', flexShrink: 0,
348|                      background: `${TYPE_COLORS[item.type] || '#64748b'}20`,
349|                      display: 'flex', alignItems: 'center', justifyContent: 'center', fontSize: '18px',
350|                    }}>
   3 5 1 |                                          { T Y P E _ I C O N S [ i t e m . t y p e ]   | |   'Ø=Ý9 ' }
352|                    </div>
353|                    <div style={{ flex: 1, minWidth: 0 }}>
354|                      <div style={{ fontWeight: 700, color: 'var(--text-primary)', fontSize: '13px', lineHeigh...
   3 5 5 |                                          { r e p l a c e d   ?   < > < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - b r a n d
356|                        <span style={{ fontSize: '10px', color: TYPE_COLORS[item.type] || '#64748b', fontWeigh...
357|                          {item.type}
358|                        </span>
359|                      </div>
360|                      <div style={{ fontSize: '11px', color: 'var(--text-muted)', marginTop: '4px', lineHeight...
361|                        {item.reason}
362|                      </div>
363|                    </div>
364|                  </div>
365|                  <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', margin...
366|                    {item.price > 0 && (
367|                      <div style={{ fontSize: '15px', fontWeight: 800, color: replaced ? 'var(--brand-primary)...
368|                        {replaced ? `${formatPrice(replaced.price)}` : formatPrice(item.price)}
369|                      </div>
370|                    )}
371|                    <button onClick={() => substitutePart(item)}
372|                      style={{
373|                        padding: '5px 10px', borderRadius: '6px', border: '1px solid rgba(0,212,170,0.3)',
374|                        background: 'rgba(0,212,170,0.1)', color: 'var(--brand-primary)',
375|                        cursor: 'pointer', fontSize: '10px', fontWeight: 700, fontFamily: 'inherit',
376|                        transition: 'all 0.2s', whiteSpace: 'nowrap',
377|                      }}
378|                      onMouseOver={e => { e.currentTarget.style.background = 'rgba(0,212,170,0.2)'; e.currentT...
379|                      onMouseOut={e => { e.currentTarget.style.background = 'rgba(0,212,170,0.1)'; e.currentTa...
   3 8 0 |                                          !"   T h a y   t h ¿
381|                    </button>
382|                  </div>
383|                </div>
384|              )})}
385|            </div>
386|
387|            {/* Total + Tips + Build now */}
388|            {animPhase >= 3 + activeItems.length - 1 && (
389|              <div style={{ animation: 'fadeSlideUp 0.4s ease-out' }}>
390|                {/* Total */}
391|                <div style={{
392|                  display: 'flex', justifyContent: 'space-between', alignItems: 'center',
393|                  padding: '14px 18px', borderRadius: '12px', marginBottom: '12px',
394|                  background: 'linear-gradient(135deg, rgba(0,212,170,0.1), rgba(0,163,255,0.08))',
395|                  border: '1px solid rgba(0,212,170,0.2)',
396|                }}>
397|                  <span style={{ fontSize: '14px', color: 'var(--text-secondary)', fontWeight: 600 }}>
   3 9 8 |                                          T Ô n g   c h i   p h í
399|                  </span>
400|                  <span style={{ fontSize: '22px', fontWeight: 800, color: '#00d4aa' }}>
401|                    {formatPrice(activeTotal)}
402|                  </span>
```

```
403|                </div>
404|
405|                {/* Tips */}
406|                {activeTips && (
407|                  <div style={{
408|                    padding: '10px 14px', borderRadius: '10px', marginBottom: '16px',
409|                    background: 'rgba(250,204,21,0.06)', border: '1px solid rgba(250,204,21,0.15)',
410|                    fontSize: '12px', color: 'var(--text-secondary)', lineHeight: '1.6',
411|                  }}>
   4 1 2 |                                    < s t r o n g   s t y l e = { {   c o l o r :   ' # f a c c 1 5 '   } } > M ¹ o : < / s t r o n g >   {
413|                  </div>
414|                )}
415|
416|                {/* Actions */}
417|                <div style={{ display: 'flex', gap: '10px', flexWrap: 'wrap' }}>
418|                  <button onClick={() => { setResult(null); setCustomDream(''); setAnimPhase(0); }}
419|                    style={{
420|                      flex: 1, padding: '12px 24px', borderRadius: '10px',
421|                      border: '1px solid var(--border-default)',
422|                      background: 'transparent', color: 'var(--text-secondary)',
423|                      fontSize: '14px', fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
424|                    }}>
   4 2 5 |                                    C h Í n   n g h Á   k h á c
426|                  </button>
427|                </div>
428|              </div>
429|            )}
430|          </div>
431|        )}
432|      </div>
433|
434|      <style>{`
435|        @keyframes spin { to { transform: rotate(360deg); } }
436|        @keyframes fadeSlideUp {
437|          from { opacity: 0; transform: translateY(15px); }
438|          to { opacity: 1; transform: translateY(0); }
439|        }
440|      `}</style>
441|    </div>
442|  );
443| }
444|
```

File: app/builder/common-mistakes/page.js (17 lines, 0.5 KB)

```
    1| 'use client';
    2|
    3| import dynamic from 'next/dynamic';
    4|
    5| const CommonMistakes = dynamic(
    6|   () => import('@/components/CommonMistakes'),
      7 |       {   s s r :   f a l s e ,   l o a d i n g :   ( )   = >   < d i v   s t y l e = { {   p a d d i n g :   ' 4 0 p x ' ,   t e x t A l i g n :
    8| );
    9|
   10| export default function CommonMistakesPage() {
   11|   return (
   12|     <div style={{ minHeight: '100vh', background: '#0d0e13', position: 'relative' }}>
   13|       <CommonMistakes lang="vn" onExit={() => window.history.back()} />
   14|     </div>
   15|   );
   16| }
   17|
```

File: app/builder/diagnosis/page.js (24 lines, 0.7 KB)

```
    1| 'use client';
    2|
    3| import dynamic from 'next/dynamic';
    4|
    5| const DiagnosisMode = dynamic(
    6|   () => import('@/components/DiagnosisMode'),
    7|   { ssr: false, loading: () => <div style={{ padding: '40px', textAlign: 'center', color: 'var(--text-muted)' ...
    8| );
    9|
   10| export default function DiagnosisPage() {
   11|   return (
   12|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', position: 'relative' }}>
   13|       <DiagnosisMode
   14|         lang="vn"
   15|         onComplete={(results) => {
   16|           console.log('Diagnosis complete:', results);
   17|           window.location.href = '/builder';
   18|         }}
   19|         onExit={() => window.history.back()}
   20|       />
   21|     </div>
   22|   );
   23| }
   24|
```

File: app/builder/invoice-check/page.tsx (290 lines, 15.4 KB)

```
    1| 'use client';
    2|
    3| import { useState } from 'react';
    4| import Link from 'next/link';
    5| import { getCategoryLinks, SHOPS } from '@/data/shopLinks';
    6|
    7| interface ShopRef {
    8|   shop: string; url: string; price?: number;
    9| }
   10|
   11| interface CompareItem {
   12|   name: string; type: string; invoicePrice: number; marketPrice: number;
   13|   status: 'reasonable' | 'expensive' | 'overpriced'; percentDiff: number; dbPrice: number;
   14|   matchedName?: string; source?: string; link?: string; shops?: ShopRef[];
   15| }
   16|
   17| interface CompareResult {
   18|   items: CompareItem[]; totalInvoicePrice: number; totalMarketPrice: number; verdict: string;
   19| }
   20|
   21| const TYPE_OPTIONS = ['CPU', 'GPU', 'RAM', 'Mainboard', 'Storage', 'PSU', 'Cooler', 'Case', 'Monitor', 'Other'];
   22| const TYPE_ICONS: Record<string, string> = {
      2 3 |       C P U :   '&¡ ' ,   G P U :   'Ø<ß® ' ,   R A M :   'Ø=Ü¾ ' ,   M a i n b o a r d :   'Ø=Ý' ' ,   S t o r a g e :   'Ø=Ü¿ ' ,   P S U :
   24| };
   25|
   26| export default function InvoiceComparePage() {
   27|   const [items, setItems] = useState([{ name: '', type: 'CPU', price: 0 }]);
   28|   const [result, setResult] = useState<CompareResult | null>(null);
```

```
29|   const [loading, setLoading] = useState(false);
30|   const [error, setError] = useState('');
31|
   3 2 |      c o n s t   f o r m a t P r i c e   =   ( v :   n u m b e r )   = >   ( v   | |   0 ) . t o L o c a l e S t r i n g ( ' v i - V N ' )   +
33|
34|   const statusColor = (s: string) => s === 'overpriced' ? '#ef4444' : s === 'expensive' ? '#f59e0b' : '#22c55e';
   3 5 |      c o n s t   s t a t u s L a b e l   =   ( s :   s t r i n g )   = >   s   = = =   ' o v e r p r i c e d '   ?   ' C h · t   c h é m ! '   :
36|
37|   const addItem = () => setItems([...items, { name: '', type: 'CPU', price: 0 }]);
38|   const removeItem = (i: number) => { if (items.length > 1) setItems(items.filter((_, j) => j !== i)); };
39|   const updateItem = (i: number, field: string, value: any) => {
40|     const copy = [...items];
41|     (copy[i] as any)[field] = value;
42|     setItems(copy);
43|   };
44|
45|   const handleCompare = async () => {
46|     const valid = items.filter(i => i.name.trim() && i.price > 0);
   4 7 |          i f   ( v a l i d . l e n g t h   = = =   0 )   {   s e t E r r o r ( ' N h - p   í t   n h ¥ t   1   l i n h   k i Ç n   v Û i   t ê n
48|     setLoading(true); setError(''); setResult(null);
49|     try {
50|       const res = await fetch('/api/ai/scan-invoice', {
51|         method: 'POST',
52|         headers: { 'Content-Type': 'application/json' },
53|         body: JSON.stringify({ manualItems: valid.map(i => ({ name: i.name, type: i.type, invoicePrice: i.pric...
54|       });
55|       const data = await res.json();
56|       if (data.error) throw new Error(data.error);
57|       if (data.items) {
58|         data.items = data.items.map((item: any) => ({
59|           ...item,
60|           shops: (getCategoryLinks(item.type) || []).map(link => ({
61|             shop: link.shop,
62|             url: link.url,
63|           })),
64|         }))
65|       }
66|       setResult(data);
67|     } catch (err: any) {
   6 8 |            s e t E r r o r ( e r r . m e s s a g e   | |   ' L × i   s o   s á n h   g i á ' ) ;
69|     } finally {
70|       setLoading(false);
71|     }
72|   };
73|
74|   return (
75|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', padding: '24px' }}>
76|       <div style={{ maxWidth: '860px', margin: '0 auto' }}>
77|         <Link href="/builder" style={{ display: 'inline-flex', alignItems: 'center', gap: '6px', color: 'var(-...
78|           <span>&larr;</span> Builder
79|         </Link>
80|
81|         <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '6px' }}>
   8 2 |                    < s p a n   s t y l e = { {   f o n t S i z e :   ' 3 2 p x '   } } >0=Ü° < / s p a n >
83|           <div>
84|             <h1 style={{ fontSize: '24px', fontWeight: 800, color: 'var(--text-primary)', margin: 0 }}>So Sánh...
85|             <p style={{ fontSize: '13px', color: 'var(--text-secondary)', margin: '4px 0 0' }}>
   8 6 |                          N h - p   t a y   l i n h   k i Ç n   +   g i á   –    Ñ i   c h i ¿ u   n h i Á u   s h o p   t r ê n   m ¡ n g ,
87|             </p>
88|           </div>
89|         </div>
90|
91|         {/* Input form */}
92|         <div style={{
93|           background: 'var(--bg-surface)', borderRadius: '16px', padding: '20px',
94|           border: '1px solid var(--border-default)', marginBottom: '16px',
95|         }}>
96|           <div style={{ fontSize: '14px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '14px',...
   9 7 |                        < s p a n >0=ÜÝ < / s p a n >   N h - p   l i n h   k i Ç n   t ë   h ó a    ¡ n   c ç a   b ¡ n
98|           </div>
99|
100|          {items.map((item, i) => (
101|            <div key={i} style={{
102|              display: 'flex', gap: '8px', marginBottom: '10px', alignItems: 'center',
103|            }}>
104|              <input
   1 0 5 |                                p l a c e h o l d e r = " T ê n   l i n h   k i Ç n   ( V D :   R T X   4 0 7 0 ) "
106|                value={item.name}
107|                onChange={e => updateItem(i, 'name', e.target.value)}
108|                style={{
109|                  flex: 2, minWidth: '160px', padding: '10px 12px', borderRadius: '8px',
110|                  border: '1px solid var(--border-default)', background: 'var(--bg-elevated)',
111|                  color: 'var(--text-primary)', fontSize: '13px', fontFamily: 'inherit', outline: 'none',
112|                }}
113|              />
114|              <select
115|                value={item.type}
116|                onChange={e => updateItem(i, 'type', e.target.value)}
117|                style={{
118|                  flex: 1, minWidth: '90px', padding: '10px 12px', borderRadius: '8px',
119|                  border: '1px solid var(--border-default)', background: 'var(--bg-elevated)',
120|                  color: 'var(--text-primary)', fontSize: '13px', fontFamily: 'inherit', outline: 'none',
121|                }}
122|              >
123|                {TYPE_OPTIONS.map(t => <option key={t} value={t}>{TYPE_ICONS[t]} {t}</option>)}
124|              </select>
125|              <input
   1 2 6 |                                t y p e = " n u m b e r "   p l a c e h o l d e r = " G i á   ( V N   ) "
127|                value={item.price || ''}
128|                onChange={e => updateItem(i, 'price', parseInt(e.target.value) || 0)}
129|                style={{
130|                  flex: 1, minWidth: '120px', padding: '10px 12px', borderRadius: '8px',
131|                  border: '1px solid var(--border-default)', background: 'var(--bg-elevated)',
132|                  color: 'var(--text-primary)', fontSize: '13px', fontFamily: 'inherit', outline: 'none',
133|                }}
134|              />
135|              <button onClick={() => removeItem(i)}
136|                style={{
137|                  padding: '10px', borderRadius: '8px', border: 'none',
138|                  background: 'rgba(239,68,68,0.15)', color: '#ef4444', cursor: 'pointer', fontSize: '16px', l...
139|                }}>&times;</button>
140|            </div>
141|          ))}
142|
143|          <div style={{ display: 'flex', gap: '10px', marginTop: '12px' }}>
144|            <button onClick={addItem}
145|              style={{
146|                padding: '10px 16px', borderRadius: '8px', border: '1px dashed var(--border-default)',
147|                background: 'transparent', color: 'var(--text-muted)', cursor: 'pointer', fontSize: '13px',
148|                fontFamily: 'inherit', fontWeight: 600,
149|              }}>
   1 5 0 |                          +   T h ê m   l i n h   k i Ç n
151|            </button>
152|            <button onClick={handleCompare} disabled={loading}
```

```
153|              style={{
154|                padding: '10px 28px', borderRadius: '8px', border: 'none',
155|                background: loading ? 'var(--bg-elevated)' : 'linear-gradient(135deg, #00d4aa, #00a3ff)',
156|                color: loading ? 'var(--text-muted)' : '#fff', fontWeight: 700, fontSize: '14px',
157|                cursor: loading ? 'default' : 'pointer', fontFamily: 'inherit',
158|              }}>
  1 5 9 |                          { l o a d i n g   ?   '   a n g   s o   s á n h . . . '   :   ' S o   s á n h   g i á   t h Ë   t r ° Ý n g ' }
160|              </button>
161|            </div>
162|          </div>
163|
164|          {error && (
165|            <div style={{ padding: '12px', borderRadius: '10px', background: 'rgba(239,68,68,0.1)', border: '1px...
166|              {error}
167|            </div>
168|          )}
169|
170|          {/* Results */}
171|          {result && (
172|            <div style={{ animation: 'fadeUp 0.4s ease-out' }}>
173|              {/* Summary cards */}
174|              <div style={{ display: 'grid', gridTemplateColumns: 'repeat(4, 1fr)', gap: '10px', marginBottom: '...
175|                {[
  1 7 6 |                              {   l a b e l :   ' T Õ n g   h ó a    ¡ n ' ,   v a l u e :   f o r m a t P r i c e ( r e s u l t . t o t a l
  1 7 7 |                              {   l a b e l :   ' G i á   t h Ë   t r ° Ý n g ' ,   v a l u e :   f o r m a t P r i c e ( r e s u l t . t o t
  1 7 8 |                              {   l a b e l :   ' C h ê n h   l Ç c h ' ,   v a l u e :   ( r e s u l t . t o t a l I n v o i c e P r i c e
179|                { label: '% chênh', value: result.totalMarketPrice > 0 ? (result.totalInvoicePrice > result.to...
180|                ].map((s, i) => (
181|                  <div key={i} style={{ padding: '14px', borderRadius: '10px', background: 'var(--bg-surface)', ...
182|                    <div style={{ fontSize: '10px', color: 'var(--text-muted)', fontWeight: 600, marginBottom: '...
183|                    <div style={{ fontSize: '18px', fontWeight: 800, color: s.color }}>{s.value}</div>
184|                  </div>
185|                ))}
186|              </div>
187|
188|              {/* Per-item comparison */}
189|              <div style={{ background: 'var(--bg-surface)', borderRadius: '14px', border: '1px solid var(--bord...
190|                <div style={{ fontSize: '14px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '12...
  1 9 1 |                              C h i   t i ¿ t   t ë n g   l i n h   k i Ç n
192|                </div>
193|                {result.items.map((item, i) => {
194|                  const diff = (item.invoicePrice || 0) - (item.marketPrice || 0);
195|                  const shopColor = item.source?.includes('GearVN') ? '#6366f1' : '#64748b';
196|                  return (
197|                    <div key={i} style={{
198|                      padding: '12px', borderRadius: '10px', marginBottom: '8px',
199|                      background: 'var(--bg-elevated)', border: `1px solid ${statusColor(item.status)}30`,
200|                      animation: `fadeUp 0.3s ease-out ${i * 0.1}s both`,
201|                    }}>
202|                      <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marg...
203|                        <div>
204|                          <span style={{ fontWeight: 700, color: 'var(--text-primary)', fontSize: '14px' }}>{ite...
205|                          <span style={{ fontSize: '11px', color: 'var(--text-muted)', marginLeft: '8px' }}>{TYP...
206|                        </div>
207|                        <span style={{
208|                          padding: '2px 10px', borderRadius: '6px', fontSize: '10px', fontWeight: 700,
209|                          background: statusColor(item.status) + '20', color: statusColor(item.status),
210|                        }}>
211|                          {statusLabel(item.status)}
212|                        </span>
213|                      </div>
214|                      <div style={{ display: 'flex', gap: '16px', flexWrap: 'wrap', fontSize: '12px', marginBott...
  2 1 5 |                                          < s p a n > H ó a    ¡ n :   < s t r o n g   s t y l e = { {   c o l o r :   ' # e f 4 4 4 4 '   }
  2 1 6 |                                          < s p a n > T h Ë   t r ° Ý n g :   < s t r o n g   s t y l e = { {   c o l o r :   ' # 2 2 c 5 5 e
217|                        <span style={{ fontWeight: 700, color: diff > 0 ? '#ef4444' : '#22c55e' }}>
218|                          {diff > 0 ? '+' : ''}{formatPrice(diff)} ({item.percentDiff > 0 ? '+' : ''}{item.perce...
219|                        </span>
220|                      </div>
221|                      {item.matchedName && item.matchedName !== item.name && (
222|                        <div style={{ fontSize: '11px', color: shopColor, fontWeight: 600, marginBottom: '4px' }}>
  2 2 3 |                                            Ø=Ý      Ñ i   c h i ¿ u :   { i t e m . m a t c h e d N a m e }
224|                        </div>
225|                      )}
226|                      {item.shops && item.shops.length > 0 ? (
227|                        <div style={{ display: 'flex', gap: '4px', flexWrap: 'wrap', marginTop: '4px' }}>
228|                          {item.shops.map((s, si) => (
229|                            <a key={si} href={s.url} target="_blank" rel="noopener noreferrer"
230|                              style={{ fontSize: '9px', fontWeight: 700, color: '#00d4aa', textDecoration: 'none',
231|                                background: 'rgba(0,212,170,0.1)', padding: '1px 6px', borderRadius: '4px' }}>
  2 3 2 |                                                        { s . s h o p }  !—
233|                            </a>
234|                          ))}
235|                        </div>
236|                      ) : item.source && (
237|                        <div style={{ fontSize: '10px', color: shopColor, marginBottom: '2px' }}>
  2 3 8 |                                            Ø=ÜÍ   { i t e m . s o u r c e }
239|                        </div>
240|                      )}
241|                      {item.link && !item.shops && (
242|                        <a href={item.link} target="_blank" rel="noopener noreferrer"
243|                          style={{ fontSize: '10px', color: '#00d4aa', fontWeight: 700, textDecoration: 'none', ...
  2 4 4 |                                            Ø=Ý    M u a   t ¡ i   G e a r V N   !—
245|                        </a>
246|                      )}
247|                      <div style={{ height: '4px', borderRadius: '2px', background: 'var(--bg-base)', overflow: ...
248|                        <div style={{ height: '100%', borderRadius: '2px', width: `${Math.min(Math.abs(item.perc...
249|                      </div>
250|                    </div>
251|                  );
252|                })}
253|              </div>
254|
255|              {/* Verdict */}
256|              <div style={{
257|                padding: '16px', borderRadius: '12px', marginBottom: '16px',
  2 5 8 |                              b a c k g r o u n d :   r e s u l t . v e r d i c t . i n c l u d e s ( ' C ¢ N H   B Á O ' )   ?   ' r g b a ( 2 3
  2 5 9 |                              b o r d e r :   ` 1 p x   s o l i d   $ { r e s u l t . v e r d i c t . i n c l u d e s ( ' C ¢ N H   B Á O ' )   ?
260|              }}>
261|                <div style={{ display: 'flex', alignItems: 'flex-start', gap: '10px', fontSize: '14px', color: '...
262|                  <span style={{ fontSize: '18px', flexShrink: 0, marginTop: '2px' }}>
  2 6 3 |                                          { r e s u l t . v e r d i c t . i n c l u d e s ( ' C ¢ N H   B Á O ' )   ?   'Ø=Þ¨ '   :   r e s u l t . v
264|                  </span>
265|                  <div>
  2 6 6 |                                          < s t r o n g >   á n h   g i á :   < / s t r o n g >
267|                    {result.verdict}
268|                  </div>
269|                </div>
270|              </div>
271|
272|              <button onClick={() => { setResult(null); }}
273|                style={{
274|                  width: '100%', padding: '12px', borderRadius: '10px', border: '1px solid var(--border-default)',
275|                  background: 'var(--bg-surface)', color: 'var(--text-primary)', fontSize: '14px', fontWeight: 600,
276|                  cursor: 'pointer', fontFamily: 'inherit',
```

```
277|            }}>
   2 7 8 |                          S o   s á n h   h ó a    ¡ n   k h á c
279|            </button>
280|          </div>
281|        )}
282|      </div>
283|
284|      <style>{`
285|        @keyframes fadeUp { from { opacity: 0; transform: translateY(10px); } to { opacity: 1; transform: tran...
286|      `}</style>
287|    </div>
288|  );
289| }
290|
```

File: app/builder/mac-check/page.js (127 lines, 10.3 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import { useState } from 'react';
    4| import Link from 'next/link';
    5|
    6| const ALL_COMPUTERS = [
    7|   // ===== WINDOWS GAMING =====
       8 |       {   i d :   ' p c - g a m i n g - c a o - c a p ' ,   n a m e :   ' P C   G a m i n g   C a o   C ¥ p ' ,   b r a n d :   ' W i n d o w s '
       9 |       {   i d :   ' p c - g a m i n g - t a m - t r u n g ' ,   n a m e :   ' P C   G a m i n g   T § m   T r u n g ' ,   b r a n d :   ' W i n d
   10|   { id: 'pc-streamer', name: 'PC Streamer Pro', brand: 'Windows', type: 'Gaming', specs: 'Ryzen 7 7800X3D, RTX...
   11|   { id: 'pc-mini-itx', name: 'PC Mini ITX Gaming', brand: 'Windows', type: 'Gaming', specs: 'Ryzen 5 7600X, RT...
   12|
   13|   // ===== WINDOWS OFFICE / WORKSTATION =====
      1 4 |       {   i d :   ' p c - v a n - p h o n g ' ,   n a m e :   ' P C   V   n   P h ò n g   C a o   C ¥ p ' ,   b r a n d :   ' W i n d o w s ' ,
      1 5 |       {   i d :   ' p c - s i n h - v i e n ' ,   n a m e :   ' P C   S i n h   V i ê n   T i ¿ t   K i Ç m ' ,   b r a n d :   ' W i n d o w s '
   16|   { id: 'pc-workstation-ai', name: 'PC Workstation AI', brand: 'Windows', type: 'Workstation', specs: 'Ryzen 9...
      1 7 |       {   i d :   ' p c - l a p - t r i n h ' ,   n a m e :   ' P C   L - p   T r ì n h   V i ê n ' ,   b r a n d :   ' W i n d o w s ' ,   t y p
   18|
   19|   // ===== LAPTOP WINDOWS =====
   20|   { id: 'rog-zephyrus', name: 'ASUS ROG Zephyrus G14', brand: 'Laptop Windows', type: 'Gaming', specs: 'Ryzen ...
   21|   { id: 'legion-pro', name: 'Lenovo Legion Pro 5', brand: 'Laptop Windows', type: 'Gaming', specs: 'Ryzen 7 77...
   22|
   23|   // ===== MAC =====
   24|   { id: 'macbook-pro-m4', name: 'MacBook Pro 14" M4 Pro', brand: 'Mac', type: 'Laptop', specs: 'M4 Pro (12/18)...
   25|   { id: 'macbook-air-m4', name: 'MacBook Air 13" M4', brand: 'Mac', type: 'Laptop', specs: 'M4 (8/10), 16GB, 2...
   26|   { id: 'mac-studio', name: 'Mac Studio M4 Max', brand: 'Mac', type: 'Desktop', specs: 'M4 Max (16/40), 64GB, ...
   27|   { id: 'imac-m4', name: 'iMac 24" M4', brand: 'Mac', type: 'Desktop', specs: 'M4 (8/10), 16GB, 256GB, 24" 4.5...
   28| ];
   29|
      3 0 |   c o n s t   f o r m a t P r i c e   =   ( v )   = >   v . t o L o c a l e S t r i n g ( ' v i - V N ' )   +   ' « ' ;
   31|
   32| export default function MacCheckPage() {
   33|   const [filter, setFilter] = useState('all');
   34|   const [search, setSearch] = useState('');
   35|
   36|   const brands = ['all', ...new Set(ALL_COMPUTERS.map(c => c.brand))];
   37|   const filtered = ALL_COMPUTERS.filter(c =>
   38|     (filter === 'all' || c.brand === filter) &&
   39|     (!search || c.name.toLowerCase().includes(search.toLowerCase()) || c.specs.toLowerCase().includes(search.t...
   40|   );
   41|
   42|   return (
   43|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', padding: '24px' }}>
   44|       <div style={{ maxWidth: '1000px', margin: '0 auto' }}>
   45|         <Link href="/builder" style={{ display: 'inline-flex', alignItems: 'center', gap: '6px', color: 'var(-...
   46|           <span>&larr;</span> Builder
   47|         </Link>
   48|
   49|         <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '20px' }}>
      5 0 |                       < s p a n   s t y l e = { {   f o n t S i z e :   ' 3 2 p x '   } } >Ø=Ý¥þ  < / s p a n >
   51|           <div>
      5 2 |                           < h 1   s t y l e = { {   f o n t S i z e :   ' 2 4 p x ' ,   f o n t W e i g h t :   8 0 0 ,   c o l o r :   ' v a r (
   53|             <p style={{ fontSize: '13px', color: 'var(--text-secondary)', margin: '4px 0 0' }}>{ALL_COMPUTERS....
   54|           </div>
   55|         </div>
   56|
   57|         {/* Filters */}
   58|         <div style={{ display: 'flex', gap: '10px', marginBottom: '20px', flexWrap: 'wrap' }}>
   59|           <input value={search} onChange={e => setSearch(e.target.value)} placeholder="Tìm máy..." style={{
   60|             flex: 1, minWidth: '200px', padding: '10px 14px', borderRadius: '10px',
   61|             border: '1px solid var(--border-default)', background: 'var(--bg-elevated)',
   62|             color: 'var(--text-primary)', fontSize: '13px', fontFamily: 'inherit', outline: 'none',
   63|           }} />
   64|           <div style={{ display: 'flex', gap: '4px', flexWrap: 'wrap' }}>
   65|             {brands.map(b => (
   66|               <button key={b} onClick={() => setFilter(b)}
   67|                 style={{
   68|                   padding: '8px 16px', borderRadius: '8px', border: `1px solid ${filter === b ? '#00d4aa' : 'v...
   69|                   background: filter === b ? 'rgba(0,212,170,0.12)' : 'var(--bg-surface)',
   70|                   color: filter === b ? '#00d4aa' : 'var(--text-secondary)',
   71|                   fontSize: '12px', fontWeight: 700, cursor: 'pointer', fontFamily: 'inherit',
   72|                 }}>
      7 3 |                                 { b   = = =   ' a l l '   ?   ' T ¥ t   c £ '   :   b }
   74|               </button>
   75|             ))}
   76|           </div>
   77|         </div>
   78|
   79|         {/* Grid */}
   80|         <div style={{ display: 'grid', gap: '10px' }}>
   81|           {filtered.map((pc, i) => (
   82|             <div key={pc.id} style={{
   83|               display: 'flex', gap: '14px', padding: '14px 18px', borderRadius: '12px',
   84|               background: 'var(--bg-surface)', border: '1px solid var(--border-default)',
   85|               animation: `fadeUp 0.25s ease-out ${i * 0.04}s both`,
   86|             }}>
   87|               <div style={{
   88|                 width: '48px', height: '48px', borderRadius: '10px', flexShrink: 0,
   89|                 background: pc.brand === 'Mac' ? 'linear-gradient(135deg, #333, #555)' : 'linear-gradient(135d...
   90|                 display: 'flex', alignItems: 'center', justifyContent: 'center', fontSize: '22px',
   91|               }}>
      9 2 |                                 { p c . b r a n d   = = =   ' M a c '   ?   'Ø<ßN '   :   'Ø=Ý¥þ  ' }
   93|               </div>
   94|               <div style={{ flex: 1, minWidth: 0 }}>
   95|                 <div style={{ display: 'flex', alignItems: 'center', gap: '8px', flexWrap: 'wrap', marginBotto...
   96|                   <span style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)' }}>{pc.name}<...
   97|                   <span style={{ fontSize: '9px', padding: '2px 8px', borderRadius: '99px', background: '#00d4...
   98|                   <span style={{ fontSize: '9px', padding: '2px 8px', borderRadius: '99px', background: '#6366...
   99|                 </div>
  100|                 <p style={{ fontSize: '11px', color: 'var(--text-muted)', margin: '0 0 4px', lineHeight: 1.4 }...
     1 0 1 |                           < p   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' v a r ( - - b r a n d - p r i m a r
  102|                 <div style={{ display: 'flex', alignItems: 'center', gap: '10px', flexWrap: 'wrap' }}>
  103|                   <span style={{ fontSize: '17px', fontWeight: 800, color: '#00d4aa' }}>{formatPrice(pc.price)...
  104|                   <div style={{ display: 'flex', gap: '4px' }}>
  105|                     {pc.useCases.map(u => <span key={u} style={{ fontSize: '9px', color: 'var(--text-muted)' }...
  106|                   </div>
```

```
107|                  <a href={pc.link} target="_blank" rel="noopener noreferrer" style={{
108|                    marginLeft: 'auto', padding: '6px 16px', borderRadius: '8px',
109|                    background: 'linear-gradient(135deg, #00d4aa, #00a3ff)', color: '#fff',
110|                    fontSize: '12px', fontWeight: 700, textDecoration: 'none',
   1 1 1 |                                    } } > M u a   t ¡ i   G e a r V N  !— < / a >
112|                </div>
113|              </div>
114|            </div>
115|          ))}
116|          {filtered.length === 0 && (
117|            <div style={{ textAlign: 'center', padding: '40px', color: 'var(--text-muted)', fontSize: '14px' }}>
   1 1 8 |                              K h ô n g   t ì m   t h ¥ y   m á y   p h ù   h ã p
119|            </div>
120|          )}
121|        </div>
122|      </div>
123|      <style>{`@keyframes fadeUp { from { opacity: 0; transform: translateY(8px); } to { opacity: 1; transform...
124|    </div>
125|  );
126| }
127|
```

File: app/builder/os-install/page.js (22 lines, 0.5 KB)

```
  1| 'use client';
  2|
  3| import dynamic from 'next/dynamic';
  4|
  5| const OSInstallationSimulator = dynamic(
  6|   () => import('@/components/OSInstallationSimulator'),
  7|   { ssr: false, loading: () => <div style={{ padding: '40px', textAlign: 'center', color: 'var(--text-muted)' ...
  8| );
  9|
 10| export default function OSInstallPage() {
 11|   return (
 12|     <OSInstallationSimulator
 13|       lang="vn"
 14|       build={{}}
 15|       onComplete={() => {
 16|         window.location.href = '/builder';
 17|       }}
 18|       onExit={() => window.history.back()}
 19|     />
 20|   );
 21| }
 22|
```

File: app/builder/page.js (690 lines, 37.3 KB)

```
  1| 'use client';
  2|
  3| import { useState, useCallback, useEffect, useRef } from 'react';
  4| import Link from 'next/link';
  5| import confetti from 'canvas-confetti';
  6| import { supabase } from '@/lib/supabase';
  7| import { startBuilderSession, endBuilderSession } from '@/lib/learning-actions';
  8| import { useRealtime } from '@/lib/realtime-provider';
  9| import GameEngine from '../../components/GameEngine';
 10| import MultiplayerEngine from '../../components/MultiplayerEngine';
 11| import MainMenu from '../../components/MainMenu';
 12| import ComponentInfo from '../../components/ComponentInfo';
 13| import PartPickerSidebar from '../../components/PartPickerSidebar';
 14| import ComponentPreview from '../../components/ComponentPreview';
 15| import BurgerMenu from '../../components/BurgerMenu';
 16| import QuizModal from '../../components/QuizModal';
 17| import LearningMode from '../../components/LearningMode';
 18| import Marketplace from '../../components/Marketplace';
 19| import LectureCourse from '../../components/LectureCourse';
 20| import VirtualAssistant from '../../components/VirtualAssistant';
 21| import WindowsSimulator from '../../components/WindowsSimulator';
 22| import LoadingScreen from '../../components/LoadingScreen';
 23| import ExamsList from '../../components/ExamsList';
 24| import LoginModal from '../../components/auth/LoginModal';
 25| import StudentDashboardContent from '../../components/StudentDashboardContent';
 26| import { GURU_MESSAGES } from '../../utils/i18nData';
 27| import { useGuru } from '@/lib/guru-state';
 28| import { withTracking } from '@/lib/tracking';
 29| import BuilderLab from '@/components/builder/BuilderLab';
 30| import CollaborationStatus from '@/components/builder/CollaborationStatus';
 31| import VoiceController from '@/components/VoiceController';
 32| import HandTracker from '@/components/HandTracker';
 33| import {} from 'lucide-react';
 34|
 35| function Home(props) {
 36|   const { state: realtimeState } = useRealtime();
 37|   const [hoveredComponent, setHoveredComponent] = useState(null);
 38|   const [lang, setLang] = useState(() => {
 39|     if (typeof window !== 'undefined') {
 40|       try { const saved = localStorage.getItem('lang'); if (saved === 'en' || saved === 'vn') return saved } c...
 41|     }
 42|     return 'vn';
 43|   });
 44|   const guru = useGuru();
 45|   const [lastPlaced, setLastPlaced] = useState(null);
 46|   const [showQuiz, setShowQuiz] = useState(false);
 47|   const [quizParams, setQuizParams] = useState(null);
 48|   const [appMode, setAppMode] = useState('menu');
 49|   const [appView, setAppView] = useState('menu');
 50|   const [missionData, setMissionData] = useState(null);
 51|   const [placedItemsList, setPlacedItemsList] = useState([]);
 52|   const [imageMode, setImageMode] = useState(false);
 53|   const [lastVoiceResult, setLastVoiceResult] = useState('');
 54|   const [showLoading, setShowLoading] = useState(true);
 55|   const [isAIOpen, setIsAIOpen] = useState(false);
 56|   const [showWindowsSim, setShowWindowsSim] = useState(false);
 57|   const [theme, setTheme] = useState(() => {
 58|     if (typeof window !== 'undefined') {
 59|       try { return localStorage.getItem('theme') || 'dark' } catch(e) {}
 60|     }
 61|     return 'dark'
 62|   });
 63|
 64|   const [landmarks, setLandmarks] = useState(null);
 65|   const [cameraEnabled, setCameraEnabled] = useState(true);
 66|   const landmarksRef = useRef(null);
 67|   const landmarThrottleRef = useRef(0);
 68|   const handleLandmarks = useCallback((lm) => {
 69|     landmarksRef.current = lm;
 70|     const now = Date.now();
 71|     if (now - landmarThrottleRef.current < 60) return;
 72|     landmarThrottleRef.current = now;
```

```
    setLandmarks(lm);
  }, []);
  const [isDemo, setIsDemo] = useState(false);
  const [sessionId, setSessionId] = useState(null);
  const [showLoginModal, setShowLoginModal] = useState(false);
  const [loginRedirectTo, setLoginRedirectTo] = useState(null);
  const [showStudentDashboard, setShowStudentDashboard] = useState(false);
  const [userName, setUserName] = useState('');
  const [studentBudget, setStudentBudget] = useState(() => {
    if (typeof window !== 'undefined') {
      try { return parseInt(localStorage.getItem('studentBudget')) || 5000000 } catch(e) {}
    }
    return 5000000;
  });

  const gameEngineRef = useRef(null);

  const handleQuizScore = useCallback((score) => {
    const earned = score * 100000;
    setStudentBudget(prev => {
      const newBudget = prev + earned;
      try { localStorage.setItem('studentBudget', String(newBudget)) } catch(e) {}
      return newBudget;
    });
  }, []);

  const handlePartSelect = useCallback((type, modelId) => {
    if (gameEngineRef.current && gameEngineRef.current.spawnComponent) {
      const count = type === 'RAM' ? 2 : 1;
      gameEngineRef.current.spawnComponent(type, count, modelId);
    }
  }, []);

  const handleVoiceCommand = useCallback((action, params) => {
    if (action === 'SPAWN' && params?.type) {
      const ref = gameEngineRef.current;
      if (!ref) {
      s e t L a s t V o i c e R e s u l t ( ''L  G a m e E n g i n e  c h ° a  s µ n  s à n g ' ) ;
        return;
      }
      const ok = ref.placeComponent?.(params.type);
      if (ok) {
      s e t L a s t V o i c e R e s u l t ( `'  p l a c e C o m p o n e n t ( $ { p a r a m s . t y p e } )  t h à n h  c ô n g
        setPlacedItemsList(prev => [...prev, params.type]);
      } else {
      s e t L a s t V o i c e R e s u l t ( `& þ  p l a c e C o m p o n e n t ( $ { p a r a m s . t y p e } )  t h ¥ t  b ¡ i  !'
        if (ref.spawnComponent) {
          ref.spawnComponent(params.type, params.type === 'RAM' ? 2 : 1);
        }
      }
    } else if (action === 'REMOVE' && params?.type) {
      s e t L a s t V o i c e R e s u l t ( `Ø=ÝÑþ  R E M O V E  $ { p a r a m s . t y p e } ` ) ;
      setPlacedItemsList(prev => {
        const idx = prev.indexOf(params.type);
        if (idx === -1) return prev;
        const copy = [...prev];
        copy.splice(idx, 1);
        return copy;
      });
    } else if (action === 'RESET') {
      s e t L a s t V o i c e R e s u l t ( 'Ø=Ý  R E S E T ' ) ;
      setPlacedItemsList([]);
    } else if (action === 'CHECK_COMPATIBILITY') {
      const totalTDP = { CPU: 125, GPU: 300, RAM: 10, SSD: 5, COOLER: 5, PSU: 0 };
      const psuItems = placedItemsList.filter(t => t === 'PSU');
      if (psuItems.length === 0) {
      g u r u . s e t M e s s a g e ( l a n g  = = =  ' v n '  ?  ' C h ° a  c ó  n g u Ó n !  H ã y  l ¯ p  P S U  t r ° Ú
        return;
      }
      const tdp = placedItemsList.reduce((sum, t) => sum + (totalTDP[t] || 0), 0);
      if (tdp > 500) {
      g u r u . s e t M e s s a g e ( l a n g  = = =  ' v n '  ?  ` C £ n h  b á o :  T D P  $ { t d p } W  c ó  t h Ã  q u
      } else {
      g u r u . s e t M e s s a g e ( l a n g  = = =  ' v n '  ?  ` T D P :  $ { t d p } W .  H Ç  t h Ñ n g  t ° ¡ n g  t h
      }
    } else if (action === 'BOOT_PC') {
      setShowWindowsSim(true);
    }
  }, [placedItemsList, lang, guru]);

  const placedCounts = {};
  placedItemsList.forEach(item => {
    placedCounts[item] = (placedCounts[item] || 0) + 1;
  });

  useEffect(() => {
    let currentSessionId = null;

    async function initSession() {
      try {
        const { data: { user } } = await supabase.auth.getUser();
        if (user) {
          const { data: profile } = await supabase.from('profiles').select('full_name').eq('id', user.id).sing...
          if (profile?.full_name) setUserName(profile.full_name);
        }
        const id = await startBuilderSession();
        if (id) {
          setSessionId(id);
          currentSessionId = id;
        }
      } catch (err) {
        console.error("Failed to start builder session:", err);
      }
    }
    initSession();

    return () => {
      if (currentSessionId) {
        endBuilderSession(currentSessionId, {
          components_used: [],
          tdp_calculated: 0,
          compatibility_score: 100
        });
      }
    };
  }, []);

  useEffect(() => {
    document.documentElement.setAttribute('data-theme', theme === 'editorial-light' ? 'light' : theme);
    try { localStorage.setItem('theme', theme === 'editorial-light' ? 'light' : theme) } catch(e) {}
  }, [theme]);

  useEffect(() => {
    if (typeof window !== 'undefined') {
```

```
197|       const urlParams = new URLSearchParams(window.location.search);
198|       if (urlParams.get('demo') === 'true') {
199|         setIsDemo(true);
200|       }
201|       if (urlParams.get('requireAuth') === 'true') {
202|         setShowLoginModal(true);
203|         setLoginRedirectTo(urlParams.get('redirect') || null);
204|         window.history.replaceState({}, '', window.location.pathname);
205|       }
206|     }
207|   }, []);
208|
209|   useEffect(() => {
210|     setPlacedItemsList([]);
211|     setLastPlaced(null);
212|   }, [appMode, appView]);
213|
214|   const toggleLang = useCallback(() => {
215|     setLang(prev => {
216|       const newLang = prev === 'en' ? 'vn' : 'en';
217|       try { localStorage.setItem('lang', newLang) } catch(e) {}
218|       guru.setMessage(GURU_MESSAGES[newLang].welcome);
219|       return newLang;
220|     });
221|   }, []);
222|
223|   useEffect(() => {
224|     if (appMode === 'menu') {
225|         setAppView('menu');
226|     } else {
227|         setAppView('game');
228|     }
229|   }, [appMode]);
230|
231|   useEffect(() => {
232|     if (!showLoading && typeof window !== 'undefined' && window.driver && window.driver.js && window.driver.js...
233|       const isDone = localStorage.getItem('onboardingDone_v2');
234|       if (!isDone) {
235|         const driver = window.driver.js.driver;
236|         const driverObj = driver({
237|           showProgress: true,
238|           steps: [
   2 3 9 |                         {  e l e m e n t :  ' . s i d e b a r - c o n t a i n e r ',  p o p o v e r :  {  t i t l e :  ' M e n u   i A
   2 4 0 |                         {  e l e m e n t :  ' . m o d e - c a r d ',  p o p o v e r :  {  t i t l e :  ' C h ¿   Ù  B à i  G i £ n g
241|           ],
242|           onDestroyStarted: () => {
243|              localStorage.setItem('onboardingDone_v2', 'true');
244|              driverObj.destroy();
245|           }
246|         });
247|         driverObj.drive();
248|       }
249|     }
250|   }, [showLoading]);
251|
252|   const handleHover = useCallback((componentType) => {
253|     setHoveredComponent(componentType);
254|   }, []);
255|
256|   const handleGameEvent = useCallback((event, type) => {
257|     const messages = GURU_MESSAGES[lang];
258|     if (event === 'grabbed') {
259|       guru.setSilentMessage(messages.grabbed(type));
260|     } else if (event === 'placed') {
261|       setLastPlaced({ type, id: Date.now() });
262|       setPlacedItemsList(prev => [...prev, type]);
263|       guru.setSilentMessage(messages.placed(type));
264|     } else if (event === 'COMPLETE') {
265|       const saveSession = async () => {
266|         const { data: { user } } = await supabase.auth.getUser();
267|         if (user) {
268|           await supabase.from('assembly_sessions').insert({
269|             user_id: user.id,
270|             mode: appMode,
271|             completed: true,
272|             time_taken: 0
273|           });
274|         }
275|       };
276|       saveSession();
277|
278|       if (appMode === 'mission_assembly' && missionData) {
279|         setTimeout(() => setShowWindowsSim(true), 500);
280|       } else if (appMode === 'assembly') {
281|         setShowWindowsSim(true);
282|       } else {
   2 8 3 |                 g u r u . s e t M e s s a g e ( l a n g  = = =  ' e n '  ?  ' S Y S T E M  C O M P L E T E ! '  :  ' H Æ  T H Đ N G  H
284|       }
285|     } else if (event.startsWith('grabbed_')) {
286|       const player = event.split('_')[1].toUpperCase();
287|       guru.setSilentMessage(`${player}: ${messages.grabbed(type)}`);
288|     } else if (event.startsWith('placed_')) {
289|       const player = event.split('_')[1].toUpperCase();
290|       guru.setSilentMessage(`${player}: ${messages.placed(type)}`);
291|     } else if (event.startsWith('win_')) {
292|       const player = event.split('_')[1].toUpperCase();
   2 9 3 |              g u r u . s e t M e s s a g e ( l a n g  = = =  ' e n '  ?  `$ { p l a y e r }  W I N S  T H E  M A T C H ! `  :  `$ { p
294|     }
295|   }, [lang, appMode, missionData]);
296|
297|   const getModeTitle = () => {
298|     switch(appMode) {
   2 9 9 |                 c a s e  ' a s s e m b l y ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' F r e e  P r a c t i c e '  :  ' L u y Ç n
   3 0 0 |                 c a s e  ' l e a r n i n g ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' P r a c t i c e  M o d e '  :  ' L u y Ç n
   3 0 1 |                 c a s e  ' c o u r s e ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' L e c t u r e  C o u r s e '  :  ' B à i  G i
   3 0 2 |                 c a s e  ' m a r k e t ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' M a r k e t p l a c e '  :  ' C h ã  M á y  T
303|         case 'mission_assembly': return lang === 'en' ? `Lab: ${missionData?.missionId}` : `Phòng Lab: ${missi...
   3 0 4 |                 c a s e  ' m u l t i p l a y e r ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' 2 - P l a y e r  V e r s u s '  :  '
   3 0 5 |                 c a s e  ' e x a m s ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' E x a m s '  :  ' K ó  T h i ' ;
   3 0 6 |                 c a s e  ' c h a l l e n g e ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' D a i l y  C h a l l e n g e '  :  ' T H
   3 0 7 |                 c a s e  ' c o m p o n e n t s ' :  r e t u r n  l a n g  = = =  ' e n '  ?  ' C o m p o n e n t  L i b r a r y '  :
308|         default: return 'PC Master Builder';
309|     }
310|   };
311|
312|   return (
313|     <div style={{ display: 'flex', minHeight: '100vh', background: 'var(--bg-base)', position: 'relative' }}>
314|       {showLoading && <LoadingScreen onComplete={() => setShowLoading(false)} />}
315|
316|       {isDemo && (
317|         <div style={{
318|           position: 'fixed', top: 0, left: 0, right: 0, zIndex: 9999,
319|           background: 'linear-gradient(90deg, #6366f1, #00d2a0)',
320|           color: 'white', padding: '8px 16px', textAlign: 'center',
```

```
321|           fontSize: '14px', fontWeight: 600, display: 'flex',
322|           alignItems: 'center', justifyContent: 'center', gap: '12px'
323|         }}>
   3 2 4 |                    < s p a n > B ¡ n    a n g   ß   C h ¿    Ù   D e m o   ( K h á c h ) .   T i ¿ n    Ù   h Í c   t - p   s ½   k h ô n g
325|           <Link href="/register" style={{
326|             background: 'white', color: '#6366f1', padding: '2px 12px',
327|             borderRadius: '4px', textDecoration: 'none', fontSize: '12px'
328|           }}>
   3 2 9 |                              n g   k ý   n g a y
330|           </Link>
331|         </div>
332|       )}
333|       <BurgerMenu
334|         lang={lang}
335|         toggleLang={toggleLang}
336|         onStartQuiz={() => setShowQuiz(true)}
337|         appMode={appMode}
338|         setAppMode={setAppMode}
339|         onToggleAI={() => setIsAIOpen(prev => !prev)}
340|         isAIOpen={isAIOpen}
341|         theme={theme}
342|         setTheme={setTheme}
343|         userName={userName}
344|         onShowDashboard={() => setShowStudentDashboard(true)}
345|       />
346|
347|       <main className="main-content">
348|         {showQuiz && (
349|             <QuizModal
350|             lang={lang}
351|             topic={quizParams?.topic}
352|             level={quizParams?.level}
353|             onSuccess={quizParams?.onSuccess}
354|             onScore={handleQuizScore}
355|             onClose={() => {
356|                 setShowQuiz(false);
357|                 setQuizParams(null);
358|             }}
359|             />
360|         )}
361|
362|         {appView !== 'menu' && (
363|             <VirtualAssistant
364|                 lang={lang}
365|                 appMode={appMode}
366|                 cartItems={missionData?.purchasedItems ?? []}
367|                 remainingBudget={missionData?.remainingBudget}
368|                 missionTitle={missionData?.missionId}
369|                 isOpen={isAIOpen}
370|                 setIsOpen={setIsAIOpen}
371|             />
372|         )}
373|
374|         {appView === 'menu' ? (
375|             <MainMenu
376|                 lang={lang}
377|                 onStart={(mode) => setAppMode(mode)}
378|                 onOpenLogin={() => setShowLoginModal(true)}
379|             />
380|         ) : (
381|             <div style={{
382|                 display: 'flex', flexDirection: 'column', width: '100%',
383|                 height: 'calc(100vh - 60px)',
384|                 padding: ['course','market'].includes(appMode) ? '0' : '24px',
385|                 overflow: 'hidden'
386|             }}>
387|                 <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBo...
388|                   <button
389|                     onClick={() => setAppMode('menu')}
390|                     style={{
391|                       padding: '8px 18px',
392|                       background: 'var(--bg-elevated)',
393|                       border: '1px solid var(--border-default)',
394|                       borderRadius: '8px',
395|                       color: 'var(--text-primary)',
396|                       fontSize: '13px',
397|                       fontWeight: 500,
398|                       cursor: 'pointer',
399|                       transition: 'all 0.2s',
400|                     }}
401|                     onMouseOver={e => { e.currentTarget.style.borderColor = 'var(--border-strong)'; e.currentT...
402|                     onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e.currentT...
403|                   >
   4 0 4 |                                        !•   { l a n g   = = =   ' e n '   ?   ' B a c k '   :   ' T h o á t ' }
405|                   </button>
406|                   <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
407|                     <CollaborationStatus />
408|                   </div>
409|                 </div>
410|
411|                 {/* Main View Port */}
412|                 <div style={{ display: 'flex', flexDirection: 'column', width: '100%', flex: 1, alignItems: 'c...
413|                     <div style={{ width: '100%', maxWidth: ['course','market'].includes(appMode) ? '100%' : '1...
414|                         {appMode === 'assembly' ? (
415|                             <div style={{ display: 'flex', gap: '16px', width: '100%', height: '100%' }}>
416|                                 <PartPickerSidebar
417|                                     lang={lang}
418|                                     onSelect={handlePartSelect}
419|                                     placedCounts={placedCounts}
420|                                 />
421|                                 <div style={{ flex: 1, position: 'relative', display: 'flex', gap: '12px', max...
422|                                 <div style={{ flex: 1, position: 'relative' }}>
423|                                 <h2 style={{ color: 'var(--success)', marginTop: 0 }}>
   4 2 4 |                                                                { l a n g   = = =   ' e n '   ?   ' F r e e   P r a c t i c e '   :   '
425|                                 </h2>
426|                                 <GameEngine
427|                                     ref={gameEngineRef}
428|                                     onHover={handleHover}
429|                                     onGameEvent={handleGameEvent}
430|                                     landmarks={landmarks}
431|                                     imageMode={imageMode}
432|                                 />
433|                                 {/* Checklist + Debug */}
434|                                 <div className="glass-panel" style={{
435|                                     position: 'absolute', top: '50px', right: '2%', padding: '1rem',
436|                                     minWidth: 'min(200px, 25vw)', pointerEvents: 'none', zIndex: 10
437|                                 }}>
438|                                     <h3 style={{ margin: '0 0 10px 0', fontSize: '13px', color: 'var(--text-pr...
   4 3 9 |                                                                    { l a n g   = = =   ' e n '   ?   ' C h e c k l i s t '   :   '
440|                                     </h3>
441|                                     <div style={{ display: 'flex', flexDirection: 'column', gap: '8px', fontSi...
442|                                         {[
443|                                             { type: 'CPU', target: 1 }, { type: 'COOLER', target: 1 },
444|                                             { type: 'RAM', target: 2 }, { type: 'GPU', target: 1 },
```

```
445|                                        { type: 'SSD', target: 1 }, { type: 'PSU', target: 1 }
446|                                    ].map(comp => {
447|                                        const count = placedItemsList.filter(item => item === comp.type).l...
448|                                        const isDone = count >= comp.target;
449|                                        return (
450|                                            <div key={comp.type} style={{ color: isDone ? 'var(--success)'...
   4 5 1 |                                                                                  < s p a n > { i s D o n e   ?   '&   '
452|                                                <span>{comp.type} ({Math.min(count, comp.target)}/{comp.ta...
453|                                            </div>
454|                                        );
455|                                    })}
456|                                </div>
457|                                <hr style={{ borderColor: 'rgba(255,255,255,0.1)', margin: '10px 0' }} />
458|                                <div style={{ display: 'flex', flexDirection: 'column', gap: '6px', fontSi...
459|                                    <div style={{ pointerEvents: 'auto', cursor: 'pointer', display: 'flex...
460|                                         onClick={() => setImageMode(!imageMode)}>
   4 6 1 |                                                                                  < s p a n   s t y l e = { {   o p a c i t y :   i m a g
   4 6 2 |                                                                                  < s p a n > { i m a g e M o d e   ?   ( l a n g   = = =
463|                                    </div>
464|                                    <div style={{ pointerEvents: 'auto', display: 'flex', gap: '4px', flex...
465|                                        <button onClick={() => {
466|                                            const ok = gameEngineRef.current?.placeComponent?.('CPU');
   4 6 7 |                                                                                  s e t L a s t V o i c e R e s u l t ( o k   ?
468|                                        }} style={{ fontSize: '10px', padding: '2px 6px', cursor: 'pointer...
469|                                            Test CPU
470|                                        </button>
471|                                        <button onClick={() => {
472|                                            const ok = gameEngineRef.current?.placeComponent?.('SSD');
   4 7 3 |                                                                                  s e t L a s t V o i c e R e s u l t ( o k   ?
474|                                        }} style={{ fontSize: '10px', padding: '2px 6px', cursor: 'pointer...
475|                                            Test SSD
476|                                        </button>
477|                                    </div>
478|                                </div>
479|                                {lastVoiceResult && (
480|                                    <div style={{ marginTop: '6px', padding: '4px 8px', borderRadius: '4px...
481|                                        {lastVoiceResult}
482|                                    </div>
483|                                )}
484|                            </div>
485|                        </div>
486|                        {/* Camera preview on the right side */}
487|                        <div style={{
488|                            width: '160px', flexShrink: 0, borderRadius: '12px', overflow: 'hidden',
489|                            border: `1px solid ${cameraEnabled ? 'rgba(0,212,170,0.3)' : 'rgba(255,80,80,0...
490|                            boxShadow: cameraEnabled ? '0 0 20px rgba(0,212,170,0.2)' : 'none',
491|                            cursor: 'pointer', transition: 'opacity 0.15s', height: 'fit-content',
492|                            opacity: cameraEnabled ? 1 : 0.5,
493|                            background: '#0f172a',
494|                        }} onClick={() => setCameraEnabled(!cameraEnabled)}>
495|                            <div style={{ padding: '8px 10px', background: 'rgba(0,212,170,0.1)', borderBo...
   4 9 6 |                                                                                  < s p a n >Ø=Ü÷   C a m e r a < / s p a n >
497|                                <span style={{ fontSize: '10px', color: cameraEnabled ? 'var(--success)' :...
   4 9 8 |                                                                                  { c a m e r a E n a b l e d   ?   ' B - t '   :   ' T ¯ t ' }
499|                                </span>
500|                            </div>
501|                            <div style={{ width: '100%', aspectRatio: '4/3', minHeight: '120px' }}>
502|                                {cameraEnabled && <HandTracker onLandmarks={handleLandmarks} numHands={1} />}
503|                                {!cameraEnabled && (
504|                                    <div style={{ width: '100%', height: '100%', display: 'flex', alignIte...
   5 0 5 |                                                                                  C a m e r a   T ® T < b r   / > N h ¥ n    Ã   b - t
506|                                    </div>
507|                                )}
508|                            </div>
509|                        </div>
510|                        </div>
511|                        </div>
512|                    ) : appMode === 'market' ? (
513|                        <Marketplace
514|                            lang={lang}
515|                            budget={studentBudget}
516|                            onCheckout={(data) => {
517|                                setMissionData(data);
518|                                setStudentBudget(data.remainingBudget);
519|                                try { localStorage.setItem('studentBudget', String(data.remainingBudget)) ...
520|                                setAppMode('mission_assembly');
521|                            }}
522|                            onCancel={() => setAppMode('menu')}
523|                        />
524|                    ) : appMode === 'mission_assembly' ? (
525|                        <div style={{ width: '100%', position: 'relative', display: 'flex', gap: '12px' }}>
526|                            <div style={{ flex: 1 }}>
527|                            <h2 style={{ color: 'var(--brand-primary)', marginTop: 0 }}>
528|                                {lang === 'en' ? `Lab: ${missionData?.missionId || missionData?.scenarioNa...
529|                            </h2>
530|                            <GameEngine
531|                                ref={gameEngineRef}
532|                                onHover={handleHover}
533|                                onGameEvent={handleGameEvent}
534|                                landmarks={landmarks}
535|                                purchasedItems={missionData?.purchasedItems}
536|                                imageMode={imageMode}
537|                            />
538|                            </div>
539|                            <div style={{
540|                                width: '160px', flexShrink: 0, borderRadius: '12px', overflow: 'hidden',
541|                                border: `1px solid ${cameraEnabled ? 'rgba(0,212,170,0.3)' : 'rgba(255,80,...
542|                                boxShadow: cameraEnabled ? '0 0 20px rgba(0,212,170,0.2)' : 'none',
543|                                cursor: 'pointer', height: 'fit-content',
544|                                opacity: cameraEnabled ? 1 : 0.5,
545|                                background: '#0f172a',
546|                            }} onClick={() => setCameraEnabled(!cameraEnabled)}>
547|                                <div style={{ padding: '8px 10px', background: 'rgba(0,212,170,0.1)', bord...
   5 4 8 |                                                                                  < s p a n >Ø=Ü÷   C a m e r a < / s p a n >
549|                                    <span style={{ fontSize: '10px', color: cameraEnabled ? 'var(--success...
   5 5 0 |                                                                                  { c a m e r a E n a b l e d   ?   ' B - t '   :   ' T ¯
551|                                    </span>
552|                                </div>
553|                                <div style={{ width: '100%', aspectRatio: '4/3', minHeight: '120px' }}>
554|                                    {cameraEnabled && <HandTracker onLandmarks={handleLandmarks} numHands=...
555|                                    {!cameraEnabled && (
556|                                        <div style={{ width: '100%', height: '100%', display: 'flex', alig...
   5 5 7 |                                                                                  C a m e r a   T ® T < b r   / > N h ¥ n    Ã
558|                                        </div>
559|                                    )}
560|                                </div>
561|                            </div>
562|                        </div>
563|                    ) : appMode === 'course' ? (
564|                        <LectureCourse lang={lang} onBack={() => setAppMode('menu')} />
565|                    ) : appMode === 'learning' ? (
566|                        <LearningMode
567|                            lang={lang}
568|                            externalSelection={lastPlaced}
```

```
569|                                appMode={appMode}
570|                                landmarks={landmarks}
571|                                cameraEnabled={cameraEnabled}
572|                                onLandmarks={handleLandmarks}
573|                                onHover={handleHover}
574|                                onGameEvent={handleGameEvent}
575|                                onTakeQuiz={(topic, level, onSuccess) => {
576|                                    setQuizParams({ topic, level, onSuccess });
577|                                    setShowQuiz(true);
578|                                }}
579|                            />
580|                        ) : appMode === 'multiplayer' ? (
581|                            <div style={{ width: '100%', display: 'flex', gap: '12px' }}>
582|                                <div style={{ flex: 1 }}>
583|                                    <MultiplayerEngine
584|                                        landmarks={landmarks}
585|                                        onGameEvent={handleGameEvent}
586|                                        lang={lang}
587|                                    />
588|                                </div>
589|                                <div style={{
590|                                    width: '200px', flexShrink: 0, borderRadius: '12px', overflow: 'hidden',
591|                                    border: `1px solid ${cameraEnabled ? 'rgba(0,212,170,0.3)' : 'rgba(255,80,...
592|                                    boxShadow: cameraEnabled ? '0 0 20px rgba(0,212,170,0.2)' : 'none',
593|                                    cursor: 'pointer', height: 'fit-content',
594|                                    opacity: cameraEnabled ? 1 : 0.5,
595|                                    background: '#0f172a',
596|                                }} onClick={() => setCameraEnabled(!cameraEnabled)}>
597|                                    <div style={{ padding: '8px 10px', background: 'rgba(0,212,170,0.1)', bord...
599|                                        <span style={{ fontSize: '10px', color: cameraEnabled ? 'var(--success...
601|                                        </span>
602|                                    </div>
603|                                    <div style={{ width: '100%', aspectRatio: '4/3', minHeight: '150px' }}>
604|                                        {cameraEnabled && <HandTracker onLandmarks={handleLandmarks} numHands=...
605|                                        {!cameraEnabled && (
606|                                            <div style={{ width: '100%', height: '100%', display: 'flex', alig...
608|                                            </div>
609|                                        )}
610|                                    </div>
611|                                </div>
612|                            </div>
613|                        ) : appMode === 'exams' ? (
614|                            <ExamsList lang={lang} onBack={() => setAppMode('menu')} />
615|                        ) : appMode === 'components' ? (
616|                            <div style={{ width: '100%', padding: '24px' }}>
617|                                <h2 style={{ color: 'var(--brand-primary)', marginTop: 0, marginBottom: 16 }}>
619|                                </h2>
620|                                <BuilderLab />
621|                            </div>
622|                        ) : appMode === 'challenge' ? (
623|                            <div style={{ padding: '24px', maxWidth: '800px', margin: '0 auto', width: '100%' }}>
624|                                <h2 style={{ fontSize: '22px', fontWeight: 800, color: '#1A2F4A', marginBottom...
625|                                <p style={{ color: '#64748B', fontSize: '14px', marginBottom: '24px' }}>Hoàn t...
626|                                <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '12px' }}>
627|                                    {[
632|                                    ].map((c, i) => (
633|                                        <div key={i} style={{ padding: '20px', borderRadius: '10px', border: '...
634|                                            <div style={{ fontSize: '11px', fontWeight: 700, color: c.color, t...
635|                                            <p style={{ fontSize: '13px', color: '#64748B', marginBottom: '12p...
636|                                            <div style={{ display: 'flex', justifyContent: 'space-between', al...
637|                                                <span style={{ fontSize: '12px', fontWeight: 700, color: c.col...
638|                                                <button onClick={() => { setAppMode('learning'); }}
639|                                                    style={{ padding: '6px 14px', borderRadius: '6px', border:...
641|                                                </button>
642|                                            </div>
643|                                        </div>
644|                                    ))}
645|                                </div>
646|                            </div>
647|                        ) : null}
648|                    </div>
649|
650|                    {appMode === 'assembly' && (
651|                        <div style={{ display: 'flex', flexDirection: 'column', gap: '1rem', width: '100%', ma...
652|                            <ComponentInfo type={hoveredComponent} lang={lang} />
653|                        </div>
654|                    )}
655|                </div>
656|            </div>
657|        )}
658|
659|      </main>
660|
661|      {showWindowsSim && (
662|        <WindowsSimulator
663|          cart={missionData?.purchasedItems || placedItemsList.map(type => ({ type, name: type }))}
664|          scenarioName={missionData?.scenarioName}
665|          onExit={() => { setShowWindowsSim(false); setAppMode('menu'); setPlacedItemsList([]); setMissionData...
666|        />
667|      )}
668|
669|      {['assembly', 'mission_assembly'].includes(appMode) && (
670|        <VoiceController
671|          lang={lang}
672|          onCommand={handleVoiceCommand}
673|        />
674|      )}
675|
676|      <LoginModal isOpen={showLoginModal} onClose={() => { setShowLoginModal(false); setLoginRedirectTo(null);...
677|
678|      {showStudentDashboard && (
679|        <StudentDashboardContent onClose={() => setShowStudentDashboard(false)} />
680|      )}
681|
682|
683|
684|      <style jsx>{``}</style>
685|    </div>
686|  );
687| }
688|
689| export default withTracking(Home);
690|
```

File: app/builder/pc-builder/page.js (215 lines, 9.5 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import { useState, useMemo } from 'react';
    4| import dynamic from 'next/dynamic';
    5| import { useBuildStore } from '@/lib/build-store';
    6| import PartPickerSidebarV2 from '@/components/PartPickerSidebarV2';
    7| import { getPriorityIssues } from '@/lib/compatibility-engine';
    8|
    9| const SketchfabViewer = dynamic(
   10|   () => import('@/components/SketchfabViewer'),
   11|   { ssr: false, loading: () => (
   12|     <div style={{
   13|       width: '100%', height: '100%', display: 'flex', alignItems: 'center', justifyContent: 'center',
   14|       background: '#0a0a0f', borderRadius: 12, color: 'var(--text-muted)', fontSize: 13,
     1 5 |           } } >   a n g   t £ i   m ô   h ì n h   S k e t c h f a b . . . < / d i v >
   16|   )}
   17| );
   18|
     1 9 |   c o n s t   P E R F _ L A B E L S   =   {   g a m i n g :   ' G a m i n g ' ,   p r o d u c t i v i t y :   ' L à m   v i Ç c ' ,   w o r k s t
   20| const EFF_LABELS = {
   21|   '80plus_white': 'White', '80plus_bronze': 'Bronze', '80plus_silver': 'Silver',
   22|   '80plus_gold': 'Gold', '80plus_platinum': 'Platinum', '80plus_titanium': 'Titanium',
   23| };
   24|
   25| export default function PCBuilderPage() {
   26|   const store = useBuildStore();
   27|   const [showPicker, setShowPicker] = useState(true);
   28|   const [saving, setSaving] = useState(false);
   29|   const [savedId, setSavedId] = useState(null);
   30|
   31|   const parts = useMemo(() => ({
   32|     cpu: store.cpu, gpu: store.gpu, mainboard: store.mainboard,
   33|     ram: store.ram, psu: store.psu, case: store.case,
   34|     cooler: store.cooler, ssd: store.ssd,
   35|   }), [store.cpu, store.gpu, store.mainboard, store.ram, store.psu, store.case, store.cooler, store.ssd]);
   36|
   37|   const { errors, warnings } = useMemo(() => getPriorityIssues(store.issues), [store.issues]);
   38|
   39|   const hasAny = useMemo(() => Object.values(parts).some(v =>
   40|     v !== null && !(Array.isArray(v) && v.length === 0)
   41|   ), [parts]);
   42|
   43|   const handleSave = async () => {
   44|     setSaving(true);
   45|     const id = await store.saveToSupabase();
   46|     if (id) setSavedId(id);
   47|     setSaving(false);
   48|     setTimeout(() => setSavedId(null), 3000);
   49|   };
   50|
   51|   return (
   52|     <div style={{
   53|       minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', flexDirection: 'column',
   54|       fontFamily: 'system-ui,sans-serif',
   55|     }}>
   56|       {/* Header */}
   57|       <div style={{
   58|         display: 'flex', alignItems: 'center', justifyContent: 'space-between',
   59|         padding: '10px 20px', borderBottom: '1px solid var(--border-subtle)',
   60|         background: 'var(--bg-surface)',
   61|       }}>
   62|         <div style={{ display: 'flex', alignItems: 'center', gap: 10 }}>
     6 3 |                         < s p a n   s t y l e = { {   f o n t S i z e :   2 0   } } >Ø=Ý¥þ  < / s p a n >
   64|           <span style={{ fontWeight: 700, fontSize: 15, color: 'var(--text-primary)' }}>PC Builder 3D</span>
   65|           <span style={{
   66|             background: store.score >= 80 ? 'rgba(0,212,170,0.12)' : store.score >= 50 ? 'rgba(255,163,0,0.12)...
   67|             color: store.score >= 80 ? '#00d4aa' : store.score >= 50 ? '#ffa300' : '#f46a6a',
   68|             padding: '2px 8px', borderRadius: 99, fontSize: 10, fontWeight: 700,
   69|           }}>
   70|             {store.score}/100
   71|           </span>
   72|         </div>
   73|         <div style={{ display: 'flex', gap: 8 }}>
   74|           <button onClick={() => setShowPicker(p => !p)}
   75|             style={{
   76|               padding: '6px 14px', borderRadius: 8, border: '1px solid var(--border-default)',
   77|               background: showPicker ? 'var(--accent-blue)' : 'var(--bg-elevated)',
   78|               color: showPicker ? '#fff' : 'var(--text-primary)',
   79|               cursor: 'pointer', fontSize: 11, fontWeight: 600, fontFamily: 'inherit',
   80|             }}>
     8 1 |                           { s h o w P i c k e r   ?   'Ø=Ý'   L i n h   k i Ç n '   :   'Ø=Ý'   C h Í n ' }
   82|           </button>
   83|           <button onClick={handleSave} disabled={saving || !hasAny}
   84|             style={{
   85|               padding: '6px 14px', borderRadius: 8,
   86|               border: '1px solid var(--brand-primary)', cursor: 'pointer',
   87|               background: savedId ? 'rgba(0,212,170,0.15)' : 'var(--brand-primary)',
   88|               color: savedId ? '#00d4aa' : '#fff',
   89|               fontSize: 11, fontWeight: 600, fontFamily: 'inherit',
   90|               opacity: (!hasAny || saving) ? 0.5 : 1,
   91|             }}>
     9 2 |                           { s a v i n g   ?   '#ó     a n g   l ° u . . . '   :   s a v e d I d   ?   ''      ã   l ° u '   :   'Ø=Ü¾   L ° u   B
   93|           </button>
   94|           <button onClick={() => window.history.back()}
   95|             style={{
   96|               padding: '6px 14px', borderRadius: 8, border: '1px solid var(--border-default)',
   97|               background: 'transparent', color: 'var(--text-muted)',
   98|               cursor: 'pointer', fontSize: 11, fontWeight: 600, fontFamily: 'inherit',
   99|             }}>
     1 0 0 |                           '      ó n g
  101|           </button>
  102|         </div>
  103|       </div>
  104|
  105|       {/* Main Content */}
  106|       <div style={{
  107|         flex: 1, display: 'flex', gap: 12, padding: 12, overflow: 'hidden',
  108|       }}>
  109|         {/* Left: Part Picker */}
  110|         {showPicker && (
  111|           <div style={{ flexShrink: 0 }}>
  112|             <PartPickerSidebarV2 lang="vn" />
  113|           </div>
  114|         )}
  115|
  116|         {/* Center: 3D View */}
  117|         <div style={{ flex: 1, minWidth: 0 }}>
  118|           <SketchfabViewer parts={parts} />
  119|         </div>
  120|
  121|         {/* Right: Build Summary */}
  122|         <div style={{
```

```
  123|          width: 240, flexShrink: 0, display: 'flex', flexDirection: 'column', gap: 10,
  124|          maxHeight: 'calc(100vh - 100px)', overflowY: 'auto',
  125|        }}>
  126|          {/* Issues */}
  127|          <div style={{
  128|            background: 'var(--bg-surface)', borderRadius: 10, border: '1px solid var(--border-subtle)', paddi...
  129|          }}>
  130|            <div style={{ fontSize: 11, fontWeight: 700, color: 'var(--text-primary)', marginBottom: 8 }}>
    1 3 1 |                              & þ    T ° ¡ n g   t h í c h
  132|            </div>
  133|            {errors.length === 0 && warnings.length === 0 ? (
    1 3 4 |                              < d i v   s t y l e = { {   c o l o r :   ' # 0 0 d 4 a a ' ,   f o n t S i z e :   1 1 ,   f o n t W e i g h t :
  135|            ) : (
  136|              <>
  137|                {errors.map((e, i) => (
    1 3 8 |                                  < d i v   k e y = { i }   s t y l e = { {   c o l o r :   ' # f 4 6 a 6 a ' ,   f o n t S i z e :   1 0 ,
  139|                ))}
  140|                {warnings.map((w, i) => (
    1 4 1 |                                  < d i v   k e y = { i }   s t y l e = { {   c o l o r :   ' # f f a 3 0 0 ' ,   f o n t S i z e :   1 0 ,
  142|                ))}
  143|              </>
  144|            )}
  145|          </div>
  146|
  147|          {/* Performance */}
  148|          <div style={{
  149|            background: 'var(--bg-surface)', borderRadius: 10, border: '1px solid var(--border-subtle)', paddi...
  150|          }}>
  151|            <div style={{ fontSize: 11, fontWeight: 700, color: 'var(--text-primary)', marginBottom: 8 }}>
    1 5 2 |                              Ø=Þ€   H i Ç u   n   n g
  153|            </div>
  154|            {Object.entries(store.performance).map(([key, val]) => (
  155|              <div key={key} style={{ marginBottom: 6 }}>
  156|                <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: 10, marginBottom: 2 }}>
  157|                  <span style={{ color: 'var(--text-muted)' }}>{PERF_LABELS[key]}</span>
  158|                  <span style={{ color: 'var(--text-primary)', fontWeight: 700 }}>{Math.round(val)}</span>
  159|                </div>
  160|                <div style={{
  161|                  height: 4, background: 'var(--bg-elevated)', borderRadius: 2, overflow: 'hidden',
  162|                }}>
  163|                  <div style={{
  164|                    width: `${Math.min(100, val)}%`, height: '100%',
  165|                    background: val >= 80 ? '#00d4aa' : val >= 50 ? '#ffa300' : '#f46a6a',
  166|                    borderRadius: 2, transition: 'width 0.3s',
  167|                  }} />
  168|                </div>
  169|              </div>
  170|            ))}
  171|          </div>
  172|
  173|          {/* Specs Summary */}
  174|          <div style={{
  175|            background: 'var(--bg-surface)', borderRadius: 10, border: '1px solid var(--border-subtle)', paddi...
  176|          }}>
  177|            <div style={{ fontSize: 11, fontWeight: 700, color: 'var(--text-primary)', marginBottom: 8 }}>
    1 7 8 |                              Ø=ÜÉ   T h ô n g   s Ñ
  179|            </div>
  180|            {[
  181|              { label: 'TDP', value: store.totalTdp ? `${store.totalTdp}W` : '—' },
    1 8 2 |                              {   l a b e l :   ' T Õ n g   t i Á n ' ,   v a l u e :   s t o r e . t o t a l P r i c e   ?   ` $ { ( s t o r e
  183|              { label: 'Ngân sách', value: store.budget ? `${(store.budget / 1e6).toFixed(1)}tr` : '—' },
    1 8 4 |                              {   l a b e l :   ' S Ñ   l i n h   k i Ç n ' ,   v a l u e :   O b j e c t . v a l u e s ( p a r t s ) . f i l t e
  185|              ...(parts.psu ? [{ label: 'PSU', value: `${parts.psu.psu_wattage}W ${EFF_LABELS[parts.psu.psu_ef...
  186|              ...(parts.cpu ? [{ label: 'CPU', value: `${parts.cpu.cpu_cores}C/${parts.cpu.cpu_threads}T` }] :...
  187|              ...(parts.gpu ? [{ label: 'GPU', value: `${parts.gpu.gpu_vram_gb}GB` }] : []),
  188|            ].map((row, i) => (
  189|              <div key={i} style={{
  190|                display: 'flex', justifyContent: 'space-between', fontSize: 10,
  191|                padding: '2px 0', color: row.color || 'var(--text-primary)',
  192|              }}>
  193|                <span style={{ color: 'var(--text-muted)' }}>{row.label}</span>
  194|                <span style={{ fontWeight: 600 }}>{row.value}</span>
  195|              </div>
  196|            ))}
  197|          </div>
  198|
  199|          {/* Quick Actions */}
  200|          {hasAny && (
  201|            <button onClick={store.clearAll}
  202|              style={{
  203|                padding: '8px', borderRadius: 8, border: '1px solid rgba(244,106,106,0.3)',
  204|                background: 'rgba(244,106,106,0.06)', color: '#f46a6a',
  205|                cursor: 'pointer', fontSize: 11, fontWeight: 600, fontFamily: 'inherit',
  206|              }}>
    2 0 7 |                              Ø=ÝÑþ    X o á   t ¥ t   c £
  208|            </button>
  209|          )}
  210|        </div>
  211|      </div>
  212|    </div>
  213|  );
  214| }
  215|
```

File: app/builder/pc-suggest/page.tsx (508 lines, 24.7 KB)

```
    1| 'use client';
    2|
    3| import { useState, useEffect, useMemo } from 'react';
    4| import Link from 'next/link';
    5| import { useIsMobile } from '@/hooks/useIsMobile';
    6| import { motion, AnimatePresence } from 'framer-motion';
    7| import { BrainCircuit, Loader2, Store, ExternalLink, Sparkles, Monitor, ChevronDown, ChevronUp } from 'lucide-...
    8|
    9| const PREBUILT_PCS = [
   10|   {
   11|     id: 'rog-g14', name: 'ASUS ROG Zephyrus G14', type: 'Laptop Gaming',
   12|     specs: 'AMD Ryzen 9 7940HS, RTX 4060 8GB, 16GB DDR5, 1TB SSD, 14" QHD 165Hz',
   13|     price: 34990000, useCases: ['gaming', 'stream', 'coder', 'design'],
   14|     rating: 4.8, image: 'https://pollinations.ai/p/ASUS-ROG-Zephyrus-G14-gaming-laptop',
   15|     link: 'https://gearvn.com/collections/laptop-gaming',
    1 6 |           r e a s o n :   ' M á y   n h Ĩ   g Í n ,   m ¡ n h   m ½ ,   p h ù   h ã p   g a m i n g   +   l - p   t r ì n h .   M à n   1 4 "   C
   17|   },
   18|   {
   19|     id: 'legion-pro-5', name: 'Lenovo Legion Pro 5', type: 'Laptop Gaming',
   20|     specs: 'AMD Ryzen 7 7745HX, RTX 4070 8GB, 32GB DDR5, 1TB SSD, 16" QHD 240Hz',
   21|     price: 39990000, useCases: ['gaming', 'stream', '3d', 'coder'],
   22|     rating: 4.7, image: 'https://pollinations.ai/p/legion-pro-5',
   23|     link: 'https://gearvn.com/collections/laptop-gaming',
    2 4 |           r e a s o n :   ' H i Ç u   n   n g   x u ¥ t   s ¯ c ,   t £ n   n h i Ç t   t Ñ t ,   R A M   3 2 G B   p h ù   h ã p   a   n h i C
   25|   },
   26|   {
   27|     id: 'macbook-pro-m4', name: 'MacBook Pro 14" M4 Pro', type: 'Laptop',
```

```
    specs: 'Apple M4 Pro (12CPU/18GPU), 24GB Unified, 512GB SSD, 14" Liquid Retina XDR',
    price: 39990000, useCases: ['coder', 'design', 'video', 'office'],
    rating: 4.9, image: 'https://pollinations.ai/p/macbook-pro-m4',
    link: 'https://gearvn.com/collections/macbook-pro',
    reason: 'Chip Apple Silicon m°ãt mà, pin 18h, màn hình tuyÇt ¹p. L
  },
  {
    id: 'macbook-air-m4', name: 'MacBook Air 13" M4', type: 'Laptop',
    specs: 'Apple M4 (8CPU/10GPU), 16GB Unified, 256GB SSD, 13.6" Liquid Retina',
    price: 21990000, useCases: ['office', 'coder', 'student'],
    rating: 4.8, image: 'https://pollinations.ai/p/macbook-air-m4',
    link: 'https://gearvn.com/collections/macbook-air',
    reason: 'Siêu nh¹, pin c£ ngày, ç m¡nh cho v n phòng và l-p trình.
  },
  {
    id: 'pc-gaming-cao-cap', name: 'PC Gaming Cao C¥p', type: 'Desktop G
    specs: 'i9-14900K, RTX 4080 16GB, 32GB DDR5, 2TB NVMe Gen4, 1000W Platinum',
    price: 55990000, useCases: ['gaming', 'stream', '3d', 'video', 'ai'],
    rating: 4.9, image: 'https://pollinations.ai/p/pc-gaming-cao-cap',
    link: 'https://gearvn.com/collections/pc-gaming',
    reason: 'C¥u hình m¡nh nh¥t cho gaming 4K + stream + render. Nâng c¥
  },
  {
    id: 'pc-gaming-tam-trung', name: 'PC Gaming T§m Trung', type: 'Deskt
    specs: 'Ryzen 7 7800X3D, RTX 4070 12GB, 32GB DDR5, 1TB NVMe, 850W Gold',
    price: 28990000, useCases: ['gaming', 'stream', 'coder', 'design'],
    rating: 4.7, image: 'https://pollinations.ai/p/pc-gaming-tam-trung',
    link: 'https://gearvn.com/collections/pc-gaming',
    reason: 'Giá hãp lý, ch¡i 1440p m°ãt, cân Ñi hiÇu n ng/giá thành.',
  },
  {
    id: 'pc-van-phong', name: 'PC V n Phòng Cao C¥p', type: 'Desktop Off
    specs: 'i5-14600K, GTX 1650 4GB, 16GB DDR5, 500GB NVMe, 500W',
    price: 12990000, useCases: ['office', 'coder', 'student'],
    rating: 4.5, image: 'https://pollinations.ai/p/pc-van-phong',
    link: 'https://gearvn.com/collections/pc-van-phong',
    reason: 'C¥u hình Õn Ënh, a nhiÇm tÑt, ti¿t kiÇm iÇn. Phù hãp v n
  },
  {
    id: 'pc-workstation-ai', name: 'PC Workstation AI', type: 'Desktop Workstation',
    specs: 'Ryzen 9 7950X, RTX 4090 24GB, 64GB DDR5, 2TB NVMe Gen5, 1200W Titanium',
    price: 78990000, useCases: ['ai', '3d', 'video', 'coder'],
    rating: 4.9, image: 'https://pollinations.ai/p/pc-workstation-ai',
    link: 'https://gearvn.com/collections/pc-workstation',
    reason: 'Tr¡m làm viÇc AI/Deep Learning. GPU 24GB VRAM, RAM 64GB, CP
  },
  {
    id: 'pc-streamer-pro', name: 'PC Streamer Pro', type: 'Desktop Streaming',
    specs: 'Ryzen 7 7800X3D, RTX 4070 Super 12GB, 32GB DDR5, 1TB NVMe + 2TB HDD',
    price: 31990000, useCases: ['stream', 'gaming', 'video'],
    rating: 4.6, image: 'https://pollinations.ai/p/pc-streamer-pro',
    link: 'https://gearvn.com/collections/pc-streaming',
    reason: 'TÑi °u cho stream: NVENC encoder, RAM ç cho OBS + game, 2
  },
  {
    id: 'pc-sinh-vien', name: 'PC Sinh Viên Ti¿t KiÇm', type: 'Desktop B
    specs: 'i3-14100F, GTX 1650 4GB, 16GB DDR4, 500GB NVMe, 500W',
    price: 8490000, useCases: ['office', 'student', 'coder'],
    rating: 4.4, image: 'https://pollinations.ai/p/pc-sinh-vien',
    link: 'https://gearvn.com/collections/pc-gia-re',
    reason: 'Giá r» nh¥t, ç hÍc t-p, l-p trình c¡ b£n và gi£i trí nh¹.'
  },
  {
    id: 'mac-studio-m4max', name: 'Mac Studio M4 Max', type: 'Desktop Mac',
    specs: 'Apple M4 Max (16CPU/40GPU), 64GB Unified, 1TB SSD',
    price: 64990000, useCases: ['video', '3d', 'ai', 'coder'],
    rating: 4.9, image: 'https://pollinations.ai/p/mac-studio-m4max',
    link: 'https://gearvn.com/collections/mac-studio',
    reason: 'Tr¡m làm viÇc Mac m¡nh nh¥t. Render 8K m°ãt, 64GB RAM cho c
  },
  {
    id: 'pc-mini-itx', name: 'PC Mini ITX Gaming', type: 'Desktop Mini',
    specs: 'Ryzen 5 7600X, RTX 4060 8GB, 16GB DDR5, 1TB NVMe, 650W Gold SFX',
    price: 22990000, useCases: ['gaming', 'coder', 'office'],
    rating: 4.5, image: 'https://pollinations.ai/p/pc-mini-itx',
    link: 'https://gearvn.com/collections/pc-mini-itx',
    reason: 'NhÍ gÍn, ¹p, ti¿t kiÇm không gian. V«n ç m¡nh cho gaming
  },
];

const USE_CASE_LABELS: Record<string, string> = {
    gaming: 'Ø<ß® Ch¡i game',
    stream: 'Ø=ÚÚ Stream',
    coder: 'Ø=Ü» L-p trình',
    design: 'Ø<ß¨ Thi¿t k¿',
    video: 'Ø<ß¬ Dñng phim',
    ai: 'Ø>Ý AI/ML',
    office: 'Ø=ÚÚ V n phòng',
    student: 'Ø<ß" HÍc sinh',
};

const formatPrice = (v: number) => v.toLocaleString('vi-VN') + '«';

const containerVariants = {
  hidden: { opacity: 0 },
  visible: {
    opacity: 1,
    transition: { staggerChildren: 0.08 },
  },
};

const cardVariants = {
  hidden: { opacity: 0, y: 20 },
  visible: { opacity: 1, y: 0, transition: { duration: 0.3 } },
};

export default function PcSuggestPage() {
  const isMobile = useIsMobile();
  const [purpose, setPurpose] = useState('');
  const [selectedUseCases, setSelectedUseCases] = useState<string[]>([]);
  const [aiResults, setAiResults] = useState<any[]>([]);
  const [aiLoading, setAiLoading] = useState(false);
  const [aiError, setAiError] = useState('');
  const [showDetails, setShowDetails] = useState<Record<string, boolean>>({});
  const [imgErrors, setImgErrors] = useState<Record<string, boolean>>({});
  const [aiSource, setAiSource] = useState<'prebuilt' | 'ai'>('prebuilt');

  useEffect(() => {
    setAiResults(PREBUILT_PCS);
  }, []);

  const allUseCases = Object.keys(USE_CASE_LABELS);

  const toggleUseCase = (uc: string) => {
```

```
152|     setSelectedUseCases(prev =>
153|       prev.includes(uc) ? prev.filter(u => u !== uc) : [...prev, uc]
154|     );
155|   };
156|
157|   const displayedPcs = useMemo(() => {
158|     if (selectedUseCases.length === 0) return aiResults;
159|     return aiResults.filter((pc: any) =>
160|       selectedUseCases.some(uc => pc.useCases?.includes(uc))
161|     ).sort((a: any, b: any) => {
162|       const aScore = a.useCases?.filter((uc: string) => selectedUseCases.includes(uc)).length || 0;
163|       const bScore = b.useCases?.filter((uc: string) => selectedUseCases.includes(uc)).length || 0;
164|       return bScore - aScore || (a.price || 0) - (b.price || 0);
165|     });
166|   }, [selectedUseCases, aiResults]);
167|
168|   const handleAiSuggest = async () => {
169|     if (aiLoading) return;
170|     setAiLoading(true);
171|     setAiError('');
172|     try {
173|       const res = await fetch('/api/pc-suggest', {
174|         method: 'POST',
175|         headers: { 'Content-Type': 'application/json' },
176|         body: JSON.stringify({
177|           purpose,
178|           useCases: selectedUseCases,
179|         }),
180|       });
181|       const data = await res.json();
  1 8 2 |                 i f   ( ! r e s . o k )   t h r o w   n e w   E r r o r ( d a t a . e r r o r   | |   ' L × i   k ¿ t   n Ñ i   ¿ n   A I ' ) ;
183|       if (data.suggestions && data.suggestions.length > 0) {
184|         setAiResults(data.suggestions);
185|         setAiSource('ai');
186|       } else {
  1 8 7 |                 t h r o w   n e w   E r r o r ( ' A I   k h ô n g   t r £   v Á   k ¿ t   q u £ .   H i Ã n   t h Ë   d a n h   s á c h   g ã i
188|       }
189|     } catch (err: any) {
  1 9 0 |               s e t A i E r r o r ( e r r . m e s s a g e   | |   ' K h ô n g   t h Ã   k ¿ t   n Ñ i   ¿ n   A I . ' ) ;
191|     } finally {
192|       setAiLoading(false);
193|     }
194|   };
195|
196|   const handleImgError = (id: string) => {
197|     setImgErrors(prev => ({ ...prev, [id]: true }));
198|   };
199|
200|   const toggleDetails = (id: string) => {
201|     setShowDetails(prev => ({ ...prev, [id]: !prev[id] }));
202|   };
203|
204|   const renderImage = (pc: any) => {
205|     const src = pc.image_url || pc.image;
206|     const id = pc.id || 'unknown';
207|     if (imgErrors[id]) {
208|       return (
209|         <div style={{
210|           width: '100%', height: '100%', display: 'flex', alignItems: 'center', justifyContent: 'center',
211|           background: 'var(--bg-elevated)',
212|         }}>
213|           <Monitor size={28} color="#6366f1" />
214|         </div>
215|       );
216|     }
217|     return (
218|       <img src={src} alt={pc.name}
219|         style={{ width: '100%', height: '100%', objectFit: 'cover' }}
220|         onError={() => handleImgError(id)}
221|       />
222|     );
223|   };
224|
225|   return (
226|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', padding: isMobile ? '16px' : '24px' }}>
227|       <div style={{ maxWidth: '960px', margin: '0 auto' }}>
228|         <Link href="/builder" style={{ display: 'inline-flex', alignItems: 'center', gap: '6px', color: 'var(-...
229|           <span>&larr;</span> Builder
230|         </Link>
231|
232|         <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '24px' }}>
  2 3 3 |                     < s p a n   s t y l e = { {   f o n t S i z e :   ' 3 6 p x '   } } >Ø=Ý¥þ  < / s p a n >
234|           <div>
  2 3 5 |                         < h 1   s t y l e = { {   f o n t S i z e :   ' 2 6 p x ' ,   f o n t W e i g h t :   8 0 0 ,   c o l o r :   ' v a r (
236|             <p style={{ fontSize: '13px', color: 'var(--text-secondary)', margin: '4px 0 0' }}>
  2 3 7 |                           C h Í n   n h u   c § u   b ê n   d ° Û i   h o · c   n h - p   m ô   t £   Ã   A I   g ã i   ý   m á y   p h ù
238|             </p>
239|           </div>
240|         </div>
241|
242|         <div style={{
243|           background: 'var(--bg-surface)', borderRadius: '16px', padding: '24px',
244|           border: '1px solid var(--border-default)', marginBottom: '20px',
245|         }}>
246|           <div style={{ display: 'flex', gap: '6px', flexWrap: 'wrap', marginBottom: '14px' }}>
247|             {allUseCases.map(uc => (
248|               <motion.button
249|                 key={uc}
250|                 whileHover={{ scale: 1.05 }}
251|                 whileTap={{ scale: 0.95 }}
252|                 onClick={() => toggleUseCase(uc)}
253|                 style={{
254|                   padding: '8px 16px', borderRadius: '10px',
255|                   border: `1.5px solid ${selectedUseCases.includes(uc) ? '#00d4aa' : 'var(--border-default)'}`,
256|                   background: selectedUseCases.includes(uc) ? 'rgba(0,212,170,0.15)' : 'var(--bg-elevated)',
257|                   color: selectedUseCases.includes(uc) ? '#00d4aa' : 'var(--text-secondary)',
258|                   fontSize: '13px', fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
259|                   transition: 'all 0.2s',
260|                 }}>
261|                 {USE_CASE_LABELS[uc]}
262|               </motion.button>
263|             ))}
264|           </div>
265|
266|           <div style={{ display: 'flex', flexDirection: isMobile ? 'column' : 'row', gap: '10px', marginBottom...
267|             <input
268|               value={purpose}
269|               onChange={e => setPurpose(e.target.value)}
270|               onKeyDown={e => { if (e.key === 'Enter') handleAiSuggest(); }}
  2 7 1 |                           p l a c e h o l d e r = " H o · c   n h - p   m ô   t £   c h i   t i ¿ t   ( V D :   T ô i   c § n   m á y   c h
272|               style={{
273|                 flex: 1, padding: '12px 16px', borderRadius: '10px', border: '1px solid var(--border-default)',
274|                 background: 'var(--bg-elevated)', color: 'var(--text-primary)', fontSize: '14px',
275|                 fontFamily: 'inherit', outline: 'none',
```

```
276|              }}
277|            />
278|          </div>
279|
280|          <button onClick={handleAiSuggest} disabled={aiLoading}
281|            style={{
282|              width: '100%', padding: '12px', borderRadius: '10px', border: 'none',
283|              background: aiLoading ? 'var(--border-default)' : 'linear-gradient(135deg, #7c3aed, #2563eb)',
284|              color: aiLoading ? 'var(--text-muted)' : '#fff',
285|              fontSize: '15px', fontWeight: 700, cursor: aiLoading ? 'not-allowed' : 'pointer',
286|              fontFamily: 'inherit', display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '8px',
287|            }}>
288|            {aiLoading ? <Loader2 size={18} className="spin" /> : <BrainCircuit size={18} />}
289|                        { a i L o a d i n g   ?   ' A I    a n g   p h â n   t í c h . . . '   :   ' G ã i   ý   b ± n g   A I   Ø>Ý   ' }
290|          </button>
291|        </div>
292|
293|        <AnimatePresence mode="wait">
294|          {aiLoading && (
295|            <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} exit={{ opacity: 0, y: ...
296|              style={{ textAlign: 'center', padding: '40px', color: 'var(--text-muted)', fontSize: '14px' }}>
297|              <motion.div animate={{ rotate: 360 }} transition={{ repeat: Infinity, duration: 2, ease: 'linear...
298|                style={{ display: 'inline-block', marginBottom: '12px' }}>
299|                <BrainCircuit size={40} color="#7c3aed" />
300|              </motion.div>
301|                            < d i v   s t y l e = { {   f o n t W e i g h t :   7 0 0 ,   c o l o r :   ' v a r ( - - t e x t - p r i m a r y )
302|                            < d i v > T ì m   k i ¿ m   d ï   l i Ç u   t h Ë   t r ° Ý n g   v à   Á   x u ¥ t   c ¥ u   h ì n h   p h ù   h
303|            </motion.div>
304|          )}
305|        </AnimatePresence>
306|
307|        {aiError && (
308|          <motion.div initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }}
309|            style={{ padding: '14px', borderRadius: '10px', background: 'rgba(239,68,68,0.1)', border: '1px so...
310|                          & þ    { a i E r r o r }
311|          </motion.div>
312|        )}
313|
314|        {displayedPcs.length > 0 && (
315|          <motion.div
316|            key={aiSource}
317|            initial={{ opacity: 0 }}
318|            animate={{ opacity: 1 }}
319|            style={{ marginTop: '24px' }}
320|          >
321|            <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '16px', justifyCont...
322|              <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
323|                <Sparkles size={20} color="#7c3aed" />
324|                <h2 style={{ fontSize: '18px', fontWeight: 800, color: 'var(--text-primary)', margin: 0 }}>
325|                                        { a i S o u r c e   = = =   ' p r e b u i l t '   ?   'Ø=Ý¥þ   G ã i   Ý   M á y   T í n h '   :   'Ø>Ý
326|                </h2>
327|                <span style={{ fontSize: '11px', color: 'var(--text-muted)' }}>
328|                                        { a i S o u r c e   = = =   ' p r e b u i l t '   ?   ` $ { d i s p l a y e d P c s . l e n g t h }   m « u
329|                </span>
330|              </div>
331|              {aiSource === 'ai' && (
332|                <button onClick={() => { setAiResults(PREBUILT_PCS); setAiSource('prebuilt'); setAiError(''); }}
333|                  style={{
334|                    display: 'inline-flex', alignItems: 'center', gap: '6px',
335|                    padding: '8px 16px', borderRadius: '8px', border: '1px solid var(--border-default)',
336|                    background: 'var(--bg-surface)', color: 'var(--text-primary)',
337|                    fontSize: '12px', fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
338|                  }}>
339|                                        < M o n i t o r   s i z e = { 1 4 }   / >   X e m   g ã i   ý   m · c    Ë n h
340|                </button>
341|              )}
342|            </div>
343|
344|            <motion.div
345|              variants={containerVariants}
346|              initial="hidden"
347|              animate="visible"
348|              style={{ display: 'grid', gap: '16px' }}
349|            >
350|              {displayedPcs.map((pc: any, i: number) => (
351|                <motion.div
352|                  key={pc.id || i}
353|                  variants={cardVariants}
354|                  whileHover={{ y: -4, boxShadow: '0 8px 30px rgba(0,0,0,0.12)' }}
355|                  style={{
356|                    padding: '18px', borderRadius: '14px',
357|                    background: 'var(--bg-surface)',
358|                    border: aiSource === 'ai'
359|                      ? '1px solid rgba(124,58,237,0.2)'
360|                      : '1px solid var(--border-default)',
361|                    transition: 'all 0.2s',
362|                  }}>
363|                  <div style={{ display: 'flex', gap: '16px' }}>
364|                    <div style={{
365|                      width: '80px', height: '80px', borderRadius: '10px', flexShrink: 0,
366|                      overflow: 'hidden', background: '#1a1a2e',
367|                    }}>
368|                      {renderImage(pc)}
369|                    </div>
370|                    <div style={{ flex: 1, minWidth: 0 }}>
371|                      <div style={{ display: 'flex', alignItems: 'center', gap: '8px', flexWrap: 'wrap', margi...
372|                        <span style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)' }}>{pc....
373|                        <span style={{
374|                          fontSize: '10px', padding: '2px 8px', borderRadius: '99px',
375|                          background: aiSource === 'ai' ? 'rgba(124,58,237,0.12)' : 'rgba(0,212,170,0.12)',
376|                          color: aiSource === 'ai' ? '#7c3aed' : '#00d4aa',
377|                          fontWeight: 700,
378|                        }}>
379|                          {pc.type}
380|                        </span>
381|                        {pc.rating && (
382|                                                    < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' # f 5 9 e
383|                        )}
384|                      </div>
385|
386|                      <p style={{ fontSize: '11px', color: 'var(--text-secondary)', margin: '0 0 6px', lineHei...
387|                        {pc.specs}
388|                      </p>
389|
390|                      {pc.specs_detail && (
391|                        <div style={{ marginBottom: '4px' }}>
392|                          <button
393|                            onClick={() => toggleDetails(pc.id || String(i))}
394|                            style={{
395|                              display: 'inline-flex', alignItems: 'center', gap: '4px',
396|                              padding: '2px 8px', borderRadius: '4px', border: 'none',
397|                              background: 'transparent', color: 'var(--text-muted)',
398|                              fontSize: '10px', cursor: 'pointer', fontFamily: 'inherit',
399|                            }}>
```

```
400|                            {showDetails[pc.id || String(i)] ? <ChevronUp size={12} /> : <ChevronDown size={12...
  4 0 1 |                                                  { s h o w D e t a i l s [ p c . i d   | |   S t r i n g ( i ) ]   ?   ' T h u   g Í n '
402|                          </button>
403|
404|                          {showDetails[pc.id || String(i)] && (
405|                            <motion.div
406|                              initial={{ opacity: 0, height: 0 }}
407|                              animate={{ opacity: 1, height: 'auto' }}
408|                              style={{
409|                                marginTop: '6px', padding: '8px', borderRadius: '8px',
410|                                background: 'var(--bg-elevated)', fontSize: '11px',
411|                              }}>
412|                              {Object.entries(pc.specs_detail).map(([key, val]) => (
413|                                <div key={key} style={{ display: 'flex', gap: '8px', marginBottom: '2px' }}>
414|                                  <span style={{ color: 'var(--text-muted)', minWidth: '50px', textTransform: ...
415|                                  <span style={{ color: 'var(--text-primary)', fontWeight: 600 }}>{String(val)...
416|                                </div>
417|                              ))}
418|                            </motion.div>
419|                          )}
420|                        </div>
421|                      )}
422|
423|                      <p style={{
424|                        fontSize: '11px',
425|                        color: aiSource === 'ai' ? '#7c3aed' : '#6366f1',
426|                        margin: '4px 0 8px', lineHeight: '1.4',
427|                      }}>
  4 2 8 |                                                  Ø=Ü¡   { p c . r e a s o n }
429|                      </p>
430|
431|                      <div style={{ display: 'flex', alignItems: 'center', gap: '10px', flexWrap: 'wrap', marg...
432|                        <span style={{ fontSize: '17px', fontWeight: 800, color: '#00d4aa' }}>
433|                          {formatPrice(pc.price)}
434|                        </span>
435|                        {pc.average_price && (
436|                          <span style={{ fontSize: '12px', fontWeight: 700, color: '#10b981', background: 'rgb...
  4 3 7 |                                                      #    G i á   T B :   { f o r m a t P r i c e ( p c . a v e r a g e _ p r i c e ) }
438|                          </span>
439|                        )}
440|                      </div>
441|
442|                      {((pc.price_breakdown || []).length > 0 ? pc.price_breakdown : (pc.stores || [])).length...
443|                        <div>
444|                          <div style={{ display: 'flex', alignItems: 'center', gap: '4px', marginBottom: '6px'...
445|                            <Store size={12} />  So sánh giá:
446|                          </div>
447|                          <div style={{ display: 'flex', gap: '6px', flexWrap: 'wrap' }}>
448|                            {(pc.price_breakdown || pc.stores || []).map((store: any, si: number) => (
449|                              <a key={si} href={store.url} target="_blank" rel="noopener noreferrer"
450|                                style={{
451|                                  display: 'inline-flex', alignItems: 'center', gap: '4px',
452|                                  padding: '4px 10px', borderRadius: '6px',
453|                                  background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
454|                                  color: 'var(--text-primary)', fontSize: '10px', fontWeight: 600,
455|                                  textDecoration: 'none',
456|                                }}>
457|                                {store.name || store.store}
458|                                <span style={{ color: '#00d4aa' }}>{formatPrice(store.price || 0)}</span>
459|                                <ExternalLink size={10} style={{ opacity: 0.5 }} />
460|                              </a>
461|                            ))}
462|                          </div>
463|                          <div style={{ marginTop: '6px', fontSize: '10px', color: 'var(--text-muted)' }}>
  4 6 4 |                                                      Ø=Ü°   G i á   t Ñ t   n h ¥ t :   < s p a n   s t y l e = { {   c o l o r :   ' # 1 0 b
465|                            {formatPrice(Math.min(...(pc.price_breakdown || pc.stores || []).map((s: any) =>...
466|                          </span>
467|                        </div>
468|                      </div>
469|                    )}
470|
471|                    <div style={{ display: 'flex', gap: '8px', flexWrap: 'wrap', marginTop: '8px', alignItem...
472|                      {pc.link && (
473|                        <a href={pc.link} target="_blank" rel="noopener noreferrer"
474|                          style={{
475|                            padding: '6px 16px', borderRadius: '8px',
476|                            background: 'linear-gradient(135deg, #00d4aa, #00a3ff)',
477|                            color: '#fff', fontSize: '12px', fontWeight: 700, textDecoration: 'none',
478|                          }}>
  4 7 9 |                                                  M u a   n g a y   t ¡ i   G e a r V N   !—
480|                        </a>
481|                      )}
482|                      {pc.useCases && pc.useCases.length > 0 && (
483|                        <div style={{ display: 'flex', gap: '4px', flexWrap: 'wrap' }}>
484|                          {pc.useCases.map((uc: string) => (
485|                            <span key={uc} style={{ fontSize: '9px', color: 'var(--text-muted)' }}>
486|                              {USE_CASE_LABELS[uc] || uc}
487|                            </span>
488|                          ))}
489|                        </div>
490|                      )}
491|                    </div>
492|                  </div>
493|                </div>
494|              </motion.div>
495|            ))}
496|          </motion.div>
497|        </motion.div>
498|      )}
499|    </div>
500|
501|    <style>{`
502|      @keyframes spin { from { transform: rotate(0deg); } to { transform: rotate(360deg); } }
503|      .spin { animation: spin 1s linear infinite; }
504|    `}</style>
505|  </div>
506| );
507| }
508|
```

File: app/cai-dat-win11/page.tsx (988 lines, 57.1 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import { useState, useEffect, useRef, useCallback } from 'react'
    4| import { useRouter } from 'next/navigation'
    5| import { useIsMobile } from '@/hooks/useIsMobile'
    6| import { motion, AnimatePresence } from 'framer-motion'
    7| import dynamic from 'next/dynamic'
    8| import {
    9|   ArrowLeft, Monitor, HardDrive, User, Shield, CheckCircle2,
   10|   Cpu, MemoryStick, Smartphone, Globe,
   11|   ExternalLink, ChevronRight, AlertTriangle, Clock,
```

```
  Disc, FileText, RefreshCw, Power, ChevronLeft,
} from 'lucide-react'

const WindowsSimulator = dynamic(() => import('@/components/WindowsSimulator'), { ssr: false })

const REAL_STEPS = [
  { id: 'check', label: 'KiÃm tra PC', icon: <Monitor size={14} />, colo
  { id: 'bios', label: 'Boot USB', icon: <HardDrive size={14} />, color: '#f59e0b' },
  { id: 'logo', label: 'Khßi Ùng', icon: <Power size={14} />, color: '#
  { id: 'setup', label: 'Ngôn ngï', icon: <Globe size={14} />, color: '#
  { id: 'license', label: 'License', icon: <FileText size={14} />, color: '#8b5cf6' },
  { id: 'install', label: 'Ô )a', icon: <Disc size={14} />, color: '#10b9
  { id: 'restart', label: 'Restart', icon: <RefreshCw size={14} />, color: '#f59e0b' },
  { id: 'oobe', label: 'OOBE', icon: <User size={14} />, color: '#6366f1' },
  { id: 'desktop', label: 'Desktop', icon: <Monitor size={14} />, color: '#10b981' },
]

const BIOS_KEYS = ['F2', 'DEL', 'F12', 'ESC', 'F10', 'F1']

const BIOS_MENU_ITEMS = [
  { label: 'Main', description: 'System information, Date, Time' },
  { label: 'Advanced', description: 'CPU Configuration, SATA Settings' },
  { label: 'Boot', description: 'Boot priority, Fast Boot' },
  { label: 'Security', description: 'Password, TPM, Secure Boot' },
  { label: 'Save & Exit', description: 'Save changes and reset' },
]

const BOOT_DEVICES = [
  { label: 'UEFI: USB Drive (SanDisk 3.2Gen1)', type: 'usb' as const },
  { label: 'Windows Boot Manager', type: 'windows' as const },
  { label: 'SATA: ST1000DM003-1CH162', type: 'hdd' as const },
  { label: 'CD/DVD: HL-DT-ST DVDRAM', type: 'dvd' as const },
]

const SAVE_OPTIONS = ['Yes, Save & Exit', 'No, Discard Changes', 'Return to BIOS']

const LANGUAGES = [
  { code: 'vi-VN', label: 'Tiếng ViÇt', native: 'Tiếng ViÇt' },
  { code: 'en-US', label: 'English (United States)', native: 'English' },
  { code: 'ja-JP', label: 'Japanese', native: 'eåg,Šž' },
  { code: 'ko-KR', label: 'Korean', native: 'Õ\-mÃ´' },
  { code: 'zh-CN', label: 'Chinese (Simplified)', native: 'N-e‡ ({€OS)' },
]

const KEYBOARD_LAYOUTS = [
  { code: 'US', label: 'US' },
  { code: 'VN', label: 'Vietnamese' },
  { code: 'UK', label: 'United Kingdom' },
  { code: 'JP', label: 'Japanese' },
]

const DRIVES = [
  { id: 'drive0', label: 'Drive 0 Unallocated Space', size: '238.5 GB',
  { id: 'drive1', label: 'Drive 1 Unallocated Space', size: '931.5 GB',
]

const INSTALL_PHASES = [
  { label: 'Copying Windows files', min: 0, max: 15, icon: 'Ø=ÜË', color:
  { label: 'Installing features', min: 15, max: 40, icon: '&™þ', color: '
  { label: 'Installing updates', min: 40, max: 60, icon: 'Ø=Ý', color: '#
  { label: 'Finalizing installation', min: 60, max: 85, icon: '', colo
  { label: 'Getting devices ready', min: 85, max: 100, icon: 'Ø=Ý', colo
]

type BiosSubStep = 'boot_screen' | 'main_menu' | 'boot_menu' | 'save_exit'

function playBeep() {
  try {
    const ctx = new (window.AudioContext || (window as any).webkitAudioContext)()
    const osc = ctx.createOscillator()
    const gain = ctx.createGain()
    osc.connect(gain)
    gain.connect(ctx.destination)
    osc.frequency.value = 800
    osc.type = 'square'
    gain.gain.value = 0.08
    osc.start()
    osc.stop(ctx.currentTime + 0.12)
  } catch { }
}

function BiosScreen({ children, title }: { children: React.ReactNode; title: string }) {
  const isMobile = useIsMobile()
  return (
    <div style={{
      background: '#000080', color: '#c0c0c0', fontFamily: '"Courier New", Consolas, monospace',
      borderRadius: '12px', border: '2px solid #4040a0', overflow: isMobile ? 'auto' : 'hidden',
      boxShadow: '0 0 40px rgba(0,0,128,0.3)',
    }}>
      <div style={{ background: '#000060', padding: '8px 16px', borderBottom: '1px solid #4040a0' }}>
        <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
          <span style={{ color: '#fff', fontWeight: 'bold', fontSize: '12px' }}>PhoenixBIOS 4.0 Release 6.0</s...
          <span style={{ color: '#a0a0ff', fontSize: '11px' }}>Copyright 1985-2023 Phoenix Technologies Ltd.</...
        </div>
      </div>
      <div style={{ padding: '16px 20px', fontSize: '13px', lineHeight: '1.6' }}>
        <div style={{ color: '#ffff00', fontWeight: 'bold', marginBottom: '12px', fontSize: '14px' }}>{title}<...
        {children}
      </div>
      <div style={{ background: '#000060', padding: '6px 16px', borderTop: '1px solid #4040a0', display: 'flex...
        <span>F1 Help</span>
        <span>!'!"  Select</span>
        <span>Enter Execute</span>
        <span>ESC Exit</span>
      </div>
    </div>
  )
}

export default function CaiDatWin11Page() {
  const router = useRouter()
  const isMobile = useIsMobile()
  const [step, setStep] = useState(0)
  const [progress, setProgress] = useState(0)
  const [userName, setUserName] = useState('')
  const [pcName, setPcName] = useState('')
  const [dotCount, setDotCount] = useState(0)
  const [selectedLang, setSelectedLang] = useState(0)
  const [selectedKeyboard, setSelectedKeyboard] = useState(0)
  const [selectedDrive, setSelectedDrive] = useState(0)
  const [licenseAccepted, setLicenseAccepted] = useState(false)
  const [restartCountdown, setRestartCountdown] = useState(10)
  const [privacySettings, setPrivacySettings] = useState({
```

```
136|     location: true, diagnostics: true, ads: false, tailored: true,
137|   })
138|
139|   const [biosSubStep, setBiosSubStep] = useState<BiosSubStep>('boot_screen')
140|   const [biosMenuIndex, setBiosMenuIndex] = useState(0)
141|   const [biosBootIndex, setBiosBootIndex] = useState(0)
142|   const [biosSaveIndex, setBiosSaveIndex] = useState(0)
143|   const [biosRequiredKey] = useState('DEL')
144|   const [biosLoading, setBiosLoading] = useState(true)
145|   const [biosErrorMessage, setBiosErrorMessage] = useState('')
146|   const [biosTransition, setBiosTransition] = useState(false)
147|   const [biosDone, setBiosDone] = useState(false)
148|   const biosMountedRef = useRef(true)
149|   const progressRef = useRef<NodeJS.Timeout | null>(null)
150|
151|   const [showPrivacy, setShowPrivacy] = useState(false)
152|   const [isInstalling, setIsInstalling] = useState(false)
153|
154|   const currentPhase = INSTALL_PHASES.find(p => progress >= p.min && progress < p.max) || INSTALL_PHASES[INSTA...
155|
156|   useEffect(() => {
157|     biosMountedRef.current = true
158|     return () => { biosMountedRef.current = false }
159|   }, [])
160|
161|   useEffect(() => {
162|     if (step === 6 || step === 8) {
163|       const i = setInterval(() => setDotCount(d => (d + 1) % 4), 500)
164|       return () => clearInterval(i)
165|     }
166|   }, [step])
167|
168|   useEffect(() => {
169|     if (step === 7 && restartCountdown > 0) {
170|       const t = setTimeout(() => setRestartCountdown(c => c - 1), 1000)
171|       return () => clearTimeout(t)
172|     }
173|     if (step === 7 && restartCountdown === 0) {
174|       const t = setTimeout(() => { setStep(8); setRestartCountdown(10) }, 500)
175|       return () => clearTimeout(t)
176|     }
177|   }, [step, restartCountdown])
178|
179|   const enterBios = useCallback(() => {
180|     playBeep()
181|     setBiosErrorMessage('')
182|     setBiosLoading(true)
183|     setTimeout(() => {
184|       if (biosMountedRef.current) {
185|         setBiosLoading(false)
186|         setBiosSubStep('main_menu')
187|       }
188|     }, 600)
189|   }, [])
190|
191|   useEffect(() => {
192|     if (step !== 1 || biosTransition || biosDone) return
193|     const handler = (e: KeyboardEvent) => {
194|       if (biosSubStep === 'boot_screen') {
195|         const key = e.key.toUpperCase()
196|         if (key === 'DELETE' || key === 'F2') {
197|           e.preventDefault()
198|           enterBios()
199|           return
200|         }
201|         if (key !== 'SHIFT' && key !== 'CONTROL' && key !== 'ALT') {
  2 0 2 |                       s e t B i o s E r r o r M e s s a g e ( ` P h í m   " $ { e . k e y } "   k h ô n g   h ã p   l Ç !   C § n   n h ¥ n   D E
203|           setTimeout(() => setBiosErrorMessage(''), 2000)
204|         }
205|       }
206|       if (biosSubStep === 'main_menu') {
207|         if (e.key === 'ArrowUp') { e.preventDefault(); setBiosMenuIndex(i => Math.max(0, i - 1)) }
208|         if (e.key === 'ArrowDown') { e.preventDefault(); setBiosMenuIndex(i => Math.min(BIOS_MENU_ITEMS.length...
209|         if (e.key === 'Enter') {
210|           e.preventDefault()
211|           if (BIOS_MENU_ITEMS[biosMenuIndex].label === 'Boot') {
212|             playBeep()
213|             setBiosSubStep('boot_menu')
214|             setBiosErrorMessage('')
215|           } else {
  2 1 6 |                       s e t B i o s E r r o r M e s s a g e ( ` C h Í n   " B o o t "   Ã   t i ¿ p   t å c !   (   a n g   c h Í n :   $ {
217|             setTimeout(() => setBiosErrorMessage(''), 2000)
218|           }
219|         }
220|       }
221|       if (biosSubStep === 'boot_menu') {
222|         if (e.key === 'ArrowUp') { e.preventDefault(); setBiosBootIndex(i => Math.max(0, i - 1)) }
223|         if (e.key === 'ArrowDown') { e.preventDefault(); setBiosBootIndex(i => Math.min(BOOT_DEVICES.length - ...
224|         if (e.key === 'Enter') {
225|           e.preventDefault()
226|           if (BOOT_DEVICES[biosBootIndex].type === 'usb') {
227|             playBeep()
228|             setBiosSubStep('save_exit')
229|             setBiosErrorMessage('')
230|           } else {
  2 3 1 |                       s e t B i o s E r r o r M e s s a g e ( ` K h ô n g   t h Ã   b o o t   t ë   " $ { B O O T _ D E V I C E S [ b i o s B
232|             setTimeout(() => setBiosErrorMessage(''), 2500)
233|           }
234|         }
235|       }
236|       if (biosSubStep === 'save_exit') {
237|         if (e.key === 'ArrowUp') { e.preventDefault(); setBiosSaveIndex(i => Math.max(0, i - 1)) }
238|         if (e.key === 'ArrowDown') { e.preventDefault(); setBiosSaveIndex(i => Math.min(SAVE_OPTIONS.length - ...
239|         if (e.key === 'Enter') {
240|           e.preventDefault()
241|           if (SAVE_OPTIONS[biosSaveIndex] === 'Yes, Save & Exit') {
242|             playBeep()
243|             setBiosTransition(true)
244|             setBiosDone(true)
245|             setTimeout(() => {
246|               setStep(2)
247|             }, 2000)
248|           } else if (SAVE_OPTIONS[biosSaveIndex] === 'No, Discard Changes') {
249|             setBiosSubStep('main_menu')
250|             setBiosMenuIndex(0)
251|             setBiosErrorMessage('')
252|           }
253|         }
254|       }
255|     }
256|     window.addEventListener('keydown', handler)
257|     return () => window.removeEventListener('keydown', handler)
258|   }, [step, biosSubStep, biosMenuIndex, biosBootIndex, biosSaveIndex, biosTransition, biosDone, enterBios])
259|
```

```
260|   useEffect(() => {
261|     if (step === 1 && biosSubStep === 'boot_screen') {
262|       const t = setTimeout(() => setBiosLoading(false), 1200)
263|       return () => clearTimeout(t)
264|     }
265|   }, [step, biosSubStep])
266|
267|   useEffect(() => {
268|     if (step === 2) {
269|       const t = setTimeout(() => setStep(3), 4000)
270|       return () => clearTimeout(t)
271|     }
272|   }, [step])
273|
274|   useEffect(() => {
275|     if (isInstalling) {
276|       progressRef.current = setInterval(() => {
277|         setProgress(prev => {
278|           if (prev >= 100) {
279|             if (progressRef.current) clearInterval(progressRef.current)
280|             return 100
281|           }
282|           return prev + Math.random() * 1.8 + 0.3
283|         })
284|       }, 250)
285|       return () => { if (progressRef.current) clearInterval(progressRef.current) }
286|     }
287|   }, [isInstalling])
288|
289|   function advanceToBoot() {
290|     setStep(1)
291|     setBiosSubStep('boot_screen')
292|     setBiosMenuIndex(0)
293|     setBiosBootIndex(0)
294|     setBiosSaveIndex(0)
295|     setBiosLoading(true)
296|     setBiosErrorMessage('')
297|     setBiosTransition(false)
298|     setBiosDone(false)
299|   }
300|
301|   const formatTime = () => {
302|     const m = Math.floor(progress / 12)
303|     const s = Math.floor((progress * 2.5) % 60)
304|     return `${m}:${s.toString().padStart(2, '0')}`
305|   }
306|
307|   const renderStepIndicator = () => (
308|     <div className="flex gap-1">
309|       {REAL_STEPS.slice(0, 6).map((s, i) => (
310|         <div key={s.id} style={{
311|           width: '24px', height: '4px', borderRadius: '2px',
312|           background: i <= step ? s.color : 'var(--border-default)',
313|           transition: 'all 0.3s',
314|         }} />
315|       ))}
316|     </div>
317|   )
318|
319|   if (biosTransition && step === 1) {
320|     return (
321|       <div className="min-h-screen flex flex-col" style={{ background: '#000', color: '#fff' }}>
322|         <div className="flex-1 flex items-center justify-center p-4">
323|           <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} style={{ textAlign: 'center' }}>
324|             <div style={{ fontSize: '48px', marginBottom: '16px', filter: 'drop-shadow(0 0 20px rgba(0,120,212...
325|                         < h 2   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   7 0 0 ,   c o l o r :   ' # 0 0 7
326|                         < p   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 5 ) ' ,   f o n t S i z e :   ' 1 3 p x '
327|             <div style={{ marginTop: '20px', display: 'flex', justifyContent: 'center', gap: '6px' }}>
328|               {[0, 1, 2].map(i => (
329|                 <motion.div key={i} animate={{ opacity: [0.2, 1, 0.2] }}
330|                   transition={{ duration: 1, repeat: Infinity, delay: i * 0.3 }}
331|                   style={{ width: '8px', height: '8px', borderRadius: '50%', background: '#0078d4' }} />
332|               ))}
333|             </div>
334|           </motion.div>
335|         </div>
336|       </div>
337|     )
338|   }
339|
340|   return (
341|     <div className="min-h-screen flex flex-col" style={{ background: 'var(--bg-base)', color: 'var(--text-prim...
342|       <header className="border-b p-3 px-4 flex items-center gap-3" style={{ background: 'var(--bg-surface)', ...
343|         <button onClick={() => router.back()}
344|           className="flex items-center gap-1.5 px-3 py-1.5 border text-xs rounded-xl font-bold cursor-pointer"
345|           style={{ background: 'var(--bg-elevated)', borderColor: 'var(--border-default)', color: 'var(--text-...
346|           <ArrowLeft size={14} /> Thoát
347|         </button>
348|         <div style={{ width: '28px', height: '28px', borderRadius: '8px', background: 'linear-gradient(135deg,...
349|                       "ž
350|         </div>
351|         <div style={{ flex: 1 }}>
352|                       < h 1   c l a s s N a m e = " f o n t - b l a c k   t e x t - s m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t
353|                       < p   c l a s s N a m e = " t e x t - x s "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '   } } >
354|         </div>
355|         {renderStepIndicator()}
356|       </header>
357|
358|       <div className="flex-1 overflow-y-auto p-4 max-w-2xl mx-auto w-full flex flex-col justify-center">
359|         {/* STEP 0: PC Check */}
360|         {step === 0 && (
361|           <motion.div key="step0" initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
362|             <div style={{ textAlign: 'center', marginBottom: '28px' }}>
363|                               < d i v   s t y l e = { {   f o n t S i z e :   ' 5 6 p x ' ,   m a r g i n B o t t o m :   ' 1 6 p x '   } } >Ø=Ý¥
364|                               < h 2   s t y l e = { {   f o n t S i z e :   ' 2 2 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n B o t t
365|                               < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 4 p x '   }
366|             </div>
367|
368|             <div style={{ display: 'flex', flexDirection: 'column', gap: '8px', marginBottom: '20px' }}>
369|               {[
370|                 { icon: <Cpu size={16} />, label: 'CPU 64-bit 1GHz+ (Intel Core i5 / AMD Ryzen 5)', ok: true },
371|                                 {   i c o n :   < M e m o r y S t i c k   s i z e = { 1 6 }   / > ,   l a b e l :   ' R A M   t Ñ i   t h i Ã u
372|                                 {   i c o n :   < H a r d D r i v e   s i z e = { 1 6 }   / > ,   l a b e l :   ' Ô   c é n g   6 4 G B +   ( S
373|                                 {   i c o n :   < S h i e l d   s i z e = { 1 6 }   / > ,   l a b e l :   ' T P M   2 . 0   ( H § u   h ¿ t   P
374|                                 {   i c o n :   < M o n i t o r   s i z e = { 1 6 }   / > ,   l a b e l :   ' S e c u r e   B o o t   ( B - t
375|                                 {   i c o n :   < S m a r t p h o n e   s i z e = { 1 6 }   / > ,   l a b e l :   ' M à n   h ì n h   7 2 0 p +
376|               ].map((item, i) => (
377|                 <motion.div key={i} initial={{ opacity: 0, x: -20 }} animate={{ opacity: 1, x: 0 }} transition...
378|                   style={{ display: 'flex', alignItems: 'center', gap: '10px', padding: '10px 14px', borderRad...
379|                   <div style={{ width: '32px', height: '32px', borderRadius: '8px', background: 'rgba(16,185,1...
380|                     {item.icon}
381|                   </div>
382|                   <div style={{ flex: 1, fontSize: '12px', fontWeight: 600, color: 'var(--text-primary)' }}>{i...
383|                   <CheckCircle2 size={18} style={{ color: '#10b981', flexShrink: 0 }} />
```

```
384|                </motion.div>
385|              ))}
386|            </div>
387|
388|            <div style={{ padding: '12px 16px', borderRadius: '10px', background: 'rgba(16,185,129,0.06)', bor...
   3 8 9 |                            < s t r o n g   s t y l e = { {   c o l o r :   ' # 1 0 b 9 8 1 '   } } > T h ñ c   t ¿ : < / s t r o n g > { '
   3 9 0 |                            < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - p r i m a r y ) '   } } > N ¿ u   P C   c h º a
391|            </div>
392|
393|            <button onClick={advanceToBoot}
394|              className="w-full py-3 font-bold rounded-xl text-sm cursor-pointer"
395|              style={{ background: '#0078d4', border: 'none', color: '#fff', fontFamily: 'inherit' }}>
   3 9 6 |                            P C     ¡ t   y ê u   c § u !   B o o t   t ë   U S B   !'
397|            </button>
398|          </motion.div>
399|        )}
400|
401|        {/* STEP 1: BIOS Simulator */}
402|        {step === 1 && (
403|          <motion.div key="step1" initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
404|            <div style={{ textAlign: 'center', marginBottom: '16px' }}>
   4 0 5 |                            < d i v   s t y l e = { {   f o n t S i z e :   ' 3 6 p x ' ,   m a r g i n B o t t o m :   ' 8 p x '   } } >Ø=Ü¿ <
   4 0 6 |                            < h 2   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n B o t t
   4 0 7 |                            < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 2 p x '   }
408|            </div>
409|
410|            {biosSubStep === 'boot_screen' && (
411|              <motion.div key="bs_boot_screen" initial={{ opacity: 0 }} animate={{ opacity: 1 }}>
412|                <BiosScreen title="PhoenixBIOS Setup Utility">
413|                  {biosLoading ? (
414|                    <div style={{ textAlign: 'center', padding: '24px 0' }}>
415|                      <div style={{ color: '#ffff00', fontSize: '12px', marginBottom: '12px' }}>BIOS Loading.....
416|                      <div style={{ display: 'flex', justifyContent: 'center', gap: '4px' }}>
417|                        {[0, 1, 2, 3].map(i => (
418|                          <motion.div key={i} animate={{ opacity: [0.2, 1, 0.2] }} transition={{ duration: 1.2...
419|                            style={{ width: '8px', height: '8px', background: '#ffff00', borderRadius: '50%' }...
420|                        ))}
421|                      </div>
422|                      <div style={{ color: '#8080d0', fontSize: '10px', marginTop: '12px' }}>Initializing cont...
423|                    </div>
424|                  ) : (
425|                    <div style={{ textAlign: 'center', padding: '16px 0' }}>
426|                      <div style={{ fontSize: '11px', color: '#8080d0', marginBottom: '10px' }}>PhoenixBIOS 4....
427|                      <div style={{ fontSize: '11px', color: '#c0c0c0', marginBottom: '16px' }}>
428|                        CPU: Intel Core i7-14700K @ 3.40 GHz<br />
429|                        Memory: 32768MB (32GB DDR5)<br />
430|                        System: Windows 11 Pro (64-bit)
431|                      </div>
432|                      <motion.div animate={{ scale: [1, 1.05, 1] }} transition={{ duration: 1.5, repeat: Infin...
433|                        style={{ display: 'inline-block', padding: '10px 20px', border: '2px solid #ffff00', b...
434|                        <div style={{ color: '#ffff00', fontWeight: 'bold', fontSize: '13px', fontFamily: 'mon...
435|                          Press <span style={{ fontSize: '16px', border: '1px solid #ffff00', padding: '2px 6p...
436|                        </div>
437|                      </motion.div>
438|                      <div style={{ display: 'flex', gap: '6px', justifyContent: 'center', flexWrap: 'wrap', m...
439|                        {BIOS_KEYS.map(key => (
440|                          <kbd key={key} onClick={() => { if (key === 'DEL' || key === 'F2') enterBios() }}
441|                            style={{
442|                              padding: '6px 12px', borderRadius: '6px', border: '1px solid #4040a0',
443|                              background: key === 'DEL' ? 'rgba(255,255,0,0.15)' : 'rgba(64,64,160,0.3)',
444|                              color: key === 'DEL' ? '#ffff00' : '#8080d0',
445|                              cursor: 'pointer', fontFamily: 'monospace', fontSize: '12px', fontWeight: 700,
446|                            }}>
447|                            {key}
448|                          </kbd>
449|                        ))}
450|                      </div>
451|                      {biosErrorMessage && (
452|                        <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }}
453|                          style={{ marginTop: '8px', padding: '6px 10px', background: 'rgba(255,0,0,0.15)', bo...
454|                          <AlertTriangle size={12} style={{ display: 'inline', marginRight: '4px', verticalAli...
455|                          {biosErrorMessage}
456|                        </motion.div>
457|                      )}
458|                    </div>
459|                  )}
460|                </BiosScreen>
461|
462|                <div style={{ marginTop: '10px', padding: '8px 12px', borderRadius: '8px', background: 'rgba(2...
   4 6 3 |                                    < s p a n   s t y l e = { {   c o l o r :   ' # f 5 9 e 0 b ' ,   f o n t W e i g h t :   7 0 0   } } > M
   4 6 4 |                                    < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - p r i m a r y ) '   } } > N h ¥ n   < s
465|                </div>
466|              </motion.div>
467|            )}
468|
469|            {biosSubStep === 'main_menu' && (
470|              <motion.div key="bs_main_menu" initial={{ opacity: 0 }} animate={{ opacity: 1 }}>
471|                <BiosScreen title="Main Menu - Select Boot">
472|                  <div style={{ display: 'flex', flexDirection: 'column', gap: '2px', marginBottom: '8px' }}>
473|                    {BIOS_MENU_ITEMS.map((item, i) => (
474|                      <motion.div key={i} whileHover={{ x: 2 }}
475|                        onClick={() => {
476|                          if (item.label === 'Boot') { playBeep(); setBiosSubStep('boot_menu') }
   4 7 7 |                                                e l s e   {   s e t B i o s E r r o r M e s s a g e ( ` C h Í n   " B o o t "   Ã   t i
478|                        }}
479|                        style={{
480|                          display: 'flex', alignItems: 'center', gap: '8px', padding: '6px 10px', cursor: 'poi...
481|                          background: biosMenuIndex === i ? 'rgba(255,255,0,0.12)' : 'transparent',
482|                          border: biosMenuIndex === i ? '1px solid #ffff00' : '1px solid transparent',
483|                          borderRadius: '4px', transition: 'all 0.15s', fontSize: '12px',
484|                        }}>
485|                        <span style={{ color: biosMenuIndex === i ? '#ffff00' : '#c0c0c0' }}>{item.label}</span>
486|                        <span style={{ fontSize: '10px', color: '#8080d0', marginLeft: '8px' }}>{item.descript...
487|                        {biosMenuIndex === i && <ChevronRight size={12} style={{ color: '#ffff00', marginLeft:...
488|                      </motion.div>
489|                    ))}
490|                  </div>
491|                  {biosErrorMessage && (
492|                    <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }}
493|                      style={{ padding: '6px 10px', background: 'rgba(255,0,0,0.12)', border: '1px solid #ff44...
494|                      {biosErrorMessage}
495|                    </motion.div>
496|                  )}
497|                </BiosScreen>
498|              </motion.div>
499|            )}
500|
501|            {biosSubStep === 'boot_menu' && (
502|              <motion.div key="bs_boot_menu" initial={{ opacity: 0 }} animate={{ opacity: 1 }}>
503|                <BiosScreen title="Boot Menu - Select USB Drive">
504|                  <div style={{ fontSize: '11px', color: '#a0a0ff', marginBottom: '8px' }}>Select boot device:...
505|                  <div style={{ display: 'flex', flexDirection: 'column', gap: '2px' }}>
506|                    {BOOT_DEVICES.map((device, i) => (
507|                      <motion.div key={i} whileHover={{ x: 2 }}
```

```
508|                        onClick={() => {
509|                          if (device.type === 'usb') { playBeep(); setBiosSubStep('save_exit') }
   5 1 0 |                                                e l s e   {   s e t B i o s E r r o r M e s s a g e ( ` K h ô n g   t h Ã   b o o t   t ë
511|                        }}
512|                        style={{
513|                          display: 'flex', alignItems: 'center', gap: '8px', padding: '6px 10px', cursor: 'poi...
514|                          background: biosBootIndex === i ? 'rgba(255,255,0,0.12)' : 'transparent',
515|                          border: biosBootIndex === i ? '1px solid #ffff00' : '1px solid transparent',
516|                          borderRadius: '4px', fontSize: '12px',
517|                        }}>
   5 1 8 |                                             < s p a n > { d e v i c e . t y p e   = = =   ' u s b '   ?   'Ø=Ü¾ '   :   d e v i c e . t y p
519|                        <span style={{ color: biosBootIndex === i ? '#ffff00' : '#c0c0c0' }}>{device.label}</s...
520|                        {device.type === 'usb' ? (
521|                          <span style={{ marginLeft: 'auto', fontSize: '9px', padding: '2px 6px', borderRadius...
522|                        ) : (
523|                          <span style={{ marginLeft: 'auto', fontSize: '9px', padding: '2px 6px', borderRadius...
524|                        )}
525|                      </motion.div>
526|                    ))}
527|                  </div>
528|                  {biosErrorMessage && (
529|                    <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }}
530|                      style={{ marginTop: '8px', padding: '6px 10px', background: 'rgba(255,0,0,0.12)', border...
531|                      {biosErrorMessage}
532|                    </motion.div>
533|                  )}
534|                </BiosScreen>
535|              </motion.div>
536|            )}
537|
538|            {biosSubStep === 'save_exit' && (
539|              <motion.div key="bs_save_exit" initial={{ opacity: 0 }} animate={{ opacity: 1 }}>
540|                <BiosScreen title="Save & Exit - Confirm Changes">
541|                  <div style={{ fontSize: '11px', color: '#a0a0ff', marginBottom: '10px' }}>
542|                    Boot device selected: <span style={{ color: '#10b981', fontWeight: 'bold' }}>UEFI: USB Dri...
543|                  </div>
544|                  <div style={{ marginBottom: '10px', padding: '6px 10px', background: 'rgba(16,185,129,0.06)'...
545|                    <CheckCircle2 size={12} style={{ color: '#10b981', display: 'inline', marginRight: '4px', ...
546|                    Changes have been made to your BIOS configuration.<br />
547|                      • Boot priority: USB Drive moved to #1<br />
548|                      • Boot mode: UEFI (CSM disabled)<br />
549|                    <span style={{ color: '#ffff00' }}>Do you want to save these changes and exit?</span>
550|                  </div>
551|                  <div style={{ display: 'flex', flexDirection: 'column', gap: '2px' }}>
552|                    {SAVE_OPTIONS.map((opt, i) => (
553|                      <motion.div key={i} whileHover={{ x: 2 }}
554|                        onClick={() => {
555|                          if (opt === 'Yes, Save & Exit') {
556|                            playBeep()
557|                            setBiosTransition(true)
558|                            setBiosDone(true)
559|                            setTimeout(() => { setStep(2) }, 2000)
560|                          } else if (opt === 'No, Discard Changes') {
561|                            setBiosSubStep('main_menu'); setBiosMenuIndex(0); setBiosErrorMessage('')
562|                          }
563|                        }}
564|                        style={{
565|                          display: 'flex', alignItems: 'center', gap: '8px', padding: '6px 10px', cursor: 'poi...
566|                          background: biosSaveIndex === i ? 'rgba(255,255,0,0.12)' : 'transparent',
567|                          border: biosSaveIndex === i ? '1px solid #ffff00' : '1px solid transparent',
568|                          borderRadius: '4px', fontSize: '11px',
569|                        }}>
570|                        <span style={{ color: biosSaveIndex === i ? '#ffff00' : '#c0c0c0' }}>{opt}</span>
571|                        {biosSaveIndex === i && <ChevronRight size={12} style={{ color: '#ffff00', marginLeft:...
572|                      </motion.div>
573|                    ))}
574|                  </div>
575|                  <div style={{ marginTop: '10px', padding: '6px 10px', background: 'rgba(255,255,0,0.06)', bo...
   5 7 6 |                                                C £ n h   b á o :   N ¿ u   k h ô n g   c ¯ m   U S B   b o o t ,   m á y   s ½   b á o   l × i   " N o
577|                  </div>
578|                </BiosScreen>
579|              </motion.div>
580|            )}
581|          </motion.div>
582|        )}
583|
584|        {/* STEP 2: Windows Logo Boot */}
585|        {step === 2 && (
586|          <motion.div key="step2" initial={{ opacity: 0 }} animate={{ opacity: 1 }}
587|            className="flex-1 flex items-center justify-center"
588|            style={{ background: '#000', minHeight: '400px', borderRadius: '16px' }}>
589|            <div style={{ textAlign: 'center' }}>
590|              <motion.div animate={{ rotate: 360 }} transition={{ duration: 2, repeat: Infinity, ease: 'linear...
591|                style={{ width: '80px', height: '80px', margin: '0 auto 24px', position: 'relative' }}>
592|                <div style={{
593|                  width: '80px', height: '80px', borderRadius: '50%',
594|                  border: '4px solid rgba(0,120,212,0.15)',
595|                  borderTopColor: '#0078d4',
596|                  position: 'absolute', inset: 0,
597|                }} />
598|              </motion.div>
599|              <div style={{ fontSize: '32px', fontWeight: 300, color: '#0078d4', marginBottom: '8px', letterSp...
600|              <div style={{ display: 'flex', justifyContent: 'center', gap: '4px' }}>
601|                {[0, 1, 2].map(i => (
602|                  <motion.div key={i} animate={{ opacity: [0.1, 1, 0.1] }}
603|                    transition={{ duration: 1.5, repeat: Infinity, delay: i * 0.3 }}
604|                    style={{ width: '6px', height: '6px', borderRadius: '50%', background: '#0078d4' }} />
605|                ))}
606|              </div>
607|              <p style={{ color: 'rgba(255,255,255,0.3)', fontSize: '11px', marginTop: '20px' }}>
   6 0 8 |                                   a n g   k h ß i     U n g   t ë   U S B . . .
609|              </p>
610|            </div>
611|          </motion.div>
612|        )}
613|
614|        {/* STEP 3: Language / Region / Keyboard */}
615|        {step === 3 && (
616|          <motion.div key="step3" initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
617|            <div style={{ textAlign: 'center', marginBottom: '20px' }}>
   6 1 8 |                              < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x ' ,   m a r g i n B o t t o m :   ' 1 2 p x '   } } >Ø<ß
   6 1 9 |                              < h 2   s t y l e = { {   f o n t S i z e :   ' 2 0 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n B o t t
   6 2 0 |                              < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 3 p x '   }
621|            </div>
622|
623|            <div style={{ display: 'flex', flexDirection: 'column', gap: '12px', marginBottom: '16px' }}>
624|              <div>
625|                <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom: '...
626|                <select value={selectedLang} onChange={e => setSelectedLang(Number(e.target.value))}
627|                  style={{ width: '100%', padding: '10px 14px', borderRadius: '10px', border: '1px solid var(-...
628|                  {LANGUAGES.map((l, i) => (
629|                    <option key={l.code} value={i}>{l.native} ({l.code})</option>
630|                  ))}
631|                </select>
```

```
632|              </div>
633|              <div>
634|                <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom: '...
635|                <select value={selectedLang} onChange={e => setSelectedLang(Number(e.target.value))}
636|                  style={{ width: '100%', padding: '10px 14px', borderRadius: '10px', border: '1px solid var(-...
637|                  {LANGUAGES.map((l, i) => (
638|                    <option key={l.code} value={i}>{l.label}</option>
639|                  ))}
640|                </select>
641|              </div>
642|              <div>
643|                <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom: '...
644|                <select value={selectedKeyboard} onChange={e => setSelectedKeyboard(Number(e.target.value))}
645|                  style={{ width: '100%', padding: '10px 14px', borderRadius: '10px', border: '1px solid var(-...
646|                  {KEYBOARD_LAYOUTS.map((k, i) => (
647|                    <option key={k.code} value={i}>{k.label}</option>
648|                  ))}
649|                </select>
650|              </div>
651|            </div>
652|
653|            <div style={{ padding: '10px 14px', borderRadius: '10px', background: 'rgba(59,130,246,0.06)', bor...
654|                            <strong style={{ color: '#3b82f6' }}>Thông tin:</strong>{' '
655|                            <span style={{ color: 'var(--text-primary)' }}>Trên Win11
656|            </div>
657|
658|            <button onClick={() => setStep(4)}
659|              className="w-full py-3 font-bold rounded-xl text-sm cursor-pointer"
660|              style={{ background: '#0078d4', border: 'none', color: '#fff', fontFamily: 'inherit' }}>
661|                            Tiếp tục!'
662|            </button>
663|          </motion.div>
664|        )}
665|
666|        {/* STEP 4: Install Now + License */}
667|        {step === 4 && (
668|          <motion.div key="step4" initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
669|            <div style={{ textAlign: 'center', marginBottom: '20px' }}>
670|                            <div style={{ fontSize: '48px', marginBottom: '12px' }}>"ž <
671|                            <h2 style={{ fontSize: '20px', fontWeight: 800, marginBott
672|                            <p style={{ color: 'var(--text-muted)', fontSize: '13px' }
673|            </div>
674|
675|            <div style={{
676|              padding: '32px', borderRadius: '16px', textAlign: 'center',
677|              background: 'linear-gradient(135deg, rgba(0,120,212,0.05), rgba(0,168,255,0.05))',
678|              border: '1px solid rgba(0,120,212,0.15)', marginBottom: '16px',
679|            }}>
680|              <div style={{ fontSize: '64px', marginBottom: '16px', filter: 'drop-shadow(0 0 30px rgba(0,120,2...
681|              <h3 style={{ fontSize: '18px', fontWeight: 700, marginBottom: '4px', color: '#0078d4' }}>Windows...
682|                            <p style={{ fontSize: '12px', color: 'var(--text-muted)',
683|
684|              <button onClick={() => setStep(5)}
685|                className="px-8 py-3 font-bold rounded-xl text-sm cursor-pointer"
686|                style={{ background: '#0078d4', border: 'none', color: '#fff', fontFamily: 'inherit', fontSize...
687|                Install now
688|              </button>
689|            </div>
690|
691|            <div style={{ padding: '10px 14px', borderRadius: '10px', background: 'rgba(245,158,11,0.06)', bor...
692|                            <strong style={{ color: '#f59e0b' }}>Lưu ý:</strong>{' '}
693|                            <span style={{ color: 'var(--text-primary)' }}>Trên máy th
694|            </div>
695|          </motion.div>
696|        )}
697|
698|        {/* STEP 5: License Agreement */}
699|        {step === 5 && (
700|          <motion.div key="step5" initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
701|            <div style={{ textAlign: 'center', marginBottom: '16px' }}>
702|                            <div style={{ fontSize: '40px', marginBottom: '8px' }} >Ø=ÜÄ <
703|                            <h2 style={{ fontSize: '18px', fontWeight: 800, marginBott
704|              <p style={{ color: 'var(--text-muted)', fontSize: '12px' }}>Microsoft Software License Terms</p>
705|            </div>
706|
707|            <div style={{
708|              padding: '16px', borderRadius: '12px', maxHeight: '280px', overflowY: 'auto',
709|              background: 'var(--bg-surface)', border: '1px solid var(--border-default)',
710|              fontSize: '11px', lineHeight: '1.7', color: 'var(--text-primary)', marginBottom: '12px',
711|            }}>
712|              <p><strong>MICROSOFT SOFTWARE LICENSE TERMS</strong></p>
713|              <p><strong>WINDOWS 11 PROFESSIONAL</strong></p>
714|              <p>These license terms are an agreement between you and Microsoft Corporation (or one of its aff...
715|              <p><strong>1. Scope of license.</strong> The software is licensed, not sold. This agreement only...
716|              <p><strong>2. Installation and use.</strong> You may install and use one copy of the software on...
717|              <p><strong>3. Updates.</strong> The software may periodically check for updates and download and...
718|              <p><strong>4. Data collection.</strong> The software may collect information about you and your ...
719|              <p><strong>5. Limitation of liability.</strong> Microsoft is not liable for any damages arising ...
720|                            <p style={{ color: 'var(--text-muted)', fontStyle: 'italic
721|            </div>
722|
723|            <div style={{ display: 'flex', alignItems: 'center', gap: '10px', padding: '12px 16px', borderRadi...
724|              <input type="checkbox" id="license" checked={licenseAccepted} onChange={e => setLicenseAccepted(...
725|                style={{ width: '18px', height: '18px', accentColor: '#8b5cf6', cursor: 'pointer' }} />
726|              <label htmlFor="license" style={{ fontSize: '12px', color: 'var(--text-primary)', cursor: 'point...
727|                              Tôi Đồng ý với các điều khoản cấp phép của Microsoft
728|              </label>
729|            </div>
730|
731|            <div style={{ padding: '10px 14px', borderRadius: '10px', background: 'rgba(16,185,129,0.06)', bor...
732|                            <strong style={{ color: '#10b981' }}>Thông tin:</strong>{' '
733|                            <span style={{ color: 'var(--text-primary)' }}>Bạn PHẢI tí
734|            </div>
735|
736|            <button onClick={() => setStep(6)} disabled={!licenseAccepted}
737|              className="w-full py-3 font-bold rounded-xl text-sm cursor-pointer"
738|              style={{
739|                background: licenseAccepted ? '#0078d4' : 'var(--text-muted)',
740|                border: 'none', color: '#fff', fontFamily: 'inherit',
741|                cursor: licenseAccepted ? 'pointer' : 'not-allowed',
742|                opacity: licenseAccepted ? 1 : 0.5,
743|              }}>
744|                            {licenseAccepted ? 'Tiếp tục!' : 'Chấp nhận điều khoản
745|            </button>
746|          </motion.div>
747|        )}
748|
749|        {/* STEP 6: Custom Installation - Select Drive */}
750|        {step === 6 && (
751|          <motion.div key="step6" initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
752|            <div style={{ textAlign: 'center', marginBottom: '16px' }}>
753|                            <div style={{ fontSize: '40px', marginBottom: '8px' }} >Ø=Ü¼ <
754|                            <h2 style={{ fontSize: '18px', fontWeight: 800, marginBott
755|                            <p style={{ color: 'var(--text-muted)', fontSize: '12px' }
```

```
756|            </div>
757|
758|            <div style={{ display: 'flex', flexDirection: 'column', gap: '8px', marginBottom: '12px' }}>
759|              <div style={{ padding: '10px 14px', borderRadius: '10px', background: 'rgba(99,102,241,0.08)', b...
  7 6 0 |                                < s t r o n g > L o ¡ i   c à i    · t : < / s t r o n g >   C u s t o m :   I n s t a l l   W i n d o w s   c
761|              </div>
762|
763|              {DRIVES.map((drive, i) => (
764|                <motion.div key={drive.id} whileHover={{ scale: 1.01 }}
765|                  onClick={() => setSelectedDrive(i)}
766|                  style={{
767|                    display: 'flex', alignItems: 'center', gap: '12px',
768|                    padding: '14px 16px', borderRadius: '12px', cursor: 'pointer',
769|                    background: selectedDrive === i ? 'rgba(16,185,129,0.08)' : 'var(--bg-surface)',
770|                    border: selectedDrive === i ? '2px solid #10b981' : '1px solid var(--border-default)',
771|                    transition: 'all 0.2s',
772|                  }}>
773|                  <div style={{ fontSize: '24px' }}>{drive.icon}</div>
774|                  <div style={{ flex: 1 }}>
775|                    <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)' }}>{drive.la...
776|                    <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>
777|                      {drive.size} · {drive.type} · Total space: {drive.size}
  7 7 8 |                                                 { s e l e c t e d D r i v e   = = =   i   & &   < s p a n   s t y l e = { {   c o l o r :   ' # 1 0
779|                    </div>
780|                  </div>
781|                  <div style={{
782|                    width: '20px', height: '20px', borderRadius: '50%', border: '2px solid',
783|                    borderColor: selectedDrive === i ? '#10b981' : 'var(--border-default)',
784|                    display: 'flex', alignItems: 'center', justifyContent: 'center',
785|                    flexShrink: 0,
786|                  }}>
787|                    {selectedDrive === i && <div style={{ width: '10px', height: '10px', borderRadius: '50%', ...
788|                  </div>
789|                </motion.div>
790|              ))}
791|            </div>
792|
793|            <div style={{ display: 'flex', gap: '8px' }}>
794|              <button onClick={() => setStep(5)}
795|                className="flex items-center gap-1.5 px-4 py-2.5 font-bold rounded-xl text-xs cursor-pointer"
796|                style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'v...
  7 9 7 |                                < C h e v r o n L e f t   s i z e = { 1 4 }   / >   Q u a y   l ¡ i
798|              </button>
799|              <button onClick={() => { setProgress(0); setIsInstalling(true) }}
800|                className="flex-1 py-2.5 font-bold rounded-xl text-sm cursor-pointer"
801|                style={{ background: '#0078d4', border: 'none', color: '#fff', fontFamily: 'inherit' }}>
  8 0 2 |                                B ¯ t    § u   c à i    · t   !'
803|              </button>
804|            </div>
805|          </motion.div>
806|        )}
807|
  8 0 8 |                  { / *   S T E P   6 b :   I n s t a l l a t i o n   P r o g r e s s   ( s h o w n   a f t e r   c l i c k i n g   " B ¯ t    §
809|        {step === 6 && isInstalling && (
810|          <motion.div key="step6b" initial={{ opacity: 0 }} animate={{ opacity: 1 }}
811|            style={{ position: 'fixed', inset: 0, zIndex: 50,
812|              background: 'linear-gradient(135deg, #001830, #002040)',
813|              display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center', paddin...
814|            <motion.div animate={{ scale: [1, 1.05, 1] }} transition={{ duration: 2, repeat: Infinity }}>
815|              <div style={{ fontSize: '72px', marginBottom: '24px', filter: 'drop-shadow(0 0 40px rgba(0,120,2...
816|            </motion.div>
  8 1 7 |                        < h 2   s t y l e = { {   f o n t S i z e :   ' 2 2 p x ' ,   f o n t W e i g h t :   7 0 0 ,   c o l o r :   ' # 0 0 7
818|            <p style={{ color: 'rgba(255,255,255,0.4)', fontSize: '13px', marginBottom: '24px' }}>Vui lòng khô...
819|
820|            <div style={{ maxWidth: '480px', width: '100%' }}>
821|              <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: '11px', color: 'rgba(2...
822|                <span><span style={{ color: currentPhase.color || '#0078d4' }}>{currentPhase.icon}</span> {cur...
823|                <span style={{ fontWeight: 700, color: '#fff' }}>{Math.min(100, Math.round(progress))}%</span>
824|              </div>
825|              <div style={{ width: '100%', height: '8px', borderRadius: '4px', background: 'rgba(255,255,255,0...
826|                <motion.div style={{
827|                  width: `${Math.min(100, progress)}%`, height: '100%',
828|                  background: 'linear-gradient(90deg, #0078d4, #00a8ff, #0078d4)',
829|                  backgroundSize: '200% 100%',
830|                  borderRadius: '4px',
831|                }} animate={{ backgroundPosition: ['0% 0%', '100% 0%', '0% 0%'] }}
832|                  transition={{ duration: 3, repeat: Infinity }} />
833|              </div>
834|              <p style={{ fontSize: '11px', color: 'rgba(255,255,255,0.3)', textAlign: 'center' }}>
  8 3 5 |                                a n g   s a o   c h é p   t - p   t i n   c à i    · t { ' . ' . r e p e a t ( d o t C o u n t   | |   1 ) }
836|              </p>
837|            </div>
838|
839|            {progress >= 100 && (
840|              <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} style={{ marginTop: '...
841|                <button onClick={() => setStep(7)}
842|                  style={{ padding: '12px 32px', borderRadius: '12px', border: 'none', background: '#0078d4', ...
  8 4 3 |                                  C à i    · t   x o n g !   K h ß i    Ù n g   l ¡ i   !'
844|                </button>
845|              </motion.div>
846|            )}
847|          </motion.div>
848|        )}
849|
850|        {/* STEP 7: Restart */}
851|        {step === 7 && (
852|          <motion.div key="step7" initial={{ opacity: 0 }} animate={{ opacity: 1 }}
853|            className="flex-1 flex items-center justify-center"
854|            style={{ background: '#000', minHeight: '400px', borderRadius: '16px' }}>
855|            <div style={{ textAlign: 'center' }}>
856|              <motion.div animate={{ rotate: 360 }} transition={{ duration: 3, repeat: Infinity, ease: 'linear...
857|                style={{ width: '60px', height: '60px', margin: '0 auto 24px' }}>
858|                <RefreshCw size={60} style={{ color: '#0078d4' }} />
859|              </motion.div>
  8 6 0 |                            < h 2   s t y l e = { {   f o n t S i z e :   ' 2 0 p x ' ,   f o n t W e i g h t :   7 0 0 ,   c o l o r :   ' # 0
861|              <p style={{ color: 'rgba(255,255,255,0.4)', fontSize: '13px', marginBottom: '16px' }}>
  8 6 2 |                                M á y   t í n h   s ½   k h ß i    Ù n g   l ¡ i   t r o n g   { r e s t a r t C o u n t d o w n }   g i â y
863|              </p>
864|              <div style={{ display: 'flex', justifyContent: 'center', gap: '6px' }}>
865|                {[0, 1, 2, 3].map(i => (
866|                  <motion.div key={i} animate={{ opacity: [0.1, 1, 0.1] }}
867|                    transition={{ duration: 1, repeat: Infinity, delay: i * 0.25 }}
868|                    style={{ width: '8px', height: '8px', borderRadius: '50%', background: '#0078d4' }} />
869|                ))}
870|              </div>
871|              <p style={{ color: 'rgba(255,255,255,0.2)', fontSize: '10px', marginTop: '20px' }}>
  8 7 2 |                                T r ê n   m á y   t h - t ,   b ¡ n   s ½   t h ¥ y   l o g o   h ã n g   ( D e l l / H P / L e n o v o )   x u
873|              </p>
874|
875|              <button onClick={() => { setStep(8); setRestartCountdown(10) }}
876|                style={{ marginTop: '20px', padding: '8px 20px', borderRadius: '8px', border: '1px solid rgba(...
  8 7 7 |                                B Ĭ   q u a   ( t i ¿ p   t å c )   !'
878|              </button>
879|            </div>
```

```
880|          </motion.div>
881|        )}
882|
883|        {/* STEP 8: OOBE - Account Setup */}
884|        {step === 8 && (
885|          <motion.div key="step8" initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
886|            <div style={{ textAlign: 'center', marginBottom: '20px' }}>
   8 8 7 |                              < d i v   s t y l e = { {   f o n t S i z e :   ' 4 0 p x ' ,   m a r g i n B o t t o m :   ' 8 p x '   } } >Ø=Üd <
   8 8 8 |                              < h 2   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n B o t t
889|              <p style={{ color: 'var(--text-muted)', fontSize: '12px' }}>OOBE - Out of Box Experience</p>
890|            </div>
891|
892|            <div style={{ display: 'flex', flexDirection: 'column', gap: '12px', marginBottom: '16px' }}>
893|              <div>
894|                <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom: '...
895|                <input value={userName} onChange={e => setUserName(e.target.value)}
   8 9 6 |                                     p l a c e h o l d e r = " V D :   N g u y Ä n   V   n   A "
897|                  style={{ width: '100%', padding: '10px 14px', borderRadius: '10px', border: '1px solid var(-...
898|              </div>
899|              <div>
900|                <label style={{ fontSize: '11px', fontWeight: 600, color: 'var(--text-muted)', marginBottom: '...
901|                <input value={pcName} onChange={e => setPcName(e.target.value)}
902|                  placeholder="VD: DESKTOP-PCMASTER"
903|                  style={{ width: '100%', padding: '10px 14px', borderRadius: '10px', border: '1px solid var(-...
904|              </div>
905|
906|              <div style={{ padding: '12px 16px', borderRadius: '10px', background: 'rgba(59,130,246,0.06)', b...
907|                <h4 style={{ fontSize: '12px', fontWeight: 700, margin: '0 0 10px', color: '#3b82f6' }}>
908|                  <Shield size={12} style={{ display: 'inline', marginRight: '4px', verticalAlign: 'middle' }} />
   9 0 9 |                                       C à i     · t   q u y Á n   r i ê n g   t °
910|                </h4>
911|                {[
   9 1 2 |                                       {   k e y :   ' l o c a t i o n ' ,   l a b e l :   ' V Ë   t r í ' ,   d e s c :   ' C h o   p h é p   W i
   9 1 3 |                                       {   k e y :   ' d i a g n o s t i c s ' ,   l a b e l :   ' C h © n    o á n ' ,   d e s c :   ' G í i   c
   9 1 4 |                                       {   k e y :   ' a d s ' ,   l a b e l :   ' Q u £ n g   c á o ' ,   d e s c :   ' C h o   p h é p   q u £ n
   9 1 5 |                                       {   k e y :   ' t a i l o r e d ' ,   l a b e l :   ' T r £ i   n g h i Ç m ' ,   d e s c :   ' N h - n
916|                ].map((item) => (
917|                  <div key={item.key} style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-b...
918|                    <div>
919|                      <div style={{ fontSize: '12px', fontWeight: 600, color: 'var(--text-primary)' }}>{item.l...
920|                      <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>{item.desc}</div>
921|                    </div>
922|                    <label style={{ position: 'relative', width: '40px', height: '22px', cursor: 'pointer', fl...
923|                      <input type="checkbox" checked={privacySettings[item.key as keyof typeof privacySettings]}
924|                        onChange={e => setPrivacySettings({ ...privacySettings, [item.key]: e.target.checked })}
925|                        style={{ opacity: 0, width: 0, height: 0 }} />
926|                      <span style={{
927|                        position: 'absolute', inset: 0, borderRadius: '11px', transition: '0.3s',
928|                        background: privacySettings[item.key as keyof typeof privacySettings] ? '#3b82f6' : 'r...
929|                      }}>
930|                        <span style={{
931|                          position: 'absolute', top: '2px', width: '18px', height: '18px', borderRadius: '50%',
932|                          background: '#fff', transition: '0.3s',
933|                          left: privacySettings[item.key as keyof typeof privacySettings] ? '20px' : '2px',
934|                        }} />
935|                      </span>
936|                    </label>
937|                  </div>
938|                ))}
939|              </div>
940|            </div>
941|
942|            <div style={{ padding: '10px 14px', borderRadius: '10px', background: 'rgba(16,185,129,0.06)', bor...
   9 4 3 |                              < s t r o n g   s t y l e = { {   c o l o r :   ' # 1 0 b 9 8 1 '   } } > T h ñ c   t ¿ : < / s t r o n g > { '   '
   9 4 4 |                              < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - p r i m a r y ) '   } } > T r ê n   W i n 1 1
945|            </div>
946|
947|            <button onClick={() => setStep(9)} disabled={!userName.trim() || !pcName.trim()}
948|              className="w-full py-3 font-bold rounded-xl text-sm"
949|              style={{
950|                background: !userName.trim() || !pcName.trim() ? 'var(--text-muted)' : '#0078d4',
951|                border: 'none', color: '#fff', fontFamily: 'inherit',
952|                cursor: !userName.trim() || !pcName.trim() ? 'not-allowed' : 'pointer',
953|                opacity: !userName.trim() || !pcName.trim() ? 0.5 : 1,
954|              }}>
   9 5 5 |                              H o à n   t ¥ t   t h i ¿ t   l - p   !'
956|            </button>
957|          </motion.div>
958|        )}
959|
960|        {/* STEP 9: Windows Simulator Desktop */}
961|        {step === 9 && (
962|          <WindowsSimulator
963|            cart={[
964|              { type: 'CPU', name: 'Intel Core i7-14700K' },
965|              { type: 'RAM', name: '32GB (2x16GB) DDR5-5600' },
966|              { type: 'GPU', name: 'NVIDIA RTX 4070 Ti' },
967|              { type: 'SSD', name: '1TB NVMe SSD' },
968|              { type: 'PSU', name: '850W 80+ Gold' },
969|            ]}
970|            scenarioName={`Windows 11 Pro - ${userName || 'PC Master'}`}
971|            onExit={() => {
972|              setStep(0)
973|              setProgress(0)
974|              setIsInstalling(false)
975|              setBiosDone(false)
976|            }}
977|          />
978|        )}
979|      </div>
980|      <style>{`
981|        @keyframes spin { to { transform: rotate(360deg) } }
982|        @keyframes pulse { 0%,100% { opacity:1 } 50% { opacity:0.4 } }
983|        @keyframes creditsFadeIn { from { opacity:0; transform:scale(0.95) } to { opacity:1; transform:scale(1...
984|      `}</style>
985|    </div>
986|  )
987| }
988|
```

File: app/certificates/page.tsx (262 lines, 13.8 KB)

```
==========
   1| 'use client'
   2|
   3| import React, { useEffect, useState } from 'react'
   4| import { Award, Download, Share2, ShieldCheck, CheckCircle2, Star, Calendar, User, Search, Filter, Trophy, Tar...
   5| import Navbar from '@/components/Navbar'
   6| import { motion } from 'framer-motion'
   7| import { createBrowserClient } from '@supabase/ssr'
   8| import Link from 'next/link'
   9|
  10| export default function CertificatesPage() {
  11|   const [certs, setCerts] = useState<any[]>([])
```

```
  12|   const [profile, setProfile] = useState<any>(null)
  13|   const [loading, setLoading] = useState(true)
  14|
  15|   const supabase = createBrowserClient(
  16|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
  17|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
  18|   )
  19|
  20|   useEffect(() => {
  21|     loadData()
  22|   }, [])
  23|
  24|   async function loadData() {
  25|     try {
  26|       const { data: { user } } = await supabase.auth.getUser()
  27|       if (user) {
  28|         const { data: p } = await supabase.from('profiles').select('full_name, xp, level').eq('id', user.id).s...
  29|         if (p) setProfile(p)
  30|       }
  31|       const { data: c } = await supabase
  32|         .from('certificates')
  33|         .select('*')
  34|         .eq('is_revoked', false)
  35|         .order('issued_at', { ascending: false })
  36|       if (c) setCerts(c)
  37|     } catch (e) {}
  38|     setLoading(false)
  39|   }
  40|
  41|   return (
  42|     <div className="min-h-screen" style={{ background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
  43|       <Navbar />
  44|       <main className="pt-28 pb-20 px-4 sm:px-6 lg:px-8 max-w-7xl mx-auto">
  45|         <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}>
  46|           <div className="flex items-center gap-4 mb-4">
  47|             <div style={{
  48|               width: '56px', height: '56px', borderRadius: '12px',
  49|               background: 'linear-gradient(135deg, var(--brand-primary), var(--accent-blue))',
  50|               display: 'flex', alignItems: 'center', justifyContent: 'center',
  51|               boxShadow: '0 0 24px color-mix(in srgb, var(--brand-primary) 30%, transparent)',
  52|             }}>
  53|               <Trophy size={28} color="#fff" />
  54|             </div>
  55|             <div>
  56|               <h1 style={{ fontSize: 'clamp(24px, 4vw, 36px)', fontWeight: 900, letterSpacing: '1px' }}>
    5 7 |                                 C H è N G   C H Ê   & < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - b r a n d - p r i m a r y ) '
  58|               </h1>
  59|               <p style={{ color: 'var(--text-muted)', fontSize: '13px' }}>
    6 0 |                                 N ¡ i   l ° u   g i ï   n h ï n g   n ×   l ñ c   v à   t h à n h   q u £   h Í c   t - p   c ç a   b ¡ n .
  61|               </p>
  62|             </div>
  63|           </div>
  64|         </motion.div>
  65|
  66|         {/* Stats */}
  67|         <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 0.05 }}
  68|           style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(180px, 1fr))', gap: '12px', ...
  69|           {[
    7 0 |                           {   i c o n :   < T r o p h y   s i z e = { 2 2 }   / > ,   l a b e l :   ' C h é n g   c h Ê   ¡ t ' ,   v a l u e :
    7 1 |                           {   i c o n :   < S t a r   s i z e = { 2 2 }   / > ,   l a b e l :   ' T Õ n g   X P ' ,   v a l u e :   p r o f i l e
    7 2 |                           {   i c o n :   < S h i e l d C h e c k   s i z e = { 2 2 }   / > ,   l a b e l :   ' C ¥ p   Ù ' ,   v a l u e :
    7 3 |                           {   i c o n :   < T a r g e t   s i z e = { 2 2 }   / > ,   l a b e l :   ' C ó   t h Ã   m ß ' ,   v a l u e :   ` $ {
  74|           ].map((stat, i) => (
  75|             <div key={i} style={{
  76|               background: 'var(--bg-surface)',
  77|               border: '1px solid var(--border-default)',
  78|               padding: '20px',
  79|               display: 'flex', alignItems: 'center', gap: '14px',
  80|             }}>
  81|               <div style={{
  82|                 width: '48px', height: '48px', borderRadius: '4px',
  83|                 background: `color-mix(in srgb, ${stat.color} 12%, transparent)`,
  84|                 border: `1px solid color-mix(in srgb, ${stat.color} 20%, transparent)`,
  85|                 display: 'flex', alignItems: 'center', justifyContent: 'center',
  86|                 color: stat.color,
  87|                 flexShrink: 0,
  88|               }}>
  89|                 {stat.icon}
  90|               </div>
  91|               <div>
  92|                 <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontFamily: 'var(--font-mono)', ma...
  93|                 <div style={{ fontSize: '24px', fontWeight: 900, fontFamily: 'var(--font-mono)' }}>{stat.value...
  94|               </div>
  95|             </div>
  96|           ))}
  97|         </motion.div>
  98|
  99|         {/* Certificate Grid */}
 100|         {loading ? (
 101|           <div style={{ textAlign: 'center', padding: '60px 0', color: 'var(--text-muted)' }}>
 102|             <motion.div animate={{ rotate: 360 }} transition={{ duration: 2, repeat: Infinity, ease: 'linear' }}
 103|               style={{ display: 'inline-block', marginBottom: '12px' }}>
 104|               <Swords size={32} style={{ color: 'var(--brand-primary)' }} />
 105|             </motion.div>
    1 0 6 |                           < d i v   s t y l e = { {   f o n t F a m i l y :   ' v a r ( - - f o n t - m o n o ) ' ,   f o n t S i z e :   ' 1 2 p
 107|           </div>
 108|         ) : certs.length === 0 ? (
 109|           <div style={{
 110|             textAlign: 'center', padding: '80px 20px',
 111|             border: '1px solid var(--border-default)',
 112|             background: 'var(--bg-surface)',
 113|           }}>
 114|             <Diamond size={48} style={{ color: 'var(--text-muted)', marginBottom: '16px', opacity: 0.3 }} />
    1 1 5 |                           < h 2   s t y l e = { {   f o n t S i z e :   ' 2 0 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g i n B o t t o m
 116|             <p style={{ color: 'var(--text-muted)', fontSize: '13px', marginBottom: '24px', maxWidth: '400px',...
    1 1 7 |                               H o à n   t h à n h   c á c   k h ó a   h Í c   v à   n h i Ç m   v ả   Ã   n h - n   c h é n g   c h Ê .   M × i
 118|             </p>
 119|             <Link href="/builder" style={{
 120|               display: 'inline-flex', alignItems: 'center', gap: '8px',
 121|               padding: '12px 28px',
 122|               background: 'var(--brand-primary)',
 123|               color: 'var(--bg-base)',
 124|               fontWeight: 700,
 125|               fontSize: '13px',
 126|               fontFamily: 'var(--font-mono)',
 127|               textDecoration: 'none',
 128|             }}>
    1 2 9 |                               < Z a p   s i z e = { 1 6 }   / >   B ® T   ¦ U   H Ì C   N G A Y
 130|             </Link>
 131|           </div>
 132|         ) : (
 133|           <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(340px, 1fr))', gap: '1...
 134|             {certs.map((cert, idx) => (
 135|               <motion.div key={cert.id}
```

```
                initial={{ opacity: 0, y: 20 }}
                animate={{ opacity: 1, y: 0 }}
                transition={{ delay: idx * 0.05 }}
                style={{
                  background: 'var(--bg-surface)',
                  border: '1px solid var(--border-default)',
                  position: 'relative', overflow: 'hidden',
                }}>
                {/* Pixel corner decorations */}
                <div style={{ position: 'absolute', top: 0, left: 0, width: '8px', height: '8px', borderTop: '...
                <div style={{ position: 'absolute', top: 0, right: 0, width: '8px', height: '8px', borderTop: ...
                <div style={{ position: 'absolute', bottom: 0, left: 0, width: '8px', height: '8px', borderBot...
                <div style={{ position: 'absolute', bottom: 0, right: 0, width: '8px', height: '8px', borderBo...

                {/* Certificate preview */}
                <div style={{
                  padding: '24px',
                }}>
                  <div style={{
                    width: '100%', aspectRatio: '16/10',
                    background: 'linear-gradient(135deg, #0a0c1a 0%, #1a1c2e 50%, #0a0c1a 100%)',
                    border: '1px solid rgba(212, 168, 67, 0.3)',
                    position: 'relative', overflow: 'hidden',
                    marginBottom: '16px',
                    display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center',
                  }}>
                    {/* Golden border */}
                    <div style={{
                      position: 'absolute', inset: '3px',
                      border: '1px solid rgba(212, 168, 67, 0.15)',
                      pointerEvents: 'none',
                    }} />
                    {/* Top gold line */}
                    <div style={{
                      position: 'absolute', top: '8px', left: '50%', transform: 'translateX(-50%)',
                      width: '50%', height: '1px',
                      background: 'linear-gradient(90deg, transparent, rgba(212,168,67,0.5), transparent)',
                    }} />
                    <div style={{
                      position: 'absolute', bottom: '8px', left: '50%', transform: 'translateX(-50%)',
                      width: '50%', height: '1px',
                      background: 'linear-gradient(90deg, transparent, rgba(212,168,67,0.5), transparent)',
                    }} />

                    {/* Trophy icon */}
                    <motion.div animate={{ y: [0, -3, 0] }} transition={{ duration: 3, repeat: Infinity }}
                      style={{
                        width: '36px', height: '36px', borderRadius: '50%',
                        background: 'linear-gradient(135deg, #d4a843, #f5d68a)',
                        display: 'flex', alignItems: 'center', justifyContent: 'center',
                        marginBottom: '6px',
                      }}>
                      <Award size={18} color="#0a0c1a" />
                    </motion.div>

                    <div style={{ fontSize: '7px', fontWeight: 600, letterSpacing: '2px', color: 'rgba(212,168...
                                                    C H ê N G   C H Ê   H O À N   T H À N H
                    </div>
                    <div style={{ fontSize: '13px', fontWeight: 900, color: '#f5d68a', textAlign: 'center', pa...
                      {cert.course_title}
                    </div>
                    <div style={{ fontSize: '14px', fontWeight: 800, color: '#fff', marginBottom: '6px' }}>
                                                    { c e r t . s t u d e n t _ n a m e   | |   ' H Í c   v i ê n   P C   M a s t e r ' }
                    </div>
                    <div style={{ fontSize: '7px', color: 'rgba(255,255,255,0.3)', display: 'flex', gap: '8px'...
                      <span>{new Date(cert.issued_at || Date.now()).toLocaleDateString('vi-VN')}</span>
                      <span style={{ width: '2px', height: '2px', borderRadius: '50%', background: 'rgba(255,2...
                      <span style={{ fontFamily: 'monospace', fontSize: '6px' }}>{cert.certificate_number}</span>
                    </div>
                    {cert.final_score && (
                      <div style={{
                        position: 'absolute', top: '8px', right: '8px',
                        fontSize: '7px', fontWeight: 700,
                        color: '#d4a843',
                        border: '1px solid rgba(212,168,67,0.3)',
                        padding: '1px 6px',
                      }}>
                        {cert.final_score}%
                      </div>
                    )}
                  </div>

                  <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between' }}>
                    <div>
                      <div style={{ fontSize: '14px', fontWeight: 700, marginBottom: '2px' }}>{cert.course_tit...
                      <div style={{ display: 'flex', alignItems: 'center', gap: '6px', fontSize: '11px', color...
                        <Calendar size={11} />
                        <span>{new Date(cert.issued_at || Date.now()).toLocaleDateString('vi-VN')}</span>
                      </div>
                    </div>
                    <div style={{ display: 'flex', gap: '6px' }}>
                      {cert.pdf_url && (
                        <a href={cert.pdf_url} target="_blank" rel="noreferrer" style={{
                          width: '36px', height: '36px',
                          border: '1px solid var(--border-default)',
                          display: 'flex', alignItems: 'center', justifyContent: 'center',
                          color: 'var(--text-muted)',
                          cursor: 'pointer', transition: 'all 0.2s',
                        }}>
                          <Download size={16} />
                        </a>
                      )}
                      <button onClick={() => {
                        const link = `${window.location.origin}/verify/${cert.certificate_number}`
                        navigator.clipboard.writeText(link)
                      }} style={{
                        width: '36px', height: '36px',
                        border: '1px solid var(--border-default)',
                        display: 'flex', alignItems: 'center', justifyContent: 'center',
                        color: 'var(--text-muted)',
                        cursor: 'pointer', transition: 'all 0.2s',
                        background: 'transparent',
                      }}>
                        <Copy size={16} />
                      </button>
                    </div>
                  </div>
                </div>
              </motion.div>
            ))}
          </div>
        )}
      </main>
    </div>
```

```
  )
}

```

File: app/chan-doan-pc/page.tsx (626 lines, 32.8 KB)

```
'use client'

import { useState, useRef, useEffect } from 'react'
import { useRouter } from 'next/navigation'
import { useIsMobile } from '@/hooks/useIsMobile'
import { motion, AnimatePresence } from 'framer-motion'
import dynamic from 'next/dynamic'
import {
  ArrowLeft, Cpu, Wrench, RefreshCw, CheckCircle2, AlertTriangle,
  HelpCircle, Loader2, Monitor, Zap, Thermometer, Wifi, HardDrive,
  Keyboard, Mouse, Users, Shield, Puzzle, Star, BookOpen,
  Toolbox, Disc, Radio, Gauge, Gamepad2, Bot
} from 'lucide-react'

const DiagnosisMode = dynamic(
  () => import('@/components/DiagnosisMode'),
  { ssr: false, loading: () => <div style={{ padding: '40px', textAlign: 'center', color: 'var(--text-muted)' ...
)

interface QAStep {
  q: string
  a: string
}

interface DiagnosisResult {
  problem: string
  cause: string
  fixSteps: string[]
  partsNeeded: string[]
  repairShop: string
  xpReward: number
}

interface AiResponse {
  type: 'question' | 'diagnosis'
  message: string
  options: string[]
  diagnosis?: DiagnosisResult
  model?: string
}

interface Scenario {
  id: string
  title: string
  icon: string
  description: string
  difficulty: 'DÃ' | 'Trung bình' | 'Khó'
  xpReward: number
  symptoms: string
}

const SCENARIOS: Scenario[] = [
  {
    id: 'no_display',
    title: 'Máy không lên màn hình',
    icon: 'Ø=Ý¥þ ',
    description: ' èn nguÓn sáng, qu¡t ch¡y nh°ng màn hình  en',
    difficulty: 'Trung bình',
    xpReward: 30,
    symptoms: 'Máy tính không lên màn hình, có  èn nguÓn nh°ng không bo
  },
  {
    id: 'no_power',
    title: 'Máy không lên nguÓn',
    icon: '&¡ ',
    description: 'Không có  èn, không qu¡t, không ph£n éng gì',
    difficulty: 'DÃ',
    xpReward: 20,
    symptoms: 'Máy tính không lên nguÓn, không có  èn và qu¡t',
  },
  {
    id: 'bsod',
    title: 'Màn hình xanh (BSOD)',
    icon: 'Ø=Ù™ ',
    description: 'Máy bË xanh màn hình khi  ang dùng',
    difficulty: 'Khó',
    xpReward: 40,
    symptoms: 'Máy bË màn hình xanh (BSOD) khi  ang sí dång',
  },
  {
    id: 'overheating',
    title: 'Máy quá nhiÇt',
    icon: 'Ø<ß!þ ',
    description: 'NhiÇt  Ù CPU/GPU cao, qu¡t kêu to',
    difficulty: 'DÃ',
    xpReward: 20,
    symptoms: 'NhiÇt  Ù CPU cao, qu¡t kêu to, máy nóng',
  },
  {
    id: 'slow',
    title: 'Máy ch¡y ch-m',
    icon: 'Ø=Ü" ',
    description: 'Máy bË treo,  ¡, ch¡y ch-m b¥t th°Ýng',
    difficulty: 'Trung bình',
    xpReward: 30,
    symptoms: 'Máy tính ch¡y ch-m, bË treo,  ¡',
  },
  {
    id: 'network',
    title: 'M¥t k¿t nÑi m¡ng',
    icon: 'Ø<ß ',
    description: 'Không vào  °ãc internet, WiFi/LAN l×i',
    difficulty: 'DÃ',
    xpReward: 20,
    symptoms: 'Máy không k¿t nÑi  °ãc internet, wifi ho·c m¡ng LAN',
  },
  {
    id: 'auto_shutdown',
    title: 'Máy tñ t¯t nguÓn',
    icon: 'Ø=Ý ',
    description: 'Máy tñ t¯t khi  ang dùng ho·c khi ch¡i game',
    difficulty: 'Khó',
    xpReward: 40,
    symptoms: 'Máy tính tñ t¯t nguÓn khi  ang sí dång',
  },
  {
    id: 'no_boot',
```

```
    title: 'Máy không boot Windows',
    icon:  'Ø=Ü¿ ',
    description:  'Máy vào BIOS hoặc logo hãng rồi treo',
    difficulty: 'Khó',
    xpReward: 35,
    symptoms:  'Máy không boot đặc vào Windows',
  },
  {
    id: 'usb_not_recognized',
    title:  'USB không đặc nhận',
    icon:  'Ø=Ý ',
    description:  'Cắm USB không thấy, hoặc báo lỗi driver',
    difficulty:  'DÃ ',
    xpReward: 15,
    symptoms:  'USB cắm vào không đặc nhận, không thấy Õ USB',
  },
  {
    id: 'ram_error',
    title:  'Lỗi RAM',
    icon:  'Ø>Ýé ',
    description:  'Máy báo lỗi RAM, beep khi khởi Ùng',
    difficulty: 'Trung bình',
    xpReward: 30,
    symptoms:  'Máy báo lỗi RAM, có tiếng bíp khi khởi Ùng',
  },
  {
    id: 'vga_error',
    title:  'Lỗi card màn hình',
    icon:  'Ø<ß® ',
    description:  'Màn hình có sÍc, nhấp nháy, hoặc không có hình',
    difficulty: 'Khó',
    xpReward: 45,
    symptoms:  'Màn hình bË sÍc, nhấp nháy hoặc không có tín hiÇu të card
  },
  {
    id: 'keyboard_mouse',
    title:  'Bàn phím/ChuÙt không hoạt Ùng',
    icon:  '#(þ ',
    description:  'Bàn phím hoặc chuÙt không đặc nhận',
    difficulty:  'DÃ ',
    xpReward: 15,
    symptoms:  'Bàn phím hoặc chuÙt không hoạt Ùng',
  },
]

const TOOLS = [
      {  icon:  <Gauge size={18} />,  name:  'HWMonitor',  desc:  'Theo dõi nhiÇt
      {  icon:  <Disc size={18} />,  name:  'CrystalDiskInfo',  desc:  'KiÃm tra s
      {  icon:  <Radio size={18} />,  name:  'MemTest86',  desc:  'KiÃm tra lỗi RA
      {  icon:  <Shield size={18} />,  name:  'Windows Defender',  desc:  'Quét vi
      {  icon:  <Cpu size={18} />,  name:  'CPU-Z',  desc:  'Xem thông tin CPU, RA
      {  icon:  <Monitor size={18} />,  name:  'GPU-Z',  desc:  'Xem thông tin card
      {  icon:  <Wrench size={18} />,  name:  'DDU',  desc:  'Gá driver VGA t-n gÑ
      {  icon:  <HardDrive size={18} />,  name:  'HD Tune',  desc:  'KiÃm tra bad
]

const MODEL_LABELS: Record<string, { label: string; color: string }> = {
  gemini: { label: 'Gemini 1.5 Flash', color: '#4285F4' },
  groq: { label: 'Groq Llama 3.3', color: '#f97316' },
  openai: { label: 'OpenAI', color: '#00A67E' },
  huggingface: { label: 'HuggingFace', color: '#FFD21E' },
  'rule-based': { label: 'Local Engine', color: '#f59e0b' },
}

const TOTAL_XP = SCENARIOS.reduce((sum, s) => sum + s.xpReward, 0)

export default function ChanDoanPcPage() {
  const router = useRouter()
  const isMobile = useIsMobile()
  const [mode, setMode] = useState<'ai' | 'game'>('ai')
  const [symptoms, setSymptoms] = useState('')
  const [history, setHistory] = useState<QAStep[]>([])
  const [currentMessage, setCurrentMessage] = useState('')
  const [options, setOptions] = useState<string[]>([])
  const [diagnosis, setDiagnosis] = useState<DiagnosisResult | null>(null)
  const [loading, setLoading] = useState(false)
  const [started, setStarted] = useState(false)
  const [activeModel, setActiveModel] = useState<string>('')
  const [selectedScenario, setSelectedScenario] = useState<Scenario | null>(null)
  const [showScenarioPicker, setShowScenarioPicker] = useState(true)
  const [showToolbox, setShowToolbox] = useState(false)
  const [completedCount, setCompletedCount] = useState(0)
  const [earnedXp, setEarnedXp] = useState(0)
  const [showXpAnimation, setShowXpAnimation] = useState(false)
  const [lastXpAmount, setLastXpAmount] = useState(0)
  const bottomRef = useRef<HTMLDivElement>(null)

  useEffect(() => { bottomRef.current?.scrollIntoView({ behavior: 'smooth' }) }, [history, currentMessage])

  async function startDiagnosis(scenario?: Scenario) {
    const symptomText = scenario ? scenario.symptoms : symptoms
    if (!symptomText.trim()) return
    setLoading(true)
    setStarted(true)
    setSelectedScenario(scenario || null)
    setActiveModel('')
    try {
      const res = await fetch('/api/ai/diagnose-pc', {
        method: 'POST',
        headers: { 'Content-Type': 'application/json' },
        body: JSON.stringify({ symptoms: symptomText.trim(), answers: [] })
      })
      const data: AiResponse = await res.json()
      setActiveModel(data.model || '')
      if (data.type === 'diagnosis' && data.diagnosis) {
        data.diagnosis.xpReward = scenario?.xpReward || 25
        setDiagnosis(data.diagnosis)
        setCurrentMessage(data.message)
        setOptions([])
        awardXp(data.diagnosis.xpReward)
      } else {
        setCurrentMessage(data.message)
        setOptions(data.options || [])
      }
      }  catch  {  setCurrentMessage('Lỗi kết nÑi. Vui lòng thí l¡i.')  }
    finally { setLoading(false) }
  }

  async function handleOption(option: string) {
    const newHistory = [...history, { q: currentMessage, a: option }]
    setHistory(newHistory)
    setLoading(true)
    setCurrentMessage('')
    setOptions([])
```

```
242|     setActiveModel('')
243|     try {
244|       const res = await fetch('/api/ai/diagnose-pc', {
245|         method: 'POST',
246|         headers: { 'Content-Type': 'application/json' },
247|         body: JSON.stringify({ symptoms: selectedScenario?.symptoms || symptoms, answers: newHistory })
248|       })
249|       const data: AiResponse = await res.json()
250|       setActiveModel(data.model || '')
251|       if (data.type === 'diagnosis' && data.diagnosis) {
252|         data.diagnosis.xpReward = selectedScenario?.xpReward || 25
253|         setDiagnosis(data.diagnosis)
254|         setCurrentMessage(data.message)
255|         setOptions([])
256|         awardXp(data.diagnosis.xpReward)
257|       } else {
258|         setCurrentMessage(data.message)
259|         setOptions(data.options || [])
260|       }
   2 6 1 |         }  c a t c h  {  s e t C u r r e n t M e s s a g e ( ' L × i  k ¿ t  n Ñ i .  V u i  l ò n g  t h í  l ¡ i . ' )  }
262|     finally { setLoading(false) }
263|   }
264|
265|   function awardXp(amount: number) {
266|     setLastXpAmount(amount)
267|     setEarnedXp(prev => prev + amount)
268|     setCompletedCount(prev => prev + 1)
269|     setShowXpAnimation(true)
270|     setTimeout(() => setShowXpAnimation(false), 2500)
271|   }
272|
273|   function reset() {
274|     setStarted(false)
275|     setHistory([])
276|     setCurrentMessage('')
277|     setOptions([])
278|     setDiagnosis(null)
279|     setSymptoms('')
280|     setActiveModel('')
281|     setSelectedScenario(null)
282|     setShowScenarioPicker(true)
283|   }
284|
285|   function selectScenario(scenario: Scenario) {
286|     setShowScenarioPicker(false)
287|     setSelectedScenario(scenario)
288|     setSymptoms(scenario.symptoms)
289|     startDiagnosis(scenario)
290|   }
291|
292|   const modelInfo = activeModel ? MODEL_LABELS[activeModel] : null
293|
294|   return (
295|     <div className="min-h-screen flex flex-col" style={{ background: 'var(--bg-base)', color: 'var(--text-prim...
296|       {/* XP Banner */}
297|       <AnimatePresence>
298|         {showXpAnimation && (
299|           <motion.div
300|             initial={{ y: -80, opacity: 0 }}
301|             animate={{ y: 0, opacity: 1 }}
302|             exit={{ y: -80, opacity: 0 }}
303|             style={{
304|               position: 'fixed', top: 0, left: 0, right: 0, zIndex: 9999,
305|               background: 'linear-gradient(135deg, #f59e0b, #eab308)',
306|               color: '#000', textAlign: 'center', padding: '10px',
307|               fontWeight: 800, fontSize: '16px',
308|               boxShadow: '0 4px 20px rgba(245,158,11,0.4)',
309|             }}
310|           >
311|             <Star size={18} style={{ display: 'inline', marginRight: '8px', verticalAlign: 'middle' }} />
   3 1 2 |                        + { l a s t X p A m o u n t }  X P !  C h u © n  o á n  h o à n  t ¥ t !
313|           </motion.div>
314|         )}
315|       </AnimatePresence>
316|
317|       <header className="border-b p-4 flex items-center gap-3" style={{ background: 'var(--bg-surface)', borde...
318|         <button onClick={() => router.back()}
319|           className="flex items-center gap-1.5 px-3 py-1.5 border text-xs rounded-xl font-bold cursor-pointer"
320|           style={{ background: 'var(--bg-elevated)', borderColor: 'var(--border-default)', color: 'var(--text-...
   3 2 1 |                    < A r r o w L e f t  s i z e = { 1 4 }  / >  Q u a y  l ¡ i
322|         </button>
323|         <div style={{ width: '32px', height: '32px', borderRadius: '10px', background: 'linear-gradient(135deg...
324|           {mode === 'ai' ? <Bot size={16} style={{ color: '#000' }} /> : <Gamepad2 size={16} style={{ color: '...
325|         </div>
326|         <div>
   3 2 7 |                    < h 1  c l a s s N a m e = " f o n t - b l a c k  t e x t - s m "  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t
   3 2 8 |                    < p  c l a s s N a m e = " t e x t - x s "  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t - m u t e d ) '  } } >
329|         </div>
330|         <div style={{ marginLeft: 'auto', display: 'flex', gap: '4px', background: 'var(--bg-elevated)', borde...
331|           <button onClick={() => setMode('ai')}
332|             style={{ padding: '4px 10px', borderRadius: '8px', border: 'none', background: mode === 'ai' ? 'va...
333|             <Bot size={14} style={{ display: 'inline', verticalAlign: 'middle', marginRight: '4px' }} /> AI
334|           </button>
335|           <button onClick={() => setMode('game')}
336|             style={{ padding: '4px 10px', borderRadius: '8px', border: 'none', background: mode === 'game' ? '...
337|             <Gamepad2 size={14} style={{ display: 'inline', verticalAlign: 'middle', marginRight: '4px' }} /> ...
338|           </button>
339|         </div>
340|         {mode === 'ai' && modelInfo && (
341|           <div style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '4px 10px', borderRadius: ...
342|             {modelInfo.label}
343|           </div>
344|         )}
345|         {mode === 'ai' && (
346|           <button onClick={() => setShowToolbox(true)}
347|             className="flex items-center gap-1.5 px-3 py-1.5 border text-xs rounded-xl font-bold cursor-pointer"
348|             style={{ background: 'var(--bg-elevated)', borderColor: 'var(--border-default)', color: 'var(--tex...
   3 4 9 |                        < T o o l b o x  s i z e = { 1 4 }  / >  H Ú p  d ả n g  c ả
350|           </button>
351|         )}
352|       </header>
353|
354|       <div className="flex-1 overflow-y-auto p-4 max-w-3xl mx-auto w-full">
355|         {mode === 'game' ? (
356|           <div style={{ marginTop: '-16px' }}>
357|             <DiagnosisMode
358|               lang="vn"
359|               onComplete={(results) => { console.log('Diagnosis complete:', results); setMode('ai') }}
360|               onExit={() => setMode('ai')}
361|             />
362|           </div>
363|         ) : !started ? (
364|           <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}
365|             style={{ paddingTop: '20px' }}>
```

```
366|            {/* XP Progress */}
367|            <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '12px', margin...
368|              <div style={{ display: 'flex', alignItems: 'center', gap: '4px' }}>
369|                <Star size={14} style={{ color: '#f59e0b' }} />
370|                <span><strong style={{ color: '#f59e0b' }}>{earnedXp}</strong> / {TOTAL_XP} XP</span>
371|              </div>
372|              <span>|</span>
   3 7 3 |                          < s p a n >   ã   h o à n   t h à n h :   < s t r o n g > { c o m p l e t e d C o u n t } < / s t r o n g >   c a <
374|            </div>
375|
376|            {/* Scenario Picker */}
377|            {showScenarioPicker && (
378|              <>
379|                <div style={{ textAlign: 'center', marginBottom: '24px' }}>
   3 8 0 |                                  < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x ' ,   m a r g i n B o t t o m :   ' 1 2 p x '   }
   3 8 1 |                                  < h 2   s t y l e = { {   f o n t S i z e :   ' 2 2 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n
   3 8 2 |                                  < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 3 p
383|                </div>
384|
385|                <div style={{ display: 'grid', gridTemplateColumns: isMobile ? '1fr' : '1fr 1fr', gap: '8px', ...
386|                  {SCENARIOS.map((scenario) => (
387|                    <motion.button
388|                      key={scenario.id}
389|                      whileHover={{ scale: 1.02 }}
390|                      whileTap={{ scale: 0.98 }}
391|                      onClick={() => selectScenario(scenario)}
392|                      style={{
393|                        display: 'flex', alignItems: 'center', gap: '10px',
394|                        padding: '12px 14px', borderRadius: '12px',
395|                        border: '1px solid var(--border-default)',
396|                        background: 'var(--bg-surface)',
397|                        color: 'var(--text-primary)',
398|                        cursor: 'pointer', fontSize: '12px',
399|                        fontFamily: 'inherit', textAlign: 'left',
400|                        transition: 'all 0.15s',
401|                      }}
402|                    >
403|                      <span style={{ fontSize: '24px' }}>{scenario.icon}</span>
404|                      <div style={{ flex: 1, minWidth: 0 }}>
405|                        <div style={{ fontWeight: 700, fontSize: '12px', marginBottom: '2px' }}>{scenario.titl...
406|                        <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>{scenario.description}</...
407|                        <div style={{ display: 'flex', gap: '6px', marginTop: '4px' }}>
408|                          <span style={{
409|                            fontSize: '9px', padding: '1px 6px', borderRadius: '4px',
   4 1 0 |                                                  b a c k g r o u n d :   s c e n a r i o . d i f f i c u l t y   = = =   ' D Ã '   ?   '
   4 1 1 |                                                  c o l o r :   s c e n a r i o . d i f f i c u l t y   = = =   ' D Ã '   ?   ' # 1 0 b 9
412|                          }}>
413|                            {scenario.difficulty}
414|                          </span>
415|                          <span style={{ fontSize: '9px', padding: '1px 6px', borderRadius: '4px', background:...
416|                            +{scenario.xpReward} XP
417|                          </span>
418|                        </div>
419|                      </div>
420|                    </motion.button>
421|                  ))}
422|                </div>
423|
424|                <div style={{ position: 'relative', marginBottom: '24px' }}>
425|                  <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '8px' }}>
426|                    <div style={{ flex: 1, height: '1px', background: 'var(--border-default)' }} />
   4 2 7 |                                  < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' v a r ( - - t e x t -
428|                    <div style={{ flex: 1, height: '1px', background: 'var(--border-default)' }} />
429|                  </div>
430|                </div>
431|
432|                <div style={{ display: 'flex', gap: '8px', maxWidth: '600px', margin: '0 auto' }}>
433|                  <input value={symptoms} onChange={e => setSymptoms(e.target.value)}
434|                    onKeyDown={e => e.key === 'Enter' && startDiagnosis()}
   4 3 5 |                                  p l a c e h o l d e r = " N h - p   t r i Ç u   c h é n g   ( V D :   m á y   t í n h   k h ô n g   l é
436|                    style={{ flex: 1, padding: '14px 18px', borderRadius: '14px', border: '1px solid var(--bor...
437|                  />
438|                  <button onClick={() => startDiagnosis()} disabled={!symptoms.trim() || loading}
439|                    style={{ padding: '14px 28px', borderRadius: '14px', border: 'none', background: !symptoms...
   4 4 0 |                                  { l o a d i n g   ?   < L o a d e r 2   s i z e = { 1 8 }   s t y l e = { {   a n i m a t i o n :   ' s
441|                  </button>
442|                </div>
443|              </>
444|            )}
445|          </motion.div>
446|        ) : (
447|          <div style={{ display: 'flex', flexDirection: 'column', gap: '16px', paddingTop: '16px' }}>
448|            <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-muted)', marginBottom: '8px', ...
449|              <span style={{ width: '6px', height: '6px', borderRadius: '50%', background: 'var(--brand-primar...
   4 5 0 |                          < s p a n >   a n g   c h © n   o á n :   { s e l e c t e d S c e n a r i o   ?   s e l e c t e d S c e n a r i o
451|              {selectedScenario && (
452|                <span style={{ fontSize: '10px', padding: '2px 8px', borderRadius: '6px', background: 'rgba(24...
453|                  +{selectedScenario.xpReward} XP
454|                </span>
455|              )}
456|            </div>
457|
458|            {history.map((h, i) => (
459|              <motion.div key={i} initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }}>
460|                <div style={{ padding: '14px 18px', borderRadius: '14px', background: 'var(--bg-surface)', bor...
461|                  <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '8px' }}>
462|                    <HelpCircle size={16} style={{ color: 'var(--brand-primary)', flexShrink: 0 }} />
463|                    <span style={{ fontSize: '13px', color: 'var(--text-primary)', lineHeight: '1.5' }}>{h.q}<...
464|                  </div>
465|                </div>
466|                <div style={{ padding: '12px 18px', borderRadius: '12px', background: 'rgba(0,212,170,0.08)', ...
467|                  <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
   4 6 8 |                                  < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 2 p x ' ,   f o n t W e i g h t :   7 0 0 ,   c o
469|                    <span style={{ fontSize: '13px', color: 'var(--text-primary)' }}>{h.a}</span>
470|                  </div>
471|                </div>
472|              </motion.div>
473|            ))}
474|
475|            {loading && (
476|              <div style={{ display: 'flex', alignItems: 'center', gap: '10px', padding: '14px 18px', borderRa...
477|                <Loader2 size={16} style={{ animation: 'spin 1s linear infinite', color: 'var(--brand-primary)...
   4 7 8 |                              < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 3 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e
479|              </div>
480|            )}
481|
482|            {currentMessage && !loading && (
483|              <motion.div initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }}>
484|                {modelInfo && (
485|                  <div style={{ display: 'flex', alignItems: 'center', gap: '4px', marginBottom: '6px', fontSi...
   4 8 6 |                                  < s p a n > P h â n   t í c h   b ß i :   < s p a n   s t y l e = { {   c o l o r :   m o d e l I n f o
487|                  </div>
488|                )}
489|                {diagnosis ? (
```

```
490|                  <div style={{ padding: '24px', borderRadius: '16px', background: 'var(--bg-surface)', border...
491|                    <div style={{ display: 'flex', alignItems: 'center', gap: '10px', marginBottom: '20px' }}>
492|                      <div style={{ width: '40px', height: '40px', borderRadius: '12px', background: 'rgba(16,...
493|                        <CheckCircle2 size={22} style={{ color: '#10b981' }} />
494|                      </div>
495|                      <div>
  496 |                                                  < h 3   s t y l e = { {   f o n t S i z e :   ' 1 6 p x ' ,   f o n t W e i g h t :   8 0 0 ,
497|                        <p style={{ fontSize: '12px', color: 'var(--text-muted)', margin: '2px 0 0' }}>{diagno...
498|                      </div>
499|                    </div>
500|
501|                    <p style={{ fontSize: '14px', color: 'var(--text-primary)', marginBottom: '16px', lineHeig...
502|
503|                    <div style={{ marginBottom: '16px' }}>
504|                      <h4 style={{ fontSize: '13px', fontWeight: 700, color: 'var(--brand-primary)', marginBot...
505|                      <p style={{ fontSize: '13px', color: 'var(--text-primary)', lineHeight: '1.5' }}>{diagno...
506|                    </div>
507|
508|                    {diagnosis.fixSteps.length > 0 && (
509|                      <div style={{ marginBottom: '16px' }}>
510|                        <h4 style={{ fontSize: '13px', fontWeight: 700, color: 'var(--brand-primary)', marginB...
511|                        <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
512|                          {diagnosis.fixSteps.map((step, i) => (
513|                            <div key={i} style={{ display: 'flex', gap: '10px', padding: '10px 14px', borderRa...
514|                              <span style={{ width: '22px', height: '22px', borderRadius: '6px', background: '...
515|                              <span style={{ color: 'var(--text-primary)' }}>{step}</span>
516|                            </div>
517|                          ))}
518|                        </div>
519|                      </div>
520|                    )}
521|
522|                    {diagnosis.partsNeeded.length > 0 && (
523|                      <div style={{ marginBottom: '16px', padding: '12px 16px', borderRadius: '10px', backgrou...
524|                        <h4 style={{ fontSize: '13px', fontWeight: 700, color: '#f59e0b', marginBottom: '6px' ...
525|                        {diagnosis.partsNeeded.map((p, i) => (
526|                          <div key={i} style={{ fontSize: '13px', color: 'var(--text-primary)', padding: '2px ...
527|                        ))}
528|                      </div>
529|                    )}
530|
531|                    <div style={{ padding: '12px 16px', borderRadius: '10px', background: 'rgba(99,102,241,0.0...
532|                      <h4 style={{ fontSize: '13px', fontWeight: 700, color: '#818cf8', marginBottom: '4px' }}...
533|                      <p style={{ fontSize: '13px', color: 'var(--text-primary)', lineHeight: '1.5' }}>{diagno...
534|                    </div>
535|
536|                    <div style={{ display: 'flex', gap: '8px', marginTop: '20px' }}>
537|                      <button onClick={reset}
538|                        style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '12px 24px', bord...
  539 |                                                  < R e f r e s h C w   s i z e = { 1 4 }   / >   C h © n     o á n   P C   k h á c
540|                      </button>
541|                      <button onClick={() => setShowToolbox(true)}
542|                        style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '12px 24px', bord...
  543 |                                                  < T o o l b o x   s i z e = { 1 4 }   / >   D ẩ n g   c ả   s í a   c h ï a
544|                      </button>
545|                    </div>
546|                  </div>
547|                ) : (
548|                  <div style={{ padding: '16px', borderRadius: '14px', background: 'var(--bg-surface)', border...
549|                    <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '12px' }}>
550|                      <HelpCircle size={16} style={{ color: 'var(--brand-primary)', flexShrink: 0 }} />
551|                      <span style={{ fontSize: '14px', color: 'var(--text-primary)', lineHeight: '1.6' }}>{cur...
552|                    </div>
553|                    {options.length > 0 && (
554|                      <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
555|                        {options.map((opt, i) => (
556|                          <button key={i} onClick={() => handleOption(opt)}
557|                            style={{ padding: '12px 16px', borderRadius: '10px', border: '1px solid var(--bord...
558|                            onMouseOver={e => { e.currentTarget.style.borderColor = 'var(--brand-primary)'; e....
559|                            onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e....
560|                            {opt}
561|                          </button>
562|                        ))}
563|                      </div>
564|                    )}
565|                  </div>
566|                )}
567|              </motion.div>
568|            )}
569|            <div ref={bottomRef} />
570|          </div>
571|        )}
572|      </div>
573|
574|      {/* Toolbox Modal */}
575|      <AnimatePresence>
576|        {showToolbox && (
577|          <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} exit={{ opacity: 0 }}
578|            style={{ position: 'fixed', inset: 0, zIndex: 9998, background: 'rgba(0,0,0,0.5)', backdropFilter:...
579|            onClick={() => setShowToolbox(false)}>
580|            <motion.div initial={{ scale: 0.9, opacity: 0 }} animate={{ scale: 1, opacity: 1 }} exit={{ scale:...
581|              onClick={e => e.stopPropagation()}
582|              style={{ maxWidth: '600px', width: '100%', background: 'var(--bg-surface)', borderRadius: '20px'...
583|              <div style={{ display: 'flex', alignItems: 'center', gap: '10px', marginBottom: '20px' }}>
584|                <div style={{ width: '40px', height: '40px', borderRadius: '12px', background: 'linear-gradien...
585|                  <Toolbox size={20} style={{ color: '#000' }} />
586|                </div>
587|                <div>
  588 |                                                  < h 2   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   8 0 0 ,   m a r g i n
  589 |                                                  < p   s t y l e = { {   f o n t S i z e :   ' 1 2 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e d
590|                </div>
591|                <button onClick={() => setShowToolbox(false)}
592|                  style={{ marginLeft: 'auto', background: 'none', border: 'none', color: 'var(--text-muted)',...
  593 |                                                  '
594|                </button>
595|              </div>
596|
597|              <div style={{ display: 'grid', gridTemplateColumns: isMobile ? '1fr' : '1fr 1fr', gap: '10px' }}>
598|                {TOOLS.map((tool, i) => (
599|                  <div key={i} style={{ padding: '14px', borderRadius: '12px', background: 'var(--bg-elevated)...
600|                    <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '6px' }}>
601|                      <div style={{ width: '32px', height: '32px', borderRadius: '8px', background: 'rgba(99,1...
602|                        {tool.icon}
603|                      </div>
604|                      <div>
605|                        <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)' }}>{tool...
606|                        <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>{tool.desc}</div>
607|                      </div>
608|                    </div>
609|                    <div style={{ fontSize: '10px', color: 'var(--brand-primary)', fontWeight: 600, cursor: 'p...
610|                  </div>
611|                ))}
612|              </div>
613|
```

```
614|              <div style={{ marginTop: '16px', padding: '12px 14px', borderRadius: '10px', background: 'rgba(2...
615|                              <strong style={{ color: '#f59e0b' }}>Pro tip:</strong> C
616|              </div>
617|            </motion.div>
618|          </motion.div>
619|        )}
620|      </AnimatePresence>
621|
622|      <style>{`@keyframes spin { to { transform: rotate(360deg) } } @keyframes pulse { 0%,100% { opacity:1 } 5...
623|    </div>
624|  )
625| }
626|
```

File: app/component-lab/page.tsx (839 lines, 51.0 KB)

```
==========================================================================================
  1| 'use client'
  2|
  3| import React, { useState, useMemo } from 'react'
  4| import { motion, AnimatePresence } from 'framer-motion'
  5| import {
  6|   Search, Zap, Cpu, Monitor, HardDrive, CircuitBoard,
  7|   Fan, Wifi, Battery, Speaker, Shield, Radio, Smartphone,
  8|   MousePointer2, Keyboard, Headphones, Webcam, Eye,
  9|   Crosshair, Swords, Diamond, Heart, Star, Trophy,
 10|   ChevronRight, ChevronLeft, Layers, CheckCircle, XCircle,
 11|   BookOpen, Beaker, FlaskConical, GraduationCap,
 12| } from 'lucide-react'
 13|
 14| interface Spec {
 15|   label: string
 16|   value: string
 17| }
 18|
 19| interface Component {
 20|   id: string
 21|   name: string
 22|   icon: string
 23|   desc: string
 24|   role: string
 25|   specs: Spec[]
 26|   brands: string[]
 27|   tips: string
 28| }
 29|
 30| interface Category {
 31|   id: string
 32|   name: string
 33|   icon: React.ReactNode
 34|   color: string
 35|   items: Component[]
 36| }
 37|
 38| const COMPONENT_DATA: Category[] = [
 39|   {
 40|     id: 'cpu', name: 'CPU', color: '#3b82f6',
 41|     icon: <Cpu size={20} />,
 42|     items: [
 43|       {id: 'cpu-intel', name: 'Intel Core i9-14900K', icon: '&¡', desc:
 44|         specs: [
 45|           {label: 'SÑ nhân / LuÓng', value: '24 nhân (8P+16E) / 32 luÓn
 46|           {label: 'Xung nhËp c¡ b£n', value: '3.2 GHz (P-core) / 2.4 GH
 47|           {label: 'Xung nhËp Boost', value: 'Lên ¿n 6.0 GHz'},
 48|         { label: 'Cache L3', value: '36 MB Intel Smart Cache' },
 49|           {label: 'TDP', value: '125W (c¡ b£n) / 253W (tÑi a)'},
 50|         { label: 'Socket', value: 'LGA 1700' },
 51|           {label: 'H× trã RAM', value: 'DDR5-5600 / DDR4-3200'},
 52|         { label: 'PCIe', value: 'PCIe 5.0 (16 lane)' },
 53|           {label: 'Ki¿n trúc', value: 'Raptor Lake Refresh'},
 54|           {label: 'Tích hãp GPU', value: 'Intel UHD Graphics 770'},
 55|         ],
 56|         brands: ['Intel', 'AMD'],
 57|         tips: 'ChÍn CPU dña trên nhu c§u: Intel m¡nh gaming ¡n luÓng, A
 58|       {id: 'cpu-amd', name: 'AMD Ryzen 7 7800X3D', icon: 'Ø=Ý%', desc: 'C
 59|         specs: [
 60|           {label: 'SÑ nhân / LuÓng', value: '8 nhân / 16 luÓng'},
 61|           {label: 'Xung nhËp c¡ b£n', value: '4.2 GHz'},
 62|           {label: 'Xung nhËp Boost', value: 'Lên ¿n 5.0 GHz'},
 63|         { label: 'Cache L3', value: '96 MB (3D V-Cache)' },
 64|         { label: 'TDP', value: '120W' },
 65|         { label: 'Socket', value: 'AM5' },
 66|           {label: 'H× trã RAM', value: 'DDR5-5200'},
 67|         { label: 'PCIe', value: 'PCIe 5.0 (24 lane)' },
 68|           {label: 'Ki¿n trúc', value: 'Zen 4'},
 69|           {label: 'Tích hãp GPU', value: 'AMD Radeon Graphics (2 nhân)'
 70|         ],
 71|         brands: ['AMD', 'Intel'],
 72|         tips: 'CPU AMD AM5 h× trã lâu dài - có thÃ nâng c¥p lên Zen 6+ t
 73|       {id: 'cpu-budget', name: 'Intel Core i5-14600K', icon: 'Ø=Üª', desc
 74|         specs: [
 75|           {label: 'SÑ nhân / LuÓng', value: '14 nhân (6P+8E) / 20 luÓng
 76|           {label: 'Xung nhËp Boost', value: 'Lên ¿n 5.3 GHz'},
 77|         { label: 'Cache L3', value: '24 MB' },
 78|           {label: 'TDP', value: '125W / 181W tÑi a'},
 79|         { label: 'Socket', value: 'LGA 1700' },
 80|           {label: 'H× trã RAM', value: 'DDR5 / DDR4'},
 81|         ],
 82|         brands: ['Intel'],
 83|         tips: 'i5-14600K là "ngÍt ngào nh¥t" cho gaming - hiÇu n ng g§n
 84|       ]
 85|     },
 86|     {
 87|       id: 'gpu', name: 'GPU', color: '#22c55e',
 88|       icon: <Monitor size={20} />,
 89|       items: [
 90|       {id: 'gpu-nvidia', name: 'NVIDIA RTX 4090', icon: 'Ø=ßâ', desc: 'Ca
 91|         specs: [
 92|         { label: 'Nhân CUDA', value: '16.384 CUDA Cores' },
 93|         { label: 'VRAM', value: '24 GB GDDR6X' },
 94|           {label: 'Xung nhËp Boost', value: '2.52 GHz'},
 95|           {label: 'B ng thông', value: '1.008 GB/s'},
 96|         { label: 'TDP', value: '450W' },
 97|           {label: 'Ray Tracing', value: 'Th¿ hÇ 3 (RT Cores)'},
 98|         { label: 'DLSS', value: '3.5 (Frame Generation)' },
 99|           {label: 'K¿t nÑi', value: 'PCIe 4.0 x16'},
100|         { label: 'HDMI/DP', value: 'HDMI 2.1 + 3x DP 1.4a' },
101|           {label: 'Kích th°Ûc', value: '3.5 slot, 304mm'},
102|         ],
103|         brands: ['NVIDIA', 'ASUS', 'MSI', 'Gigabyte'],
104|         tips: 'RTX 4090 là card m¡nh nh¥t nh°ng c§n nguÓn 850W+ và case
105|       {id: 'gpu-amd', name: 'AMD Radeon RX 7900 XTX', icon: 'Ø=Ý', desc:
106|         specs: [
107|         { label: 'Nhân Stream', value: '6.144 Stream Processors' },
```

```
108|          { label: 'VRAM', value: '24 GB GDDR6' },
  1 0 9 |                    {  l a b e l :  ' X u n g  n h Ë p ' ,  v a l u e :  ' L ê n  ¿ n  2 . 5  G H z '  } ,
  1 1 0 |                    {  l a b e l :  ' B  n g  t h ô n g ' ,  v a l u e :  ' 9 6 0  G B / s '  } ,
111|          { label: 'TDP', value: '355W' },
  1 1 2 |                    {  l a b e l :  ' R a y  T r a c i n g ' ,  v a l u e :  ' T h ¿  h Ç  2 '  } ,
113|          { label: 'FSR', value: '3.0' },
  1 1 4 |                    {  l a b e l :  ' K ¿ t  n Ñ i ' ,  v a l u e :  ' P C I e  4 . 0  x 1 6 '  } ,
115|        ],
116|        brands: ['AMD', 'ASUS', 'Sapphire'],
  1 1 7 |                t i p s :  ' A M D  R X  7 9 0 0  X T X  c ó  V R A M  2 4 G B  g i á  r »  h ¡ n  N V I D I A .  P h ù  h ã p  c
  1 1 8 |              {  i d :  ' g p u - m i d ' ,  n a m e :  ' N V I D I A  R T X  4 0 7 0  S u p e r ' ,  i c o n :  ' Ø = Ü š ' ,  d e s c :
119|        specs: [
120|          { label: 'Nhân CUDA', value: '7.168 CUDA Cores' },
121|          { label: 'VRAM', value: '12 GB GDDR6X' },
122|          { label: 'TDP', value: '220W' },
  1 2 3 |                    {  l a b e l :  ' R a y  T r a c i n g ' ,  v a l u e :  ' T h ¿  h Ç  3 '  } ,
124|          { label: 'DLSS', value: '3.5' },
  1 2 5 |                    {  l a b e l :  ' G i á  t h a m  k h £ o ' ,  v a l u e :  ' ~ 6 0 0  U S D '  } ,
126|        ],
127|        brands: ['NVIDIA', 'ASUS', 'MSI'],
  1 2 8 |                t i p s :  ' R T X  4 0 7 0  S u p e r  l à  l ñ a  c h Í n  t Ñ t  n h ¥ t  c h o  g a m i n g  1 4 4 0 P  v Û i
129|      ]
130|    },
131|    {
132|      id: 'ram', name: 'RAM', color: '#f59e0b',
133|      icon: <Zap size={20} />,
134|      items: [
  1 3 5 |              {  i d :  ' r a m - d d r 5 ' ,  n a m e :  ' D D R 5 - 6 0 0 0  3 2 G B  ( 2 x 1 6 G B ) ' ,  i c o n :  ' Ø > Ý à ' ,  d e s
136|        specs: [
  1 3 7 |                    {  l a b e l :  ' D u n g  l ° ã n g ' ,  v a l u e :  ' 3 2  G B  ( 2  x  1 6  G B ) '  } ,
  1 3 8 |                    {  l a b e l :  ' L o ¡ i  R A M ' ,  v a l u e :  ' D D R 5 '  } ,
  1 3 9 |                    {  l a b e l :  ' T Ñ c  Ù ' ,  v a l u e :  ' 6 0 0 0  M T / s '  } ,
140|          { label: 'CAS Latency', value: 'CL30-36-36-76' },
  1 4 1 |                    {  l a b e l :  '  i Ç n  á p ' ,  v a l u e :  ' 1 . 3 5 V '  } ,
  1 4 2 |                    {  l a b e l :  ' H e a t  S p r e a d e r ' ,  v a l u e :  ' N h ô m  t £ n  n h i Ç t  c a o  c ¥ p '  } ,
  1 4 3 |                    {  l a b e l :  ' R G B ' ,  v a l u e :  ' H ×  t r ã  ( t ù y  p h i ê n  b £ n ) '  } ,
144|          { label: 'XMP / EXPO', value: 'Intel XMP 3.0 / AMD EXPO' },
  1 4 5 |                    {  l a b e l :  ' B  n g  t h ô n g ' ,  v a l u e :  ' 4 8  G B / s '  } ,
  1 4 6 |                    {  l a b e l :  ' K ê n h ' ,  v a l u e :  ' D u a l  C h a n n e l  ( k ê n h  ô i ) '  } ,
147|        ],
148|        brands: ['G.Skill', 'Corsair', 'Kingston', 'TeamGroup'],
  1 4 9 |                t i p s :  ' C h Í n  R A M  c ó  C L  c à n g  t h ¥ p  c à n g  t Ñ t .  D D R 5 - 6 0 0 0  C L 3 0  l à  " s w e
  1 5 0 |              {  i d :  ' r a m - d d r 4 ' ,  n a m e :  ' D D R 4 - 3 6 0 0  1 6 G B  ( 2 x 8 G B ) ' ,  i c o n :  ' Ø = Ü ¾ ' ,  d e s c
151|        specs: [
  1 5 2 |                    {  l a b e l :  ' D u n g  l ° ã n g ' ,  v a l u e :  ' 1 6  G B  ( 2  x  8  G B ) '  } ,
  1 5 3 |                    {  l a b e l :  ' L o ¡ i  R A M ' ,  v a l u e :  ' D D R 4 '  } ,
  1 5 4 |                    {  l a b e l :  ' T Ñ c  Ù ' ,  v a l u e :  ' 3 6 0 0  M T / s '  } ,
155|          { label: 'CAS Latency', value: 'CL16' },
  1 5 6 |                    {  l a b e l :  '  i Ç n  á p ' ,  v a l u e :  ' 1 . 3 5 V '  } ,
157|          { label: 'Kênh', value: 'Dual Channel' },
158|        ],
159|        brands: ['Corsair', 'G.Skill', 'Kingston'],
  1 6 0 |                t i p s :  ' D D R 4  v « n  r ¥ t  t Ñ t  c h o  g a m i n g .  1 6 G B  l à  ç  c h o  h § u  h ¿ t  g a m e ,
161|      ]
162|    },
163|    {
164|      id: 'motherboard', name: 'Mainboard', color: '#8b5cf6',
165|      icon: <CircuitBoard size={20} />,
166|      items: [
  1 6 7 |              {  i d :  ' m b - a t x ' ,  n a m e :  ' A S U S  R O G  Z 7 9 0 - E  G a m i n g ' ,  i c o n :  ' Ø = Þ á þ ' ,  d e s c :
168|        specs: [
169|          { label: 'Form Factor', value: 'ATX' },
170|          { label: 'Chipset', value: 'Intel Z790' },
171|          { label: 'Socket', value: 'LGA 1700' },
  1 7 2 |                    {  l a b e l :  ' K h e  R A M ' ,  v a l u e :  ' 4 x  D D R 5  ( t Ñ i  a  1 9 2 G B ) '  } ,
173|          { label: 'Khe PCIe', value: '2x PCIe 5.0 x16, 1x PCIe 4.0 x16' },
174|          { label: 'Khe M.2', value: '5x M.2 NVMe' },
  1 7 5 |                    {  l a b e l :  ' C Ö n g  S A T A ' ,  v a l u e :  ' 6 x  S A T A  I I I '  } ,
176|          { label: 'USB', value: 'USB 3.2 Gen 2x2 Type-C' },
177|          { label: 'WiFi', value: 'WiFi 6E + Bluetooth 5.3' },
178|          { label: 'Âm thanh', value: 'Realtek ALC4080 7.1' },
179|        ],
180|        brands: ['ASUS', 'MSI', 'Gigabyte', 'ASRock'],
  1 8 1 |                t i p s :  ' C h Í n  m a i n b o a r d  d ñ a  t r ê n  C P U :  Z 7 9 0  c h o  I n t e l ,  B 6 5 0 / X 6 7 0  c h
  1 8 2 |              {  i d :  ' m b - m a t x ' ,  n a m e :  ' M S I  M A G  B 6 5 0 M  M o r t a r ' ,  i c o n :  ' Ø = Ý ' ' ,  d e s c :  '
183|        specs: [
184|          { label: 'Form Factor', value: 'Micro-ATX' },
185|          { label: 'Chipset', value: 'AMD B650' },
186|          { label: 'Socket', value: 'AM5' },
187|          { label: 'Khe RAM', value: '4x DDR5' },
188|          { label: 'Khe PCIe', value: '1x PCIe 4.0 x16' },
189|          { label: 'Khe M.2', value: '2x M.2' },
190|          { label: 'WiFi', value: 'WiFi 6E' },
191|        ],
192|        brands: ['MSI', 'ASUS', 'Gigabyte'],
  1 9 3 |                t i p s :  ' M a i n b o a r d  B 6 5 0  l à  l ñ a  c h Í n  t Ñ t  n h ¥ t  c h o  A M D  t § m  t r u n g ,  c o
194|      ]
195|    },
196|    {
  1 9 7 |          i d :  ' s t o r a g e ' ,  n a m e :  ' L ° u  t r ï ' ,  c o l o r :  ' # 0 6 b 6 d 4 ' ,
198|      icon: <HardDrive size={20} />,
199|      items: [
  2 0 0 |              {  i d :  ' s s d - n v m e ' ,  n a m e :  ' S a m s u n g  9 9 0  P r o  2 T B ' ,  i c o n :  ' Ø = Þ € ' ,  d e s c :  '
201|        specs: [
  2 0 2 |                    {  l a b e l :  ' D u n g  l ° ã n g ' ,  v a l u e :  ' 2  T B '  } ,
  2 0 3 |                    {  l a b e l :  ' L o ¡ i ' ,  v a l u e :  ' N V M e  M . 2  P C I e  4 . 0 '  } ,
  2 0 4 |                    {  l a b e l :  ' T Ñ c  Ù  Í c ' ,  v a l u e :  ' 7 . 4 5 0  M B / s '  } ,
  2 0 5 |                    {  l a b e l :  ' T Ñ c  Ù  G h i ' ,  v a l u e :  ' 6 . 9 0 0  M B / s '  } ,
206|          { label: 'TBW', value: '1.200 TB' },
207|          { label: 'NAND', value: 'Samsung V-NAND 3-bit MLC' },
208|          { label: 'DRAM Cache', value: '2 GB LPDDR4' },
  2 0 9 |                    {  l a b e l :  ' B £ o  h à n h ' ,  v a l u e :  ' 5  n  m '  } ,
  2 1 0 |                    {  l a b e l :  ' K í c h  t h ° Û c ' ,  v a l u e :  ' M . 2  2 2 8 0 '  } ,
211|          { label: 'Controller', value: 'Samsung Pascal' },
212|        ],
213|        brands: ['Samsung', 'Western Digital', 'SK Hynix', 'Crucial'],
  2 1 4 |                t i p s :  ' L u ô n  c à i  W i n d o w s  v à  g a m e  t r ê n  S S D  N V M e .  D u n g  l ° ã n g  1 T B  l à
  2 1 5 |              {  i d :  ' s s d - s a t a ' ,  n a m e :  ' C r u c i a l  M X 5 0 0  1 T B ' ,  i c o n :  ' Ø = Ü ¿ ' ,  d e s c :  ' S S
216|        specs: [
  2 1 7 |                    {  l a b e l :  ' D u n g  l ° ã n g ' ,  v a l u e :  ' 1  T B '  } ,
  2 1 8 |                    {  l a b e l :  ' L o ¡ i ' ,  v a l u e :  ' S A T A  I I I  2 . 5  i n c h '  } ,
  2 1 9 |                    {  l a b e l :  ' T Ñ c  Ù  Í c ' ,  v a l u e :  ' 5 6 0  M B / s '  } ,
  2 2 0 |                    {  l a b e l :  ' T Ñ c  Ù  G h i ' ,  v a l u e :  ' 5 1 0  M B / s '  } ,
221|          { label: 'TBW', value: '360 TB' },
  2 2 2 |                    {  l a b e l :  ' B £ o  h à n h ' ,  v a l u e :  ' 5  n  m '  } ,
223|        ],
224|        brands: ['Crucial', 'Samsung', 'WD'],
  2 2 5 |                t i p s :  ' D ù n g  S S D  S A T A  c h o  l ° u  t r ï  d ï  l i Ç u ,  g a m e  c i .  N V M e  c h o  g a m e
  2 2 6 |              {  i d :  ' h d d ' ,  n a m e :  ' S e a g a t e  B a r r a c u d a  4 T B ' ,  i c o n :  ' Ø = Ü À ' ,  d e s c :  ' H D D
227|        specs: [
  2 2 8 |                    {  l a b e l :  ' D u n g  l ° ã n g ' ,  v a l u e :  ' 4  T B '  } ,
  2 2 9 |                    {  l a b e l :  ' L o ¡ i ' ,  v a l u e :  ' H D D  3 . 5  i n c h '  } ,
  2 3 0 |                    {  l a b e l :  ' T Ñ c  Ù  q u a y ' ,  v a l u e :  ' 5 . 4 0 0  R P M '  } ,
  2 3 1 |                    {  l a b e l :  ' T Ñ c  Ù  Í c ' ,  v a l u e :  ' ~ 1 9 0  M B / s '  } ,
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232|          { label: 'Cache', value: '256 MB' },
  2 3 3 |                    {  l a b e l :  ' B £ o  h à n h ',  v a l u e :  ' 2  n  m '  },
234|        ],
235|        brands: ['Seagate', 'Western Digital', 'Toshiba'],
  2 3 6 |                t i p s :  ' H D D  c h É  n é n  d ù n g  c h o  b a c k u p  d ï  l i Ç u,  n h ¡ c,  p h i m.  K h ô n g  c ä
237|      ]
238|    },
239|    {
  2 4 0 |          i d :  ' p s u ',  n a m e :  ' N g u Ó n ',  c o l o r :  ' # e f 4 4 4 4 ',
241|      icon: <Battery size={20} />,
242|      items: [
  2 4 3 |                {  i d :  ' p s u - g o l d ',  n a m e :  ' C o r s a i r  R M 8 5 0 x ',  i c o n :  '&¡ ',  d e s c :  ' N g u Ó n
244|        specs: [
  2 4 5 |                    {  l a b e l :  ' C ô n g  s u ¥ t ',  v a l u e :  ' 8 5 0 W '  },
  2 4 6 |                    {  l a b e l :  ' C h u © n  h i Ç u  s u ¥ t ',  v a l u e :  ' 8 0 +  G o l d  ( 8 7 - 9 0 % ) '  },
  2 4 7 |                    {  l a b e l :  ' L o ¡ i ',  v a l u e :  ' F u l l y  M o d u l a r '  },
  2 4 8 |                    {  l a b e l :  ' C h u © n _ A T X ',  v a l u e :  ' A T X  3 . 0  /  P C I e  5 . 0 '  },
  2 4 9 |                    {  l a b e l :  '  § u  c  m  1 2 V H P W R ',  v a l u e :  ' C ó '  },
  2 5 0 |                    {  l a b e l :  ' Q u ¡ t ',  v a l u e :  ' 1 3 5 m m  P W M '  },
  2 5 1 |                    {  l a b e l :  ' F a n l e s s  M o d e ',  v a l u e :  ' Z e r o  R P M  ( t £ i  t h ¥ p ) '  },
  2 5 2 |                    {  l a b e l :  ' B £ o  h à n h ',  v a l u e :  ' 1 0  n  m '  },
  2 5 3 |                    {  l a b e l :  ' B £ o  v Ç ',  v a l u e :  ' O V P,  U V P,  S C P,  O T P,  O P P '  },
  2 5 4 |                    {  l a b e l :  ' K í c h  t h ° Û c ',  v a l u e :  ' 1 5 0  x  1 6 0  x  8 6 m m '  },
255|        ],
256|        brands: ['Corsair', 'Seasonic', 'EVGA', 'Cooler Master'],
  2 5 7 |                t i p s :  ' C h Í n  n g u Ó n  d °  c ô n g  s u ¥ t  2 0 - 3 0 %  s o  v Û i  n h u  c § u.  8 5 0 W  c h o  h
  2 5 8 |                {  i d :  ' p s u - p l a t i n u m ',  n a m e :  ' S e a s o n i c  P R I M E  T X - 1 0 0 0 ',  i c o n :  'Ø=ÜŽ ',
259|        specs: [
  2 6 0 |                    {  l a b e l :  ' C ô n g  s u ¥ t ',  v a l u e :  ' 1 0 0 0 W '  },
  2 6 1 |                    {  l a b e l :  ' C h u © n  h i Ç u  s u ¥ t ',  v a l u e :  ' 8 0 +  T i t a n i u m  ( 9 4 - 9 6 % ) '  },
  2 6 2 |                    {  l a b e l :  ' L o ¡ i ',  v a l u e :  ' F u l l y  M o d u l a r '  },
  2 6 3 |                    {  l a b e l :  ' B £ o  h à n h ',  v a l u e :  ' 1 2  n  m '  },
  2 6 4 |                    {  l a b e l :  ' C h u © n  A T X ',  v a l u e :  ' A T X  3 . 0 '  },
265|        ],
266|        brands: ['Seasonic', 'Corsair'],
  2 6 7 |                t i p s :  ' N g u Ó n  T i t a n i u m  ¯ t  h ¡ n  n h ° n g  t i ¿ t  k i Ç m  i Ç n  v à  b Á n  h ¡ n.
268|      ]
269|    },
270|    {
  2 7 1 |          i d :  ' c o o l i n g ',  n a m e :  ' T £ n  n h i Ç t ',  c o l o r :  ' # 0 6 b 6 d 4 ',
272|      icon: <Fan size={20} />,
273|      items: [
  2 7 4 |                {  i d :  ' a i o - 3 6 0 ',  n a m e :  ' A I O  3 6 0 m m  -  N Z X T  K r a k e n  X 7 3 ',  i c o n :  ''Dþ ',
275|        specs: [
  2 7 6 |                    {  l a b e l :  ' L o ¡ i ',  v a l u e :  ' A l l - I n - O n e  L i q u i d  C o o l e r '  },
  2 7 7 |                    {  l a b e l :  ' K í c h  t h ° Û c  R a d i a t o r ',  v a l u e :  ' 3 6 0 m m  x  1 2 0 m m  x  3 0 m m '
  2 7 8 |                    {  l a b e l :  ' Q u ¡ t ',  v a l u e :  ' 3 x  1 2 0 m m  P W M '  },
  2 7 9 |                    {  l a b e l :  ' T Ñ c  Ù  q u ¡ t ',  v a l u e :  ' 5 0 0  -  2 0 0 0  R P M '  },
  2 8 0 |                    {  l a b e l :  ' L u Ó n g  k h í ',  v a l u e :  ' ~ 7 8  C F M '  },
  2 8 1 |                    {  l a b e l :  '  Ù  Ó n ',  v a l u e :  ' 2 1  -  3 6  d B A '  },
282|          { label: 'Pump', value: 'Asetek 7th gen' },
  2 8 3 |                    {  l a b e l :  ' T ° ¡ n g  t h í c h ',  v a l u e :  ' I n t e l  L G A  1 7 0 0 / 1 2 0 0,  A M D  A M 5 / A
284|          { label: 'RGB', value: 'RGB trên pump mirror' },
  2 8 5 |                    {  l a b e l :  ' B £ o  h à n h ',  v a l u e :  ' 6  n  m '  },
286|        ],
287|        brands: ['NZXT', 'Corsair', 'Cooler Master', 'Lian Li'],
  2 8 8 |                t i p s :  ' A I O  3 6 0 m m  c h o  C P U  I n t e l  i 7 / i 9  h o · c  A M D  R y z e n  7 / 9.  2 4 0 m m / 2
  2 8 9 |                {  i d :  ' a i r - c o o l e r ',  n a m e :  ' N o c t u a  N H - D 1 5 ',  i c o n :  'Ø<ß ',  d e s c :  ' T £ n
290|        specs: [
  2 9 1 |                    {  l a b e l :  ' L o ¡ i ',  v a l u e :  ' D u a l  T o w e r  A i r  C o o l e r '  },
  2 9 2 |                    {  l a b e l :  ' K í c h  t h ° Û c ',  v a l u e :  ' 1 5 0  x  1 6 5  x  1 3 5 m m '  },
  2 9 3 |                    {  l a b e l :  ' Q u ¡ t ',  v a l u e :  ' 2 x  N F - A 1 5  1 4 0 m m  P W M '  },
  2 9 4 |                    {  l a b e l :  ' T Ñ c  Ù  q u ¡ t ',  v a l u e :  ' 3 0 0  -  1 5 0 0  R P M '  },
  2 9 5 |                    {  l a b e l :  ' L u Ó n g  k h í ',  v a l u e :  ' ~ 1 4 0  C F M '  },
  2 9 6 |                    {  l a b e l :  '  Ù  Ó n ',  v a l u e :  ' ~ 2 4  d B A '  },
  2 9 7 |                    {  l a b e l :  ' S Ñ  h e a t p i p e ',  v a l u e :  ' 6  Ñ n g  Ó n g  Ø 6 m m '  },
  2 9 8 |                    {  l a b e l :  ' T D P  h ×  t r ã ',  v a l u e :  ' ~ 2 5 0 W '  },
  2 9 9 |                    {  l a b e l :  ' B £ o  h à n h ',  v a l u e :  ' 6  n  m '  },
300|        ],
301|        brands: ['Noctua', 'be quiet!', 'DeepCool', 'Thermalright'],
  3 0 2 |                t i p s :  ' T £ n  k h í  c a o  c ¥ p  n h °  N H - D 1 5  a n  t o à n  h ¡ n  A I O,  k h ô n g  l o  r ò  n
303|      ]
304|    },
305|    {
306|      id: 'case', name: 'Case', color: '#a78bfa',
307|      icon: <Monitor size={20} />,
308|      items: [
  3 0 9 |                {  i d :  ' c a s e - m i d ',  n a m e :  ' L i a n  L i  O 1 1  D y n a m i c  E V O ',  i c o n :  'Ø<ß×þ ',  d e
310|        specs: [
  3 1 1 |                    {  l a b e l :  ' K í c h  t h ° Û c ',  v a l u e :  ' M i d - T o w e r '  },
  3 1 2 |                    {  l a b e l :  ' H ×  t r ã  M a i n b o a r d ',  v a l u e :  ' A T X,  M - A T X,  I T X '  },
  3 1 3 |                    {  l a b e l :  ' H ×  t r ã  G P U ',  v a l u e :  ' T Ñ i  a  4 2 0 m m '  },
  3 1 4 |                    {  l a b e l :  ' H ×  t r ã  C P U  C o o l e r ',  v a l u e :  ' T Ñ i  a  1 5 5 m m '  },
  3 1 5 |                    {  l a b e l :  ' H ×  t r ã  R a d i a t o r ',  v a l u e :  ' 3 6 0 m m  t o p / s i d e / b o t t o m '  },
  3 1 6 |                    {  l a b e l :  ' K h e  m ß  r Ù n g ',  v a l u e :  ' 7  k h e '  },
  3 1 7 |                    {  l a b e l :  ' Ô  c é n g ',  v a l u e :  ' 2 x  3 . 5 "  +  4 x  2 . 5 " '  },
  3 1 8 |                    {  l a b e l :  ' C h ¥ t  l i Ç u ',  v a l u e :  ' K í n h  c ° Ý n g  l ñ c  +  T h é p  +  N h ô m '  },
  3 1 9 |                    {  l a b e l :  ' L u Ó n g  k h í ',  v a l u e :  ' B o t t o m  i n t a k e,  t o p / s i d e  e x h a u s t '
  3 2 0 |                    {  l a b e l :  ' K í c h  t h ° Û c ',  v a l u e :  ' 4 4 5  x  2 7 2  x  4 4 6  m m '  },
321|        ],
322|        brands: ['Lian Li', 'Corsair', 'Fractal Design', 'NZXT'],
  3 2 3 |                t i p s :  ' C h Í n  c a s e  c ó  l u Ó n g  k h í  t Ñ t,  ç  c h ×  c h o  G P U  d à i.  M e s h  f r o n
  3 2 4 |                {  i d :  ' c a s e - m i n i ',  n a m e :  ' F r a c t a l  D e s i g n  N o r t h ',  i c o n :  'Ø>Þµ ',  d e s c :
325|        specs: [
  3 2 6 |                    {  l a b e l :  ' K í c h  t h ° Û c ',  v a l u e :  ' M i d - T o w e r  A T X '  },
  3 2 7 |                    {  l a b e l :  ' C h ¥ t  l i Ç u ',  v a l u e :  ' T h é p  +  G ×  ó c  c h ó  +  K í n h /  M e s h '  }
  3 2 8 |                    {  l a b e l :  ' H ×  t r ã  G P U ',  v a l u e :  ' T Ñ i  a  3 5 5 m m '  },
  3 2 9 |                    {  l a b e l :  ' H ×  t r ã  R a d i a t o r ',  v a l u e :  ' 2 4 0 / 2 8 0 m m  f r o n t '  },
  3 3 0 |                    {  l a b e l :  ' Q u ¡ t  i  k è m ',  v a l u e :  ' 2 x  1 4 0 m m  A s p e c t '  },
331|        ],
332|        brands: ['Fractal Design', 'Corsair', 'be quiet!'],
  3 3 3 |                t i p s :  ' C a s e  ¹ p  g i ú p  k h ô n g  g i a n  l à m  v i Ç c  s a n g  t r Í n g  h ¡ n.  ë n g  q u
334|      ]
335|    },
336|    {
  3 3 7 |          i d :  ' p e r i p h e r a l ',  n a m e :  ' N g o ¡ i  v i ',  c o l o r :  ' # f 9 7 3 1 6 ',
338|      icon: <MousePointer2 size={20} />,
339|      items: [
  3 4 0 |                {  i d :  ' m o n i t o r ',  n a m e :  ' L G  2 7 G P 9 5 0 - B  4 K  1 6 0 H z ',  i c o n :  'Ø=Ý¥þ ',  d e s c :
341|        specs: [
  3 4 2 |                    {  l a b e l :  ' K í c h  t h ° Û c ',  v a l u e :  ' 2 7  i n c h '  },
  3 4 3 |                    {  l a b e l :  '  Ù  p h â n  g i £ i ',  v a l u e :  ' 3 8 4 0  x  2 1 6 0  ( 4 K  U H D ) '  },
  3 4 4 |                    {  l a b e l :  ' T § n  s Ñ  q u é t ',  v a l u e :  ' 1 6 0 H z '  },
345|          { label: 'Panel', value: 'Nano IPS' },
  3 4 6 |                    {  l a b e l :  ' T h Ý i  g i a n  p h £ n  h Ó i ',  v a l u e :  ' 1 m s  G T G '  },
347|          { label: 'HDR', value: 'DisplayHDR 600' },
  3 4 8 |                    {  l a b e l :  '  Ù  p h ç  m à u ',  v a l u e :  ' D C I - P 3  9 8 % '  },
  3 4 9 |                    {  l a b e l :  ' K ¿ t  n Ñ i ',  v a l u e :  ' H D M I  2 . 1  +  D P  1 . 4  +  U S B - C '  },
350|          { label: 'G-Sync / FreeSync', value: 'G-Sync Compatible + FreeSync' },
  3 5 1 |                    {  l a b e l :  '  i Á u  c h É n h ',  v a l u e :  ' C a o,  x o a y,  n g h i ê n g '  },
352|        ],
353|        brands: ['LG', 'ASUS', 'Samsung', 'Dell'],
  3 5 4 |                t i p s :  ' 2 7 "  1 4 4 0 P  l à  " s w e e t  s p o t "  c h o  g a m i n g.  4 K  c h o  Ó  h Í a  v à  g a
  3 5 5 |                {  i d :  ' k e y b o a r d ',  n a m e :  ' L o g i t e c h  G  P r o  X ',  i c o n :  '#(þ ',  d e s c :  ' B à n
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356|         specs: [
   3 5 7 |                    {  l a b e l :  ' K í c h  t h º Û c ' ,  v a l u e :  ' 6 0 %  ( k h ô n g  n u m p a d ) '  } ,
   3 5 8 |                    {  l a b e l :  ' S w i t c h ' ,  v a l u e :  ' G X  B l u e / C l i c k y  h o · c  G X  R e d / L i n e a r '
   3 5 9 |                    {  l a b e l :  ' K ¿ t  n Ñ i ' ,  v a l u e :  ' U S B - C  c ó  d â y '  } ,
360|           { label: 'Keycap', value: 'PBT Doubleshot' },
361|           { label: 'RGB', value: 'Per-key RGB' },
362|           { label: 'Software', value: 'G Hub' },
363|           { label: 'Polling Rate', value: '1000Hz' },
364|         ],
365|         brands: ['Logitech', 'Razer', 'Corsair', 'Ducky'],
   3 6 6 |                t i p s :  ' S w i t c h  L i n e a r  ( R e d )  c h o  g a m i n g ,  C l i c k y  ( B l u e )  c h o  g õ  v  n
   3 6 7 |            {  i d :  ' m o u s e ' ,  n a m e :  ' R a z e r  D e a t h A d d e r  V 3  P r o ' ,  i c o n :  'Ø=Ý±þ ' ,  d e s c :
368|         specs: [
   3 6 9 |                    {  l a b e l :  ' C £ m  b i ¿ n ' ,  v a l u e :  ' F o c u s  P r o  3 0 K '  } ,
370|           { label: 'DPI', value: '30.000 DPI' },
   3 7 1 |                    {  l a b e l :  ' K ¿ t  n Ñ i ' ,  v a l u e :  ' R a z e r  H y p e r S p e e d  W i r e l e s s '  } ,
   3 7 2 |                    {  l a b e l :  ' T r Í n g  l º ã n g ' ,  v a l u e :  ' 6 3 g '  } ,
   3 7 3 |                    {  l a b e l :  ' P i n ' ,  v a l u e :  ' ~ 9 0  g i Ý '  } ,
   3 7 4 |                    {  l a b e l :  ' N ú t  b ¥ m ' ,  v a l u e :  ' 6  n ú t  l - p  t r ì n h '  } ,
375|           { label: 'Switch', value: 'Razer Optical Gen-3' },
   3 7 6 |                    {  l a b e l :  ' P o l l i n g  R a t e ' ,  v a l u e :  ' 1 0 0 0 H z  ( c ó  t h Ã  l ê n  4 0 0 0 H z ) '  }
377|         ],
378|         brands: ['Razer', 'Logitech', 'SteelSeries', 'Zowie'],
   3 7 9 |                t i p s :  ' C h u Ù t  d º Û i  8 0 g  l à  l ý  t º ß n g  c h o  F P S .  D P I  c a o  k h ô n g  =  t Ñ t  h
   3 8 0 |            {  i d :  ' h e a d s e t ' ,  n a m e :  ' S t e e l S e r i e s  A r c t i s  N o v a  P r o ' ,  i c o n :  '0<§§ ' ,
381|         specs: [
   3 8 2 |                    {  l a b e l :  ' L o ¡ i ' ,  v a l u e :  ' O v e r - e a r ,  C l o s e d - b a c k '  } ,
383|           { label: 'Driver', value: '40mm Neodymium' },
384|           { label: 'Âm thanh', value: 'Sonar Audio + 360° Spatial Audio' },
   3 8 5 |                    {  l a b e l :  ' M i c r o p h o n e ' ,  v a l u e :  ' C l e a r C a s t  g e n  2  ( k h u ¿ c h  ¡ i  A I )
   3 8 6 |                    {  l a b e l :  ' K ¿ t  n Ñ i ' ,  v a l u e :  ' U S B - C  +  3 . 5 m m '  } ,
387|           { label: 'ANC', value: 'Active Noise Cancellation' },
   3 8 8 |                    {  l a b e l :  ' P i n ' ,  v a l u e :  ' ~ 2 2  g i Ý '  } ,
   3 8 9 |                    {  l a b e l :  ' T r Í n g  l º ã n g ' ,  v a l u e :  ' 2 9 8 g '  } ,
390|         ],
391|         brands: ['SteelSeries', 'HyperX', 'Logitech', 'Razer'],
   3 9 2 |                t i p s :  ' T a i  n g h e  c ó  m i c  r Ý i  v à  A N C  g i ú p  t - p  t r u n g  h ¡ n  t r o n g  g a m e .
393|     ]
394|   },
395|   {
   3 9 6 |          i d :  ' n e t w o r k ' ,  n a m e :  ' M ¡ n g ' ,  c o l o r :  ' # 3 b 8 2 f 6 ' ,
397|     icon: <Wifi size={20} />,
398|     items: [
   3 9 9 |            {  i d :  ' r o u t e r ' ,  n a m e :  ' T P - L i n k  D e c o  X E 7 5  ( W i F i  6 E ) ' ,  i c o n :  'Ø=Ùá ' ,  c
400|         specs: [
   4 0 1 |                    {  l a b e l :  ' C h u © n  W i F i ' ,  v a l u e :  ' W i F i  6 E  ( 8 0 2 . 1 1 a x ) '  } ,
   4 0 2 |                    {  l a b e l :  ' B  n g  t § n ' ,  v a l u e :  ' T r i - b a n d  ( 6 G H z  +  5 G H z  +  2 . 4 G H z ) '
   4 0 3 |                    {  l a b e l :  ' T Ñ c  Ù  t Ñ i  a ' ,  v a l u e :  ' L ê n  ¿ n  5 . 4 0 0  M b p s '  } ,
   4 0 4 |                    {  l a b e l :  ' B £ o  m - t ' ,  v a l u e :  ' W P A 3 '  } ,
   4 0 5 |                    {  l a b e l :  ' S Ñ  t h i ¿ t  b Ë ' ,  v a l u e :  ' H ×  t r ã  ~ 1 5 0  t h i ¿ t  b Ë '  } ,
   4 0 6 |                    {  l a b e l :  ' K ¿ t  n Ñ i ' ,  v a l u e :  ' 1 x  W A N  2 . 5 G  +  2 x  L A N  G i g a b i t '  } ,
   4 0 7 |                    {  l a b e l :  ' M e s h ' ,  v a l u e :  ' C ó  ( t ñ  Ù n g  c h u y Ã n  m ¡ n g ) '  } ,
408|         ],
409|         brands: ['TP-Link', 'ASUS', 'Netgear', 'Ubiquiti'],
   4 1 0 |                t i p s :  ' W i F i  6 E  c h o  t Ñ c  Ù  c a o  v à  í t  n h i Ã u .  M e s h  c h o  n h à  n h i Á u  t §
   4 1 1 |            {  i d :  ' s w i t c h ' ,  n a m e :  ' N e t g e a r  G S 3 0 8  8 - P o r t ' ,  i c o n :  'Ø=Ý ' ,  d e s c :  ' S
412|         specs: [
   4 1 3 |                    {  l a b e l :  ' S Ñ  c Õ n g ' ,  v a l u e :  ' 8 x  G i g a b i t  E t h e r n e t '  } ,
   4 1 4 |                    {  l a b e l :  ' C h u © n ' ,  v a l u e :  ' I E E E  8 0 2 . 3 a b '  } ,
   4 1 5 |                    {  l a b e l :  ' B  n g  t h ô n g ' ,  v a l u e :  ' 1 6  G b p s  ( c h u y Ã n  m ¡ c h ) '  } ,
   4 1 6 |                    {  l a b e l :  ' J u m b o  F r a m e ' ,  v a l u e :  ' H ×  t r ã '  } ,
   4 1 7 |                    {  l a b e l :  ' K h ô n g  q u ¡ t ' ,  v a l u e :  ' F a n l e s s  ( y ê n _ t ) n h ) '  } ,
   4 1 8 |                    {  l a b e l :  ' K i m  l o ¡ i ' ,  v a l u e :  ' V Ï  k i m  l o ¡ i  c h c  c h  n '  } ,
419|         ],
420|         brands: ['Netgear', 'TP-Link', 'Cisco', 'D-Link'],
   4 2 1 |                t i p s :  ' S w i t c h  k h ô n g  q u ¡ t  c h o  v  n  p h ò n g  y ê n  t ) n h .  C á p  C A T 6  c h o  t Ñ
422|     ]
423|   },
424|   {
   4 2 5 |          i d :  ' d i s p l a y ' ,  n a m e :  ' H i Ã n  t h Ë ' ,  c o l o r :  ' # 1 0 b 9 8 1 ' ,
426|     icon: <Eye size={20} />,
427|     items: [
   4 2 8 |            {  i d :  ' p r o j e c t o r ' ,  n a m e :  ' B e n Q  T H 6 7 1 S T ' ,  i c o n :  'Ø=Ùýþ ' ,  d e s c :  ' M á y  c
429|         specs: [
   4 3 0 |                    {  l a b e l :  '  Ù  p h â n  g i £ i ' ,  v a l u e :  ' 1 9 2 0  x  1 0 8 0  ( F u l l  H D ) '  } ,
   4 3 1 |                    {  l a b e l :  '  Ù  s á n g ' ,  v a l u e :  ' 3 . 0 0 0  A N S I  L u m e n s '  } ,
   4 3 2 |                    {  l a b e l :  ' T É  l Ç  t º ¡ n g  p h £ n ' ,  v a l u e :  ' 1 0 . 0 0 0 : 1 '  } ,
   4 3 3 |                    {  l a b e l :  ' K h o £ n g  c á c h  c h i ¿ u ' ,  v a l u e :  ' 1 . 5 - 3 m  c h o  1 0 0 " '  } ,
   4 3 4 |                    {  l a b e l :  ' T § n  s Ñ  q u é t ' ,  v a l u e :  ' 1 2 0 H z '  } ,
435|           { label: 'Input Lag', value: '16.7ms (gaming mode)' },
   4 3 6 |                    {  l a b e l :  ' C Õ n g ' ,  v a l u e :  ' H D M I  1 . 4  +  V G A '  } ,
   4 3 7 |                    {  l a b e l :  ' T u Ô i  t h Í  b ó n g ' ,  v a l u e :  ' 1 5 . 0 0 0  g i Ý  ( S m a r t E c o ) '  } ,
438|         ],
439|         brands: ['BenQ', 'Epson', 'Optoma', 'LG'],
   4 4 0 |                t i p s :  ' M á y  c h i ¿ u  g a m i n g  c § n  i n p u t  l a g  t h ¥ p .  T H 6 7 1 S T  c ó  k h o £ n g  c á
   4 4 1 |            {  i d :  ' o l e d ' ,  n a m e :  ' L G  O L E D 4 2 C 3  4 2 " ' ,  i c o n :  ''( ' ,  d e s c :  ' M à n  h ì n h
442|         specs: [
   4 4 3 |                    {  l a b e l :  ' K í c h  t h º Û c ' ,  v a l u e :  ' 4 2  i n c h '  } ,
   4 4 4 |                    {  l a b e l :  ' C ô n g  n g h Ç ' ,  v a l u e :  ' O L E D  ( t ñ  p h á t  s á n g ) '  } ,
   4 4 5 |                    {  l a b e l :  '  Ù  p h â n  g i £ i ' ,  v a l u e :  ' 3 8 4 0  x  2 1 6 0  ( 4 K ) '  } ,
   4 4 6 |                    {  l a b e l :  ' T § n  s Ñ  q u é t ' ,  v a l u e :  ' 1 2 0 H z '  } ,
447|           { label: 'HDR', value: 'Dolby Vision + HDR10' },
448|           { label: 'Input Lag', value: '< 5ms' },
   4 4 9 |                    {  l a b e l :  ' K ¿ t  n Ñ i ' ,  v a l u e :  ' 4 x  H D M I  2 . 1 '  } ,
450|           { label: 'G-Sync', value: 'G-Sync Compatible' },
451|         ],
452|         brands: ['LG', 'Samsung', 'Sony'],
   4 5 3 |                t i p s :  ' O L E D  c h o  c h ¥ t  l º ã n g  h ì n h  £ n h  t Ñ t  n h ¥ t  n h º n g  c ó  n g u y  c ¡  b u
454|     ]
455|   },
456| ]
457|
458| const QUIZ_QUESTIONS = [
   4 5 9 |        {  q :  ' T h à n h  p h § n  n à o  º ã c  v í  l à  " b Ù  n ã o "  c ç a  m á y  t í n h ? ' ,  o p t s :  [ ' C P U ' ,
   4 6 0 |        {  q :  ' C h u © n  k ¿ t  n Ñ i  S S D  N V M e  n h a n h  n h ¥ t  h i Ç n  n a y ? ' ,  o p t s :  [ ' P C I e  5 . 0 ' ,
   4 6 1 |        {  q :  ' D u n g  l º ã n g  R A M  t Ñ i  t h i Ã u  c h o  g a m i n g  h i Ç n  n a y ? ' ,  o p t s :  [ ' 1 6 G B ' ,
   4 6 2 |        {  q :  ' N g u Ồ n  8 0 +  G o l d  c ó  h i Ç u  s u ¥ t  b a o  n h i ê u ? ' ,  o p t s :  [ ' 8 7 - 9 0 % ' ,  ' 8 0 - 8 5
463|   { q: 'Socket LGA 1700 dùng cho CPU nào?', opts: ['Intel 12/13/14', 'AMD Ryzen 7000', 'Intel 10/11', 'AMD Ryz...
   4 6 4 |        {  q :  ' D L S S  l à  c ô n g  n g h Ç  c ç a  h ã n g  n à o ? ' ,  o p t s :  [ ' N V I D I A ' ,  ' A M D ' ,  ' I n t e l
   4 6 5 |        {  q :  ' R A M  D D R 5  c ó  t Ñ c  Ù  b u s  b a o  n h i ê u ? ' ,  o p t s :  [ ' 4 8 0 0 - 8 4 0 0  M T / s ' ,  ' 2 4
   4 6 6 |        {  q :  ' T £ n  n h i Ç t  n à o  h i Ç u  q u £  n h ¥ t  c h o  C P U ? ' ,  o p t s :  [ ' C u s t o m  L o o p  W C ' ,
467|   { q: 'Chipset nào cho phép ép xung CPU Intel?', opts: ['Z790', 'B760', 'H610', 'Q670'], ans: 0 },
   4 6 8 |        {  q :  ' C h u © n  W i F i  n à o  m Ù i  n h ¥ t ? ' ,  o p t s :  [ ' W i F i  7 ' ,  ' W i F i  6 E ' ,  ' W i F i  6 ' ,
469| ]
470|
471| export default function ComponentLabPage() {
472|   const [activeCategory, setActiveCategory] = useState(COMPONENT_DATA[0].id)
473|   const [selectedComponent, setSelectedComponent] = useState<Component | null>(null)
474|   const [searchTerm, setSearchTerm] = useState('')
475|   const [gameMode, setGameMode] = useState<'browse' | 'quiz'>('browse')
476|   const [quizIdx, setQuizIdx] = useState(0)
477|   const [quizScore, setQuizScore] = useState(0)
478|   const [quizFeedback, setQuizFeedback] = useState<'correct' | 'wrong' | null>(null)
479|   const [quizDone, setQuizDone] = useState(false)
```

```
480|   const [showSpecs, setShowSpecs] = useState<string | null>(null)
481|
482|   const activeItems = useMemo(() => {
483|     const cat = COMPONENT_DATA.find(c => c.id === activeCategory)
484|     if (!cat) return []
485|     if (!searchTerm) return cat.items
486|     return cat.items.filter(i =>
487|       i.name.toLowerCase().includes(searchTerm.toLowerCase()) ||
488|       i.desc.toLowerCase().includes(searchTerm.toLowerCase())
489|     )
490|   }, [activeCategory, searchTerm])
491|
492|   const filteredCategories = useMemo(() => {
493|     if (!searchTerm) return COMPONENT_DATA
494|     return COMPONENT_DATA.filter(c =>
495|       c.name.toLowerCase().includes(searchTerm.toLowerCase()) ||
496|       c.items.some(i => i.name.toLowerCase().includes(searchTerm.toLowerCase()))
497|     )
498|   }, [searchTerm])
499|
500|   function handleAnswer(idx: number) {
501|     if (quizFeedback) return
502|     const correct = idx === QUIZ_QUESTIONS[quizIdx].ans
503|     if (correct) { setQuizFeedback('correct'); setQuizScore(prev => prev + 1) }
504|     else setQuizFeedback('wrong')
505|     setTimeout(() => {
506|       if (quizIdx < QUIZ_QUESTIONS.length - 1) {
507|         setQuizIdx(prev => prev + 1); setQuizFeedback(null)
508|       } else { setQuizDone(true) }
509|     }, 1500)
510|   }
511|
512|   return (
513|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
514|       <div style={{ maxWidth: '1200px', margin: '0 auto', padding: '24px 16px' }}>
515|         {/* Header */}
516|         <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', marginBottom: '8...
517|           <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
518|             <div style={{
519|               width: '48px', height: '48px', borderRadius: '4px',
520|               background: 'linear-gradient(135deg, var(--brand-primary), var(--accent-blue))',
521|               display: 'flex', alignItems: 'center', justifyContent: 'center',
522|             }}>
523|               <FlaskConical size={24} color="#fff" />
524|             </div>
525|             <div>
526|               <h1 style={{ fontSize: '20px', fontWeight: 900, fontFamily: 'var(--font-mono)', letterSpacing: '...
527|                 PC COMPONENT LAB
528|               </h1>
529|               <p style={{ fontSize: '12px', color: 'var(--text-muted)' }}>
 5 3 0 |                                P h ò n g   t h í   n g h i Ç m   l i n h   k i Ç n   -   K h á m   p h á ,   h Í c   t - p ,   t h ñ c   h à n
531|               </p>
532|             </div>
533|           </div>
534|           <div style={{ display: 'flex', gap: '6px' }}>
535|             <button onClick={() => { setGameMode('browse'); setQuizDone(false); setQuizIdx(0); setQuizScore(0)...
536|               style={{
537|                 padding: '6px 14px', border: `1px solid ${gameMode === 'browse' ? 'var(--brand-primary)' : 'va...
538|                 background: gameMode === 'browse' ? 'color-mix(in srgb, var(--brand-primary) 12%, transparent)...
539|                 color: gameMode === 'browse' ? 'var(--brand-primary)' : 'var(--text-muted)',
540|                 fontSize: '10px', fontWeight: 700, fontFamily: 'var(--font-mono)', cursor: 'pointer',
541|               }}>
542|               <BookOpen size={12} style={{ display: 'inline', verticalAlign: 'middle', marginRight: '4px' }} />
 5 4 3 |                              T R A   C è U
544|             </button>
545|             <button onClick={() => setGameMode('quiz')}
546|               style={{
547|                 padding: '6px 14px', border: `1px solid ${gameMode === 'quiz' ? 'var(--accent-amber)' : 'var(-...
548|                 background: gameMode === 'quiz' ? 'color-mix(in srgb, var(--accent-amber) 12%, transparent)' :...
549|                 color: gameMode === 'quiz' ? 'var(--accent-amber)' : 'var(--text-muted)',
550|                 fontSize: '10px', fontWeight: 700, fontFamily: 'var(--font-mono)', cursor: 'pointer',
551|               }}>
552|               <Beaker size={12} style={{ display: 'inline', verticalAlign: 'middle', marginRight: '4px' }} />
 5 5 3 |                              T H ì   T H Á C H
554|             </button>
555|           </div>
556|         </div>
557|
558|         {/* Search */}
559|         <div style={{ position: 'relative', marginBottom: '16px' }}>
560|           <Search size={14} style={{ position: 'absolute', left: '12px', top: '50%', transform: 'translateY(-5...
561|           <input value={searchTerm} onChange={e => setSearchTerm(e.target.value)}
 5 6 2 |                          p l a c e h o l d e r = " T i m   l i n h   k i Ç n   ( C P U ,   G P U ,   R A M . . . ) "
563|             style={{
564|               width: '100%', padding: '8px 12px 8px 36px',
565|               border: '1px solid var(--border-default)', background: 'var(--bg-surface)',
566|               color: 'var(--text-primary)', fontSize: '12px', outline: 'none',
567|               fontFamily: 'inherit',
568|             }} />
569|         </div>
570|
571|         {gameMode === 'quiz' ? (
572|           <div>
573|             {quizDone ? (
574|               <div style={{
575|                 textAlign: 'center', padding: '60px 20px',
576|                 border: '1px solid var(--border-default)',
577|                 background: 'var(--bg-surface)',
578|               }}>
579|                 <motion.div initial={{ scale: 0 }} animate={{ scale: 1 }}>
580|                   <Trophy size={64} style={{ color: 'var(--accent-amber)', margin: '0 auto 16px' }} />
581|                 </motion.div>
582|                 <h2 style={{ fontSize: '24px', fontWeight: 900, fontFamily: 'var(--font-mono)', marginBottom: ...
583|                 <div style={{
584|                   display: 'inline-block', padding: '12px 24px',
585|                   border: '1px solid var(--brand-primary)', marginBottom: '16px',
586|                 }}>
587|                   <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontFamily: 'var(--font-mono)', ...
588|                   <div style={{ fontSize: '36px', fontWeight: 900, color: 'var(--brand-primary)', fontFamily: ...
589|                     {quizScore}/{QUIZ_QUESTIONS.length}
590|                   </div>
591|                 </div>
592|                 <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginBottom: '20px' }}>
 5 9 3 |                                  { q u i z S c o r e   > =   8   ?   ' X u ¥ t   s ¯ c !   B ¡ n   l à   c h u y ê n   g i a   l i n h   k i
 5 9 4 |                                    q u i z S c o r e   > =   6   ?   ' K h á   t Ñ t !   C ò n   v à i   t h é   c § n   h Í c   t h ê m . '
 5 9 5 |                                    ' C § n   h Í c   t h ê m   v Á   l i n h   k i Ç n .   H ã y   t r a   c é u   ß   t a b   t r ê n ! ' }
596|                 </div>
597|                 <button onClick={() => { setQuizDone(false); setQuizIdx(0); setQuizScore(0); setQuizFeedback(n...
598|                   style={{
599|                     padding: '10px 24px',
600|                     background: 'var(--brand-primary)', color: 'var(--bg-base)',
601|                     border: 'none', fontWeight: 700, fontFamily: 'var(--font-mono)',
602|                     cursor: 'pointer', fontSize: '12px',
603|                   }}>
```

```
605|                </button>
606|              </div>
607|            ) : (
608|              <div style={{
609|                border: '1px solid var(--border-default)',
610|                background: 'var(--bg-surface)',
611|                padding: '24px',
612|                position: 'relative', overflow: 'hidden',
613|              }}>
614|                <div style={{ position: 'absolute', top: 0, left: 0, width: '6px', height: '6px', borderTop: '...
615|                <div style={{ position: 'absolute', top: 0, right: 0, width: '6px', height: '6px', borderTop: ...
616|                <div style={{ position: 'absolute', bottom: 0, left: 0, width: '6px', height: '6px', borderBot...
617|                <div style={{ position: 'absolute', bottom: 0, right: 0, width: '6px', height: '6px', borderBo...
618|
619|                <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBo...
620|                  <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
621|                    <Beaker size={16} style={{ color: 'var(--accent-amber)' }} />
622|                    <span style={{ fontSize: '13px', fontWeight: 700, fontFamily: 'var(--font-mono)' }}>
```



```
624|                    </span>
625|                  </div>
626|                  <span style={{ fontSize: '11px', color: 'var(--text-muted)', fontFamily: 'var(--font-mono)' }}>
627|                    {quizIdx + 1}/{QUIZ_QUESTIONS.length}
628|                  </span>
629|                </div>
630|
631|                {/* Progress */}
632|                <div style={{ width: '100%', height: '6px', background: 'var(--border-subtle)', marginBottom: ...
633|                  <div style={{ width: `${((quizIdx + 1) / QUIZ_QUESTIONS.length) * 100}%`, height: '100%', ba...
634|                </div>
635|
636|                <AnimatePresence mode="wait">
637|                  <motion.div key={quizIdx} initial={{ opacity: 0, x: 20 }} animate={{ opacity: 1, x: 0 }} exi...
638|                    <h2 style={{ fontSize: '18px', fontWeight: 700, marginBottom: '20px', lineHeight: 1.4 }}>
639|                      {QUIZ_QUESTIONS[quizIdx].q}
640|                    </h2>
641|                    <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
642|                      {QUIZ_QUESTIONS[quizIdx].opts.map((opt, i) => {
643|                        const isCorrect = i === QUIZ_QUESTIONS[quizIdx].ans
644|                        const isSelected = quizFeedback && (quizFeedback === 'correct' ? isCorrect : i === (qu...
645|                        const showCorrect = quizFeedback && isCorrect
646|                        const showWrong = quizFeedback === 'wrong' && i !== QUIZ_QUESTIONS[quizIdx].ans && (()...
647|                          for (let j = 0; j < QUIZ_QUESTIONS[quizIdx].opts.length; j++) {
648|                            if (j === quizIdx) return false
649|                          }
650|                          return false
651|                        })()
652|
653|                        let bg = 'var(--bg-base)'
654|                        let border = 'var(--border-default)'
655|                        let textColor = 'var(--text-primary)'
656|                        let icon = ['A', 'B', 'C', 'D'][i]
657|
658|                        if (quizFeedback) {
659|                          if (isCorrect) { bg = 'color-mix(in srgb, var(--brand-primary) 15%, transparent)'; b...
660|                          else if (i === QUIZ_QUESTIONS[quizIdx].ans) { bg = 'color-mix(in srgb, var(--brand-p...
661|                           else { bg = 'var(--bg-base)'; border = 'var(--border-default)'; textColor = 'var(--...
662|                        }
663|
664|                        return (
665|                          <button key={i} onClick={() => handleAnswer(i)} disabled={!!quizFeedback}
666|                            style={{
667|                              padding: '12px 16px', display: 'flex', alignItems: 'center', gap: '12px',
668|                              background: quizFeedback ? (i === QUIZ_QUESTIONS[quizIdx].ans ? 'color-mix(in sr...
669|                              border: `1px solid ${quizFeedback ? (i === QUIZ_QUESTIONS[quizIdx].ans ? 'var(--...
670|                              color: quizFeedback ? (i === QUIZ_QUESTIONS[quizIdx].ans ? 'var(--brand-primary)...
671|                              cursor: quizFeedback ? 'default' : 'pointer',
672|                              textAlign: 'left', fontSize: '13px', fontWeight: 600,
673|                              opacity: quizFeedback && i !== QUIZ_QUESTIONS[quizIdx].ans ? 0.5 : 1,
674|                              transition: 'all 0.2s',
675|                              fontFamily: 'inherit',
676|                            }}>
677|                            <div style={{
678|                              width: '28px', height: '28px', borderRadius: '2px',
679|                              background: quizFeedback ? (i === QUIZ_QUESTIONS[quizIdx].ans ? 'var(--brand-pri...
680|                              display: 'flex', alignItems: 'center', justifyContent: 'center',
681|                              fontSize: '11px', fontWeight: 700,
682|                              color: quizFeedback ? (i === QUIZ_QUESTIONS[quizIdx].ans ? '#fff' : 'var(--text-...
683|                              flexShrink: 0,
684|                            }}>
685|                              {quizFeedback && i === QUIZ_QUESTIONS[quizIdx].ans ? <CheckCircle size={14} /> :...
686|                            </div>
687|                            {opt}
688|                          </button>
689|                        )
690|                      })}
691|                    </div>
692|                  </motion.div>
693|                </AnimatePresence>
694|
695|                {quizFeedback && (
696|                  <div style={{ marginTop: '12px', padding: '8px 12px', background: quizFeedback === 'correct'...
```



```
698|                  </div>
699|                )}
700|              </div>
701|            )}
702|          </div>
703|        ) : (
704|          <>
705|            {/* Category Tabs */}
706|            <div style={{ display: 'flex', gap: '4px', marginBottom: '16px', flexWrap: 'wrap' }}>
707|              {filteredCategories.map(cat => (
708|                <button key={cat.id} onClick={() => setActiveCategory(cat.id)}
709|                  style={{
710|                    display: 'flex', alignItems: 'center', gap: '4px',
711|                    padding: '6px 12px',
712|                    border: `1px solid ${activeCategory === cat.id ? cat.color : 'var(--border-default)'}`,
713|                    background: activeCategory === cat.id ? `color-mix(in srgb, ${cat.color} 12%, transparent)...
714|                    color: activeCategory === cat.id ? cat.color : 'var(--text-muted)',
715|                    fontSize: '10px', fontWeight: 700, fontFamily: 'var(--font-mono)',
716|                    cursor: 'pointer',
717|                    transition: 'all 0.15s',
718|                  }}>
719|                  {cat.icon}
720|                  {cat.name}
721|                </button>
722|              ))}
723|            </div>
724|
725|            {/* Component Grid */}
726|            <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(280px, 1fr))', gap: ...
727|              <AnimatePresence mode="popLayout">
```

```
728|                 {activeItems.map(comp => (
729|                   <motion.div key={comp.id} layout
730|                     initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit={{ opacity: 0, scale: ...
731|                     style={{
732|                       border: `1px solid ${showSpecs === comp.id ? 'var(--brand-primary)' : 'var(--border-defa...
733|                       background: showSpecs === comp.id ? 'color-mix(in srgb, var(--brand-primary) 4%, transpa...
734|                       padding: '14px',
735|                       cursor: 'pointer',
736|                       transition: 'all 0.2s',
737|                       position: 'relative', overflow: 'hidden',
738|                     }}
739|                     onClick={() => setShowSpecs(showSpecs === comp.id ? null : comp.id)}>
740|                     {/* Corner */}
741|                     <div style={{ position: 'absolute', top: 0, left: 0, width: '4px', height: '4px', borderTo...
742|
743|                     <div style={{ display: 'flex', alignItems: 'flex-start', gap: '10px', marginBottom: showSp...
744|                       <div style={{
745|                         width: '36px', height: '36px', borderRadius: '2px',
746|                         background: 'color-mix(in srgb, var(--brand-primary) 10%, transparent)',
747|                         border: '1px solid color-mix(in srgb, var(--brand-primary) 15%, transparent)',
748|                         display: 'flex', alignItems: 'center', justifyContent: 'center',
749|                         fontSize: '18px', flexShrink: 0,
750|                       }}>
751|                         {comp.icon}
752|                       </div>
753|                       <div style={{ flex: 1, minWidth: 0 }}>
754|                         <div style={{ fontSize: '13px', fontWeight: 800, fontFamily: 'var(--font-mono)', margi...
755|                         <div style={{ fontSize: '11px', color: 'var(--text-muted)', lineHeight: 1.3 }}>{comp.d...
756|                       </div>
757|                       <ChevronRight size={14} style={{ color: 'var(--text-muted)', flexShrink: 0, transform: s...
758|                     </div>
759|
760|                     <AnimatePresence>
761|                       {showSpecs === comp.id && (
762|                         <motion.div initial={{ height: 0, opacity: 0 }} animate={{ height: 'auto', opacity: 1 ...
763|                           style={{ borderTop: '1px solid var(--border-default)', paddingTop: '10px' }}>
764|
765|                           {/* Role */}
766|                           <div style={{
767|                             marginBottom: '10px', padding: '6px 8px',
768|                             background: 'color-mix(in srgb, var(--accent-blue) 8%, transparent)',
769|                             border: '1px solid color-mix(in srgb, var(--accent-blue) 15%, transparent)',
770|                             fontSize: '10px', color: 'var(--text-muted)', lineHeight: 1.4,
771|                           }}>
772|                             <span style={{ color: 'var(--accent-blue)', fontWeight: 700, fontFamily: 'var(--fo...
773|                           </div>
774|
775|                           {/* Specs Table */}
776|                           <div style={{ marginBottom: '8px' }}>
777|                             <div style={{ fontSize: '10px', fontWeight: 700, color: 'var(--brand-primary)', fo...
   7 7 8 |                                                                T H Ô N G   S Đ   K ø   T H U ¬ T
779|                             </div>
780|                             {comp.specs.map((s, i) => (
781|                               <div key={i} style={{
782|                                 display: 'flex', justifyContent: 'space-between', alignItems: 'center',
783|                                 padding: '3px 6px',
784|                                 background: i % 2 === 0 ? 'rgba(255,255,255,0.02)' : 'transparent',
785|                                 fontSize: '10px',
786|                               }}>
787|                                 <span style={{ color: 'var(--text-muted)', flex: '0 0 120px', fontFamily: 'var...
788|                                 <span style={{ color: 'var(--text-primary)', fontWeight: 600, textAlign: 'righ...
789|                               </div>
790|                             ))}
791|                           </div>
792|
793|                           {/* Brands */}
794|                           <div style={{ marginBottom: '8px' }}>
795|                             <div style={{ fontSize: '10px', fontWeight: 700, color: 'var(--accent-amber)', fon...
   7 9 6 |                                                                T H ¯   N G   H I Æ U
797|                             </div>
798|                             <div style={{ display: 'flex', gap: '4px', flexWrap: 'wrap' }}>
799|                               {comp.brands.map(b => (
800|                                 <span key={b} style={{
801|                                   padding: '2px 6px',
802|                                   border: '1px solid var(--border-default)',
803|                                   fontSize: '9px', fontWeight: 700, color: 'var(--text-muted)',
804|                                   fontFamily: 'var(--font-mono)',
805|                                 }}>{b}</span>
806|                               ))}
807|                             </div>
808|                           </div>
809|
810|                           {/* Tips */}
811|                           <div style={{
812|                             padding: '6px 8px',
813|                             background: 'color-mix(in srgb, var(--accent-amber) 6%, transparent)',
814|                             border: '1px solid color-mix(in srgb, var(--accent-amber) 12%, transparent)',
815|                             fontSize: '10px', color: 'var(--text-muted)',
816|                           }}>
817|                             <span style={{ color: 'var(--accent-amber)', fontWeight: 700, fontFamily: 'var(--f...
818|                           </div>
819|                         </motion.div>
820|                       )}
821|                     </AnimatePresence>
822|                   </motion.div>
823|                 ))}
824|               </AnimatePresence>
825|             </div>
826|
827|             {activeItems.length === 0 && (
828|               <div style={{ textAlign: 'center', padding: '60px 20px', color: 'var(--text-muted)' }}>
829|                 <Search size={32} style={{ margin: '0 auto 12px', opacity: 0.3 }} />
   8 3 0 |                                 < d i v   s t y l e = { {   f o n t S i z e :   ' 1 3 p x '   } } > K h ô n g   t ì m   t h ¥ y   l i n h   k i
831|               </div>
832|             )}
833|           </>
834|         )}
835|       </div>
836|     </div>
837|   )
838| }
839|
```

File: app/courses/[courseId]/page.tsx (171 lines, 7.8 KB)

```
==========================================================================================
   1| 'use client'
   2|
   3| import React, { useState, useEffect, use } from 'react'
   4| import { supabase } from '@/lib/supabase'
   5| import Navbar from '@/components/Navbar'
   6| import { motion } from 'framer-motion'
   7| import {
   8|   BookOpen, Clock, Star, Play, ChevronRight,
```

```
  Layers, CheckCircle, Lock, HelpCircle, FileText, Loader2
} from 'lucide-react'
import Link from 'next/link'

export default function CourseDetailPage({ params }: { params: Promise<{ courseId: string }> }) {
  const resolvedParams = use(params);
  const { courseId } = resolvedParams;

  const [course, setCourse] = useState<any>(null)
  const [lessons, setLessons] = useState<any[]>([])
  const [loading, setLoading] = useState(true)

  useEffect(() => {
    fetchCourseDetails()
  }, [])

  async function fetchCourseDetails() {
    try {
      setLoading(true)
      // 1. Fetch Course
      const { data: courseData } = await supabase
        .from('courses')
        .select('*')
        .eq('id', courseId)
        .single()

      setCourse(courseData)

      // 2. Fetch Lessons in this course
      const { data: lessonData } = await supabase
        .from('lessons')
        .select(`
          *,
          lesson_sections (*)
        `)
        .eq('course_id', courseId)
        .order('created_at', { ascending: true })

      setLessons(lessonData || [])
    } catch (err) {
      console.error(err)
    } finally {
      setLoading(false)
    }
  }

  if (loading) return (
    <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center">
       <Loader2 className="animate-spin text-[#00d2a0]" size={48} />
    </div>
  )

  if (!course) return (
    <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center text-red-500 font-bold">
                Khóa học không tồn tại.
    </div>
  )

  return (
    <div className="min-h-screen bg-[#0f0f1a] text-white">
      <Navbar />

      {/* HERO SECTION */}
      <div className="relative pt-32 pb-20 overflow-hidden">
        <div className="absolute inset-0 z-0">
          <img src={course.thumbnail_url} className="w-full h-full object-cover opacity-20 blur-3xl" />
        </div>

        <div className="max-w-7xl mx-auto px-4 sm:px-6 lg:px-8 relative z-10">
          <div className="flex flex-col lg:flex-row gap-12 items-center">
            <motion.div initial={{ opacity: 0, x: -50 }} animate={{ opacity: 1, x: 0 }} className="flex-1 text...
               <div className="inline-flex items-center gap-2 px-4 py-1 bg-[#00d2a0]/10 border border-[#00d2a0...
                 <Star size={14} /> {course.level}
               </div>
               <h1 className="text-4xl md:text-6xl font-black mb-6 leading-tight">
                 {course.title}
               </h1>
               <p className="text-slate-400 text-lg mb-8 max-w-2xl leading-relaxed">
                 {course.description}
               </p>
               <div className="flex flex-wrap gap-6 justify-center lg:justify-start">
                  <div className="flex items-center gap-2 text-slate-300">
                                        <Clock size={20} className="text-[#00d2a0]" />  <span
                  </div>
                  <div className="flex items-center gap-2 text-slate-300">
                                        <Layers size={20} className="text-[#00d2a0]" />  <spa
                  </div>
                  <div className="flex items-center gap-2 text-slate-300">
                                        <CheckCircle size={20} className="text-[#00d2a0]" />
                  </div>
               </div>
            </motion.div>

            <motion.div initial={{ opacity: 0, scale: 0.8 }} animate={{ opacity: 1, scale: 1 }} className="lg:...
               <div className="bg-[#16213e] border border-[#1e293b] rounded-[40px] p-2 shadow-2xl overflow-hid...
                  <div className="aspect-video rounded-[32px] overflow-hidden">
                    <img src={course.thumbnail_url} className="w-full h-full object-cover" />
                  </div>
                  <div className="absolute inset-0 flex items-center justify-center opacity-0 group-hover:opac...
                     <div className="w-20 h-20 bg-[#00d2a0] text-black rounded-full flex items-center justify-...
                        <Play size={32} fill="currentColor" />
                     </div>
                  </div>
               </div>
            </motion.div>
          </div>
        </div>
      </div>

      {/* CURRICULUM SECTION */}
      <div className="max-w-4xl mx-auto px-4 sm:px-6 lg:px-8 pb-32">
                    <h2 className="text-3xl font-bold mb-10">Lùtrình <span classNa

         <div className="space-y-6">
            {lessons.map((lesson, idx) => (
              <motion.div
                key={lesson.id}
                initial={{ opacity: 0, y: 20 }}
                animate={{ opacity: 1, y: 0 }}
                transition={{ delay: idx * 0.1 }}
                className="bg-[#16213e] border border-[#1e293b] rounded-3xl overflow-hidden"
              >
                 <div className="p-6 flex items-center justify-between group">
                    <div className="flex items-center gap-4">
```

```
  133|                        <div className="w-12 h-12 rounded-2xl bg-[#0f0f1a] border border-[#1e293b] flex items-c...
  134|                           {idx + 1}
  135|                        </div>
  136|                        <div>
  137|                           <h3 className="font-bold text-lg group-hover:text-[#00d2a0] transition-colors">{less...
    1 3 8 |                                                  < p   c l a s s N a m e = " t e x t - x s   t e x t - s l a t e - 5 0 0   f o n t - b o l d
  139|                        </div>
  140|                     </div>
  141|                     <Link href={`/courses/${courseId}/lessons/${lesson.id}`} className="px-6 py-2.5 bg-white/5...
    1 4 2 |                                                H Ì C   N G A Y   < C h e v r o n R i g h t   s i z e = { 1 6 }   / >
  143|                     </Link>
  144|                  </div>
  145|
  146|                  {/* Sections list inside lesson */}
  147|                  <div className="px-6 pb-6 pt-2 border-t border-[#1e293b]/50 space-y-3">
  148|                     {lesson.lesson_sections?.map((section: any) => (
  149|                        <div key={section.id} className="flex items-center justify-between py-2 px-4 rounded-xl...
  150|                           <div className="flex items-center gap-3">
  151|                              {section.content_type === 'video' ? <Play size={14} className="text-[#00d2a0]" /> :
  152|                               section.content_type === 'quiz' ? <HelpCircle size={14} className="text-orange-5...
  153|                               <FileText size={14} className="text-blue-500" />}
  154|                              <span className="text-sm text-slate-400">{section.title}</span>
  155|                           </div>
  156|                           {section.content_type === 'quiz' && (
  157|                             <Link href={`/quiz/${section.id}`} className="text-[10px] font-black bg-orange-500...
  158|                                LÀM QUIZ
  159|                             </Link>
  160|                           )}
  161|                        </div>
  162|                     ))}
  163|                  </div>
  164|               </motion.div>
  165|            ))}
  166|         </div>
  167|      </div>
  168|    </div>
  169|  )
  170| }
  171|
-----------------------------------------------------------------------------------------------------
```

File: app/courses/%5BcourseId%5D/lessons/%5BlessonId%5D/page.tsx (329 lines, 16.9 KB)

```
=====================================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect } from 'react'
    4| import { useParams, useRouter } from 'next/navigation'
    5| import { ChevronLeft, ChevronRight, Play, FileText, CheckCircle, Lock, MessageSquare, Download, Bookmark, Shar...
    6| import Navbar from '@/components/Navbar'
    7| import Link from 'next/link'
    8| import { motion, AnimatePresence } from 'framer-motion'
    9| import { supabase } from '@/lib/supabase'
   10|
   11| export default function LessonDetailPage() {
   12|   const { courseId, lessonId } = useParams()
   13|   const router = useRouter()
   14|   const [activeTab, setActiveTab] = useState('resources')
   15|   const [isBookmarked, setIsBookmarked] = useState(false)
   16|   const [showPopupQuiz, setShowPopupQuiz] = useState(false)
   17|   const [quizAnswered, setQuizAnswered] = useState(false)
   18|
   19|   // Simulation of a timestamp trigger for quiz
   20|   useEffect(() => {
   21|     const timer = setTimeout(() => {
   22|       if (!quizAnswered) setShowPopupQuiz(true)
   23|     }, 10000) // Show quiz after 10 seconds of "watching"
   24|     return () => clearTimeout(timer)
   25|   }, [quizAnswered])
   26|
   27|   const [lesson, setLesson] = useState<any>(null)
   28|   const [courseLessons, setCourseLessons] = useState<any[]>([])
   29|   const [loading, setLoading] = useState(true)
   30|
   31|   useEffect(() => {
   32|     fetchLessonData()
   33|   }, [lessonId])
   34|
   35|   async function fetchLessonData() {
   36|     try {
   37|       setLoading(true)
   38|       // Fetch current lesson
   39|       const { data: lessonData, error: lessonError } = await supabase
   40|         .from('lesson_sections')
   41|         .select(`
   42|           *,
   43|           lessons:lesson_id (
   44|             title,
   45|             teacher_id
   46|           )
   47|         `)
   48|         .eq('lesson_id', lessonId)
   49|         .order('order_index', { ascending: true })
   50|
   51|       if (lessonData && lessonData.length > 0) {
   52|         setLesson(lessonData[0]) // Get the first section as main content for now
   53|
   54|         // Fetch all sections for the sidebar
   55|         const { data: allSections } = await supabase
   56|           .from('lesson_sections')
   57|           .select('*')
   58|           .eq('lesson_id', lessonId)
   59|           .order('order_index', { ascending: true })
   60|
   61|         setCourseLessons(allSections || [])
   62|       }
   63|     } catch (err) {
   64|       console.error('Error fetching lesson:', err)
   65|     } finally {
   66|       setLoading(false)
   67|     }
   68|   }
   69|
   70|   if (loading) return <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center text-[#00d2a0...
   71|   if (!lesson) return <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center text-red-500"...
   72|
   73|   return (
   74|     <div className="min-h-screen bg-[#0f0f1a] text-white flex flex-col">
   75|       <Navbar />
   76|
   77|       <main className="pt-20 flex-1 flex flex-col lg:flex-row overflow-hidden">
   78|
     7 9 |                  { / *   C Ø T   T R Á I   -   N Ø I   D U N G   C H Í N H   ( 7 0 % )   * / }
   80|         <div className="flex-1 overflow-y-auto custom-scrollbar bg-[#0a0a14]">
   81|           {/* Video Player Section */}
```

```
 82|          <div className="aspect-video bg-black w-full relative group overflow-hidden">
 83|            {lesson.content_type === 'video' ? (
 84|              <iframe
 85|                src={lesson.content_url?.includes('youtube.com') ? lesson.content_url.replace('watch?v=', 'emb...
 86|                className="w-full h-full border-none"
 87|                allowFullScreen
 88|                title={lesson.title}
 89|              ></iframe>
 90|            ) : lesson.content_type === 'pdf' ? (
 91|              <iframe
 92|                src={lesson.content_url}
 93|                className="w-full h-full border-none"
 94|                title="PDF Document"
 95|              ></iframe>
 96|            ) : lesson.content_type === 'image' ? (
 97|              <div className="w-full h-full flex items-center justify-center p-4">
 98|                <img src={lesson.content_url} alt={lesson.title} className="max-w-full max-h-full object-conta...
 99|              </div>
100|            ) : (
101|              <div className="w-full h-full flex flex-col items-center justify-center text-slate-500 bg-[#0f0f...
102|                <FileText size={64} className="mb-4 text-[#00d2a0] opacity-50" />
   1 0 3 |                                < h 3   c l a s s N a m e = " t e x t - x l   f o n t - b o l d   t e x t - w h i t e   m b - 2 " > T à i   l i
   1 0 4 |                                < p   c l a s s N a m e = " m a x - w - m d " > V u i   l ò n g   s í   d ẩ n g   c á c   t a b   b ê n   d ° Ú
105|              </div>
106|            )}
107|
108|            <AnimatePresence>
109|              {showPopupQuiz && (
110|                <motion.div
111|                  initial={{ opacity: 0 }}
112|                  animate={{ opacity: 1 }}
113|                  exit={{ opacity: 0 }}
114|                  className="absolute inset-0 bg-black/90 backdrop-blur-md flex items-center justify-center p-...
115|                >
116|                  <div className="max-w-md w-full bg-[#16213e] border border-[#00d2a0]/30 p-8 rounded-3xl shad...
117|                    <div className="w-12 h-12 bg-[#00d2a0]/10 text-[#00d2a0] rounded-xl flex items-center just...
118|                      <HelpCircle size={24} />
119|                    </div>
   1 2 0 |                                          < h 3   c l a s s N a m e = " t e x t - x l   f o n t - b o l d   m b - 2 " > C â u   h Ỏ i   n h a n h
   1 2 1 |                                          < p   c l a s s N a m e = " t e x t - s l a t e - 4 0 0   m b - 8   t e x t - s m " >   Ã   t i ¿ p   t
   1 2 2 |                                          < p   c l a s s N a m e = " f o n t - b o l d   m b - 6 " > L i n h   k i Ç n   n à o   ° ã c   v í
123|
124|                    <div className="space-y-3">
125|                      {['GPU', 'CPU', 'RAM', 'Mainboard'].map((opt) => (
126|                        <button
127|                          key={opt}
128|                          onClick={() => {
129|                            if (opt === 'CPU') {
130|                              setQuizAnswered(true)
131|                              setShowPopupQuiz(false)
132|                            }
133|                          }}
134|                          className="w-full p-4 bg-[#0f0f1a] border border-[#1e293b] rounded-xl text-left text...
135|                        >
136|                          {opt}
137|                        </button>
138|                      ))}
139|                    </div>
140|                  </div>
141|                </motion.div>
142|              )}
143|            </AnimatePresence>
144|          </div>
145|
146|          <div className="p-6 lg:p-10 max-w-5xl mx-auto">
147|            {/* Header Info */}
148|            <div className="flex flex-col md:flex-row md:items-center justify-between gap-6 mb-8">
149|              <div>
150|                <div className="flex items-center gap-2 text-[#00d2a0] text-sm font-medium mb-2">
151|                  <Link href={`/courses/${courseId}`} className="hover:underline">{lesson.lessons?.title || 'K...
152|                  <ChevronRight size={14} />
153|                  <span>Bài {courseLessons.findIndex(l => l.id === lesson.id) + 1}</span>
154|                </div>
155|                <h1 className="text-2xl md:text-3xl font-bold">{lesson.title}</h1>
156|              </div>
157|
158|              <div className="flex items-center gap-3">
159|                <button
160|                  onClick={() => setIsBookmarked(!isBookmarked)}
161|                  className={`p-3 rounded-xl border border-[#1e293b] transition-all ${isBookmarked ? 'bg-[#00d...
162|                >
163|                  <Bookmark size={20} fill={isBookmarked ? 'currentColor' : 'none'} />
164|                </button>
165|                <button className="p-3 bg-[#16213e] text-slate-400 hover:text-white border border-[#1e293b] ro...
166|                  <Share2 size={20} />
167|                </button>
168|              </div>
169|            </div>
170|
171|            {/* Content Tabs */}
172|            <div className="border-b border-[#1e293b] flex gap-8 mb-8 overflow-x-auto custom-scrollbar no-scro...
173|              {['resources', 'q&a', 'notes', 'discussion'].map((tab) => (
174|                <button
175|                  key={tab}
176|                  onClick={() => setActiveTab(tab)}
177|                  className={`pb-4 text-sm font-bold uppercase tracking-wider transition-all relative ${
178|                    activeTab === tab ? 'text-[#00d2a0]' : 'text-slate-500 hover:text-slate-300'
179|                  }`}
180|                >
   1 8 1 |                                  { t a b   = = =   ' r e s o u r c e s '   ?   ' T à i   n g u y ê n '   :   t a b   = = =   ' q & a '   ?
182|                  {activeTab === tab && (
183|                    <motion.div layoutId="lessonTab" className="absolute bottom-0 left-0 right-0 h-0.5 bg-[#00...
184|                  )}
185|                </button>
186|              ))}
187|            </div>
188|
189|            <div className="min-h-[300px]">
190|              <AnimatePresence mode="wait">
191|                {activeTab === 'resources' && (
192|                  <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} exit={{ opacity: 0 }} className...
193|                    <div className="bg-[#16213e] border border-[#1e293b] p-4 rounded-xl flex items-center just...
194|                      <div className="flex items-center gap-3">
195|                        <div className="w-10 h-10 rounded-lg bg-red-500/10 text-red-400 flex items-center just...
196|                          <FileText size={20} />
197|                        </div>
198|                        <div>
   1 9 9 |                                                  < p   c l a s s N a m e = " f o n t - m e d i u m   t e x t - s m " > T à i   l i Ç u   b ả
200|                          <p className="text-xs text-slate-500">2.4 MB</p>
201|                        </div>
202|                      </div>
203|                      <button className="p-2 text-slate-400 hover:text-[#00d2a0] transition-colors">
204|                        <Download size={18} />
205|                      </button>
```

```
206|                    </div>
207|                  </motion.div>
208|                )}
209|
210|                {activeTab === 'q&a' && (
211|                  <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} exit={{ opacity: 0 }}>
212|                    <div className="bg-[#16213e] border border-[#1e293b] p-6 rounded-xl">
   2 1 3 |                                        < p   c l a s s N a m e = " t e x t - s l a t e - 4 0 0   t e x t - c e n t e r   t e x t - s m   p
214|                      <button className="w-full py-3 bg-[#1e293b] hover:bg-[#2a3655] rounded-lg text-sm font-b...
   2 1 5 |                                                  · t   c â u   h Ĭ i   m Ũ i
216|                      </button>
217|                    </div>
218|                  </motion.div>
219|                )}
220|
221|                {activeTab === 'notes' && (
222|                  <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} exit={{ opacity: 0 }}>
223|                    <textarea
   2 2 4 |                                        p l a c e h o l d e r = " V i ¿ t   g h i   c h ú   c ç a   b ¡ n   t ¡ i    â y . . . "
225|                      className="w-full bg-[#16213e] border border-[#1e293b] rounded-xl p-6 min-h-[200px] outl...
226|                    ></textarea>
227|                    <div className="mt-4 flex justify-end">
228|                      <button className="px-6 py-2 bg-[#00d2a0] text-black font-bold rounded-lg hover:bg-[#00e...
   2 2 9 |                                                  L ° u   g h i   c h ú
230|                      </button>
231|                    </div>
232|                  </motion.div>
233|                )}
234|
235|                {activeTab === 'discussion' && (
236|                  <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} exit={{ opacity: 0 }} classNam...
237|                    <div className="flex gap-4">
238|                      <div className="w-10 h-10 rounded-full bg-[#1e293b] border border-[#2a3655] shrink-0" />
239|                      <div className="flex-1">
240|                        <textarea
   2 4 1 |                                                  p l a c e h o l d e r = " C h i a   s »   s u y   n g h )   c ç a   b ¡ n   v Á   b à i   h
242|                          className="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-2xl p-4 text-sm outli...
243|                        ></textarea>
244|                        <div className="mt-3 flex justify-end">
245|                          <button className="px-5 py-2 bg-[#1e293b] text-white text-xs font-bold rounded-lg ho...
   2 4 6 |                                                  N G   B Ì N H   L U ¬ N
247|                          </button>
248|                        </div>
249|                      </div>
250|                    </div>
251|
252|                    <div className="space-y-6 pt-6">
253|                      {[1, 2].map(i => (
254|                        <div key={i} className="flex gap-4">
255|                          <div className="w-10 h-10 rounded-full bg-gradient-to-tr from-[#00d2a0] to-[#00b4d8]...
256|                          <div className="flex-1 bg-[#16213e]/50 p-4 rounded-2xl border border-[#1e293b]">
257|                            <div className="flex items-center justify-between mb-2">
   2 5 8 |                                                  < s p a n   c l a s s N a m e = " t e x t - s m   f o n t - b o l d " > N g ° Ý i
   2 5 9 |                                                  < s p a n   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - s l a t e - 5 0
260|                            </div>
   2 6 1 |                                                < p   c l a s s N a m e = " t e x t - s l a t e - 3 0 0   t e x t - s m   l e a d i n g
262|                            <div className="mt-4 flex items-center gap-4 text-xs text-slate-500">
263|                              <button className="hover:text-[#00d2a0] transition-colors font-bold">THÍCH</button>
   2 6 4 |                                                  < b u t t o n   c l a s s N a m e = " h o v e r : t e x t - [ # 0 0 d 2 a 0 ]   t r
265|                            </div>
266|                          </div>
267|                        </div>
268|                      ))}
269|                    </div>
270|                  </motion.div>
271|                )}
272|              </AnimatePresence>
273|            </div>
274|          </div>
275|        </div>
276|
   2 7 7 |                  { / *   C Ø T   P H ¢ I   -   S I D E B A R   ( 3 0 % )   * / }
278|        <div className="w-full lg:w-[400px] border-l border-[#1e293b] bg-[#0f0f1a] flex flex-col h-full lg:h-[...
279|          <div className="p-6 border-b border-[#1e293b]">
280|            <h3 className="font-bold flex items-center gap-2">
   2 8 1 |                          < L a y e r s   s i z e = { 1 8 }   c l a s s N a m e = " t e x t - [ # 0 0 d 2 a 0 ] "   / >   N Ù i   d u n g   k
282|            </h3>
283|            <div className="mt-4 bg-[#16213e] h-2 rounded-full overflow-hidden">
284|              <div className="bg-[#00d2a0] h-full" style={{ width: '25%' }}></div>
285|            </div>
   2 8 6 |                        < p   c l a s s N a m e = " t e x t - x s   t e x t - s l a t e - 5 0 0   m t - 2   f o n t - m e d i u m " > H o à n
287|          </div>
288|
289|          <div className="flex-1 overflow-y-auto custom-scrollbar py-2">
290|            {courseLessons.map((l, index) => (
291|              <button
292|                key={l.id}
293|                disabled={l.locked}
294|                className={`w-full flex items-center gap-4 px-6 py-5 text-left transition-all relative ${
295|                  l.active ? 'bg-[#1e293b]/50 border-l-4 border-[#00d2a0]' : 'hover:bg-[#16213e]/30'
296|                } ${l.locked ? 'opacity-50 grayscale' : ''}`}
297|              >
298|                <div className={`w-8 h-8 rounded-lg flex items-center justify-center shrink-0 ${
299|                  l.completed ? 'bg-[#00d2a0]/10 text-[#00d2a0]' :
300|                  l.active ? 'bg-[#00d2a0] text-black' :
301|                  'bg-[#1e293b] text-slate-500'
302|                }`}>
303|                  {l.locked ? <Lock size={14} /> : l.completed ? <CheckCircle size={16} /> : <span className="...
304|                </div>
305|                <div className="flex-1 pr-4">
306|                  <p className={`text-sm font-semibold truncate ${l.active ? 'text-white' : 'text-slate-300'}`}>
307|                    {l.title}
308|                  </p>
309|                  <div className="flex items-center gap-2 mt-1">
310|                    {l.type === 'video' ? <Play size={12} className="text-slate-500" /> : <FileText size={12} ...
311|                    <span className="text-[10px] text-slate-500 font-bold uppercase tracking-wider">{l.type ==...
312|                  </div>
313|                </div>
314|              </button>
315|            ))}
316|          </div>
317|
318|          <div className="p-6 bg-[#16213e]/50 border-t border-[#1e293b]">
319|            <button className="w-full py-4 bg-[#00d2a0] text-black font-black rounded-xl hover:bg-[#00e6af] tr...
   3 2 0 |                            B Ắ I   T I ¾ P   T H E O   < C h e v r o n R i g h t   s i z e = { 1 8 }   / >
321|            </button>
322|          </div>
323|        </div>
324|
325|      </main>
326|    </div>
327|  )
328| }
329|
```

File: app/courses/page.tsx (158 lines, 7.1 KB)

```
'use client'

import React, { useState, useEffect } from 'react'
import { Search, Filter, BookOpen, Clock, Star, Play, ChevronRight, Layers, LayoutGrid, List, Loader2 } from '...
import Navbar from '@/components/Navbar'
import Link from 'next/link'
import { motion } from 'framer-motion'
import { supabase } from '@/lib/supabase'

export default function CoursesPage() {
  const [viewMode, setViewMode] = useState<'grid' | 'list'>('grid')
  const [searchQuery, setSearchQuery] = useState('')

  const [courses, setCourses] = useState<any[]>([])
  const [loading, setLoading] = useState(true)

  useEffect(() => {
    fetchCourses()
  }, [])

  async function fetchCourses() {
    try {
      setLoading(true)
      const { data } = await supabase
        .from('courses')
        .select('*')
        .eq('is_published', true)
        .order('created_at', { ascending: false })

      setCourses(data || [])
    } catch (err) {
      console.error(err)
    } finally {
      setLoading(false)
    }
  }

  return (
    <div className="min-h-screen bg-[#0f0f1a] text-white">
      <Navbar />

      <main className="pt-28 pb-20 px-4 sm:px-6 lg:px-8 max-w-7xl mx-auto">
        {/* HEADER SECTION */}
        <div className="mb-12">
          <h1 className="text-4xl font-bold mb-4">Danh mục <span classNa
            <p class="text-slate-400 max-w-2xl">
              HÇ thÑng bài giÊng °ãc thi¿t k¿ lÙ trình bài bÊn, të c¡ bÊn
            </p>
          </div>

          {/* SEARCH & FILTER BAR */}
          <div class="flex flex-col lg:flex-row gap-4 mb-8">
            <div class="relative flex-1">
              <Search class="absolute left-4 top-1/2 -translate-y-1/2 text-slate-500" size={20} />
              <input
                type="text"
                placeholder="Tìm ki¿m bài hÍc, chç Á..."
                class="w-full bg-[#16213e] border border-[#1e293b] rounded-2xl pl-12 pr-4 py-3.5 outline-non...
                value={searchQuery}
                onChange={(e) => setSearchQuery(e.target.value)}
              />
            </div>

            <div class="flex items-center gap-3">
              <button class="flex items-center gap-2 px-5 py-3.5 bg-[#16213e] border border-[#1e293b] rounde...
                <Filter size={18} />  LÍc bài hÍc
              </button>
              <div class="h-10 w-[1px] bg-[#1e293b] mx-1"></div>
              <div class="bg-[#16213e] border border-[#1e293b] rounded-xl p-1 flex gap-1">
                <button
                  onClick={() => setViewMode('grid')}
                  class={`p-2 rounded-lg transition-all ${viewMode === 'grid' ? 'bg-[#00d2a0] text-black' : ...
                >
                  <LayoutGrid size={18} />
                </button>
                <button
                  onClick={() => setViewMode('list')}
                  class={`p-2 rounded-lg transition-all ${viewMode === 'list' ? 'bg-[#00d2a0] text-black' : ...
                >
                  <List size={18} />
                </button>
              </div>
            </div>
          </div>

          {loading ? (
            <div class="flex justify-center py-20"><Loader2 class="animate-spin text-[#00d2a0]" size={48...
          ) : courses.length > 0 ? (
            <div class="mb-12">
              <div class="flex items-center justify-between mb-6">
                <h2 class="text-xl font-bold flex items-center gap-2">
                  <Star size={20} class="text-yellow-500" />  Áxu¥t c
                </h2>
              </div>
              <div class="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6">
                {courses.map((course, idx) => (
                  <CourseCard key={course.id} course={course} idx={idx} viewMode={viewMode} />
                ))}
              </div>
            </div>
          ) : (
            <div class="text-center py-20 bg-[#16213e]/30 border border-dashed border-[#1e293b] rounded-[40p...
              <BookOpen size={48} class="mx-auto text-slate-600 mb-4" />
              <p class="text-slate-500 font-medium italic">HiÇn t¡i c
            </div>
          )}
        </main>
      </div>
    )
}

function CourseCard({ course, idx, viewMode }: any) {
  return (
    <motion.div
      initial={{ opacity: 0, y: 20 }}
      animate={{ opacity: 1, y: 0 }}
      transition={{ delay: idx * 0.1 }}
      class={`group bg-[#16213e] border border-[#1e293b] rounded-2xl overflow-hidden hover:border-[#00d2a0...
        viewMode === 'list' ? 'flex flex-col md:flex-row' : ''
      }`}
```

```
121|     >
122|       <div className={`relative overflow-hidden ${viewMode === 'list' ? 'md:w-[300px] shrink-0' : 'aspect-vide...
123|         <img src={course.thumbnail_url || 'https://images.unsplash.com/photo-1591799264318-7e6ef8ddb7ea?w=800&...
124|         <div className="absolute top-4 left-4">
125|           <span className={`px-3 py-1 rounded-full text-[10px] font-bold uppercase tracking-wider ${
   1 2 6 |                          c o u r s e . l e v e l   = = =   ' C ¡   b £ n '   ?   ' b g - g r e e n - 5 0 0 / 2 0   t e x t - g r e e n - 4 0 0
   1 2 7 |                          c o u r s e . l e v e l   = = =   ' T r u n g   c ¥ p '   ?   ' b g - b l u e - 5 0 0 / 2 0   t e x t - b l u e - 4 0 0
128|             'bg-purple-500/20 text-purple-400 border border-purple-500/30'
129|           }`}>
   1 3 0 |                          { c o u r s e . l e v e l   | |   ' C ¡   b £ n ' }
131|           </span>
132|         </div>
133|         {(course.progress || 0) > 0 && (
134|           <div className="absolute bottom-0 left-0 right-0 h-1.5 bg-black/40">
135|             <div className="h-full bg-[#00d2a0]" style={{ width: `${course.progress}%` }}></div>
136|           </div>
137|         )}
138|       </div>
139|
140|       <div className="p-6 flex flex-col flex-1">
141|         <h3 className="text-lg font-bold mb-2 group-hover:text-[#00d2a0] transition-colors">{course.title}</h3>
142|         <p className="text-slate-400 text-sm mb-6 line-clamp-2 leading-relaxed">{course.description}</p>
143|
144|         <div className="mt-auto flex items-center justify-between">
145|           <div className="flex items-center gap-4 text-xs text-slate-500">
146|             <span className="flex items-center gap-1.5"><Clock size={14} /> {course.duration}</span>
147|             <span className="flex items-center gap-1.5"><Layers size={14} /> {course.lessons} bài</span>
148|           </div>
149|
150|           <Link href={`/courses/${course.id}`} className="p-2.5 bg-[#1e293b] hover:bg-[#00d2a0] hover:text-bla...
151|             <ChevronRight size={20} className="transition-transform group-hover/btn:translate-x-0.5" />
152|           </Link>
153|         </div>
154|       </div>
155|     </motion.div>
156|   )
157| }
158|
```

File: app/creator/components/ComponentForm.tsx (279 lines, 10.9 KB)

```
    1| 'use client';
    2|
    3| import { useState, useEffect, useRef } from 'react';
    4| import toast from 'react-hot-toast';
    5| import { createClient } from '@/lib/supabase-client';
    6| import { COMPONENT_SPECS, type ComponentRenderSpec } from '@/data/componentSpecs';
    7| import ComponentRenderer2D from '@/components/builder/ComponentRenderer2D';
    8| import { useComponentLock } from '@/hooks/useComponentUpdates';
    9|
   10| interface ComponentFormProps {
   11|   componentId: string | null;
   12|   onSave: () => void;
   13|   onCancel: () => void;
   14| }
   15|
   16| const COMPONENT_TYPES = ['cpu', 'gpu', 'ram', 'motherboard', 'psu', 'case', 'cooler', 'ssd', 'hdd'] as const;
   17|
   18| export default function ComponentForm({ componentId, onSave, onCancel }: ComponentFormProps) {
   19|   const existingSpec = componentId ? COMPONENT_SPECS.find((s) => s.id === componentId) : null;
   20|
   21|   const [form, setForm] = useState({
   22|     name: existingSpec?.name || '',
   23|     type: existingSpec?.type || 'cpu',
   24|     brand: existingSpec?.brand || '',
   25|     model: existingSpec?.model || '',
   26|     width_mm: existingSpec?.dimensions.width_mm || 100,
   27|     height_mm: existingSpec?.dimensions.height_mm || 100,
   28|     depth_mm: existingSpec?.dimensions.depth_mm || 10,
   29|     pcbColor: existingSpec?.colors.pcb || '#1a1a2e',
   30|     heatsinkColor: existingSpec?.colors.heatsink || '#c0c0c0',
   31|     shroudColor: existingSpec?.colors.shroud || '#333333',
   32|     connectorColor: existingSpec?.colors.connector || '#d4af37',
   33|     accentColor: existingSpec?.colors.accent || '#00d4aa',
   34|     ledColor: existingSpec?.colors.led || '#00d4aa',
   35|   });
   36|
   37|   const [saving, setSaving] = useState(false);
   38|   const [lockAcquired, setLockAcquired] = useState(false);
   39|   const heartbeatRef = useRef<NodeJS.Timeout | null>(null);
   40|   const { lockComponent, releaseLock, heartbeat } = useComponentLock(componentId || null);
   41|
   42|   useEffect(() => {
   43|     if (!componentId || componentId === 'new') return;
   44|     let cancelled = false;
   45|     (async () => {
   46|       const supabase = createClient();
   47|       const { data: { user } } = await supabase.auth.getUser();
   48|       if (!user || cancelled) return;
   49|       const ok = await lockComponent(user.id);
   50|       if (!ok) { onCancel(); return; }
   51|       setLockAcquired(true);
   52|       heartbeatRef.current = setInterval(async () => {
   53|         await heartbeat(user.id);
   54|       }, 4 * 60 * 1000);
   55|     })();
   56|     return () => {
   57|       cancelled = true;
   58|       if (heartbeatRef.current) clearInterval(heartbeatRef.current);
   59|       (async () => {
   60|         const supabase = createClient();
   61|         const { data: { user } } = await supabase.auth.getUser();
   62|         if (user && componentId) await releaseLock(user.id);
   63|       })();
   64|     };
   65|   }, [componentId]);
   66|
   67|   const updateField = (field: string, value: any) => {
   68|     setForm((prev) => ({ ...prev, [field]: value }));
   69|   };
   70|
   71|   const previewSpec: ComponentRenderSpec = {
   72|     id: 'preview',
   73|     name: form.name || 'Preview',
   74|     type: form.type as ComponentRenderSpec['type'],
   75|     brand: form.brand || 'Brand',
   76|     model: form.model || 'Model',
   77|     dimensions: { width_mm: form.width_mm, height_mm: form.height_mm, depth_mm: form.depth_mm },
   78|     colors: {
   79|       pcb: form.pcbColor,
   80|       heatsink: form.heatsinkColor,
   81|       shroud: form.shroudColor,
   82|       connector: form.connectorColor,
```

```
      accent: form.accentColor,
      led: form.ledColor,
    },
    connectors: [],
    techSpecs: {},
  };

  const handleSave = async () => {
    setSaving(true);
    try {
      const supabase = createClient();
      const { data: { user } } = await supabase.auth.getUser();

      if (componentId && componentId !== 'new') {
        await supabase.from('components').update({
          name: form.name,
          type: form.type,
          brand: form.brand,
          model: form.model,
          dimensions: { width_mm: form.width_mm, height_mm: form.height_mm, depth_mm: form.depth_mm },
          colors: {
            pcb: form.pcbColor,
            heatsink: form.heatsinkColor,
            shroud: form.shroudColor,
            connector: form.connectorColor,
            accent: form.accentColor,
            led: form.ledColor,
          },
          updated_at: new Date().toISOString(),
        }).eq('id', componentId);
      } else {
        await supabase.from('components').insert({
          name: form.name,
          type: form.type,
          brand: form.brand,
          model: form.model,
          dimensions: { width_mm: form.width_mm, height_mm: form.height_mm, depth_mm: form.depth_mm },
          colors: {
            pcb: form.pcbColor,
            heatsink: form.heatsinkColor,
            shroud: form.shroudColor,
            connector: form.connectorColor,
            accent: form.accentColor,
            led: form.ledColor,
          },
          created_by: user?.id,
          status: 'draft',
        });
      }
      onSave();
    } catch (err) {
      console.error('Save failed:', err);
      onSave();
    } finally {
      setSaving(false);
    }
  };

  const inputStyle: React.CSSProperties = {
    width: '100%', padding: '8px 12px', borderRadius: 6, border: '1px solid rgba(255,255,255,0.1)',
    background: 'rgba(255,255,255,0.05)', color: '#e2e8f0', fontSize: 13, outline: 'none',
    fontFamily: 'inherit',
  };

  const labelStyle: React.CSSProperties = {
    fontSize: 12, fontWeight: 600, color: '#94a3b8', marginBottom: 4, display: 'block',
  };

  return (
    <div style={{ maxWidth: 800, margin: '0 auto' }}>
      <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: 24 }}>
        <h2 style={{ fontSize: 20, fontWeight: 700, margin: 0 }}>
155 |                    { c o m p o n e n t I d  = = =  ' n e w '  ?  ' T ¡ o  l i n h  k i Ç n  m Û i '  :  ' C h É n h  s í a  l i n h
        </h2>
        <div style={{ display: 'flex', gap: 8 }}>
          <button onClick={onCancel}
            style={{
              padding: '8px 16px', borderRadius: 6, cursor: 'pointer',
              background: 'rgba(255,255,255,0.05)', border: '1px solid rgba(255,255,255,0.1)',
              color: '#94a3b8', fontSize: 13, fontWeight: 500, fontFamily: 'inherit',
            }}>
164 |                    H ç y
          </button>
          <button onClick={handleSave} disabled={saving}
            style={{
              padding: '8px 16px', borderRadius: 6, cursor: 'pointer',
              background: 'linear-gradient(135deg, #00d4aa, #00b4d8)',
              border: 'none', color: '#fff', fontSize: 13, fontWeight: 600, fontFamily: 'inherit',
              opacity: saving ? 0.6 : 1,
            }}>
173 |                    { s a v i n g  ?  '  a n g  l ° u . . . '  :  ' L ° u ' }
          </button>
        </div>
      </div>

      <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: 24 }}>
        <div>
          <div style={{ marginBottom: 16 }}>
181 |                    < l a b e l  s t y l e = { l a b e l S t y l e } > T ê n  l i n h  k i Ç n < / l a b e l >
            <input style={inputStyle} value={form.name}
              onChange={(e) => updateField('name', e.target.value)} placeholder="VD: Intel Core i5-13600K" />
          </div>

          <div style={{ marginBottom: 16 }}>
187 |                    < l a b e l  s t y l e = { l a b e l S t y l e } > L o ¡ i < / l a b e l >
            <select style={inputStyle} value={form.type}
              onChange={(e) => updateField('type', e.target.value)}>
              {COMPONENT_TYPES.map((t) => (
                <option key={t} value={t}>{t.toUpperCase()}</option>
              ))}
            </select>
          </div>

          <div style={{ marginBottom: 16 }}>
            <label style={labelStyle}>Hãng</label>
            <input style={inputStyle} value={form.brand}
              onChange={(e) => updateField('brand', e.target.value)} placeholder="VD: Intel, AMD, NVIDIA" />
          </div>

          <div style={{ marginBottom: 16 }}>
            <label style={labelStyle}>Model</label>
            <input style={inputStyle} value={form.model}
              onChange={(e) => updateField('model', e.target.value)} placeholder="VD: Core i5-13600K" />
          </div>
```

```
  207|
  208|            <div style={{ marginBottom: 16 }}>
    2 0 9 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > K í c h   t h ° Û c   ( m m ) < / l a b e l >
  210|              <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr 1fr', gap: 8 }}>
  211|                <div>
    2 1 2 |                            < d i v   s t y l e = { {   f o n t S i z e :   1 0 ,   c o l o r :   ' # 6 4 7 4 8 b ' ,   m a r g i n B o t t
  213|                  <input type="number" style={inputStyle} value={form.width_mm}
  214|                    onChange={(e) => updateField('width_mm', Number(e.target.value))} />
  215|                </div>
  216|                <div>
  217|                  <div style={{ fontSize: 10, color: '#64748b', marginBottom: 2 }}>Cao</div>
  218|                  <input type="number" style={inputStyle} value={form.height_mm}
  219|                    onChange={(e) => updateField('height_mm', Number(e.target.value))} />
  220|                </div>
  221|                <div>
  222|                  <div style={{ fontSize: 10, color: '#64748b', marginBottom: 2 }}>Sâu</div>
  223|                  <input type="number" style={inputStyle} value={form.depth_mm}
  224|                    onChange={(e) => updateField('depth_mm', Number(e.target.value))} />
  225|                </div>
  226|              </div>
  227|            </div>
  228|
  229|            <div style={{ marginBottom: 16 }}>
    2 3 0 |                          < l a b e l   s t y l e = { l a b e l S t y l e } > M à u   s ¯ c < / l a b e l >
  231|              <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: 8 }}>
  232|                {[
  233|                  { key: 'pcbColor', label: 'PCB' },
    2 3 4 |                                {   k e y :   ' h e a t s i n k C o l o r ' ,   l a b e l :   ' T £ n   n h i Ç t '   } ,
    2 3 5 |                                {   k e y :   ' s h r o u d C o l o r ' ,   l a b e l :   ' V Ï   b Í c '   } ,
  236|                  { key: 'connectorColor', label: 'Connector' },
    2 3 7 |                                {   k e y :   ' a c c e n t C o l o r ' ,   l a b e l :   ' N h ¥ n '   } ,
  238|                  { key: 'ledColor', label: 'LED' },
  239|                ].map(({ key, label }) => (
  240|                  <div key={key}>
  241|                    <div style={{ fontSize: 10, color: '#64748b', marginBottom: 2 }}>{label}</div>
  242|                    <div style={{ display: 'flex', gap: 6, alignItems: 'center' }}>
  243|                      <input type="color" value={(form as any)[key]}
  244|                        onChange={(e) => updateField(key, e.target.value)}
  245|                        style={{ width: 32, height: 32, borderRadius: 4, border: 'none', cursor: 'pointer', padd...
  246|                      <input style={{ ...inputStyle, flex: 1 }} value={(form as any)[key]}
  247|                        onChange={(e) => updateField(key, e.target.value)} />
  248|                    </div>
  249|                  </div>
  250|                ))}
  251|              </div>
  252|            </div>
  253|          </div>
  254|
  255|          <div>
    2 5 6 |                        < l a b e l   s t y l e = { l a b e l S t y l e } > X e m   t r ° Û c   2 D < / l a b e l >
  257|            <div style={{
  258|              background: 'rgba(255,255,255,0.03)', borderRadius: 12,
  259|              padding: 24, display: 'flex', justifyContent: 'center', alignItems: 'center',
  260|              border: '1px solid rgba(255,255,255,0.08)',
  261|              minHeight: 300,
  262|            }}>
  263|              <ComponentRenderer2D
  264|                spec={previewSpec}
  265|                scale={1}
  266|                showConnectors={true}
  267|                showDimensions={true}
  268|                viewMode="top"
  269|              />
  270|            </div>
  271|            <div style={{ fontSize: 11, color: '#64748b', marginTop: 8, textAlign: 'center' }}>
    2 7 2 |                          K í c h   t h ° Û c :   { f o r m . w i d t h _ m m } m m   ×   { f o r m . h e i g h t _ m m } m m   ×   { f o r m . d
  273|            </div>
  274|          </div>
  275|        </div>
  276|      </div>
  277|    );
  278| }
  279|
```

File: app/creator/layout.tsx (25 lines, 0.6 KB)

```
    1| import { redirect } from 'next/navigation';
    2| import { createClient } from '@/lib/supabase-ssr-server';
    3|
    4| export default async function CreatorLayout({ children }: { children: React.ReactNode }) {
    5|   const supabase = await createClient();
    6|   const { data: { user } } = await supabase.auth.getUser();
    7|
    8|   if (!user) {
    9|     redirect('/login?redirect=/creator');
   10|   }
   11|
   12|   const { data: profile } = await supabase
   13|     .from('profiles')
   14|     .select('role')
   15|     .eq('id', user.id)
   16|     .single();
   17|
   18|   const role = profile?.role as string;
   19|   if (!['admin', 'component_creator'].includes(role)) {
   20|     redirect('/builder?error=unauthorized');
   21|   }
   22|
   23|   return <>{children}</>;
   24| }
   25|
```

File: app/creator/page.tsx (167 lines, 6.3 KB)

```
    1| 'use client';
    2|
    3| import { useState, useEffect } from 'react';
    4| import { createClient } from '@/lib/supabase-client';
    5| import ComponentForm from './components/ComponentForm';
    6| import { COMPONENT_SPECS } from '@/data/componentSpecs';
    7|
    8| interface ComponentItem {
    9|   id: string;
   10|   name: string;
   11|   type: string;
   12|   brand: string;
   13|   model: string;
   14|   status: string;
   15|   is_published: boolean;
   16|   created_at: string;
   17| }
```

```
export default function CreatorDashboard() {
  const [components, setComponents] = useState<ComponentItem[]>([]);
  const [editingId, setEditingId] = useState<string | null>(null);
  const [filter, setFilter] = useState<'all' | 'draft' | 'review' | 'published'>('all');
  const [loading, setLoading] = useState(true);
  const [error, setError] = useState<string | null>(null);

  useEffect(() => {
    loadComponents();
  }, []);

  const loadComponents = async () => {
    try {
      setLoading(true);
      const supabase = createClient();
      const { data, error } = await supabase
        .from('components')
        .select('*')
        .order('created_at', { ascending: false });

      if (error) {
        // Fallback to local data if Supabase table doesn't exist
        setComponents(COMPONENT_SPECS.map((s) => ({
          id: s.id,
          name: s.name,
          type: s.type,
          brand: s.brand,
          model: s.model,
          status: 'published',
          is_published: true,
          created_at: new Date().toISOString(),
        })));
      } else {
        setComponents(data || []);
      }
    } catch (err) {
      // Fallback to local data
      setComponents(COMPONENT_SPECS.map((s) => ({
        id: s.id,
        name: s.name,
        type: s.type,
        brand: s.brand,
        model: s.model,
        status: 'published',
        is_published: true,
        created_at: new Date().toISOString(),
      })));
    } finally {
      setLoading(false);
    }
  };

  const filtered = filter === 'all' ? components : components.filter((c) => c.status === filter);

  const statusColors: Record<string, string> = {
    draft: '#64748b',
    review: '#f59e0b',
    published: '#22c55e',
  };

  return (
    <div style={{ display: 'flex', height: '100vh', background: '#0f0f1a', color: '#e2e8f0' }}>
      <div style={{
        width: 320, borderRight: '1px solid rgba(255,255,255,0.08)',
        display: 'flex', flexDirection: 'column',
      }}>
        <div style={{ padding: '20px 16px', borderBottom: '1px solid rgba(255,255,255,0.08)' }}>
          <div style={{ display: 'flex', alignItems: 'center', gap: 8, marginBottom: 8 }}>
            < s p a n   s t y l e = { {   f o n t S i z e :   2 0   } } >Ø=Ý' < / s p a n >
            <span style={{ fontSize: 18, fontWeight: 700 }}>Component Creator Studio</span>
          </div>
          <div style={{
            display: 'inline-flex', padding: '2px 10px', borderRadius: 100,
            background: 'rgba(168,85,247,0.2)', color: '#a855f7',
            fontSize: 11, fontWeight: 700, textTransform: 'uppercase', letterSpacing: 1,
          }}>
            Creator Mode
          </div>
        </div>

        <div style={{ padding: '12px 16px', display: 'flex', gap: 6, borderBottom: '1px solid rgba(255,255,255...
          {(['all', 'draft', 'review', 'published'] as const).map((f) => (
            <button key={f} onClick={() => setFilter(f)}
              style={{
                padding: '4px 12px', borderRadius: 6, fontSize: 12, fontWeight: 600, cursor: 'pointer',
                background: filter === f ? 'rgba(0,212,170,0.2)' : 'rgba(255,255,255,0.05)',
                color: filter === f ? '#00d4aa' : '#94a3b8',
                border: `1px solid ${filter === f ? '#00d4aa' : 'transparent'}`,
              }}>
                { f   = = =   ' a l l '   ?   ' T ¥ t   c £ '   :   f . c h a r A t ( 0 ) . t o U p p e r C a s e ( )   +   f . s l
            </button>
          ))}
        </div>

        <div style={{ flex: 1, overflowY: 'auto', padding: 8 }}>
          {loading && <div style={{ padding: 20, textAlign: 'center', color: '#64748b' }}>Loading...</div>}
          {filtered.map((comp) => (
            <div key={comp.id} onClick={() => setEditingId(comp.id)}
              style={{
                padding: '10px 12px', borderRadius: 8, marginBottom: 4, cursor: 'pointer',
                background: editingId === comp.id ? 'rgba(0,212,170,0.08)' : 'transparent',
                border: `1px solid ${editingId === comp.id ? 'rgba(0,212,170,0.3)' : 'transparent'}`,
              }}>
              <div style={{ fontSize: 14, fontWeight: 600 }}>{comp.name}</div>
              <div style={{ display: 'flex', alignItems: 'center', gap: 8, marginTop: 4 }}>
                <span style={{ fontSize: 11, color: '#64748b' }}>{comp.type.toUpperCase()}</span>
                <span style={{
                  padding: '1px 8px', borderRadius: 100, fontSize: 10, fontWeight: 600,
                  background: `${statusColors[comp.status]}20`,
                  color: statusColors[comp.status],
                }}>
                  {comp.status}
                </span>
              </div>
            </div>
          ))}
        </div>

        <div style={{ padding: 12, borderTop: '1px solid rgba(255,255,255,0.08)' }}>
          <button onClick={() => setEditingId('new')}
            style={{
              width: '100%', padding: '8px 16px', borderRadius: 8, cursor: 'pointer',
              background: 'linear-gradient(135deg, #00d4aa, #00b4d8)',
```

```
142|              color: '#fff', border: 'none', fontWeight: 600, fontSize: 13,
143|            }}>
144 |                          +  T ¡ o  l i n h  k i Ç n  m Û i
145|            </button>
146|          </div>
147|        </div>
148|
149|        <div style={{ flex: 1, overflowY: 'auto', padding: 24 }}>
150|          {editingId ? (
151|            <ComponentForm
152|              componentId={editingId === 'new' ? null : editingId}
153|              onSave={() => { setEditingId(null); loadComponents(); }}
154|              onCancel={() => setEditingId(null)}
155|            />
156|          ) : (
157|            <div style={{ display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'cente...
158 |                          < d i v  s t y l e = { {  f o n t S i z e :  4 8 ,  m a r g i n B o t t o m :  1 6  } } >Ø=Ý' < / d i v >
159 |                          < d i v  s t y l e = { {  f o n t S i z e :  1 8 ,  f o n t W e i g h t :  6 0 0 ,  m a r g i n B o t t o m :  8
160 |                          < d i v  s t y l e = { {  f o n t S i z e :  1 4  } } > h o · c  n h ¥ n  " T ¡ o  l i n h  k i Ç n  m Û i "
161|            </div>
162|          )}
163|        </div>
164|      </div>
165|    );
166| }
167|
```

File: app/daily-quiz/[quizId]/page.tsx (477 lines, 21.1 KB)

```
1| 'use client'
2|
3| import { useState, useEffect, use } from 'react'
4| import { createBrowserClient } from '@supabase/ssr'
5| import { useRouter } from 'next/navigation'
6| import { motion, AnimatePresence } from 'framer-motion'
7| import {
8|   CheckCircle, XCircle, Trophy, Loader2, ArrowLeft,
9|   Sparkles, Share2, Home
10| } from 'lucide-react'
11|
12| const LABELS = ['A', 'B', 'C', 'D']
13| const DAILY_TOPIC_IDS = new Set([
14|   'cpu-arch', 'ram-storage', 'gpu-graphics', 'motherboard',
15|   'psu-cooling', 'storage-devices', 'pc-assembly', 'bios-uefi',
16|   'network', 'peripherals', 'os-windows', 'troubleshooting',
17|   'laptop-mobile', 'monitor-display', 'ai-tech', 'overclocking',
18|   'benchmark', 'pc-gaming', 'server-workstation', 'cable-connectivity',
19|   'virtual-reality', 'cybersecurity',
20| ])
21|
22| interface Question {
23|   id: string
24|   text: string
25|   question: string
26|   options: string[]
27|   correct: number
28|   explanation: string
29| }
30|
31| export default function DailyQuizPage({ params }: { params: Promise<{ quizId: string }> }) {
32|   const { quizId } = use(params)
33|   const router = useRouter()
34|   const supabase = createBrowserClient(
35|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
36|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
37|   )
38|
39|   const [questions, setQuestions] = useState<Question[]>([])
40|   const [topicTitle, setTopicTitle] = useState('')
41|   const [currentIdx, setCurrentIdx] = useState(0)
42|   const [selectedIdx, setSelectedIdx] = useState<number | null>(null)
43|   const [confirmed, setConfirmed] = useState(false)
44|   const [finished, setFinished] = useState(false)
45|   const [loading, setLoading] = useState(true)
46|   const [error, setError] = useState('')
47|   const [submitting, setSubmitting] = useState(false)
48|   const [result, setResult] = useState<{ score: number; total: number; xpEarned: number } | null>(null)
49|   const [answers, setAnswers] = useState<Record<string, { selected: number; correct: number }>>({})
50|
51|   const isDailyTopic = DAILY_TOPIC_IDS.has(quizId)
52|
53|   useEffect(() => {
54|     if (isDailyTopic) {
55|       initDailyQuiz()
56|     } else {
57|       initLegacyQuiz()
58|     }
59|   }, [])
60|
61|   async function initDailyQuiz() {
62|     try {
63|       setLoading(true)
64|       const res = await fetch(`/api/daily-quiz?topicId=${quizId}`)
65 |                i f  ( ! r e s . o k )  t h r o w  n e w  E r r o r ( ' K h ô n g  t ì m  t h ¥ y  c h ç  Á ' )
66|       const data = await res.json()
67|
68|       if (data.completed) {
69|         setFinished(true)
70|         setResult({ score: 0, total: 0, xpEarned: 0 })
71|         setLoading(false)
72|         return
73|       }
74|
75|       setQuestions(data.questions)
76|       setTopicTitle(data.topic?.title || quizId)
77|       setLoading(false)
78|     } catch (err: any) {
79 |                s e t E r r o r ( e r r . m e s s a g e  | |  ' C ó  l × i  x £ y  r a ' )
80|       setLoading(false)
81|     }
82|   }
83|
84|   async function initLegacyQuiz() {
85|     try {
86|       setLoading(true)
87|       const { data: quizData, error: qErr } = await supabase
88|         .from('quizzes')
89|         .select('*')
90|         .eq('id', quizId)
91|         .single()
92 |                i f  ( q E r r  | |  ! q u i z D a t a )  {  s e t E r r o r ( ' K h ô n g  t ì m  t h ¥ y  b à i  k i Ã m  t r a . ' ) ;
93|
94|       setTopicTitle(quizData.title || '')
```

```
 95|
 96|       const { data: qs, error: qsErr } = await supabase
 97|         .from('quiz_questions_for_student')
 98|         .select('*')
 99|         .eq('quiz_id', quizId)
100|         .order('order', { ascending: true })
   1 0 1 |              i f   ( q s E r r )   {   s e t E r r o r ( ' L × i   t £ i   c â u   h Ï i . ' ) ;   r e t u r n   }
   1 0 2 |              i f   ( ! q s   | |   q s . l e n g t h   = = =   0 )   {   s e t E r r o r ( ' B ả i   k i Ä m   t r a   c h ° a   c ó   c â u   h
103|
104|       const mapped = qs.map((q: any) => ({
105|         id: q.id,
106|         text: q.content || q.question || '',
107|         question: q.content || q.question || '',
108|         options: (q.options || []).map((o: any) => o.content || o.text || o),
109|         correct: 0,
110|         explanation: q.explanation || '',
111|       }))
112|       setQuestions(mapped)
113|       setLoading(false)
114|     } catch {
   1 1 5 |              s e t E r r o r ( ' C ó   l × i   x £ y   r a . ' )
116|       setLoading(false)
117|     }
118|   }
119|
120|   function handleSelect(idx: number) {
121|     if (confirmed) return
122|     setSelectedIdx(idx)
123|   }
124|
125|   function handleConfirm() {
126|     if (selectedIdx === null) return
127|     setConfirmed(true)
128|     const q = questions[currentIdx]
129|     setAnswers(prev => ({
130|       ...prev,
131|       [q.id]: { selected: selectedIdx, correct: q.correct },
132|     }))
133|   }
134|
135|   function handleNext() {
136|     if (currentIdx < questions.length - 1) {
137|       setCurrentIdx(prev => prev + 1)
138|       setSelectedIdx(null)
139|       setConfirmed(false)
140|     }
141|   }
142|
143|   async function handleSubmit() {
144|     if (submitting) return
145|     setSubmitting(true)
146|     setFinished(true)
147|
148|     if (!isDailyTopic) {
149|       setResult({ score: 0, total: questions.length, xpEarned: 0 })
150|       setSubmitting(false)
151|       return
152|     }
153|
154|     let correctCount = 0
155|     for (const q of questions) {
156|       const ans = answers[q.id]
157|       if (ans && ans.selected === q.correct) correctCount++
158|     }
159|     const xpEarned = correctCount * 5
160|
161|     try {
162|       const res = await fetch('/api/daily-quiz', {
163|         method: 'POST',
164|         headers: { 'Content-Type': 'application/json' },
165|         body: JSON.stringify({
166|           topicId: quizId,
167|           score: correctCount,
168|           total: questions.length,
169|           xpEarned,
170|         }),
171|       })
172|       const json = await res.json()
173|       setResult({
174|         score: correctCount,
175|         total: questions.length,
176|         xpEarned: json.xpAwarded || xpEarned,
177|       })
178|     } catch {
179|       setResult({ score: correctCount, total: questions.length, xpEarned })
180|     }
181|
182|     setSubmitting(false)
183|   }
184|
185|   async function handleShare() {
186|     if (!result) return
187|     const shareData = {
   1 8 8 |              t i t l e :   ' P C   M a s t e r   -   T h í   t h á c h   h ± n g   n g à y ' ,
   1 8 9 |              t e x t :   ` M ì n h   v ë a   ¡ t   $ { r e s u l t . s c o r e } / $ { r e s u l t . t o t a l }   t r o n g   t h í   t h á c
190|       url: window.location.href,
191|     }
192|     if (navigator.share) {
193|       try { await navigator.share(shareData) } catch {}
194|     } else {
195|       await navigator.clipboard.writeText(shareData.text)
196|     }
197|   }
198|
199|   if (loading) return (
200|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', jus...
201|       <div style={{ textAlign: 'center' }}>
202|         <Loader2 className="animate-spin" size={48} style={{ color: 'var(--brand-primary)', margin: '0 auto 16...
   2 0 3 |                  < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '   } } >   a n g   t £ i   c â u   h Ï i . . . < / p
204|       </div>
205|     </div>
206|   )
207|
208|   if (error) return (
209|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', jus...
210|       <div style={{ borderRadius: '24px', border: '1px solid var(--border-strong)', background: 'var(--bg-surf...
211|         <p style={{ color: '#ef4444', marginBottom: '16px' }}>{error}</p>
212|         <button onClick={() => router.push(isDailyTopic ? '/daily-quiz' : '/')} style={{ padding: '12px 24px',...
   2 1 3 |                      Q u a y   l ¡ i
214|         </button>
215|       </div>
216|     </div>
217|   )
218|
```

```
219|   if (finished && result && result.score === 0 && result.total === 0) return (
220|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', jus...
221|       <motion.div initial={{ scale: 0.8, opacity: 0 }} animate={{ scale: 1, opacity: 1 }}
222|         style={{ borderRadius: '24px', border: '1px solid var(--border-strong)', background: 'var(--bg-surface...
223|       >
224|         <CheckCircle style={{ margin: '0 auto 16px', color: 'var(--brand-primary)' }} size={80} />
225|         <h2 style={{ fontSize: '24px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '8px' }}>B...
   2 2 6 |                 < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   m a r g i n B o t t o m :   ' 2 4 p x '   } } >
227|         <button onClick={() => router.push('/daily-quiz')} style={{ padding: '16px 32px', background: 'var(--b...
   2 2 8 |                         V Á   d a n h   s á c h
229|         </button>
230|       </motion.div>
231|     </div>
232|   )
233|
234|   if (finished && result) return (
235|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', jus...
236|       <motion.div initial={{ scale: 0.8, opacity: 0 }} animate={{ scale: 1, opacity: 1 }}
237|         style={{ borderRadius: '24px', border: '1px solid var(--border-strong)', background: 'var(--bg-surface...
238|       >
239|         <Trophy style={{ margin: '0 auto 16px', color: 'var(--accent-amber)' }} size={72} />
240|         <h2 style={{ fontSize: '24px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '8px' }}>H...
241|         <p style={{ color: 'var(--text-muted)', marginBottom: '8px' }}>{topicTitle}</p>
242|         <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '12px', margin: '1...
243|           <span style={{ fontSize: '48px', fontWeight: 900, color: 'var(--brand-primary)' }}>{result.score}</s...
244|           <span style={{ fontSize: '24px', color: 'var(--text-muted)' }}>/ {result.total}</span>
245|         </div>
246|         <div style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', padding: '8px 16px', backgroun...
247|           <Sparkles size={16} />
248|           +{result.xpEarned} XP
249|         </div>
250|         <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
251|           <button
252|             onClick={handleShare}
253|             style={{ width: '100%', padding: '16px 32px', border: '1px solid var(--border-strong)', borderRadi...
254|           >
255|             <Share2 size={18} />
   2 5 6 |                         C h i a   s »   k ¿ t   q u £
257|           </button>
258|           <button
259|             onClick={() => router.push('/daily-quiz')}
260|             style={{ width: '100%', padding: '16px 32px', background: 'var(--brand-primary)', color: 'var(--bg...
261|           >
262|             <Home size={18} />
   2 6 3 |                         V Á   d a n h   s á c h
264|           </button>
265|         </div>
266|       </motion.div>
267|     </div>
268|   )
269|
270|   if (questions.length === 0) return null
271|
272|   const q = questions[currentIdx]
273|   const currentAnswer = answers[q.id]
274|
275|   return (
276|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)', padding: '16...
277|       <div style={{ maxWidth: '768px', margin: '0 auto' }}>
278|         {/* Header */}
279|         <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', marginBottom: '2...
280|           <button
281|             onClick={() => router.push('/daily-quiz')}
282|             style={{ display: 'flex', alignItems: 'center', gap: '8px', color: 'var(--text-muted)', background...
283|           >
284|             <ArrowLeft size={20} />
   2 8 5 |                         < s p a n > Q u a y   l ¡ i < / s p a n >
286|           </button>
287|           <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
288|             <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
289|               <span style={{ fontSize: '14px', color: 'var(--text-muted)' }}>{currentIdx + 1}/{questions.lengt...
290|               <span style={{ fontSize: '12px', padding: '4px 10px', background: 'color-mix(in srgb, var(--bran...
   2 9 1 |                                 { O b j e c t . k e y s ( a n s w e r s ) . l e n g t h } / { q u e s t i o n s . l e n g t h }    ã   t r £
292|               </span>
293|             </div>
294|             {isDailyTopic && (
295|               <div style={{ display: 'flex', alignItems: 'center', gap: '6px', color: 'var(--brand-primary)', ...
296|                 <Sparkles size={14} />
297|                 <span>5 XP / câu</span>
298|               </div>
299|             )}
300|           </div>
301|         </div>
302|
303|         {/* Progress */}
304|         <div style={{ width: '100%', height: '8px', background: 'var(--border-strong)', borderRadius: '9999px'...
305|           <div
306|             style={{ height: '100%', background: 'var(--brand-primary)', borderRadius: '9999px', transition: '...
307|           />
308|         </div>
309|
310|         {/* Question */}
311|         <AnimatePresence mode="wait">
312|           <motion.div
313|             key={currentIdx}
314|             initial={{ x: 40, opacity: 0 }}
315|             animate={{ x: 0, opacity: 1 }}
316|             exit={{ x: -40, opacity: 0 }}
317|             style={{ borderRadius: '24px', border: '1px solid var(--border-strong)', background: 'var(--bg-sur...
318|           >
319|             <div style={{ fontSize: '12px', color: 'var(--accent-amber)', textTransform: 'uppercase', letterSp...
   3 2 0 |                             C â u   h Ï i   { c u r r e n t I d x   +   1 }
321|             </div>
322|             <h2 style={{ fontSize: '20px', fontWeight: 700, lineHeight: 1.625 }} className="md:text-2xl">{q.te...
323|           </motion.div>
324|         </AnimatePresence>
325|
326|         {/* Options */}
327|         <AnimatePresence mode="wait">
328|           <motion.div
329|             key={currentIdx}
330|             initial={{ x: 40, opacity: 0 }}
331|             animate={{ x: 0, opacity: 1 }}
332|             transition={{ delay: 0.1 }}
333|             style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}
334|           >
335|             {q.options.map((opt: string, i: number) => {
336|               const isSelected = selectedIdx === i
337|               const isCorrectOption = confirmed && i === q.correct
338|               const isWrongOption = confirmed && isSelected && i !== q.correct
339|
340|               return (
341|                 <button
342|                   key={i}
```

```
343|                  onClick={() => handleSelect(i)}
344|                  disabled={confirmed}
345|                  style={{
346|                    width: '100%', textAlign: 'left', padding: '20px', borderRadius: '16px',
347|                    display: 'flex', alignItems: 'center', gap: '16px', cursor: confirmed ? 'default' : 'point...
348|                    border: '1px solid',
349|                    borderColor: isCorrectOption
350|                      ? 'var(--brand-primary)'
351|                      : isWrongOption
352|                        ? '#ef4444'
353|                        : isSelected
354|                          ? 'var(--accent-blue)'
355|                          : 'var(--border-strong)',
356|                    background: isCorrectOption
357|                      ? 'color-mix(in srgb, var(--brand-primary) 15%, transparent)'
358|                      : isWrongOption
359|                        ? 'color-mix(in srgb, #ef4444 10%, transparent)'
360|                        : isSelected
361|                          ? 'color-mix(in srgb, var(--accent-blue) 10%, transparent)'
362|                          : 'var(--bg-surface)',
363|                    opacity: confirmed && !isSelected && !isCorrectOption ? 0.5 : 1,
364|                    color: 'var(--text-primary)',
365|                    transition: 'all 0.2s',
366|                    fontSize: '16px'
367|                  }}
368|                >
369|                  <div style={{
370|                    width: '40px', height: '40px', borderRadius: '12px', display: 'flex',
371|                    alignItems: 'center', justifyContent: 'center', fontWeight: 700, fontSize: '18px', flexShr...
372|                    background: isCorrectOption
373|                      ? 'var(--brand-primary)'
374|                      : isWrongOption
375|                        ? '#ef4444'
376|                        : isSelected
377|                          ? 'var(--accent-blue)'
378|                          : 'var(--border-strong)',
379|                    color: isCorrectOption
380|                      ? 'var(--bg-base)'
381|                      : isWrongOption || isSelected
382|                        ? 'white'
383|                        : 'var(--text-muted)'
384|                  }}>
385|                    {isCorrectOption ? <CheckCircle size={22} /> : isWrongOption ? <XCircle size={22} /> : LAB...
386|                  </div>
387|                  <span style={{ fontSize: '16px' }}>{opt.replace(/^[A-D]\.\s*/, '')}</span>
388|                </button>
389|              )
390|            })}
391|          </motion.div>
392|        </AnimatePresence>
393|
394|        {/* Explanation */}
395|        <AnimatePresence>
396|          {confirmed && q.explanation && (
397|            <motion.div
398|              initial={{ opacity: 0, y: 10 }}
399|              animate={{ opacity: 1, y: 0 }}
400|              style={{
401|                marginTop: '16px', padding: '20px', borderRadius: '16px',
402|                border: '1px solid',
403|                borderColor: currentAnswer?.selected === q.correct
404|                  ? 'color-mix(in srgb, var(--brand-primary) 30%, transparent)'
405|                  : 'color-mix(in srgb, #ef4444 30%, transparent)',
406|                background: currentAnswer?.selected === q.correct
407|                  ? 'color-mix(in srgb, var(--brand-primary) 5%, transparent)'
408|                  : 'color-mix(in srgb, #ef4444 5%, transparent)'
409|              }}
410|            >
411|              <div style={{ display: 'flex', alignItems: 'flex-start', gap: '12px' }}>
412|                {currentAnswer?.selected === q.correct
413|                  ? <CheckCircle style={{ color: 'var(--brand-primary)', flexShrink: 0, marginTop: '2px' }} si...
414|                  : <XCircle style={{ color: '#ef4444', flexShrink: 0, marginTop: '2px' }} size={20} />
415|                }
416|                <div>
417|                  <p style={{ fontSize: '14px', fontWeight: 600, marginBottom: '4px' }}>
418|                    {currentAnswer?.selected === q.correct ? 'Chính xác!
419|                  </p>
420|                  <p style={{ fontSize: '14px', color: 'var(--text-muted)' }}>{q.explanation}</p>
421|                </div>
422|              </div>
423|            </motion.div>
424|          )}
425|        </AnimatePresence>
426|
427|        {/* Actions */}
428|        <div style={{ display: 'flex', gap: '16px', marginTop: '32px' }}>
429|          {!confirmed ? (
430|            <button
431|              onClick={handleConfirm}
432|              disabled={selectedIdx === null}
433|              style={{
434|                padding: '16px 32px', borderRadius: '9999px', fontWeight: 600, border: 'none', cursor: selecte...
435|                background: selectedIdx !== null ? 'var(--accent-blue)' : 'var(--border-strong)',
436|                color: selectedIdx !== null ? 'white' : 'var(--text-muted)'
437|              }}
438|            >
439|              Xác nhận
440|            </button>
441|          ) : (
442|            <button
443|              onClick={handleNext}
444|              style={{ padding: '16px 32px', background: 'var(--brand-primary)', color: 'var(--bg-base)', bord...
445|            >
446|              {currentIdx < questions.length - 1 ? 'Câu tiếp!' : 'Xem k
447|            </button>
448|          )}
449|
450|          {(() => {
451|            const unanswered = questions.length - Object.keys(answers).length
452|            const showWarning = unanswered > 0 && currentIdx >= questions.length - 1 && confirmed
453|            if (!showWarning) return null
454|            return (
455|              <motion.div
456|                initial={{ opacity: 0, y: -10 }}
457|                animate={{ opacity: 1, y: 0 }}
458|                style={{ padding: '12px 20px', borderRadius: '12px', background: 'color-mix(in srgb, #ef4444 1...
459|              >
460|                <XCircle size={18} />
461|                Còn {unanswered} câu chưa trả lời
462|              </motion.div>
463|            )
464|          })()}
465|            <button
466|            onClick={handleSubmit}
```

```
  467|            disabled={submitting || Object.keys(answers).length < questions.length}
  468|            style={{ padding: '16px 24px', border: '1px solid var(--border-strong)', borderRadius: '9999px', f...
  469|          >
     4 7 0 |                        { s u b m i t t i n g   ?   '   a n g   n Ù p . . . '   :   ' N Ù p   b à i ' }
  471|          </button>
  472|        </div>
  473|      </div>
  474|    </div>
  475|  )
  476| }
  477|
-----------------------------------------------------------------------------------------------------
```

File: app/daily-quiz/page.tsx (315 lines, 15.5 KB)

```
=====================================================================================================
    1| 'use client'
    2|
    3| import { useState, useEffect } from 'react'
    4| import { useRouter } from 'next/navigation'
    5| import { useIsMobile } from '@/hooks/useIsMobile'
    6| import { motion } from 'framer-motion'
    7| import { createBrowserClient } from '@supabase/ssr'
    8| import {
    9|   Trophy, ChevronRight, Sparkles,
   10|   CheckCircle, Calendar, Loader2, Star, Zap, BookOpen
   11| } from 'lucide-react'
   12|
   13| const LABELS = ['A', 'B', 'C', 'D']
   14| const TOPIC_ICONS: Record<string, string> = {
       1 5 |       ' c p u - a r c h ' :   '  Ø=Ý' ' ,   ' r a m - s t o r a g e ' :   'Ø>Ýà ' ,   ' g p u - g r a p h i c s ' :   'Ø<ß® ' ,
       1 6 |       ' m o t h e r b o a r d ' :   'Ø=Ý  ' ,   ' p s u - c o o l i n g ' :   ''Dþ  ' ,   ' s t o r a g e - d e v i c e s ' :   'Ø=Ü¾ ' ,
       1 7 |       ' p c - a s s e m b l y ' :   'Ø=Þàþ  ' ,   ' b i o s - u e f i ' :   '&™þ  ' ,   ' n e t w o r k ' :   'Ø<ß  ' ,
       1 8 |       ' p e r i p h e r a l s ' :   'Ø=Ý±þ  ' ,   ' o s - w i n d o w s ' :   'Ø>ÞŸ ' ,   ' t r o u b l e s h o o t i n g ' :   'Ø>Þz ' ,
       1 9 |       ' l a p t o p - m o b i l e ' :   'Ø=Ü» ' ,   ' m o n i t o r - d i s p l a y ' :   'Ø=Ý¥þ  ' ,   ' a i - t e c h ' :   'Ø>Ý  ' ,
       2 0 |       ' o v e r c l o c k i n g ' :   '&¡ ' ,   ' b e n c h m a r k ' :   'Ø=ÜÊ ' ,   ' p c - g a m i n g ' :   'Ø<ß¯ ' ,
       2 1 |       ' s e r v e r - w o r k s t a t i o n ' :   'Ø<ßâ ' ,   ' c a b l e - c o n n e c t i v i t y ' :   'Ø=Ý  ' ,
       2 2 |       ' v i r t u a l - r e a l i t y ' :   'Ø>Ý} ' ,   ' c y b e r s e c u r i t y ' :   'Ø=Ý  ' ,
   23| }
   24|
   25| interface Topic {
   26|   id: string
   27|   title: string
   28|   icon?: string
   29|   color?: string
   30|   description?: string
   31|   questions: any[]
   32| }
   33|
   34| interface ApiResponse {
   35|   todayIndex: number
   36|   todayTopicId: string
   37|   todayTopic: Topic
   38|   topics: Topic[]
   39|   completedTopicIds: string[]
   40|   isTodayCompleted: boolean
   41| }
   42|
   43| export default function DailyQuizListPage() {
   44|   const router = useRouter()
   45|   const supabase = createBrowserClient(
   46|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   47|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   48|   )
   49|
   50|   const [data, setData] = useState<ApiResponse | null>(null)
   51|   const [loading, setLoading] = useState(true)
   52|   const [error, setError] = useState('')
   53|   const [user, setUser] = useState<any>(null)
   54|   const isMobile = useIsMobile()
   55|
   56|   useEffect(() => {
   57|     supabase.auth.getUser().then(({ data: { user } }) => {
   58|       setUser(user)
   59|       fetchData()
   60|     })
   61|   }, [])
   62|
   63|   async function fetchData() {
   64|     try {
   65|       setLoading(true)
   66|       const res = await fetch('/api/daily-quiz')
   67|       if (!res.ok) throw new Error('Failed to fetch')
   68|       const json = await res.json()
   69|       setData(json)
   70|     } catch {
       7 1 |             s e t E r r o r ( ' K h ô n g   t h Ã   t £ i   d ï   l i Ç u .   V u i   l ò n g   t h í   l ¡ i . ' )
   72|     } finally {
   73|       setLoading(false)
   74|     }
   75|   }
   76|
   77|   function getDayNumber(index: number): number {
   78|     if (!data) return index + 1
   79|     const diff = index - data.todayIndex
   80|     if (diff === 0) return 0
   81|     return diff
   82|   }
   83|
   84|   if (loading) return (
   85|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', jus...
   86|       <div style={{ textAlign: 'center' }}>
   87|         <Loader2 className="animate-spin" size={48} style={{ color: 'var(--brand-primary)', margin: '0 auto 16...
       8 8 |                 < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '   } } >   a n g   t £ i   t h í   t h á c h   h ± n
   89|       </div>
   90|     </div>
   91|   )
   92|
   93|   if (error) return (
   94|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', jus...
   95|       <div style={{ borderRadius: '24px', border: '1px solid var(--border-strong)', background: 'var(--bg-surf...
   96|         <p style={{ color: '#ef4444', marginBottom: '16px' }}>{error}</p>
   97|         <button onClick={fetchData} style={{ padding: '12px 24px', background: 'var(--border-strong)', borderR...
       9 8 |                         T h í   l ¡ i
   99|         </button>
  100|       </div>
  101|     </div>
  102|   )
  103|
  104|   if (!data) return null
  105|
  106|   const { topics, todayIndex, todayTopicId, completedTopicIds, isTodayCompleted } = data
  107|
  108|   return (
  109|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
```

```
      <div style={{ maxWidth: '896px', margin: '0 auto', padding: isMobile ? '24px 12px' : '32px 16px' }} clas...
        {/* Header */}
        <motion.div
          initial={{ opacity: 0, y: -20 }}
          animate={{ opacity: 1, y: 0 }}
          style={{ textAlign: 'center', marginBottom: '40px' }}
        >
          <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '8px', marginBot...
            <BookOpen style={{ color: 'var(--brand-primary)' }} size={28} />
            <h1 style={{ fontSize: isMobile ? '24px' : '30px', fontWeight: 900 }} className="md:text-4xl">Ngân...
          </div>
          <p style={{ color: 'var(--text-muted)', maxWidth: '512px', margin: '0 auto' }}>
  122 |                          22  chç  Á,  m×i  chç  Á  10  câu  hÏi.  Hoàn  thành  Ã  nh-n  XP  và  m
            </p>
        </motion.div>

        {/* Today's Highlight */}
        <motion.div
          initial={{ opacity: 0, scale: 0.95 }}
          animate={{ opacity: 1, scale: 1 }}
          transition={{ delay: 0.1 }}
          style={{
            position: 'relative', overflow: 'hidden', borderRadius: '24px',
            border: '1px solid color-mix(in srgb, var(--brand-primary) 30%, transparent)',
            background: 'linear-gradient(to bottom right, color-mix(in srgb, var(--brand-primary) 10%, transpa...
            padding: '32px', marginBottom: '40px'
          }}
        >
          <div style={{ position: 'absolute', top: 0, right: 0, width: '160px', height: '160px', background: '...
          <div style={{ position: 'relative', zIndex: 10 }}>
            <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '8px' }}>
              <Sparkles style={{ color: 'var(--brand-primary)' }} size={18} />
              <span style={{ fontSize: '12px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1p...
  143 |                                  Mß  khóa  hôm  nay
              </span>
            </div>
            <div style={{ display: 'flex', alignItems: 'center', gap: '16px' }}>
              <div style={{ width: '56px', height: '56px', borderRadius: '16px', background: 'color-mix(in srg...
  148 |                                 {data.todayTopic.icon  ||  TOPIC_ICONS[data.todayTopic.id]
              </div>
              <div style={{ flex: 1, minWidth: 0 }}>
                <h2 style={{ fontSize: '20px', fontWeight: 700 }} className="md:text-2xl truncate">{data.today...
                <p style={{ fontSize: '14px', color: 'var(--text-muted)', marginTop: '4px' }}>{data.todayTopic...
              </div>
              <div style={{ flexShrink: 0 }}>
                {isTodayCompleted ? (
                  <div style={{ display: 'flex', alignItems: 'center', gap: '8px', padding: '8px 16px', backgr...
                    <CheckCircle size={16} />
  158 |                                           ã  hoàn  thành
                  </div>
                ) : (
                  <button
                    onClick={() => router.push(`/daily-quiz/${todayTopicId}`)}
                    style={{ display: 'flex', alignItems: 'center', gap: '8px', padding: '12px 24px', backgrou...
                  >
                    Làm bài ngay
                    <ChevronRight size={18} />
                  </button>
                )}
              </div>
            </div>
          </div>
        </motion.div>

        {/* Stats */}
        <motion.div
          initial={{ opacity: 0, y: 20 }}
          animate={{ opacity: 1, y: 0 }}
          transition={{ delay: 0.2 }}
          style={{ display: 'grid', gridTemplateColumns: isMobile ? 'repeat(1, 1fr)' : 'repeat(3, 1fr)', gap: ...
        >
          <div style={{ borderRadius: '16px', border: '1px solid var(--border-strong)', background: 'var(--bg-...
            <Trophy style={{ margin: '0 auto 8px', color: 'var(--accent-amber)' }} size={24} />
            <div style={{ fontSize: '24px', fontWeight: 700 }}>{completedTopicIds.length}</div>
  184 |                          <div  style={{  fontSize:  '12px',  color:  'var(--text-muted)'  }
          </div>
          <div style={{ borderRadius: '16px', border: '1px solid var(--border-strong)', background: 'var(--bg-...
            <Star style={{ margin: '0 auto 8px', color: 'var(--brand-primary)' }} size={24} />
            <div style={{ fontSize: '24px', fontWeight: 700 }}>{topics.length}</div>
  189 |                          <div  style={{  fontSize:  '12px',  color:  'var(--text-muted)'  }
          </div>
          <div style={{ borderRadius: '16px', border: '1px solid var(--border-strong)', background: 'var(--bg-...
            <Zap style={{ margin: '0 auto 8px', color: 'var(--accent-purple)' }} size={24} />
            <div style={{ fontSize: '24px', fontWeight: 700 }}>{Math.round((completedTopicIds.length / topics....
  194 |                          <div  style={{  fontSize:  '12px',  color:  'var(--text-muted)'  }
          </div>
        </motion.div>

        {/* Timeline */}
        <motion.div
          initial={{ opacity: 0 }}
          animate={{ opacity: 1 }}
          transition={{ delay: 0.3 }}
        >
          <h3 style={{ fontSize: '18px', fontWeight: 700, marginBottom: '24px', display: 'flex', alignItems: '...
            <BookOpen size={20} style={{ color: 'var(--text-muted)' }} />
  206 |                          Danh  sách  chç  Á
          </h3>
          <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
            {topics.map((topic, i) => {
              const isToday = i === todayIndex
              const isPast = i < todayIndex
              const isCompleted = completedTopicIds.includes(topic.id)
              const topicNum = i + 1

              return (
                <motion.div
                  key={topic.id}
                  initial={{ opacity: 0, y: 20 }}
                  animate={{ opacity: 1, y: 0 }}
                  transition={{ delay: 0.03 * i, duration: 0.35 }}
                >
                  <div
                    style={{
                      position: 'relative', borderRadius: '16px',
                      padding: '1px',
                      background: isToday
                        ? 'linear-gradient(135deg, var(--brand-primary), #6366f1, #a855f7)'
                        : 'transparent',
                      boxShadow: isToday ? '0 0 24px color-mix(in srgb, var(--brand-primary) 20%, transparent)...
                    }}
                  >
                    <div
                      style={{
```

```
  234|                        borderRadius: '15px', padding: '16px 20px',
  235|                        background: isCompleted
  236|                          ? 'color-mix(in srgb, #22c55e 5%, var(--bg-surface))'
  237|                          : 'var(--bg-surface)',
  238|                        border: '1px solid',
  239|                        borderColor: isToday
  240|                          ? 'transparent'
  241|                          : isCompleted
  242|                            ? 'color-mix(in srgb, #22c55e 25%, transparent)'
  243|                            : 'var(--border-strong)',
  244|                      }}
  245|                    >
  246|                      <div style={{ display: 'flex', alignItems: 'center', gap: '16px' }}>
  247|                        <div
  248|                          style={{
  249|                            width: '44px', height: '44px', borderRadius: '14px', display: 'flex',
  250|                            alignItems: 'center', justifyContent: 'center', fontSize: '16px', fontWeight: 700,
  251|                            flexShrink: 0,
  252|                            background: isCompleted
  253|                              ? 'linear-gradient(135deg, #22c55e, #16a34a)'
  254|                              : isToday
  255|                                ? 'linear-gradient(135deg, var(--brand-primary), #6366f1, #a855f7)'
  256|                                : 'var(--border-strong)',
  257|                            color: isCompleted || isToday ? 'white' : 'var(--text-muted)',
  258|                            boxShadow: isCompleted || isToday ? '0 4px 12px color-mix(in srgb, currentColor 30...
  259|                          }}
  260|                        >
  261|                          {isCompleted ? <CheckCircle size={22} /> : topicNum}
  262|                        </div>
  263|
  264|                        <div style={{ flex: 1, minWidth: 0 }}>
  265|                          <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '4px'...
  266|                            <span style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)' }}>
  267|                              {topic.title}
  268|                            </span>
  269|                            {isToday && (
  270|                              <span style={{ fontSize: '10px', padding: '2px 8px', background: 'linear-gradien...
  271|                                Hôm nay
  272|                              </span>
  273|                            )}
  274|                          </div>
  275|                          <p style={{ fontSize: '13px', color: 'var(--text-secondary)', margin: 0, overflow: '...
    2 7 6 |                                                    { t o p i c . d e s c r i p t i o n   | |   ` C h ç     Á   $ { t o p i c N u m }   v Ú
  277|                          </p>
  278|                        </div>
  279|
  280|                        <div style={{ flexShrink: 0 }}>
  281|                          {isCompleted ? (
  282|                            <div style={{ display: 'flex', alignItems: 'center', gap: '6px', fontSize: '14px',...
  283|                              <CheckCircle size={18} />
    2 8 4 |                                                                  ã   l à m
  285|                            </div>
  286|                          ) : (
  287|                            <button
  288|                              onClick={() => router.push(`/daily-quiz/${topic.id}`)}
  289|                              style={{
  290|                                display: 'flex', alignItems: 'center', gap: '6px', padding: '10px 20px',
  291|                                borderRadius: '9999px', fontSize: '14px', fontWeight: 600, border: 'none', cur...
  292|                                background: isToday ? 'linear-gradient(135deg, var(--brand-primary), #6366f1)'...
  293|                                color: isToday ? 'white' : 'var(--text-primary)',
  294|                                boxShadow: isToday ? '0 4px 16px color-mix(in srgb, var(--brand-primary) 30%, ...
  295|                                transition: 'all 0.2s',
  296|                              }}
  297|                            >
    2 9 8 |                                                                  { i s T o d a y   ?   ' L à m   b à i '   :   ' V à o   h Í c ' }
  299|                              <ChevronRight size={16} />
  300|                            </button>
  301|                          )}
  302|                        </div>
  303|                      </div>
  304|                    </div>
  305|                  </div>
  306|                </motion.div>
  307|              )
  308|            })}
  309|          </div>
  310|        </motion.div>
  311|      </div>
  312|    </div>
  313|  )
  314| }
  315|
```

File: app/exam/[examId]/ExamPlayer.tsx (271 lines, 12.4 KB)

```
    1| 'use client'
    2|
    3| import React, { useState, useEffect } from 'react'
    4| import { motion, AnimatePresence } from 'framer-motion'
    5| import {
    6|   ChevronLeft, ChevronRight, Clock, Send,
    7|   AlertTriangle, CheckCircle2, List, Timer
    8| } from 'lucide-react'
    9| import { useRouter } from 'next/navigation'
   10| import { submitExamAttempt } from '@/lib/exam-actions'
   11| import { supabase } from '@/lib/supabase'
   12|
   13| type Question = {
   14|   id: string;
   15|   text: string;
   16|   type: 'single' | 'multiple' | 'boolean' | 'fill' | 'essay';
   17|   options?: { id: string; text: string }[];
   18|   correctAnswer?: any;
   19| }
   20|
   21| type ExamPlayerProps = {
   22|   examId: string;
   23|   attemptId: string;
   24|   questions: Question[];
   25|   timeLimit: number;
   26| }
   27|
   28| export default function ExamPlayer({ examId, attemptId, questions, timeLimit }: ExamPlayerProps) {
   29|   const router = useRouter()
   30|   const [currentIdx, setCurrentIdx] = useState(0)
   31|   const [answers, setAnswers] = useState<Record<string, any>>({})
   32|   const [timeLeft, setTimeLeft] = useState(timeLimit * 60)
   33|   const [isSubmitting, setIsSubmitting] = useState(false)
   34|
   35|   useEffect(() => {
   36|     if (timeLeft <= 0) {
   37|       handleAutoSubmit()
   38|       return
```

```
39|     }
40|     const timer = setInterval(() => setTimeLeft(prev => prev - 1), 1000)
41|     return () => clearInterval(timer)
42|   }, [timeLeft])
43|
44|   useEffect(() => {
45|     const handleBeforeUnload = (e: BeforeUnloadEvent) => {
46|       e.preventDefault()
    4 7 |              e . r e t u r n V a l u e   =   ' B ¡ n   c ó   c h ¯ c   c h ¯ n   m u Ñ n   r Ý i   k h Ï i   b à i   t h i ?   T i ¿ n   t r ì r
48|       return e.returnValue
49|     }
50|     window.addEventListener('beforeunload', handleBeforeUnload)
51|     return () => { window.removeEventListener('beforeunload', handleBeforeUnload) }
52|   }, [])
53|
54|   const formatTime = (seconds: number) => {
55|     const m = Math.floor(seconds / 60)
56|     const s = seconds % 60
57|     return `${m}:${s < 10 ? '0' : ''}${s}`
58|   }
59|
60|   const handleAnswer = (qId: string, val: any) => {
61|     setAnswers(prev => ({ ...prev, [qId]: val }))
62|   }
63|
64|   useEffect(() => {
65|     const updateProgress = async () => {
66|       const answeredCount = Object.keys(answers).length
67|       if (answeredCount > 0) {
68|         await supabase
69|           .from('exam_attempts')
70|           .update({ progress: answeredCount })
71|           .eq('id', attemptId)
72|       }
73|     }
74|     updateProgress()
75|   }, [answers, attemptId])
76|
77|   const handleAutoSubmit = () => {
78|     if (!isSubmitting) handleSubmit()
79|   }
80|
81|   const handleSubmit = async () => {
82|     setIsSubmitting(true)
83|     const score = Math.floor(Math.random() * 50) + 50
84|     const timeSpent = timeLimit * 60 - timeLeft
85|
86|     const res = await submitExamAttempt(attemptId, answers, score, timeSpent)
87|     if (res.success) {
88|       router.push(`/exam/${examId}/result/${attemptId}`)
89|     } else {
    9 0 |              a l e r t ( " L × i   k h i   n Ù p   b à i :   "   +   r e s . e r r o r )
91|       setIsSubmitting(false)
92|     }
93|   }
94|
95|   const activeQ = questions[currentIdx]
96|
97|   return (
98|     <div className="min-h-screen flex flex-col" style={{ background: 'var(--bg-base)', color: 'var(--text-prim...
99|       <header className="h-20 flex items-center justify-between px-6 md:px-12 sticky top-0 z-50" style={{ back...
100|         <div className="flex items-center gap-4">
101|           <div className="p-2 rounded-lg" style={{ background: 'color-mix(in srgb, var(--brand-primary) 10%, t...
102|             <Timer size={24} />
103|           </div>
104|           <div>
105|             <div className="text-[10px] font-black uppercase tracking-widest" style={{ color: 'var(--text-mute...
106|             <div className={`text-2xl font-mono font-bold ${timeLeft < 60 ? 'text-red-500 animate-pulse' : ''}...
107|               {formatTime(timeLeft)}
108|             </div>
109|           </div>
110|         </div>
111|
112|         <div className="hidden md:flex items-center gap-2">
113|           {questions.map((_, i) => (
114|             <div
115|               key={i}
116|               className="rounded-full transition-all"
117|               style={{
118|                 width: i === currentIdx ? '24px' : '8px',
119|                 height: '8px',
120|                 background: i === currentIdx ? 'var(--brand-primary)' : (answers[questions[i].id] ? 'var(--acc...
121|               }}
122|             />
123|           ))}
124|         </div>
125|
126|         <button
    1 2 7 |                    o n C l i c k = { ( )   = >   {   i f   ( c o n f i r m ( " B ¡ n   c h ¯ c   c h ¯ n   m u Ñ n   n Ù p   b à i ? " ) )   h
128|           disabled={isSubmitting}
129|           className="px-6 py-2.5 rounded-xl font-bold flex items-center gap-2 transition-all disabled:opacity-50"
130|           style={{ background: 'var(--brand-primary)', color: 'var(--bg-base)' }}
131|         >
    1 3 2 |                    < S e n d   s i z e = { 1 8 }   / >   { i s S u b m i t t i n g   ?   '   a n g   n Ù p . . . '   :   ' N Ù p   b à i ' }
133|         </button>
134|       </header>
135|
136|       <div className="flex-1 flex overflow-hidden">
137|         <aside className="w-20 md:w-64 overflow-y-auto p-4 hidden md:block" style={{ background: 'color-mix(in...
138|           <h3 className="text-xs font-black uppercase tracking-widest mb-6 px-2" style={{ color: 'var(--text-m...
139|           <div className="grid grid-cols-1 gap-2">
140|             {questions.map((q, i) => (
141|               <button
142|                 key={q.id}
143|                 onClick={() => setCurrentIdx(i)}
144|                 className="flex items-center gap-3 p-3 rounded-xl border transition-all text-left"
145|                 style={{
146|                   background: currentIdx === i ? 'color-mix(in srgb, var(--brand-primary) 10%, transparent)' :...
147|                   borderColor: currentIdx === i ? 'var(--brand-primary)' : (answers[q.id] ? 'var(--border-defa...
148|                   color: currentIdx === i ? 'var(--brand-primary)' : (answers[q.id] ? 'var(--accent-blue)' : '...
149|                 }}
150|               >
151|                 <span className="font-bold text-sm">Câu {i + 1}</span>
152|                 {answers[q.id] && <CheckCircle2 size={14} className="ml-auto" />}
153|               </button>
154|             ))}
155|           </div>
156|         </aside>
157|
158|         <main className="flex-1 overflow-y-auto p-6 md:p-12 lg:p-20 relative">
159|           <AnimatePresence mode="wait">
160|             <motion.div
161|               key={currentIdx}
162|               initial={{ opacity: 0, x: 20 }}
```

```
163|              animate={{ opacity: 1, x: 0 }}
164|              exit={{ opacity: 0, x: -20 }}
165|              transition={{ duration: 0.2 }}
166|              className="max-w-3xl mx-auto"
167|            >
168|              <div className="mb-10">
169|                <span className="inline-block px-3 py-1 rounded-lg text-xs font-bold uppercase tracking-wider ...
   1 7 0 |                                  { a c t i v e Q . t y p e   = = =   ' s i n g l e '   ?   ' T r _ c _ n g h i Ç m   1     á p   á n '   :
   1 7 1 |                                    a c t i v e Q . t y p e   = = =   ' m u l t i p l e '   ?   ' T r _ c _ n g h i Ç m   n h i Á u     á p
   1 7 2 |                                    a c t i v e Q . t y p e   = = =   ' b o o l e a n '   ?   '   ú n g   /   S a i '   :
   1 7 3 |                                    a c t i v e Q . t y p e   = = =   ' f i l l '   ?   '   i Á n   v à o   c h ×   t r Ñ n g '   :   ' T ñ
174|                </span>
175|                <h2 className="text-2xl md:text-3xl font-bold leading-tight">
176|                  <span className="mr-4 italic" style={{ color: 'var(--text-muted)' }}>Câu {currentIdx + 1}.</...
177|                  {activeQ.text}
178|                </h2>
179|              </div>
180|
181|              <div className="space-y-4 mb-20">
182|                {activeQ.type === 'single' && activeQ.options?.map(opt => (
183|                  <button
184|                    key={opt.id}
185|                    onClick={() => handleAnswer(activeQ.id, opt.id)}
186|                    className="w-full p-6 rounded-2xl border-2 text-left transition-all flex items-center gap-4"
187|                    style={{
188|                      background: answers[activeQ.id] === opt.id ? 'color-mix(in srgb, var(--brand-primary) 10...
189|                      borderColor: answers[activeQ.id] === opt.id ? 'var(--brand-primary)' : 'var(--border-def...
190|                    }}
191|                  >
192|                    <div className="w-6 h-6 rounded-full border-2 flex items-center justify-center font-bold t...
193|                      style={{
194|                        borderColor: answers[activeQ.id] === opt.id ? 'var(--brand-primary)' : 'var(--text-mut...
195|                        background: answers[activeQ.id] === opt.id ? 'var(--brand-primary)' : 'transparent',
196|                        color: answers[activeQ.id] === opt.id ? 'var(--bg-base)' : 'var(--text-muted)'
197|                      }}
198|                    >{opt.id}</div>
199|                    <span className="text-lg font-medium">{opt.text}</span>
200|                  </button>
201|                ))}
202|
203|                {activeQ.type === 'boolean' && (
204|                  <div className="flex gap-4">
   2 0 5 |                                    { [ '   ú n g ' ,   ' S a i ' ] . m a p ( v a l   = >   (
206|                      <button
207|                        key={val}
208|                        onClick={() => handleAnswer(activeQ.id, val)}
209|                        className="flex-1 p-8 rounded-3xl border-2 font-bold text-xl transition-all"
210|                        style={{
211|                          background: answers[activeQ.id] === val ? 'var(--brand-primary)' : 'var(--bg-surface)',
212|                          borderColor: answers[activeQ.id] === val ? 'var(--brand-primary)' : 'var(--border-de...
213|                          color: answers[activeQ.id] === val ? 'var(--bg-base)' : 'var(--text-primary)'
214|                        }}
215|                      >
216|                        {val}
217|                      </button>
218|                    ))}
219|                  </div>
220|                )}
221|
222|                {activeQ.type === 'fill' && (
223|                  <input
224|                    type="text"
225|                    value={answers[activeQ.id] || ''}
226|                    onChange={(e) => handleAnswer(activeQ.id, e.target.value)}
   2 2 7 |                                    p l a c e h o l d e r = " N h - p   c â u   t r £   l Ý i   c ç a   b ¡ n . . . "
228|                    className="w-full p-6 border-2 rounded-2xl focus:outline-none text-xl font-bold transition...
229|                    style={{ background: 'var(--bg-surface)', borderColor: 'var(--border-default)', color: 'va...
230|                  />
231|                )}
232|
233|                {activeQ.type === 'essay' && (
234|                  <textarea
235|                    rows={8}
236|                    value={answers[activeQ.id] || ''}
237|                    onChange={(e) => handleAnswer(activeQ.id, e.target.value)}
   2 3 8 |                                    p l a c e h o l d e r = " V i ¿ t   c â u   t r £   l Ý i   t ñ   l u - n   t ¡ i   â y . . . "
239|                    className="w-full p-6 border-2 rounded-2xl focus:outline-none text-lg leading-relaxed tran...
240|                    style={{ background: 'var(--bg-surface)', borderColor: 'var(--border-default)', color: 'va...
241|                  />
242|                )}
243|              </div>
244|
245|              <div className="flex items-center justify-between pt-10" style={{ borderTop: '1px solid var(--bo...
246|                <button
247|                  disabled={currentIdx === 0}
248|                  onClick={() => setCurrentIdx(prev => prev - 1)}
249|                  className="p-4 rounded-xl disabled:opacity-30 transition-all flex items-center gap-2"
250|                  style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: ...
251|                >
   2 5 2 |                                    < C h e v r o n L e f t   s i z e = { 2 0 }   / >   C â u   t r ° Û c
253|                </button>
254|                <div className="font-bold text-sm" style={{ color: 'var(--text-muted)' }}>Câu {currentIdx + 1}...
255|                <button
256|                  disabled={currentIdx === questions.length - 1}
257|                  onClick={() => setCurrentIdx(prev => prev + 1)}
258|                  className="p-4 rounded-xl disabled:opacity-30 transition-all flex items-center gap-2"
259|                  style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: ...
260|                >
261|                  Câu sau <ChevronRight size={20} />
262|                </button>
263|              </div>
264|            </motion.div>
265|          </AnimatePresence>
266|        </main>
267|      </div>
268|    </div>
269|  )
270| }
271|
```

File: app/exam/[examId]/lab-exam/page.tsx (159 lines, 6.7 KB)

```
   1| 'use client'
   2|
   3| import { useState, useCallback, useEffect, use } from 'react'
   4| import { useRouter } from 'next/navigation'
   5| import RawGameEngine from '@/components/GameEngine'
   6| const GameEngine = RawGameEngine as any;
   7| import VirtualAssistant from '@/components/VirtualAssistant'
   8| import { useGuru } from '@/lib/guru-state'
   9| import { GURU_MESSAGES } from '@/utils/i18nData'
  10| import { Timer, Send, AlertCircle, Info, ChevronLeft } from 'lucide-react'
  11| import { motion } from 'framer-motion'
```

```
12| import { submitExamAttempt } from '@/lib/exam-actions'
13|
14| export default function LabExamPage({ params }: { params: Promise<{ examId: string }> }) {
15|   const resolvedParams = use(params);
16|   const { examId } = resolvedParams;
17|   const router = useRouter();
18|
19|   // 1. Exam State
20|   const [timeLeft, setTimeLeft] = useState(1800); // 30 phút
21|   const [isSubmitting, setIsSubmitting] = useState(false);
22|   const guru = useGuru();
23|
24|   // 2. Mission Data (Mocked from Mega Prompt Scenario)
25|   const [missionData] = useState({
    2 6 |          m i s s i o n I d :   " L ¯ p   r á p   P C   V   n   P h ò n g " ,
    2 7 |          s c e n a r i o :   " H ã y   l ¯ p   r á p   m Ù t   b Ù   m á y   t í n h   v   n   p h ò n g   v Û i   n g â n   s á c h   1 5   t r
28|     budget: 15000000,
29|     purchasedItems: [
30|         { id: 1, name: "Core i3-12100", type: "CPU", price: 3000000, power: 65, socket: "LGA1700" },
31|         { id: 2, name: "H610M-K", type: "Mainboard", price: 2500000, socket: "LGA1700" },
32|         { id: 3, name: "RAM 8GB DDR4", type: "RAM", price: 800000, power: 5 },
33|         { id: 4, name: "RAM 8GB DDR4", type: "RAM", price: 800000, power: 5 },
34|         { id: 5, name: "SSD 500GB NVMe", type: "SSD", price: 1200000, power: 10 },
35|         { id: 6, name: "PSU 450W 80 Plus", type: "PSU", price: 1000000, wattage: 450 },
36|         { id: 7, name: "Stock Cooler", type: "COOLER", price: 0, power: 0 }
37|     ],
38|     targets: { minPower: 50 }
39|   });
40|
41|   // 3. Timer Logic
42|   useEffect(() => {
43|     const timer = setInterval(() => setTimeLeft(prev => prev - 1), 1000);
44|     if (timeLeft <= 0) handleSubmit();
45|     return () => clearInterval(timer);
46|   }, [timeLeft]);
47|
48|   const formatTime = (s: number) => {
49|     const m = Math.floor(s / 60);
50|     const sec = s % 60;
51|     return `${m}:${sec < 10 ? '0' : ''}${sec}`;
52|   };
53|
    5 4 |       / /   4 .   H a n d l e   G a m e   E v e n t s   ( T á i   s í   d ả n g   l o g i c   c h ¥ m   i Ã m   c ç a   b ¡ n )
55|   const handleGameEvent = useCallback((event: string, type: string) => {
56|     if (event === 'grabbed') {
    5 7 |               g u r u . s e t M e s s a g e ( ` B ¡ n   a n g   c § m :   $ { t y p e } ` ) ;
58|     } else if (event === 'placed') {
    5 9 |               g u r u . s e t M e s s a g e ( `   ã   l ¯ p   x o n g :   $ { t y p e } .   T i ¿ p   t ả c   n à o ! ` ) ;
60|     } else if (event === 'COMPLETE') {
    6 1 |               g u r u . s e t M e s s a g e ( " H Ç   t h Ñ n g   ã   ° ã c   l ¯ p   r á p   h o à n   t ¥ t !   H ã y   k i Ã m   t r a
62|     }
63|   }, []);
64|
65|   const handleSubmit = async () => {
66|     setIsSubmitting(true);
67|
    6 8 |           / /   L o g i c   c h ¥ m   i Ã m   t ñ   Ù n g   ( B ê   t ë   b u i l d e r / p a g e . j s   c ç a   b ¡ n )
69|     let totalTDP = 0, psuWattage = 0;
70|     missionData.purchasedItems.forEach(item => {
71|       if (item.power) totalTDP += item.power;
72|       if (item.wattage) psuWattage += item.wattage;
73|     });
74|
75|     let score = 100;
    7 6 |           i f   ( p s u W a t t a g e   <   t o t a l T D P   +   5 0 )   s c o r e   - =   3 0 ;   / /   N g u Ó n   y ¿ u
    7 7 |           / /   T h ê m   c á c   t i ê u   c h í   c h ¥ m   i Ã m   k h á c   t ¡ i   â y . . .
78|
    7 9 |           / /   N Ù p   b à i   ( S í   d ả n g   s e r v e r   a c t i o n   c h u n g )
80|     const res = await submitExamAttempt("dummy_attempt_id", {}, score, 1800 - timeLeft);
81|     if (res.success) {
82|       router.push(`/exam/${examId}/result/dummy_attempt_id`);
83|     } else {
    8 4 |                 a l e r t ( " L × i   n Ù p   b à i ! " ) ;
85|       setIsSubmitting(false);
86|     }
87|   };
88|
89|   return (
90|     <div className="min-h-screen bg-[#0f0f1a] text-white flex flex-col overflow-hidden">
91|       {/* Header */}
92|       <header className="h-20 bg-[#16213e] border-b border-[#1e293b] flex items-center justify-between px-8 z-...
93|         <div className="flex items-center gap-6">
94|           <button onClick={() => router.back()} className="p-2 hover:bg-white/5 rounded-lg transition-colors">
95|             <ChevronLeft size={24} />
96|           </button>
97|           <div>
98|             <h1 className="text-xl font-black uppercase tracking-wider">{missionData.missionId}</h1>
99|             <div className="flex items-center gap-2 text-xs text-[#00d2a0] font-bold">
  1 0 0 |                                 < T i m e r   s i z e = { 1 4 }   / >   T h Ý i   g i a n   c ò n   l ¡ i :   { f o r m a t T i m e ( t i m e L e
101|             </div>
102|           </div>
103|         </div>
104|
105|         <div className="flex items-center gap-4">
106|           <button
107|             onClick={handleSubmit}
108|             disabled={isSubmitting}
109|             className="px-8 py-2.5 bg-[#00d2a0] text-black font-black rounded-xl hover:shadow-[0_0_20px_rgba(...
110|           >
  1 1 1 |                           { i s S u b m i t t i n g   ?   '   a n g   n Ù p . . . '   :   ' N Ù p   b à i   t h i ' }
112|           </button>
113|         </div>
114|       </header>
115|
116|       <div className="flex-1 flex relative">
117|         {/* Scenario Info */}
118|         <div className="absolute top-6 left-6 z-10 w-80">
119|           <motion.div
120|             initial={{ x: -20, opacity: 0 }}
121|             animate={{ x: 0, opacity: 1 }}
122|             className="bg-[#16213e]/80 backdrop-blur-md p-6 rounded-3xl border border-[#1e293b] shadow-2xl"
123|           >
124|             <h3 className="text-sm font-black text-[#00d2a0] uppercase tracking-widest mb-3 flex items-center ...
  1 2 5 |                               < I n f o   s i z e = { 1 6 }   / >   Y ê u   c § u   Á   b à i
126|             </h3>
127|             <p className="text-sm text-slate-300 leading-relaxed italic">
128|               "{missionData.scenario}"
129|             </p>
130|             <div className="mt-4 pt-4 border-t border-white/5 flex justify-between items-end">
131|                <div>
132|                  <div className="text-[10px] text-slate-500 font-bold uppercase">Ngân sách</div>
  1 3 3 |                                   < d i v   c l a s s N a m e = " t e x t - l g   f o n t - b l a c k   t e x t - w h i t e " > { m i s s i o n
134|                </div>
135|                <div className="text-right">
```

```
  136|                                <div className="text-[10px] text-slate-500 font-bold u
  137|                <div className="text-lg font-black text-[#00d2a0]">{missionData.purchasedItems.length}</div>
  138|              </div>
  139|            </div>
  140|          </motion.div>
  141|        </div>
  142|
  143|        {/* The 2D Lab Canvas (Reusing your GameEngine) */}
  144|        <main className="flex-1 flex items-center justify-center bg-black/40">
  145|           <div className="relative w-full max-w-[1400px] aspect-[14/8]">
  146|               <GameEngine
  147|                 onGameEvent={handleGameEvent}
  148|                 purchasedItems={missionData.purchasedItems}
  149|               />
  150|
  151|
  152|           </div>
  153|        </main>
  154|      </div>
  155|
  156|    </div>
  157|  )
  158| }
  159|
```

File: app/exam/[examId]/page.tsx (118 lines, 5.1 KB)

```
    1| import { createClient } from '@/lib/supabase-ssr-server'
    2| import { redirect } from 'next/navigation'
    3| import ExamPlayer from './ExamPlayer'
    4| import { startExamAttempt } from '@/lib/exam-actions'
    5|
    6| export const dynamic = 'force-dynamic'
    7|
    8| export default async function ExamPage({ params }: { params: { examId: string } }) {
    9|   const supabase = await createClient()
   10|   const { data: { user } } = await supabase.auth.getUser()
   11|   if (!user) redirect('/login')
   12|
   13|       // 1. Khßi t¡o phiên thi (Attempt)
   14|   const res = await startExamAttempt(params.examId)
   15|   if (res.error) {
   16|           return <div className="min-h-screen flex items-center justify-center
   17|   }
   18|
   19|       // 2. Ngân hàng câu hÏi th-t vÁ ki¿n trúc máy tính và ph§n céng PC (CH
   20|   const realQuestions: any = [
   21|     {
   22|       id: 'q1',
   23|       text: "Trong ki¿n trúc máy tính Von Neumann, bÙ xí lý trung tâm (C
   24|       type: 'single',
   25|       options: [
   26|         { id: 'A', text: "BÙ iÁu khiÃn (CU) và BÙ tính toán sÑ hÍc/logi
   27|         { id: 'B', text: "BÙ nhÛ RAM và ROM BIOS" },
   28|         { id: 'C', text: "Thi¿t bË vào (Input) và Thi¿t bË ra (Output)"
   29|         { id: 'D', text: "Ô céng HDD và nguÓn iÇn PSU" }
   30|       ]
   31|     },
   32|     {
   33|       id: 'q2',
   34|       text: "BÙ nhÛ Çm (Cache) tích hãp trñc ti¿p trong CPU có tác dång
   35|       type: 'single',
   36|       options: [
   37|         { id: 'A', text: "T ng tÑc Ù truy xu¥t dï liÇu b±ng cách l°u tr
   38|         { id: 'B', text: "T ng dung l°ãng l°u trï tÕng thÃ cça hÇ iÁu h
   39|         { id: 'C', text: "Ng n ch·n virus Ùc h¡i xâm nh-p vào nhân xí l
   40|         { id: 'D', text: "Thay th¿ hoàn toàn bÙ nhÛ trong RAM khi §y du
   41|       ]
   42|     },
   43|     {
   44|       id: 'q3',
   45|       text: "BÙ nhÛ RAM (Random Access Memory) là bÙ nhÛ chÉ Íc, không
   46|       type: 'boolean'
   47|     },
   48|     {
   49|       id: 'q4',
   50|       text: "Thi¿t bË nào sau ây là thi¿t bË l°u trï thé c¥p (Secondary
   51|       type: 'single',
   52|       options: [
   53|         { id: 'A', text: "SSD (Solid State Drive)" },
   54|         { id: 'B', text: "RAM (Random Access Memory)" },
   55|         { id: 'C', text: "Cache L2" },
   56|         { id: 'D', text: "Register (Thanh ghi)" }
   57|       ]
   58|     },
   59|     {
   60|       id: 'q5',
   61|       text: "Måc ích chính cça công nghÇ Hyper-Threading (Siêu phân luO
   62|       type: 'single',
   63|       options: [
   64|         { id: 'A', text: "Cho phép mÙt nhân v-t lý (Physical Core) xí ly
   65|         { id: 'B', text: "Tñ Ùng t ng xung nhËp c¡ b£n (Base Clock) cça
   66|         { id: 'C', text: "Gi£m 50% l°ãng iÇn n ng tiêu thå khi t£i n·ng
   67|         { id: 'D', text: "H× trã CPU k¿t nÑi trñc ti¿p vÛi card Ó hÍa m
   68|       ]
   69|     },
   70|     {
   71|       id: 'q6',
   72|       text: " ¡n vË FLOPS (Floating-point Operations Per Second) th°Ýng
   73|       type: 'single',
   74|       options: [
   75|         { id: 'A', text: "GPU (Card Ó hÍa rÝi / BÙ xí lý Ó hÍa)" },
   76|         { id: 'B', text: "TÑc Ù quay cça Qu¡t t£n nhiÇt (RPM)" },
   77|         { id: 'C', text: "TÑc Ù truyÁn dï liÇu cça cáp m¡ng Lan" },
   78|         { id: 'D', text: "Xung nhËp ho¡t Ùng cça RAM" }
   79|       ]
   80|     },
   81|     {
   82|       id: 'q7',
   83|       text: "Chu©n giao ti¿p PCIe 4.0 x16 có b ng thông lý thuy¿t tÑi a
   84|       type: 'single',
   85|       options: [
   86|         { id: 'A', text: "31.5 GB/s (kho£ng 32 GB/s)" },
   87|         { id: 'B', text: "15.8 GB/s (kho£ng 16 GB/s)" },
   88|         { id: 'C', text: "63.0 GB/s (kho£ng 64 GB/s)" },
   89|         { id: 'D', text: "8.0 GB/s" }
   90|       ]
   91|     },
   92|     {
   93|       id: 'q8',
   94|       text: " iÁn tên vi¿t t¯t cça bÙ ph-n c¥p nguÓn, chuyÃn Õi dòng i
   95|       type: 'fill'
   96|     },
```

```
  97|     {
  98|       id: 'q9',
    9 9 |             t e x t :   " K e o   t £ n   n h i Ç t   ( T h e r m a l   P a s t e )   c ó   t á c   d ã n g   l ¥ p   § y   k h o £ n g   t r
 100|       type: 'boolean'
 101|     },
 102|     {
 103|       id: 'q10',
    1 0 4 |             t e x t :   " H ã y   t r ì n h   b à y   n g ¯ n   g Í n   ( t ë   2 - 3   c â u )   l ý   d o   t ¡ i   s a o   k h ô n g   n ê n
 105|       type: 'essay'
 106|     }
 107|   ]
 108|
 109|   return (
 110|     <ExamPlayer
 111|       examId={params.examId}
 112|       attemptId={res.attemptId}
 113|       questions={realQuestions}
 114|       timeLimit={30}
 115|     />
 116|   )
 117| }
 118|
```

File: app/exam/[examId]/proctored/page.tsx (335 lines, 19.7 KB)

```
==========================================================================================
   1| 'use client'
   2|
   3| import React, { useState, useEffect, useCallback } from 'react'
   4| import { motion, AnimatePresence } from 'framer-motion'
   5| import {
   6|   Camera, ShieldAlert, Monitor, Lock, AlertCircle, CheckCircle2, ScanFace, Zap,
   7|   ArrowRight, Video, EyeOff, UserX, UserCheck, Clock, AlertTriangle, RefreshCw,
   8|   Gauge, Maximize, Wifi
   9| } from 'lucide-react'
  10| import { useRouter } from 'next/navigation'
  11| import { supabase } from '@/lib/supabase'
  12| import ExamPlayer from '../ExamPlayer'
  13| import { useProctorEngine } from '@/hooks/useProctorEngine'
  14|
  15| const MOCK_EXAM_ID = 'proctored-mock-exam'
  16| const QUESTIONS: any = [
  17|   { id: 'q1', text: "Trong kien truc may tinh Von Neumann, bo xu ly trung tam (CPU) gom nhung thanh phan cot l...
  18|   { id: 'q2', text: "Bo nho dem (Cache) tich hop truc tiep trong CPU co tac dung chinh la gi?", type: 'single'...
  19|   { id: 'q3', text: "Bo nho RAM (Random Access Memory) la bo nho chi doc, khong bi mat du lieu khi mat dien.",...
  20|   { id: 'q4', text: "Thiet bi nao sau day la thiet bi luu tru thu cap (Secondary Storage) khong bi mat du lieu...
  21|   { id: 'q5', text: "Muc dich chinh cua cong nghe Hyper-Threading (Sieu phan luong) tren CPU Intel la gi?", ty...
  22|   { id: 'q6', text: "Don vi FLOPS (Floating-point Operations Per Second) thuong duoc dung de do hieu nang cua ...
  23|   { id: 'q7', text: "Chuan giao tiep PCIe 4.0 x16 co bang thong ly thuyet toi da la bao nhieu GB/s?", type: 's...
  24|   { id: 'q8', text: "Dien ten viet tat cua bo phan cap nguon, chuyen doi dong dien xoay chieu (AC) thanh mot c...
  25|   { id: 'q9', text: "Keo tan nhiet (Thermal Paste) co tac dung lap day khoang trong khong khi sieu nho giua be...
  26|   { id: 'q10', text: "Hay trinh bay ngan gon (tu 2-3 cau) ly do tai sao khong nen chon bo nguon PSU kem chat l...
  27| ]
  28|
  29| export default function ProctoredExamPage({ params }: { params: Promise<{ examId: string }> }) {
  30|   const router = useRouter()
  31|   const [step, setStep] = useState<'check' | 'exam'>('check')
  32|   const [hasPermission, setHasPermission] = useState(false)
  33|   const [showViolationOverlay, setShowViolationOverlay] = useState(false)
  34|   const [examSubmitted, setExamSubmitted] = useState(false)
  35|   const [violationHistory, setViolationHistory] = useState<{ time: string; type: string }[]>([])
  36|   const [realtimeConnected, setRealtimeConnected] = useState(false)
  37|
  38|   const { state, videoRef, canvasRef, startCamera, stopCamera, startFaceDetection, captureIdentity, recordViol...
  39|     examId: MOCK_EXAM_ID,
  40|     attemptId: 'proctored-attempt',
  41|     identityPhoto: null,
  42|     onViolation: (type) => {
  43|       setViolationHistory(prev => [...prev, { time: new Date().toLocaleTimeString(), type }])
  44|       setShowViolationOverlay(true)
  45|     },
  46|     onMaxViolations: () => {
  47|       setTimeout(() => {
  48|         alert('Ban da vi pham qua 3 lan. He thong tu dong nop bai!')
  49|         setExamSubmitted(true)
  50|       }, 2000)
  51|     },
  52|   })
  53|
  54|   useEffect(() => {
  55|     if (step !== 'exam') return
  56|
  57|     const handleVisibilityChange = () => {
  58|       if (document.visibilityState === 'hidden') {
  59|         recordViolation('tab_switch')
  60|       }
  61|     }
  62|     const handleFullscreenChange = () => {
  63|       if (!document.fullscreenElement) {
  64|         recordViolation('fullscreen_exit')
  65|       }
  66|     }
  67|     const disableEvent = (e: any) => e.preventDefault()
  68|
  69|     document.addEventListener('visibilitychange', handleVisibilityChange)
  70|     document.addEventListener('fullscreenchange', handleFullscreenChange)
  71|     document.addEventListener('copy', disableEvent)
  72|     document.addEventListener('paste', disableEvent)
  73|     document.addEventListener('contextmenu', disableEvent)
  74|     document.addEventListener('keydown', (e) => {
  75|       if ((e.ctrlKey || e.metaKey) && ['c', 'v', 'p', 'u'].includes(e.key.toLowerCase())) e.preventDefault()
  76|     })
  77|
  78|     startCamera().then(stream => {
  79|       if (stream) {
  80|         setHasPermission(true)
  81|         startFaceDetection()
  82|       }
  83|     })
  84|
  85|     let realtimeChannel: any = null
  86|     try {
  87|       realtimeChannel = supabase
  88|         .channel(`proctor-${MOCK_EXAM_ID}`)
  89|         .subscribe((status) => {
  90|           if (status === 'SUBSCRIBED') setRealtimeConnected(true)
  91|         })
  92|     } catch (e) {}
  93|
  94|     return () => {
  95|       document.removeEventListener('visibilitychange', handleVisibilityChange)
  96|       document.removeEventListener('fullscreenchange', handleFullscreenChange)
  97|       document.removeEventListener('copy', disableEvent)
  98|       document.removeEventListener('paste', disableEvent)
```

```
 99|       document.removeEventListener('contextmenu', disableEvent)
100|       stopCamera()
101|       if (realtimeChannel) supabase.removeChannel(realtimeChannel)
102|     }
103|   }, [step, startCamera, startFaceDetection, recordViolation, stopCamera])
104|
105|   const startExam = useCallback(() => {
106|     const photo = captureIdentity()
107|     if (!photo) {
108|       alert('Vui long chup anh xac thuc danh tinh truoc!')
109|       return
110|     }
111|     document.documentElement.requestFullscreen().catch(() => {
112|       alert('Trinh duyet khong ho tro Fullscreen. Vui long dung Chrome/Edge.')
113|     })
114|     setStep('exam')
115|   }, [captureIdentity])
116|
117|   if (examSubmitted) {
118|     router.push(`/exam/${MOCK_EXAM_ID}/result/proctored`)
119|     return null
120|   }
121|
122|   if (step === 'check') {
123|     return (
124|       <div className="min-h-screen flex items-center justify-center p-6 overflow-hidden relative" style={{ bac...
125|         <div className="absolute top-0 left-0 w-full h-full opacity-10 pointer-events-none">
126|           <div className="absolute top-1/4 left-1/4 w-96 h-96 blur-[120px]" style={{ background: 'var(--brand-...
127|           <div className="absolute bottom-1/4 right-1/4 w-96 h-96 blur-[120px]" style={{ background: 'var(--ac...
128|         </div>
129|
130|         <motion.div initial={{ opacity: 0, scale: 0.9 }} animate={{ opacity: 1, scale: 1 }}
131|           className="max-w-4xl w-full rounded-[48px] p-10 md:p-16 shadow-2xl relative z-10"
132|           style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)' }}>
133|           <div className="flex flex-col md:flex-row gap-12 items-center">
134|             <div className="w-full md:w-1/2 space-y-6">
135|               <div className="aspect-video rounded-[32px] border-2 overflow-hidden relative group"
136|                 style={{ background: 'var(--bg-elevated)', borderColor: state.cameraError ? 'var(--danger)' : ...
137|                 {state.cameraError ? (
138|                   <div className="absolute inset-0 flex flex-col items-center justify-center gap-4 p-6">
139|                     <Camera size={48} style={{ color: 'var(--danger)' }} />
140|                     <p className="text-sm font-bold text-center" style={{ color: 'var(--danger)' }}>{state.cam...
141|                     <button onClick={startCamera} className="px-6 py-2 rounded-xl text-sm font-bold transition...
142|                       style={{ background: 'var(--brand-primary)', color: '#fff', border: 'none' }}>
143|                       <RefreshCw size={14} className="inline mr-2" />Thu lai
144|                     </button>
145|                   </div>
146|                 ) : !hasPermission ? (
147|                   <div className="absolute inset-0 flex flex-col items-center justify-center gap-4">
148|                     <Camera size={48} style={{ color: 'var(--text-muted)' }} />
149|                     <p className="text-sm text-center px-4" style={{ color: 'var(--text-muted)' }}>
150|                       Can cap quyen Camera de tham gia ky thi co giam sat
151|                     </p>
152|                     <button onClick={startCamera}
153|                       className="px-6 py-2 rounded-xl text-sm font-bold hover:scale-105 transition-all flex it...
154|                       style={{ background: 'var(--bg-elevated)', color: 'var(--text-primary)', border: '1px so...
155|                       <Video size={16} />Kich hoat Camera
156|                     </button>
157|                   </div>
158|                 ) : (
159|                   <>
160|                     <video ref={videoRef} autoPlay playsInline muted className="w-full h-full object-cover mir...
161|                     {state.identityCapture && (
162|                       <div className="absolute inset-0 border-4 rounded-[32px] z-20 pointer-events-none border...
163|                         <div className="absolute top-4 right-4 bg-green-500 text-black px-3 py-1 rounded-full ...
164|                           <CheckCircle2 size={12} />Da xac minh
165|                         </div>
166|                       </div>
167|                     )}
168|                     <div className="absolute bottom-3 left-3 flex items-center gap-2 bg-black/60 px-3 py-1.5 r...
169|                       <div className={`w-2 h-2 rounded-full ${state.faceDetected ? 'bg-green-500 animate-pulse...
170|                       <span className="text-[10px] font-bold text-white/80">
171|                         {state.faceDetected ? 'Da phat hien khuon mat' : 'Dang tim khuon mat...'}
172|                       </span>
173|                     </div>
174|                   </>
175|                 )}
176|               </div>
177|               <canvas ref={canvasRef} width="320" height="240" className="hidden" />
178|
179|               <button onClick={startExam} disabled={!state.identityCapture && !state.faceDetected}
180|                 className="w-full py-4 font-black uppercase tracking-wider rounded-2xl flex items-center justi...
181|                 style={{ background: 'var(--brand-primary)', color: '#fff' }}>
182|                 <ScanFace size={20} />
183|                 {state.identityCapture ? 'Chup lai anh xac thuc' : 'Chup anh xac thuc & bat dau'}
184|               </button>
185|             </div>
186|
187|             <div className="w-full md:w-1/2 space-y-8">
188|               <div>
189|                 <h1 className="text-3xl font-black mb-2 uppercase tracking-tight" style={{ color: 'var(--text-...
190|                   Ky thi <span style={{ color: 'var(--brand-primary)' }}>Giam sat</span>
191|                 </h1>
192|                 <p style={{ color: 'var(--text-muted)', fontWeight: 500 }}>
193|                   He thong AI Proctoring voi MediaPipe FaceLandmarker dang bao ve tinh minh bach cua ky thi.
194|                 </p>
195|               </div>
196|
197|               <div className="space-y-4">
198|                 {[
199|                   { icon: Monitor, text: "Bat buoc che do Toan man hinh", color: "var(--accent-blue)" },
200|                   { icon: ShieldAlert, text: "Phat hien va canh bao khi roi Tab", color: "var(--danger)" },
201|                   { icon: Lock, text: "Khoa chuc nang Copy, Paste, chuot phai", color: "#8b5cf6" },
202|                   { icon: Camera, text: "Phat hien khuon mat bang AI (MediaPipe)", color: "var(--brand-primary...
203|                   { icon: Gauge, text: "Theo doi huong nhin & phat hien nhieu mat", color: "#f59e0b" },
204|                   { icon: Wifi, text: "Canh bao thoi gian thuc den giao vien", color: "#06b6d4" },
205|                 ].map((item, i) => (
206|                   <div key={i} className="flex items-center gap-4 p-4 rounded-2xl"
207|                     style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-default)' }}>
208|                     <div className="p-2 rounded-lg" style={{ backgroundColor: `${item.color}15`, color: item.c...
209|                       <item.icon size={18} />
210|                     </div>
211|                     <span className="text-sm font-bold" style={{ color: 'var(--text-muted)' }}>{item.text}</span>
212|                   </div>
213|                 ))}
214|               </div>
215|
216|               <div className="p-4 rounded-2xl"
217|                 style={{ background: 'rgba(245,158,11,0.08)', border: '1px solid rgba(245,158,11,0.2)' }}>
218|                 <p className="text-xs font-bold flex items-center gap-2" style={{ color: '#f59e0b' }}>
219|                   <AlertTriangle size={14} />
220|                   Neu ban roi khoi man hinh, khong co khuon mat, hoac phat hien nhieu nguoi qua 3 lan, bai thi...
221|                 </p>
222|               </div>
```

```
223|             </div>
224|           </div>
225|         </motion.div>
226|       </div>
227|     )
228|   }
229|
230|   return (
231|     <div className="relative min-h-screen" style={{ background: 'var(--bg-base)' }}>
232|       <ExamPlayer examId={MOCK_EXAM_ID} attemptId="proctored_attempt" questions={QUESTIONS} timeLimit={60} />
233|
234|       <AnimatePresence>
235|         {showViolationOverlay && (
236|           <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} exit={{ opacity: 0 }}
237|             className="fixed inset-0 z-[9999] backdrop-blur-xl flex items-center justify-center p-10 text-cent...
238|             style={{ background: 'rgba(244,67,54,0.95)' }}>
239|             <div className="max-w-xl space-y-8">
240|               <div className="w-32 h-32 bg-white/10 rounded-full flex items-center justify-center mx-auto bord...
241|                 <AlertCircle size={64} />
242|               </div>
243|               <h1 className="text-6xl font-black uppercase tracking-tighter italic">Canh bao vi pham!</h1>
244|               <p className="text-2xl font-bold opacity-80 leading-relaxed">
245|                 Phat hien hanh vi bat thuong trong qua trinh thi.
246|               </p>
247|
248|               <div className="grid grid-cols-2 gap-4 max-w-sm mx-auto">
249|                 <div className="bg-black/20 p-4 rounded-2xl border border-white/10">
250|                   <div className="text-[10px] font-black uppercase tracking-widest opacity-50 mb-1">So lan VP<...
251|                   <div className="text-4xl font-black">{state.violations} / {state.maxViolations}</div>
252|                 </div>
253|                 <div className="bg-black/20 p-4 rounded-2xl border border-white/10">
254|                   <div className="text-[10px] font-black uppercase tracking-widest opacity-50 mb-1">Trang thai...
255|                   <div className="flex items-center justify-center gap-2 mt-2">
256|                     <div className={`w-3 h-3 rounded-full ${state.faceDetected ? 'bg-green-500' : 'bg-red-500'...
257|                     <span className="text-lg font-bold">{state.faceDetected ? 'Co mat' : 'Mat mat'}</span>
258|                   </div>
259|                 </div>
260|               </div>
261|
262|               {violationHistory.length > 0 && (
263|                 <div className="bg-black/20 p-4 rounded-2xl border border-white/10 max-w-sm mx-auto">
264|                   <div className="text-[10px] font-black uppercase tracking-widest opacity-50 mb-2">Lich su VP...
265|                   <div className="space-y-1 max-h-24 overflow-y-auto">
266|                     {violationHistory.slice(-5).map((v, i) => (
267|                       <div key={i} className="text-xs opacity-80 flex justify-between">
268|                         <span>{v.time}</span>
269|                         <span class="font-bold">{v.type.replace(/_/g, ' ')}</span>
270|                       </div>
271|                     ))}
272|                   </div>
273|                 </div>
274|               )}
275|
276|               <button onClick={() => { document.documentElement.requestFullscreen(); setShowViolationOverlay(f...
277|                 className="px-12 py-5 bg-white text-red-600 font-black uppercase rounded-2xl shadow-2xl hover:...
278|                 Quay lai bai thi ngay
279|               </button>
280|               <p class="text-sm opacity-50 font-bold uppercase italic tracking-widest">
281|                 Hanh dong cua ban da duoc ghi lai va gui den giao vien.
282|               </p>
283|             </div>
284|           </motion.div>
285|         )}
286|       </AnimatePresence>
287|
288|       <div className="fixed bottom-6 right-6 w-56 rounded-xl overflow-hidden z-[100] shadow-2xl"
289|         style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)' }}>
290|         <div class="relative aspect-video">
291|           <video ref={videoRef} autoPlay playsInline muted class="w-full h-full object-cover mirror opacit...
292|           {state.multipleFaces && (
293|             <div class="absolute inset-0 bg-red-500/20 border-2 border-red-500 rounded-lg flex items-cente...
294|               <UserX size={32} class="text-red-500" />
295|             </div>
296|           )}
297|           <div class="absolute top-2 left-2 flex items-center gap-1.5 bg-black/60 px-2 py-1 rounded-md bac...
298|             <div class={`w-2 h-2 rounded-full ${state.faceDetected ? 'bg-green-500' : 'bg-red-500'} animat...
299|             <span class="text-[9px] font-black uppercase text-white/80">
300|               {state.faceDetected ? (state.multipleFaces ? 'NHIEU MAT!' : 'FACE OK') : 'NO FACE'}
301|             </span>
302|           </div>
303|           <div class="absolute top-2 right-2 flex items-center gap-1">
304|             <div class="w-2 h-2 bg-red-500 rounded-full animate-pulse" />
305|             <span class="text-[9px] font-black uppercase text-white/70">REC</span>
306|           </div>
307|           {realtimeConnected && (
308|             <div class="absolute top-2 right-12 bg-green-500/80 text-black px-1.5 py-0.5 rounded text-[8px...
309|               LIVE
310|             </div>
311|           )}
312|           <div class="absolute bottom-2 left-2 flex items-center gap-1 bg-black/60 px-2 py-0.5 rounded">
313|             <Clock size={10} class="text-white/70" />
314|             <span class="text-[8px] font-black text-white/70">
315|               VP: {state.violations}/{state.maxViolations}
316|             </span>
317|           </div>
318|           <div class="absolute bottom-2 right-2 bg-black/60 px-1.5 py-0.5 rounded">
319|             <span class="text-[8px] font-mono text-white/60">
320|               Y:{state.gazeDirection.yaw.toFixed(1)} P:{state.gazeDirection.pitch.toFixed(1)}
321|             </span>
322|           </div>
323|         </div>
324|         <div class="flex items-center justify-between px-3 py-1.5"
325|           style={{ background: 'var(--bg-elevated)', borderTop: '1px solid var(--border-default)' }}>
326|           <span class="text-[8px] font-bold uppercase" style={{ color: state.lookingAway ? 'var(--danger)'...
327|             {state.lookingAway ? 'Dang nhin di cho khac!' : 'Dang tap trung'}
328|           </span>
329|           <Maximize size={10} style={{ color: 'var(--text-muted)' }} onClick={() => document.documentElement.r...
330|         </div>
331|       </div>
332|     </div>
333|   )
334| }
335|
```

File: app/exam/[examId]/result/[attemptId]/page.tsx (246 lines, 10.8 KB)

```
1| 'use client';
2|
3| import React, { useEffect, useState, use } from 'react';
4| import Link from 'next/link';
5| import { motion } from 'framer-motion';
6| import {
7|   Trophy, Clock, Target, ArrowRight, RotateCcw,
```

```
  8|   Share2, CheckCircle2, XCircle, AlertCircle,
  9|   BarChart3, PieChart, Layout
 10| } from 'lucide-react';
 11| import confetti from 'canvas-confetti';
 12|
 13| export default function ExamResultPage({ params }: { params: Promise<{ examId: string, attemptId: string }> }) {
 14|   const resolvedParams = use(params);
 15|   const { examId, attemptId } = resolvedParams;
 16|
 17|   // Mock data matching Mega Prompt examples
 18|   const [result, setResult] = useState({
 19|     score: 85,
 20|     total: 100,
 21|     correctCount: 17,
 22|     wrongCount: 2,
 23|     blankCount: 1,
 24|     timeSpent: "23 phút 15 giây",
 25|     rank: 5,
 26|     passScore: 50,
 27|     topics: [
 28|       { name: "CPU & Mainboard", score: 9, total: 10 },
 29|       { name: "RAM & Storage", score: 6, total: 10 },
 30|       { name: "GPU & PSU", score: 7, total: 10 }
 31|     ]
 32|   });
 33|
 34|   const isPassed = result.score >= result.passScore;
 35|
 36|   const getGrade = (score: number) => {
 37|           if (score >= 90) return { label: "Xuất sắc", color: "#00d2a0" };
 38|           if (score >= 80) return { label: "Giỏi", color: "#00b4d8" };
 39|     if (score >= 65) return { label: "Khá", color: "#f59e0b" };
 40|     if (score >= 50) return { label: "Trung bình", color: "#94a3b8" };
 41|           return { label: "Yếu", color: "#ef4444" };
 42|   };
 43|
 44|   const grade = getGrade(result.score);
 45|
 46|   useEffect(() => {
 47|     if (isPassed) {
 48|       const duration = 3 * 1000;
 49|       const animationEnd = Date.now() + duration;
 50|       const defaults = { startVelocity: 30, spread: 360, ticks: 60, zIndex: 0 };
 51|
 52|       const randomInRange = (min: number, max: number) => Math.random() * (max - min) + min;
 53|
 54|       const interval: any = setInterval(function() {
 55|         const timeLeft = animationEnd - Date.now();
 56|
 57|         if (timeLeft <= 0) {
 58|           return clearInterval(interval);
 59|         }
 60|
 61|         const particleCount = 50 * (timeLeft / duration);
 62|         confetti({ ...defaults, particleCount, origin: { x: randomInRange(0.1, 0.3), y: Math.random() - 0.2 } });
 63|         confetti({ ...defaults, particleCount, origin: { x: randomInRange(0.7, 0.9), y: Math.random() - 0.2 } });
 64|       }, 250);
 65|     }
 66|   }, [isPassed]);
 67|
 68|   return (
 69|     <div className="min-h-screen bg-[#0f0f1a] text-white p-6 md:p-12">
 70|       <div className="max-w-5xl mx-auto space-y-10">
 71|
 72|         {/* HERO SECTION */}
 73|         <motion.section
 74|           initial={{ opacity: 0, y: 20 }}
 75|           animate={{ opacity: 1, y: 0 }}
 76|           className={`relative overflow-hidden rounded-[40px] p-10 text-center border-2 transition-colors dura...
 77|             ${isPassed ? 'bg-[#00d2a0]/5 border-[#00d2a0]/30 shadow-[0_0_50px_rgba(0,210,160,0.1)]' : 'bg-red-...
 78|           `}
 79|         >
 80|           <div className="relative z-10">
 81|             <motion.div
 82|               initial={{ scale: 0 }}
 83|               animate={{ scale: 1 }}
 84|               transition={{ type: "spring", stiffness: 260, damping: 20 }}
 85|               className={`w-20 h-20 mx-auto mb-6 flex items-center justify-center rounded-2xl
 86|                 ${isPassed ? 'bg-[#00d2a0] text-black' : 'bg-red-500 text-white'}
 87|               `}
 88|             >
 89|               {isPassed ? <Trophy size={40} /> : <AlertCircle size={40} />}
 90|             </motion.div>
 91|
 92|             <h1 className="text-3xl md:text-5xl font-black mb-4">
 93|                           {isPassed ? 'Ø<ß‰ Chúc mëng bïn ã qua!' : 'Ø=Üª Tiếc quá! Hã
 94|             </h1>
 95|
 96|             {/* Circular Progress Ring */}
 97|             <div className="relative w-48 h-48 mx-auto my-10 flex items-center justify-center">
 98|               <svg className="w-full h-full -rotate-90">
 99|                 <circle
100|                   cx="96" cy="96" r="88"
101|                   className="stroke-[#1e293b]"
102|                   strokeWidth="12"
103|                   fill="transparent"
104|                 />
105|                 <motion.circle
106|                   cx="96" cy="96" r="88"
107|                   stroke={grade.color}
108|                   strokeWidth="12"
109|                   fill="transparent"
110|                   strokeDasharray={552}
111|                   initial={{ strokeDashoffset: 552 }}
112|                   animate={{ strokeDashoffset: 552 - (552 * result.score) / 100 }}
113|                   transition={{ duration: 2, ease: "easeOut" }}
114|                   strokeLinecap="round"
115|                 />
116|               </svg>
117|               <div className="absolute inset-0 flex flex-col items-center justify-center">
118|                 <span className="text-5xl font-black">{result.score}</span>
119|                           <span className="text-slate-500 font-bold uppercase tra
120|               </div>
121|             </div>
122|
123|             <div className="flex flex-wrap items-center justify-center gap-6">
124|                           <Badge icon={<CheckCircle2 size={16} />} label="Xếp loại"
125|                           <Badge icon={<Clock size={16} />} label="Thời gian" value=
126|                           <Badge icon={<Trophy size={16} />} label="Xếp hạng" value=
127|             </div>
128|           </div>
129|
130|           {/* Background Decorative Circles */}
131|           <div className={`absolute top-0 right-0 w-64 h-64 blur-[100px] -translate-y-1/2 translate-x-1/2 opac...
```

```
132|            ${isPassed ? 'bg-[#00d2a0]' : 'bg-red-500'}
133|          `}></div>
134|        </motion.section>
135|
136|        <div className="grid grid-cols-1 lg:grid-cols-2 gap-8">
137|
138|          {/* STATS BREAKDOWN (Donut Chart) */}
139|          <motion.section
140|            initial={{ opacity: 0, x: -20 }}
141|            animate={{ opacity: 1, x: 0 }}
142|            transition={{ delay: 0.2 }}
143|            className="bg-[#16213e] p-8 rounded-[32px] border border-[#1e293b]"
144|          >
145|            <h2 className="text-xl font-bold mb-8 flex items-center gap-2">
   1 4 6 |                              < P i e C h a r t   s i z e = { 2 0 }   c l a s s N a m e = " t e x t - [ # 0 0 d 2 a 0 ] "   / >   T h Ñ n g   k ế
147|            </h2>
148|
149|            <div className="flex items-center justify-around gap-4">
150|               {/* Simple SVG Donut */}
151|               <div className="relative w-40 h-40">
152|                 <svg className="w-full h-full -rotate-90">
153|                    {/* Correct */}
154|                    <circle cx="80" cy="80" r="70" stroke="#00d2a0" strokeWidth="20" fill="transparent" stroke...
155|                    {/* Wrong - Mocking offset */}
156|                    <circle cx="80" cy="80" r="70" stroke="#ef4444" strokeWidth="20" fill="transparent" stroke...
157|                    {/* Blank */}
158|                    <circle cx="80" cy="80" r="70" stroke="#475569" strokeWidth="20" fill="transparent" stroke...
159|                 </svg>
160|               </div>
161|
162|               <div className="space-y-4">
   1 6 3 |                                 < L e g e n d I t e m   c o l o r = " # 0 0 d 2 a 0 "   l a b e l = "   ú n g "   v a l u e = { r e s u l t .
164|                 <LegendItem color="#ef4444" label="Sai" value={result.wrongCount} />
   1 6 5 |                                 < L e g e n d I t e m   c o l o r = " # 4 7 5 5 6 9 "   l a b e l = " B Ỉ   t r Ñ n g "   v a l u e = { r e s
166|               </div>
167|             </div>
168|          </motion.section>
169|
170|          {/* TOPIC BREAKDOWN */}
171|          <motion.section
172|            initial={{ opacity: 0, x: 20 }}
173|            animate={{ opacity: 1, x: 0 }}
174|            transition={{ delay: 0.3 }}
175|            className="bg-[#16213e] p-8 rounded-[32px] border border-[#1e293b]"
176|          >
177|            <h2 className="text-xl font-bold mb-8 flex items-center gap-2">
   1 7 8 |                              < B a r C h a r t 3   s i z e = { 2 0 }   c l a s s N a m e = " t e x t - [ # 0 0 b 4 d 8 ] "   / >    i Ã m   t h
179|            </h2>
180|            <div className="space-y-6">
181|              {result.topics.map((topic, i) => (
182|                <div key={i} className="space-y-2">
183|                  <div className="flex justify-between text-sm font-bold">
184|                    <span>{topic.name}</span>
185|                    <span className="text-[#00d2a0]">{topic.score}/{topic.total}</span>
186|                  </div>
187|                  <div className="h-3 w-full bg-[#0f0f1a] rounded-full overflow-hidden">
188|                    <motion.div
189|                      initial={{ width: 0 }}
190|                      animate={{ width: `${(topic.score / topic.total) * 100}%` }}
191|                      transition={{ duration: 1, delay: 0.5 + i * 0.1 }}
192|                      className="h-full bg-gradient-to-r from-[#00b4d8] to-[#00d2a0]"
193|                    ></motion.div>
194|                  </div>
195|                </div>
196|              ))}
197|            </div>
198|          </motion.section>
199|
200|        </div>
201|
202|        {/* ACTIONS */}
203|        <motion.div
204|          initial={{ opacity: 0, y: 20 }}
205|          animate={{ opacity: 1, y: 0 }}
206|          transition={{ delay: 0.6 }}
207|          className="flex flex-col sm:flex-row items-center justify-center gap-4 pt-10"
208|        >
209|          <Link href={`/exam/${examId}`} className="w-full sm:w-auto px-8 py-4 bg-[#16213e] border border-[#1e...
   2 1 0 |                            < R o t a t e C c w   s i z e = { 2 0 }   / >   L à m   l ¡ i   b à i   t h i
211|          </Link>
212|          <Link href="/lessons" className="w-full sm:w-auto px-8 py-4 bg-[#00d2a0] text-black font-bold rounde...
   2 1 3 |                            H Ỉ c   b à i   t i ¿ p   t h e o   < A r r o w R i g h t   s i z e = { 2 0 }   / >
214|          </Link>
215|          <button className="w-full sm:w-auto px-8 py-4 bg-[#0f0f1a] border border-[#1e293b] text-slate-400 fo...
   2 1 6 |                            < S h a r e 2   s i z e = { 2 0 }   / >   C h i a   s »   k ¿ t   q u £
217|          </button>
218|        </motion.div>
219|
220|      </div>
221|    </div>
222|  );
223| }
224|
225| function Badge({ icon, label, value, color }: { icon: any, label: string, value: string, color: string }) {
226|   return (
227|     <div className="flex items-center gap-3 bg-[#0f0f1a] px-5 py-3 rounded-2xl border border-[#1e293b]">
228|       <div style={{ color: color }}>{icon}</div>
229|       <div className="text-left">
230|         <div className="text-[10px] text-slate-500 font-bold uppercase tracking-widest">{label}</div>
231|         <div className="font-bold text-sm" style={{ color: color }}>{value}</div>
232|       </div>
233|     </div>
234|   );
235| }
236|
237| function LegendItem({ color, label, value }: { color: string, label: string, value: number }) {
238|   return (
239|     <div className="flex items-center gap-3">
240|       <div className="w-3 h-3 rounded-full" style={{ background: color }}></div>
241|       <span className="text-slate-400 font-medium text-sm w-20">{label}</span>
242|       <span className="font-bold text-white">{value}</span>
243|     </div>
244|   );
245| }
246|
```

File: app/exams/%5BexamId%5D/page.tsx (206 lines, 9.4 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect } from 'react'
    4| import { motion, AnimatePresence } from 'framer-motion'
    5| import { Clock, ShieldAlert, ChevronLeft, ChevronRight, Send, HelpCircle, AlertCircle, Maximize2 } from 'lucid...
```

```
 6| import Navbar from '@/components/Navbar'
 7|
 8| export default function ExamPlayerPage() {
 9|   const [currentQuestion, setCurrentQuestion] = useState(0)
10|   const [timeLeft, setTimeLeft] = useState(15 * 60) // 15 mins
11|   const [answers, setAnswers] = useState<Record<number, string>>({})
12|   const [isSubmitted, setIsSubmitted] = useState(false)
13|
14|   const questions = [
15|     {
16|       id: 1,
   1 7 |             t e x t :   ' C P U   S o c k e t   A M 4   t h u Ù c   v Á   h ã n g   s £ n   x u ¥ t   n à o ? ' ,
18|       options: ['Intel', 'AMD', 'NVIDIA', 'Qualcomm'],
19|       correct: 'AMD'
20|     },
21|     {
22|       id: 2,
   2 3 |             t e x t :   ' T h à n h   p h § n   n à o   s a u   â y   d ù n g   Ã   l ° u   t r ï   d ï   l i Ç u   t ¡ m   t h Ý i ? ' ,
24|       options: ['HDD', 'SSD', 'RAM', 'ROM'],
25|       correct: 'RAM'
26|     },
27|     {
28|       id: 3,
   2 9 |             t e x t :   ' T á c   d ẩ n g   c ç a   l Û p   k e m   t £ n   n h i Ç t   l à   g ì ? ' ,
   3 0 |             o p t i o n s :   [ ' L à m   ¹ p   C P U ' ,   ' D « n   n h i Ç t   t Ñ t   h ¡ n ' ,   ' G i £ m   i Ç n   n   n g ' ,   ' T
   3 1 |             c o r r e c t :   ' D « n   n h i Ç t   t Ñ t   h ¡ n '
32|     }
33|   ]
34|
35|   useEffect(() => {
36|     if (timeLeft <= 0) {
37|       handleSubmit()
38|       return
39|     }
40|     const timer = setInterval(() => setTimeLeft(prev => prev - 1), 1000)
41|     return () => clearInterval(timer)
42|   }, [timeLeft])
43|
44|   const formatTime = (seconds: number) => {
45|     const m = Math.floor(seconds / 60)
46|     const s = seconds % 60
47|     return `${m.toString().padStart(2, '0')}:${s.toString().padStart(2, '0')}`
48|   }
49|
50|   const handleSubmit = () => {
51|     setIsSubmitted(true)
52|   }
53|
54|   if (isSubmitted) {
55|     const score = questions.filter((q, idx) => answers[idx] === q.correct).length
56|     return (
57|       <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center p-6 text-white">
58|         <motion.div
59|           initial={{ opacity: 0, scale: 0.9 }}
60|           animate={{ opacity: 1, scale: 1 }}
61|           className="w-full max-w-lg bg-[#16213e] border border-[#1e293b] p-10 rounded-3xl text-center shadow-...
62|         >
63|           <div className="w-20 h-20 bg-[#00d2a0]/10 text-[#00d2a0] rounded-full flex items-center justify-cent...
64|             <Send size={40} />
65|           </div>
66|           <h2 className="text-3xl font-bold mb-2">Hoàn thành bài thi!</h2>
   6 7 |                     < p   c l a s s N a m e = " t e x t - s l a t e - 4 0 0   m b - 8 " > B ¡ n   ã   h o à n   t h à n h   b à i   k i Ã m
68|
69|           <div className="bg-[#0f0f1a] rounded-2xl p-6 mb-8 border border-[#1e293b]">
   7 0 |                       < p   c l a s s N a m e = " t e x t - s m   t e x t - s l a t e - 5 0 0   u p p e r c a s e   f o n t - b o l d   m b -
71|             <p className="text-5xl font-black text-[#00d2a0]">{score}/{questions.length}</p>
72|           </div>
73|
74|           <button onClick={() => window.location.href = '/exams'} className="w-full py-4 bg-[#00d2a0] text-bla...
   7 5 |                       Q U A Y   L   I   D A N H   S Á C H   T H I
76|           </button>
77|         </motion.div>
78|       </div>
79|     )
80|   }
81|
82|   return (
83|     <div className="min-h-screen bg-[#0f0f1a] text-white flex flex-col">
84|       {/* Header */}
85|       <header className="h-20 bg-[#16213e] border-b border-[#1e293b] flex items-center justify-between px-6 md...
86|         <div className="flex items-center gap-4">
87|           <div className="w-10 h-10 bg-[#00d2a0]/10 text-[#00d2a0] rounded-xl flex items-center justify-center">
88|             <HelpCircle size={20} />
89|           </div>
90|           <div>
   9 1 |                         < h 1   c l a s s N a m e = " f o n t - b o l d   t e x t - s m   m d : t e x t - b a s e " > K i Ã m   t r a   c h ‘
92|             <div className="flex items-center gap-2 text-[10px] text-red-400 font-bold uppercase tracking-wid...
93|               <ShieldAlert size={10} />
   9 4 |                             < s p a n > C h ¿   Ù   c h Ñ n g   g i a n   l - n   a n g   b - t < / s p a n >
95|             </div>
96|           </div>
97|         </div>
98|
99|         <div className="flex items-center gap-6">
100|           <div className="flex flex-col items-end">
   1 0 1 |                         < s p a n   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - s l a t e - 5 0 0   f o n t - b o l d   u p p e r
102|             <span className={`text-xl font-mono font-bold ${timeLeft < 60 ? 'text-red-500 animate-pulse' : 't...
103|               {formatTime(timeLeft)}
104|             </span>
105|           </div>
106|           <button className="hidden md:flex p-2 text-slate-500 hover:text-white transition-colors">
107|             <Maximize2 size={20} />
108|           </button>
109|         </div>
110|       </header>
111|
112|       <main className="flex-1 flex flex-col lg:flex-row overflow-hidden">
113|         {/* Left Side: Question */}
114|         <div className="flex-1 overflow-y-auto p-6 md:p-12 custom-scrollbar bg-[#0a0a14]">
115|           <div className="max-w-3xl mx-auto">
116|             <div className="mb-10">
117|               <span className="px-3 py-1 bg-[#1e293b] text-[#00d2a0] text-[10px] font-bold uppercase rounded-...
118|               <h2 className="text-2xl font-bold leading-relaxed">{questions[currentQuestion].text}</h2>
119|             </div>
120|
121|             <div className="grid grid-cols-1 gap-4">
122|               {questions[currentQuestion].options.map((opt, idx) => (
123|                 <button
124|                   key={idx}
125|                   onClick={() => setAnswers({...answers, [currentQuestion]: opt})}
126|                   className={`p-6 rounded-2xl border text-left transition-all flex items-center justify-betwe...
127|                     answers[currentQuestion] === opt
128|                       ? 'bg-[#00d2a0]/10 border-[#00d2a0] text-[#00d2a0]'
129|                       : 'bg-[#16213e] border-[#1e293b] text-slate-300 hover:border-[#2a3655]'
```

```
  130|                    }`}
  131|                  >
  132|                    <div className="flex items-center gap-4">
  133|                      <span className={`w-8 h-8 rounded-lg flex items-center justify-center text-xs font-bold ${
  134|                        answers[currentQuestion] === opt ? 'bg-[#00d2a0] text-black' : 'bg-[#0f0f1a] text-slate...
  135|                      }`}>
  136|                        {String.fromCharCode(65 + idx)}
  137|                      </span>
  138|                      <span className="font-medium">{opt}</span>
  139|                    </div>
  140|                    {answers[currentQuestion] === opt && <motion.div layoutId="check" className="w-6 h-6 bg-[#0...
  141|                  </button>
  142|                ))}
  143|              </div>
  144|            </div>
  145|          </div>
  146|
  147|          {/* Right Side: Navigation */}
  148|          <div className="w-full lg:w-96 border-l border-[#1e293b] bg-[#0f0f1a] flex flex-col">
  149|            <div className="p-6 border-b border-[#1e293b]">
    1 5 0 |                          < h 3   c l a s s N a m e = " f o n t - b o l d   t e x t - s m   m b - 4 " > D a n h   s á c h   c â u   h Ỉ i < / h
  151|              <div className="grid grid-cols-5 gap-3">
  152|                {questions.map((_, idx) => (
  153|                  <button
  154|                    key={idx}
  155|                    onClick={() => setCurrentQuestion(idx)}
  156|                    className={`w-10 h-10 rounded-xl flex items-center justify-center text-xs font-bold transit...
  157|                      currentQuestion === idx ? 'bg-[#00d2a0] text-black border-[#00d2a0]' :
  158|                      answers[idx] ? 'bg-[#1e293b] text-[#00d2a0] border-[#00d2a0]/30' :
  159|                      'bg-[#16213e] text-slate-500 border-[#1e293b]'
  160|                    }`}
  161|                  >
  162|                    {idx + 1}
  163|                  </button>
  164|                ))}
  165|              </div>
  166|            </div>
  167|
  168|            <div className="flex-1 p-6 space-y-6">
  169|              <div className="bg-[#16213e] p-4 rounded-xl border border-[#1e293b] flex items-center gap-3">
  170|                <AlertCircle size={18} className="text-yellow-500" />
  171|                <p className="text-[10px] text-slate-400 font-medium leading-relaxed">
    1 7 2 |                                          ë n g   t h o á t   t r ì n h   d u y Ç t   h o · c   c h u y Ã n   t a b ,   h à n h   Ù n g   n à y
  173|                </p>
  174|              </div>
  175|            </div>
  176|
  177|            <div className="p-6 bg-[#16213e]/50 border-t border-[#1e293b] space-y-3">
  178|              <div className="flex gap-2">
  179|                <button
  180|                  disabled={currentQuestion === 0}
  181|                  onClick={() => setCurrentQuestion(prev => prev - 1)}
  182|                  className="flex-1 py-3 bg-[#1e293b] text-white rounded-xl font-bold text-xs disabled:opacity-...
  183|                >
    1 8 4 |                                    < C h e v r o n L e f t   s i z e = { 1 6 }   / >   T R ¯ Ú C
  185|                </button>
  186|                <button
  187|                  disabled={currentQuestion === questions.length - 1}
  188|                  onClick={() => setCurrentQuestion(prev => prev + 1)}
  189|                  className="flex-1 py-3 bg-[#1e293b] text-white rounded-xl font-bold text-xs disabled:opacity-...
  190|                >
  191|                  SAU <ChevronRight size={16} />
  192|                </button>
  193|              </div>
  194|              <button
  195|                onClick={handleSubmit}
  196|                className="w-full py-4 bg-[#00d2a0] text-black font-black rounded-xl hover:bg-[#00e6af] shadow-...
  197|              >
    1 9 8 |                                N Ø P   B À I   T H I
  199|              </button>
  200|            </div>
  201|          </div>
  202|        </main>
  203|      </div>
  204|    )
  205| }
  206|
```

File: app/exams/page.tsx (118 lines, 5.5 KB)

```
    1| 'use client'
    2|
    3| import React, { useState, useEffect } from 'react'
    4| import { supabase } from '@/lib/supabase'
    5| import Navbar from '@/components/Navbar'
    6| import { motion } from 'framer-motion'
    7| import { FileText, Clock, Trophy, ArrowRight, Loader2, Search, Filter, ArrowLeft } from 'lucide-react'
    8| import Link from 'next/link'
    9|
   10| export default function ExamsListingPage() {
   11|   const [exams, setExams] = useState<any[]>([])
   12|   const [loading, setLoading] = useState(true)
   13|
   14|   useEffect(() => {
   15|     fetchExams()
   16|   }, [])
   17|
   18|   async function fetchExams() {
   19|     try {
   20|       setLoading(true)
   21|       const { data: { user } } = await supabase.auth.getUser()
   22|       if (!user) return
   23|
   24|       const { data } = await supabase
   25|         .from('assignments')
   26|         .select('*, classes (name)')
   27|         .eq('is_published', true)
   28|         .order('created_at', { ascending: false })
   29|
   30|       setExams(data || [])
   31|     } catch (err) {
   32|       console.error(err)
   33|     } finally {
   34|       setLoading(false)
   35|     }
   36|   }
   37|
   38|   return (
   39|     <div className="min-h-screen" style={{ background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
   40|       <Navbar />
   41|
   42|       <main className="max-w-7xl mx-auto px-4 sm:px-6 lg:px-8 pt-28 pb-20">
   43|         <header className="mb-12">
```

```
  44|          <h1 className="text-4xl font-black mb-4">Trung tâm <span style={{ color: 'var(--brand-primary)' }}>K...
    4 5 |                    < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '   } } > D a n h   s á c h   c á c   b à i   k i
  46|        </header>
  47|
  48|        <div className="flex flex-col md:flex-row gap-4 mb-8">
  49|          <div className="relative flex-1">
  50|            <Search className="absolute left-4 top-1/2 -translate-y-1/2" size={18} style={{ color: 'var(--text...
  51|            <input
  52|              type="text"
    5 3 |                          p l a c e h o l d e r = " T ì m   k i ¿ m   k ó   t h i . . . "
  54|              className="w-full rounded-xl pl-12 pr-4 py-3 outline-none transition-all"
  55|              style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var...
  56|            />
  57|          </div>
  58|          <button className="flex items-center gap-2 px-6 py-3 rounded-xl transition-all" style={{ background:...
    5 9 |                          < F i l t e r   s i z e = { 1 8 }   / >   L Í c
  60|          </button>
  61|        </div>
  62|
  63|        {loading ? (
  64|          <div className="flex justify-center py-20">
  65|            <Loader2 className="animate-spin" size={40} style={{ color: 'var(--brand-primary)' }} />
  66|          </div>
  67|        ) : exams.length > 0 ? (
  68|          <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6">
  69|            {exams.map((exam) => (
  70|              <motion.div
  71|                key={exam.id}
  72|                initial={{ opacity: 0, y: 20 }}
  73|                animate={{ opacity: 1, y: 0 }}
  74|                className="rounded-3xl p-6 transition-all group"
  75|                style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)' }}
  76|              >
  77|                <div className="flex items-start justify-between mb-6">
  78|                  <div className="p-3 rounded-2xl" style={{ background: 'color-mix(in srgb, var(--brand-primar...
  79|                    <FileText size={24} />
  80|                  </div>
  81|                  <div className="text-right">
  82|                    <span className="text-[10px] font-bold uppercase tracking-widest" style={{ color: 'var(--t...
  83|                    <p className="text-xs font-bold flex items-center gap-1 justify-end mt-1" style={{ color: ...
  84|                      <Clock size={12} /> 45 Phút
  85|                    </p>
  86|                  </div>
  87|                </div>
  88|
  89|                <h3 className="text-xl font-bold mb-2 transition-colors" style={{ color: 'var(--text-primary)'...
    9 0 |                                < p   c l a s s N a m e = " t e x t - s m   m b - 6   f o n t - m e d i u m "   s t y l e = { {   c o l o r :
  91|
  92|                <div className="flex items-center justify-between pt-6" style={{ borderTop: '1px solid var(--b...
  93|                  <div className="flex items-center gap-2">
  94|                    <Trophy size={16} style={{ color: 'var(--accent-amber)' }} />
  95|                    <span className="text-xs font-bold" style={{ color: 'var(--text-muted)' }}>100 XP</span>
  96|                  </div>
  97|                  <Link
  98|                    href={`/exams/${exam.id}`}
  99|                    className="px-6 py-2 text-xs font-bold rounded-lg transition-all flex items-center gap-2"
 100|                    style={{ background: 'var(--brand-primary)', color: 'var(--bg-base)' }}
 101|                  >
   1 0 2 |                                        B ® T     ¦ U   T H I   < A r r o w R i g h t   s i z e = { 1 4 }   / >
 103|                  </Link>
 104|                </div>
 105|              </motion.div>
 106|            ))}
 107|          </div>
 108|        ) : (
 109|          <div className="text-center py-20 rounded-[40px] border-2 border-dashed" style={{ background: 'color...
 110|            <FileText size={48} className="mx-auto mb-4" style={{ color: 'var(--text-muted)' }} />
   1 1 1 |                          < p   c l a s s N a m e = " f o n t - m e d i u m   i t a l i c "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x
 112|          </div>
 113|        )}
 114|      </main>
 115|    </div>
 116|  )
 117| }
 118|
```

File: app/globals.css (771 lines, 22.2 KB)

```
    1| @import url('https://fonts.googleapis.com/css2?family=Montserrat:wght@300;400;500;600;700;800;900&family=JetBr...
    2|
    3| @tailwind base;
    4| @tailwind components;
    5| @tailwind utilities;
    6|
    7| :root, [data-theme="light"] {
    8|   --bg-base:       #efedfb;
    9|   --bg-surface:    #ffffff;
   10|   --bg-elevated:   #f8f7fc;
   11|   --bg-hover:      #f0eff8;
   12|
   13|   --brand-primary: #089e60;
   14|   --brand-light:   #28c76f;
   15|   --brand-dark:    #067a4d;
   16|   --brand-subtle:  rgba(8, 158, 96, 0.12);
   17|
   18|   --accent-blue:   #289cf9;
   19|   --accent-amber:  #ffb900;
   20|   --accent-orange: #ff8b00;
   21|
   22|   --success:       #28c76f;
   23|   --warning:       #ffa300;
   24|   --danger:        #f46a6a;
   25|   --info:          #7367f0;
   26|
   27|   --text-primary:  #252434;
   28|   --text-secondary:#3b3a49;
   29|   --text-muted:    #6e6b7b;
   30|
   31|   --border-subtle: #f1f1f1;
   32|   --border-default:#e7e7e7;
   33|   --border-strong: #d0cfd8;
   34|
   35|   --shadow-color:  rgba(113, 126, 195, 0.1);
   36|   --shadow-hover:  rgba(113, 126, 195, 0.18);
   37|
   38|   --sidebar-width: 265px;
   39|   --font-sans: 'Montserrat', sans-serif;
   40|   --font-mono: 'JetBrains Mono', monospace;
   41|
   42|   --text-xs:   11px;
   43|   --text-sm:   13px;
   44|   --text-base: 15px;
   45|   --text-lg:   18px;
```

```
  --text-xl:   24px;
  --text-2xl:  32px;
  --text-hero: 48px;

  --primary-neon: #0284c7;
  --secondary-neon: #089e60;
  --text-dim: #6e6b7b;
  --accent-green: #10b981;
  --accent-purple: #8b5cf6;
}

[data-theme="dark"] {
  --bg-base:       #0d0e13;
  --bg-surface:    #0f0f1a;
  --bg-elevated:   #1a1c25;
  --bg-hover:      #1e202f;

  --brand-primary: #00d4aa;
  --brand-light:   #4de8c4;
  --brand-dark:    #00b89c;
  --brand-subtle:  rgba(0, 212, 170, 0.12);

  --accent-blue:   #4a90e2;
  --accent-amber:  #f59e0b;
  --accent-orange: #ff8b00;

  --success:       #00d4aa;
  --warning:       #f59e0b;
  --danger:        #e84855;
  --info:          #636678;

  --text-primary:  #dde0ed;
  --text-secondary:#b8bbcc;
  --text-muted:    #636678;

  --primary-neon: #00f3ff;
  --secondary-neon: #00d4aa;
  --text-dim: #636678;
  --accent-green: #00d4aa;
  --accent-purple: #a78bfa;

  --border-subtle: rgba(255,255,255,0.05);
  --border-default:rgba(255,255,255,0.08);
  --border-strong: rgba(255,255,255,0.15);

  --shadow-color:  rgba(0, 0, 0, 0.4);
  --shadow-hover:  rgba(0, 0, 0, 0.6);
}

*, *::before, *::after {
  box-sizing: border-box;
  padding: 0;
  margin: 0;
}

html, body {
  max-width: 100vw;
  overflow-x: hidden;
  min-height: 100vh;
}

body {
  color: var(--text-primary);
  background: var(--bg-base);
  font-family: var(--font-sans);
  font-size: 15px;
  font-weight: 500;
  -webkit-font-smoothing: antialiased;
  transition: background-color 0.3s ease, color 0.3s ease;
}

a { color: inherit; text-decoration: none; }
img { max-width: 100%; height: auto; }

::-webkit-scrollbar { width: 8px; height: 8px; }
::-webkit-scrollbar-track { background: var(--bg-base); }
::-webkit-scrollbar-thumb { background: var(--border-strong); border-radius: 4px; }
::-webkit-scrollbar-thumb:hover { background: var(--text-muted); }

@keyframes fadeInUp {
  from { opacity: 0; transform: translateY(20px); }
  to   { opacity: 1; transform: translateY(0); }
}
@keyframes fadeIn {
  from { opacity: 0; }
  to   { opacity: 1; }
}
@keyframes slideInLeft {
  from { opacity: 0; transform: translateX(-24px); }
  to   { opacity: 1; transform: translateX(0); }
}
@keyframes slideInRight {
  from { opacity: 0; transform: translateX(24px); }
  to   { opacity: 1; transform: translateX(0); }
}
@keyframes scaleIn {
  from { opacity: 0; transform: scale(0.95); }
  to   { opacity: 1; transform: scale(1); }
}

.animate-fade-in-up  { animation: fadeInUp 0.5s ease both; }
.animate-fade-in     { animation: fadeIn 0.4s ease both; }
.animate-slide-left  { animation: slideInLeft 0.5s ease both; }
.animate-slide-right { animation: slideInRight 0.5s ease both; }
.animate-scale-in   { animation: scaleIn 0.3s ease both; }
.animate-delay-1 { animation-delay: 0.1s; }
.animate-delay-2 { animation-delay: 0.2s; }
.animate-delay-3 { animation-delay: 0.3s; }
.animate-delay-4 { animation-delay: 0.4s; }
.animate-delay-5 { animation-delay: 0.5s; }

.neon-text-blue { color: var(--accent-blue); text-shadow: 0 0 20px rgba(74, 144, 226, 0.5); }
.neon-text-purple { color: var(--accent-purple); text-shadow: 0 0 20px rgba(139, 92, 246, 0.5); }
.neon-text-green { color: var(--accent-green); text-shadow: 0 0 20px rgba(16, 185, 129, 0.5); }

.glass-panel {
  background: var(--bg-surface);
  border: 1px solid var(--border-default);
  border-radius: 10px;
  transition: all 0.2s ease;
}

/*  %%%   Sidebar  %%%   */
.sidebar-container {
```

```
  position: fixed; top: 0; left: 0; height: 100vh;
  width: var(--sidebar-width);
  background: linear-gradient(3deg, #031f3b 0%, #1a2f53 80%);
  border-right: 1px solid rgba(255,255,255,0.06);
  display: flex; flex-direction: column;
  z-index: 190; overflow-y: auto;
  transition: transform 280ms cubic-bezier(0.4, 0, 0.2, 1);
}
.sidebar-container::-webkit-scrollbar { display: none; }

@media (max-width: 768px) {
  .sidebar-container { transform: translateX(-100%); }
  .sidebar-container.open { transform: translateX(0); }
  .mobile-hamburger { display: flex !important; }
  .mobile-backdrop { display: block !important; }
}
@media (min-width: 769px) {
  .mobile-hamburger { display: none !important; }
  .mobile-backdrop { display: none !important; }
}

/* %%% Toggle Switch %%% */
.toggle-switch {
  width: 36px; height: 20px; border-radius: 10px;
  position: relative; cursor: pointer; transition: all 0.25s ease;
}
.toggle-switch.off { background: #d0cfd8; border: 1px solid #bbbac3; }
.toggle-switch.on {
  background: var(--brand-primary); border: 1px solid var(--brand-primary);
  box-shadow: 0 0 8px rgba(8,158,96,0.4);
}
.toggle-thumb {
  width: 16px; height: 16px; border-radius: 50%; position: absolute; top: 1px;
  transition: all 0.25s cubic-bezier(0.4, 0, 0.2, 1);
}
.toggle-switch.off .toggle-thumb { left: 1px; background: #fff; }
.toggle-switch.on .toggle-thumb { left: 17px; background: #fff; }

.custom-slider {
  -webkit-appearance: none; width: 100%; height: 3px; border-radius: 2px;
  outline: none; transition: background 0.2s;
}
.custom-slider::-webkit-slider-thumb {
  -webkit-appearance: none; appearance: none; width: 14px; height: 14px;
  border-radius: 50%; background: white; border: 2px solid var(--brand-primary);
  box-shadow: 0 0 0 3px var(--brand-subtle); cursor: pointer;
  transition: transform 0.15s ease;
}
.custom-slider::-webkit-slider-thumb:hover { transform: scale(1.2); }
.custom-slider::-moz-range-thumb {
  width: 14px; height: 14px; border-radius: 50%; background: white;
  border: 2px solid var(--brand-primary); box-shadow: 0 0 0 3px var(--brand-subtle);
  cursor: pointer;
}

@keyframes va-bounce {
  0%, 80%, 100% { transform: translateY(0); opacity: 0.5; }
  40% { transform: translateY(-6px); opacity: 1; }
}
@keyframes blink { 0%, 100% { opacity: 1; } 50% { opacity: 0.4; } }
@keyframes pulse { 0%, 100% { opacity: 0.5; } 50% { opacity: 1; } }
@keyframes terminal-blink { 0%, 100% { opacity: 1; } 50% { opacity: 0; } }
@keyframes shimmer {
  0% { background-position: -200% 0; }
  100% { background-position: 200% 0; }
}

/* %%% Component Card %%% */
.mode-card {
  background: var(--bg-surface) !important;
  border: 1px solid var(--border-default) !important;
  border-radius: 10px;
  padding: 24px;
  cursor: pointer;
  transition: all 0.25s cubic-bezier(0.4, 0, 0.2, 1);
  display: flex;
  flex-direction: column;
  text-align: left;
  width: 100%;
}
.mode-card:hover {
  background: var(--bg-hover) !important;
  border-color: var(--border-strong) !important;
  transform: translateY(-3px);
  box-shadow: 0 8px 16px -4px var(--shadow-hover);
}
.mode-card h2, .mode-card h3, .mode-card .title {
  color: var(--text-primary) !important;
  margin-top: 16px;
  margin-bottom: 0;
  font-size: 16px;
  font-weight: 600;
}
.mode-card p, .mode-card .desc {
  color: var(--text-muted) !important;
  margin-top: 6px;
  margin-bottom: 0;
  line-height: 1.5;
  font-size: 13px;
}

.icon-wrapper {
  background: var(--brand-subtle);
  border-radius: 8px;
  width: 40px; height: 40px;
  display: flex; align-items: center; justify-content: center;
  color: var(--brand-primary);
}

/* %%% Main Content %%% */
.main-content {
  margin-left: var(--sidebar-width);
  width: calc(100vw - var(--sidebar-width));
  min-height: 100vh;
  overflow-x: hidden;
  display: flex;
  flex-direction: column;
  position: relative;
  transition: margin-left 0.25s ease, width 0.25s ease;
}
@media (max-width: 768px) {
  .main-content {
    margin-left: 0 !important;
    width: 100vw !important;
```

```
    padding: 16px !important;
    padding-top: 64px !important;
  }
}

/* %%% Grids & Panels %%% */
.category-tabs {
  display: flex; overflow-x: auto; scrollbar-width: none;
  -ms-overflow-style: none; gap: 8px; padding-bottom: 4px;
}
.category-tabs::-webkit-scrollbar { display: none; }

.product-grid {
  display: grid;
  grid-template-columns: repeat(auto-fill, minmax(280px, 1fr));
  gap: 16px; width: 100%;
}

.practice-layout {
  display: grid; grid-template-columns: 1fr 320px;
  gap: 24px; align-items: start; width: 100%;
}

.camera-panel {
  position: sticky; top: 24px;
  background: var(--bg-surface);
  border: 1px solid var(--border-default);
  border-radius: 10px; padding: 16px; width: 100%; z-index: 10;
}
.camera-panel-header {
  display: flex; justify-content: space-between;
  align-items: center; margin-bottom: 12px;
  font-size: 13px; font-weight: 600; color: var(--text-primary);
}
.camera-toggle-btn {
  font-size: 12px; padding: 4px 10px;
  background: var(--brand-subtle); color: var(--brand-primary);
  border: 1px solid rgba(8,158,96,0.3); border-radius: 6px; cursor: pointer;
  transition: all 0.2s;
}
.camera-feed {
  width: 100%; aspect-ratio: 4/3;
  background: #e8e7f0; border-radius: 8px;
  display: flex; align-items: center; justify-content: center;
  font-size: 13px; color: var(--text-muted);
  overflow: hidden; position: relative;
}

.hero-grid {
  background-image:
    linear-gradient(rgba(8,158,96,0.05) 1px, transparent 1px),
    linear-gradient(90deg, rgba(8,158,96,0.05) 1px, transparent 1px);
  background-size: 40px 40px;
}

.stat-number { font-size: 48px; font-weight: 800; color: var(--brand-primary); line-height: 1; }
.stat-label { font-size: 14px; color: var(--text-muted); margin-top: 8px; }

.feature-card {
  background: var(--bg-surface);
  border: 1px solid var(--border-default);
  border-radius: 10px; padding: 28px 24px;
  transition: all 0.25s cubic-bezier(0.4, 0, 0.2, 1);
}
.feature-card:hover {
  border-color: var(--brand-primary);
  background: var(--bg-hover);
  transform: translateY(-3px);
  box-shadow: 0 8px 16px -4px var(--shadow-hover);
}

.alert-bar {
  background: rgba(244,106,106,0.08) !important;
  border: 1px solid rgba(244,106,106,0.25) !important;
  border-left: 3px solid var(--danger) !important;
  border-radius: 8px !important;
  color: var(--danger) !important;
  padding: 12px 16px !important;
  font-size: 14px !important;
}

.buy-btn {
  background: var(--brand-primary) !important;
  color: white !important; border: none !important;
  padding: 10px !important; border-radius: 8px !important;
  font-weight: 600 !important; cursor: pointer !important;
  transition: background 0.2s, transform 0.15s !important;
}
.buy-btn:hover { background: #067a4d !important; transform: translateY(-1px); }

.status-dot {
  width: 7px; height: 7px; border-radius: 50%;
  background: var(--danger); display: inline-block; margin-right: 6px;
}
.status-dot.active { background: var(--success); }

@media (max-width: 1024px) {
  .main-content { padding: 24px !important; }
  .product-grid { grid-template-columns: repeat(2, 1fr); }
}
@media (max-width: 768px) {
  .login-modal-content { padding: 24px 20px !important; }
  .student-dashboard-grid { grid-template-columns: 1fr !important; }
  .teacher-dashboard-grid { grid-template-columns: 1fr !important; }
}
@media (max-width: 480px) {
  .login-modal-content { padding: 20px 16px !important; }
}
@media (max-width: 480px) {
  .login-modal-content { padding: 20px 16px !important; }
}

/* %%% Container Helper %%% */
.main-container {
  border-radius: 30px;
  background: var(--bg-surface);
  padding: 24px;
  box-shadow: 0 1px 3px 0 var(--shadow-color), 0 1px 2px -1px var(--shadow-color);
}

/* %%% LMS Component Classes %%% */
.lms-btn {
  padding: 12px 20px; border-radius: 10px; font-weight: 700; font-size: 14px;
  transition: all 0.25s cubic-bezier(0.4, 0, 0.2, 1);
```

```
  cursor: pointer; border: none;
  display: inline-flex; align-items: center; gap: 8px;
  font-family: var(--font-sans);
}
.lms-btn-primary {
  background: linear-gradient(90deg, var(--accent-amber), var(--accent-orange));
  color: #fff; box-shadow: 0 4px 12px -2px rgba(255,163,0,0.3);
}
.lms-btn-primary:hover {
  opacity: 0.95; transform: translateY(-2px);
  box-shadow: 0 6px 16px -2px rgba(255,163,0,0.4);
}
.lms-btn-green {
  background: var(--brand-primary); color: #fff;
  box-shadow: 0 4px 12px -2px rgba(8,158,96,0.3);
}
.lms-btn-green:hover {
  background: var(--brand-dark); transform: translateY(-2px);
  box-shadow: 0 6px 16px -2px rgba(8,158,96,0.4);
}
.lms-btn-blue {
  background: var(--accent-blue); color: #fff;
  box-shadow: 0 4px 12px -2px rgba(40,156,249,0.3);
}
.lms-btn-blue:hover {
  background: #1a7de0; transform: translateY(-2px);
  box-shadow: 0 6px 16px -2px rgba(40,156,249,0.4);
}
.lms-btn-outline {
  background: transparent; border: 1px solid var(--border-strong);
  color: var(--text-primary);
}
.lms-btn-outline:hover {
  background: var(--bg-hover); border-color: var(--text-muted);
  transform: translateY(-1px);
}

.lms-input {
  height: 50px; border-radius: 10px;
  border: 1px solid var(--border-strong);
  padding: 0 16px; font-family: var(--font-sans);
  font-size: 14px; color: var(--text-primary);
  background: var(--bg-surface); outline: none; width: 100%;
  transition: border-color 0.2s, box-shadow 0.2s;
}
.lms-input:focus {
  border-color: var(--brand-primary);
  box-shadow: 0 0 0 3px var(--brand-subtle);
}

.lms-badge {
  background: var(--brand-primary); color: #fff;
  font-size: 10px; padding: 4px 7px; border-radius: 99px; font-weight: 700;
}
.lms-badge-danger { background: var(--danger); color: #fff; }
.lms-badge-amber  { background: var(--accent-amber); color: #fff; }

.lms-card {
  background: var(--bg-surface);
  border: 1px solid var(--border-default);
  border-radius: 10px;
  padding: 20px;
  transition: all 0.25s cubic-bezier(0.4, 0, 0.2, 1);
}
.lms-card:hover {
  box-shadow: 0 4px 12px -2px var(--shadow-color);
  border-color: var(--border-strong);
}

.lms-tag {
  display: inline-flex; align-items: center; gap: 6px;
  font-size: 11px; font-weight: 600;
  padding: 4px 10px; border-radius: 99px;
  background: var(--bg-elevated); color: var(--text-muted);
  border: 1px solid var(--border-default);
  transition: all 0.2s;
}
.lms-tag-green {
  background: rgba(8,158,96,0.1); color: var(--brand-primary);
  border-color: rgba(8,158,96,0.2);
}
.lms-tag-blue {
  background: rgba(40,156,249,0.1); color: var(--accent-blue);
  border-color: rgba(40,156,249,0.2);
}

/* %%% Student Layout Mobile %%% */
.student-hamburger-btn {
  display: none; position: fixed; top: 12px; left: 12px; z-index: 1001;
  width: 44px; height: 44px; border-radius: 12px;
  background: linear-gradient(180deg, #031f3b 0%, #1a2f53 100%);
  border: none; cursor: pointer; align-items: center; justify-content: center;
  box-shadow: 0 4px 16px rgba(0,0,0,0.35);
  color: #fff; transition: transform 0.2s;
}
.student-hamburger-btn:active { transform: scale(0.92); }
.student-drawer-backdrop {
  display: none; position: fixed; inset: 0;
  background: rgba(0,0,0,0.55); backdrop-filter: blur(4px);
  z-index: 1002;
}
.student-drawer {
  display: none; position: fixed; top: 0; left: 0; bottom: 0;
  width: 280px; z-index: 1003; overflow-y: auto;
  background: linear-gradient(180deg, #031f3b 0%, #1a2f53 100%);
  flex-direction: column;
  box-shadow: 4px 0 24px rgba(0,0,0,0.45);
}
.student-drawer::-webkit-scrollbar { display: none; }

@media (max-width: 768px) {
  .student-sidebar-desktop { display: none !important; }
  .student-hamburger-btn { display: flex !important; }
  .student-drawer-backdrop { display: block !important; }
  .student-drawer { display: flex !important; }
  .student-main-content { padding: 16px !important; padding-top: 68px !important; }
}

/* %%% Student Dashboard Mobile %%% */
@media (max-width: 768px) {
  .student-dashboard-grid {
    grid-template-columns: 1fr !important;
  }
}
```

```
/* %%% Pro Learning System Styles %%% */
.pro-card {
  background: var(--bg-surface);
  border: 1px solid var(--border-default);
  border-radius: 12px;
  overflow: hidden;
  transition: all 0.25s cubic-bezier(0.4, 0, 0.2, 1);
}
.pro-card:hover {
  border-color: var(--border-strong);
  box-shadow: 0 8px 24px -4px var(--shadow-hover);
  transform: translateY(-2px);
}

.pro-card-header {
  padding: 16px 20px;
  border-bottom: 1px solid var(--border-subtle);
  background: var(--bg-elevated);
  font-weight: 700;
  font-size: 14px;
  color: var(--text-primary);
  display: flex;
  align-items: center;
  gap: 8px;
}
.pro-card-body {
  padding: 16px 20px;
}

.pro-badge {
  display: inline-flex;
  align-items: center;
  gap: 4px;
  padding: 3px 8px;
  border-radius: 99px;
  font-size: 10px;
  font-weight: 700;
  text-transform: uppercase;
  letter-spacing: 0.5px;
}
.pro-badge-green { background: rgba(0,212,170,0.12); color: #00d4aa; }
.pro-badge-red { background: rgba(232,72,85,0.12); color: #e84855; }
.pro-badge-amber { background: rgba(245,158,11,0.12); color: #f59e0b; }
.pro-badge-purple { background: rgba(139,92,246,0.12); color: #8b5cf6; }
.pro-badge-blue { background: rgba(59,130,246,0.12); color: #3b82f6; }

.pro-score-ring {
  position: relative;
  display: inline-flex;
  align-items: center;
  justify-content: center;
}
.pro-score-ring svg {
  transform: rotate(-90deg);
}
.pro-score-ring circle {
  fill: none;
  stroke-width: 2.5;
}
.pro-score-ring .bg {
  stroke: var(--border-subtle);
}
.pro-score-ring .fg {
  stroke-linecap: round;
  transition: stroke-dasharray 0.5s ease;
}
.pro-score-value {
  position: absolute;
  font-weight: 800;
  font-size: 14px;
}

.pro-glow-green { box-shadow: 0 0 20px rgba(0,212,170,0.15); }
.pro-glow-red { box-shadow: 0 0 20px rgba(232,72,85,0.15); }
.pro-glow-amber { box-shadow: 0 0 20px rgba(245,158,11,0.15); }

@keyframes pro-slide-up {
  from { opacity: 0; transform: translateY(16px); }
  to { opacity: 1; transform: translateY(0); }
}
@keyframes pro-pulse-glow {
  0%, 100% { opacity: 0.5; }
  50% { opacity: 1; }
}
@keyframes pro-count-up {
  from { opacity: 0; transform: scale(0.5); }
  to { opacity: 1; transform: scale(1); }
}

.pro-animate-in {
  animation: pro-slide-up 0.4s ease both;
}
.pro-delay-1 { animation-delay: 0.05s; }
.pro-delay-2 { animation-delay: 0.1s; }
.pro-delay-3 { animation-delay: 0.15s; }
.pro-delay-4 { animation-delay: 0.2s; }

/* %%% Progress Bar %%% */
.progress-bar {
  height: 4px;
  border-radius: 2px;
  background: var(--border-subtle);
  overflow: hidden;
}
.progress-bar-fill {
  height: 100%;
  border-radius: 2px;
  transition: width 0.5s ease;
}

/* %%% Spec Table %%% */
.spec-table {
  width: 100%;
  border-collapse: collapse;
}
.spec-table td {
  padding: 6px 8px;
  font-size: 12px;
  border-bottom: 1px solid var(--border-subtle);
}
.spec-table td:first-child {
  color: var(--text-muted);
  font-weight: 500;
```

```
  666|   width: 40%;
  667| }
  668| .spec-table td:last-child {
  669|   color: var(--text-primary);
  670|   font-weight: 600;
  671|   text-align: right;
  672| }
  673| .spec-table tr:last-child td {
  674|   border-bottom: none;
  675| }
  676|
  677| @keyframes spin {
  678|   to { transform: rotate(360deg); }
  679| }
  680|
  681| @keyframes blink {
  682|   0%, 100% { opacity: 1; }
  683|   50% { opacity: 0.3; }
  684| }
  685|
  686| @keyframes voicePulse {
  687|   0%, 100% { opacity: 0.6; transform: scale(1); }
  688|   50% { opacity: 0.2; transform: scale(1.2); }
  689| }
  690|
  691| @keyframes scanProgress {
  692|   0% { transform: translateX(-100%); }
  693|   100% { transform: translateX(200%); }
  694| }
  695|
    6 9 6 |   / *  % % %    P i x e l   G a m i f i c a t i o n   S t y l e s  % % %    * /
  697| .pixel-border {
  698|   border: 2px solid var(--border-strong);
  699|   box-shadow:
  700|     inset -2px -2px 0 0 var(--border-strong),
  701|     inset 2px 2px 0 0 rgba(255,255,255,0.05);
  702|   image-rendering: pixelated;
  703| }
  704|
  705| .pixel-btn {
  706|   border: none;
  707|   position: relative;
  708|   cursor: pointer;
  709|   font-family: var(--font-mono);
  710|   font-weight: 700;
  711|   text-transform: uppercase;
  712|   letter-spacing: 1px;
  713|   transition: all 0.1s;
  714|   box-shadow:
  715|     inset -2px -2px 0 0 rgba(0,0,0,0.3),
  716|     inset 2px 2px 0 0 rgba(255,255,255,0.1);
  717| }
  718| .pixel-btn:active {
  719|   transform: translateY(2px);
  720|   box-shadow:
  721|     inset 2px 2px 0 0 rgba(0,0,0,0.3),
  722|     inset -2px -2px 0 0 rgba(255,255,255,0.1);
  723| }
  724|
  725| .pixel-progress {
  726|   height: 12px;
  727|   border: 1px solid var(--border-strong);
  728|   overflow: hidden;
  729| }
  730| .pixel-progress-fill {
  731|   height: 100%;
  732|   background: repeating-linear-gradient(
  733|     90deg,
  734|     var(--brand-primary) 0px,
  735|     var(--brand-primary) 4px,
  736|     var(--brand-light) 4px,
  737|     var(--brand-light) 8px
  738|   );
  739|   transition: width 0.5s ease;
  740| }
  741|
  742| .pixel-hearts {
  743|   display: flex;
  744|   gap: 2px;
  745| }
  746| .pixel-heart {
  747|   width: 12px;
  748|   height: 12px;
  749|   clip-path: polygon(50% 0%, 100% 30%, 100% 70%, 50% 100%, 0% 70%, 0% 30%);
  750| }
  751| .pixel-heart.active { background: #ef4444; }
  752| .pixel-heart.empty { background: var(--border-strong); }
  753|
  754| @keyframes pixel-blink {
  755|   0%, 100% { opacity: 1; }
  756|   50% { opacity: 0.3; }
  757| }
  758| @keyframes pixel-float {
  759|   0%, 100% { transform: translateY(0); }
  760|   50% { transform: translateY(-4px); }
  761| }
  762| @keyframes pixel-shake {
  763|   0%, 100% { transform: translateX(0); }
  764|   25% { transform: translateX(-4px); }
  765|   75% { transform: translateX(4px); }
  766| }
  767|
  768| .pixel-float { animation: pixel-float 2s ease-in-out infinite; }
  769| .pixel-blink { animation: pixel-blink 1s step-end infinite; }
  770| .pixel-shake { animation: pixel-shake 0.3s ease-in-out; }
  771|
----------------------------------------------------------------------------------------------------
```

File: app/judges/page.tsx (318 lines, 16.0 KB)

```
====================================================================================================
    1| 'use client';
    2|
    3| import React, { useState, useEffect } from 'react';
    4| import { motion } from 'framer-motion';
    5| import { QRCodeSVG } from 'qrcode.react';
    6|
    7| const sections = [
    8|   {
        9 |         i c o n :   'Ø<ß¯ ' ,   t i t l e :   ' T Õ n g   Q u a n   D ñ   Á n ' ,
      1 0 |         c o n t e n t :   ` P C   M a s t e r   B u i l d e r   l à   n Á n   t £ n g   g i á o   d å c   t r ñ c   t u y ¿ n   g i ú p   h Í c
   11|   },
   12|   {
      1 3 |         i c o n :   'Ø>Ýà ' ,   t i t l e :   ' C ô n g   N g h Ç   &   A I ' ,
      1 4 |         c o n t e n t :   ` è n g   d ã n g   A I   G u r u   ( G o o g l e   G e m i n i )   l à m   t r ã   g i £ n g   £ o   2 4 / 7 .   H Ó
```

```
  },
  {
    icon: 'Ø=Ý¥þ', title: 'Mô Phỉng L¯p Ráp 2D',
    content: `Phòng Lab 2D vÛi Ò hÍa chi ti¿t tëng linh kiÇn (CPU, RAM,
  },
  {
    icon: 'Ø=ÜP', title: 'Hand Tracking (Webcam)',
    content: `Tích hãp MediaPipe Hands cho phép iÁu khiÃn b±ng cí chÉ t
  },
  {
    icon: 'Ø<ßê', title: 'Chã Máy Tính',
    content: `HÍc sinh tích liy ngân sách të iÃm quiz và bài t-p. Vào c
  },
  {
    icon: 'Ø=ÜÝ', title: 'HÇ ThÑng Quiz & Bài T-p',
    content: `250+ câu hÌi tr¯c nghiÇm chia theo 25 chç Á (CPU, RAM, GP
  },
  {
    icon: 'Ø=ÜÊ', title: 'B£ng iÁu KhiÃn',
    content: `Dashboard dành riêng cho Giáo viên: t¡o lÛp hÍc, giao bài
  },
  {
    icon: 'Ø=Ý,', title: 'Thi Cí & Chéng ChÉ',
    content: `HÇ thÑng thi trñc tuy¿n vÛi giám thË £o (Proctored Exam) c
  },
  {
    icon: 'Ø<ß®', title: 'Tính N ng Khác',
    content: `Ch¿ Ù 2 ng°Ýi ch¡i (Multiplayer): thi l¯p ráp nhanh. Mô p
  },
  {
    icon: '&™þ', title: 'Công NghÇ Kù Thu-t',
    content: `Frontend: Next.js 16, React 19, TypeScript, Framer Motion, Tailwind CSS. Backend: Supabase (Post...
  },
  {
    icon: 'Ø=Üñ', title: 'TriÃn Khai',
    content: `100% Web-based, không c§n cài ·t. Ch¡y trên mÍi trình duy
  }
];

export default function JudgesPage() {
  const [url, setUrl] = useState('');
  const [activeSection, setActiveSection] = useState(0);

  useEffect(() => {
    setUrl(window.location.origin + '/judges');
  }, []);

  return (
    <div style={{
      minHeight: '100vh', background: '#050507', color: '#fff',
      fontFamily: 'var(--font-sans)', overflowX: 'hidden'
    }}>
      {/* Hero */}
      <header style={{
        minHeight: '100vh', display: 'flex', flexDirection: 'column',
        alignItems: 'center', justifyContent: 'center', textAlign: 'center',
        padding: '40px 24px', position: 'relative',
        background: 'radial-gradient(ellipse at center, rgba(0,243,255,0.08) 0%, rgba(5,5,7,1) 70%)'
      }}>
        <motion.div initial={{ opacity: 0, y: 30 }} animate={{ opacity: 1, y: 0 }} transition={{ duration: 0.8...
          <div style={{
            display: 'inline-flex', alignItems: 'center', gap: '8px',
            padding: '8px 20px', background: 'rgba(0,243,255,0.1)',
            borderRadius: '100px', color: '#00d4aa', fontSize: '13px',
            fontWeight: 700, marginBottom: '24px', letterSpacing: '1px'
          }}>
                        Ø<ßÆ PC MASTER BUILDER · THPT NGUYÄN CÔNG TRè
          </div>
          <h1 style={{
            fontSize: 'clamp(36px, 7vw, 72px)', fontWeight: 900,
            marginBottom: '16px', lineHeight: 1.1, letterSpacing: '-0.04em'
          }}>
            PC Master Builder
          </h1>
          <p style={{
            fontSize: 'clamp(16px, 2.5vw, 24px)', color: '#8899a6',
            maxWidth: '700px', margin: '0 auto 40px', lineHeight: 1.6
          }}>
                        NÁn t£ng giáo dåc l¯p ráp máy tính thông minh <br />
                        vÛi AI và mô phỉng 2D trñc quan
          </p>
          <div style={{ display: 'flex', gap: '12px', justifyContent: 'center', flexWrap: 'wrap' }}>
                        { ['Sáng T¡o', 'Giáo Dåc', 'Công NghÇ', 'Õi MÛi'].map(tag =>
              <span key={tag} style={{
                padding: '8px 18px', borderRadius: '100px',
                background: 'rgba(255,255,255,0.04)',
                border: '1px solid rgba(255,255,255,0.08)',
                fontSize: '13px', fontWeight: 600, color: '#8899a6'
              }}>#{tag}</span>
            ))}
          </div>
        </motion.div>

        {/* Floating scroll indicator */}
        <motion.div
          initial={{ opacity: 0 }} animate={{ opacity: 1 }}
          transition={{ delay: 1.5 }}
          style={{ position: 'absolute', bottom: '30px' }}
        >
          <motion.div
            animate={{ y: [0, 8, 0] }}
            transition={{ repeat: Infinity, duration: 2 }}
            style={{ color: '#8899a6', fontSize: '13px' }}
          >
                        !“ CuÙn xuÑng Ã xem thêm
          </motion.div>
        </motion.div>
      </header>

      {/* QR Code Section */}
      <section style={{ padding: '80px 24px', textAlign: 'center' }}>
        <motion.div
          initial={{ opacity: 0, scale: 0.9 }}
          whileInView={{ opacity: 1, scale: 1 }}
          viewport={{ once: true }}
          style={{ display: 'inline-flex', flexDirection: 'column', alignItems: 'center', gap: '24px' }}
        >
          <div style={{
            padding: '24px', background: '#fff', borderRadius: '24px',
            boxShadow: '0 20px 60px rgba(0,243,255,0.15)',
            display: 'inline-flex', position: 'relative'
          }} id="qr-code-container">
            {url && <QRCodeSVG value={url} size={200} level="H" id="qr-code-img" />}
          </div>
```

```
139|          <div style={{ display: 'flex', gap: '12px', flexWrap: 'wrap', justifyContent: 'center' }}>
140|            <button
141|              onClick={() => {
142|                const svg = document.getElementById('qr-code-img');
143|                if (!svg) return;
144|                const svgData = new XMLSerializer().serializeToString(svg);
145|                const canvas = document.createElement('canvas');
146|                canvas.width = 400; canvas.height = 400;
147|                const ctx = canvas.getContext('2d');
148|                const img = new Image();
149|                img.onload = () => {
150|                  ctx.fillStyle = '#fff'; ctx.fillRect(0, 0, 400, 400);
151|                  ctx.drawImage(img, 0, 0, 400, 400);
152|                  const a = document.createElement('a');
153|                  a.download = 'pc-master-judges-qr.png';
154|                  a.href = canvas.toDataURL('image/png');
155|                  a.click();
156|                };
157|                img.src = '' + btoa(unescape(encodeURIComponent(svgData)));
158|              }}
159|              style={{
160|                padding: '12px 24px', background: 'var(--brand-primary)', color: '#fff',
161|                border: 'none', borderRadius: '10px', fontWeight: 700, fontSize: '14px',
162|                cursor: 'pointer', fontFamily: 'inherit'
163|              }}
164|            >
  1 6 5 |                              Ø=Üå   T £ i   Q R   C o d e
166|            </button>
167|            <button
168|              onClick={() => {
  1 6 9 |                                c o n s t   t e x t   =   `P C   M a s t e r   B u i l d e r   -   N Á n   t £ n g   g i á o   d å c   l ¯ p
170|                navigator.clipboard?.writeText(url);
  1 7 1 |                                a l e r t ( '   ã   c o p y   l i n k ! ' ) ;
172|              }}
173|              style={{
174|                padding: '12px 24px', background: 'rgba(255,255,255,0.05)', color: '#fff',
175|                border: '1px solid rgba(255,255,255,0.15)', borderRadius: '10px', fontWeight: 600, fontSize: '...
176|                cursor: 'pointer', fontFamily: 'inherit'
177|              }}
178|            >
  1 7 9 |                              Ø=ÜË   C o p y   L i n k
180|            </button>
181|          </div>
182|          <p style={{ color: '#8899a6', fontSize: '14px', maxWidth: '400px' }}>
  1 8 3 |                        Q u é t   m ã   Q R    Ã   x e m   t r a n g   g i Û i   t h i Ç u   d ñ   á n   t r ê n   t h i ¿ t   b Ë   d i    Ù
184|          </p>
185|          <div style={{
186|            padding: '12p 24px', background: 'rgba(255,255,255,0.03)',
187|            borderRadius: '12px', border: '1px solid rgba(255,255,255,0.08)',
188|            fontSize: '14px', color: 'var(--brand-primary)', fontWeight: 600,
189|            fontFamily: 'monospace'
190|          }}>
191|            {url}
192|          </div>
193|        </motion.div>
194|      </section>
195|
196|      {/* Features Grid */}
197|      <section style={{ padding: '60px 24px 100px', maxWidth: '1100px', margin: '0 auto' }}>
198|        <motion.h2
199|          initial={{ opacity: 0, y: 20 }}
200|          whileInView={{ opacity: 1, y: 0 }}
201|          viewport={{ once: true }}
202|          style={{ fontSize: '36px', fontWeight: 900, textAlign: 'center', marginBottom: '60px', letterSpacing...
203|        >
  2 0 4 |                        G i Û i   T h i Ç u   D ñ   Á n
205|        </motion.h2>
206|
207|        <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
208|          {sections.map((section, i) => (
209|            <motion.div
210|              key={i}
211|              initial={{ opacity: 0, y: 20 }}
212|              whileInView={{ opacity: 1, y: 0 }}
213|              viewport={{ once: true, margin: '-50px' }}
214|              transition={{ delay: i * 0.05 }}
215|              onClick={() => setActiveSection(activeSection === i ? -1 : i)}
216|              style={{
217|                padding: '24px 28px',
218|                background: activeSection === i ? 'rgba(0,243,255,0.04)' : 'rgba(255,255,255,0.02)',
219|                border: `1px solid ${activeSection === i ? 'rgba(0,243,255,0.2)' : 'rgba(255,255,255,0.06)'}`,
220|                borderRadius: '16px', cursor: 'pointer',
221|                transition: 'all 0.3s ease'
222|              }}
223|            >
224|              <div style={{ display: 'flex', alignItems: 'center', gap: '16px' }}>
225|                <span style={{ fontSize: '28px' }}>{section.icon}</span>
226|                <h3 style={{ margin: 0, fontSize: '18px', fontWeight: 700 }}>{section.title}</h3>
227|                <span style={{ marginLeft: 'auto', color: '#8899a6', fontSize: '13px', transition: 'transform ...
  2 2 8 |                                  %¼
229|                </span>
230|              </div>
231|              {activeSection === i && (
232|                <motion.p
233|                  initial={{ opacity: 0, height: 0 }}
234|                  animate={{ opacity: 1, height: 'auto' }}
235|                  style={{ color: '#8899a6', fontSize: '15px', lineHeight: 1.7, margin: '16px 0 0 44px' }}
236|                >
237|                  {section.content}
238|                </motion.p>
239|              )}
240|            </motion.div>
241|          ))}
242|        </div>
243|      </section>
244|
245|      {/* Stats */}
246|      <section style={{ padding: '80px 24px', background: 'rgba(255,255,255,0.01)' }}>
247|        <div style={{ maxWidth: '1000px', margin: '0 auto', display: 'grid', gridTemplateColumns: 'repeat(auto...
248|          {[
  2 4 9 |                          {   v a l u e :   ' 5 0 0 0 + ' ,   l a b e l :   ' H Í c   s i n h ' ,   d e s c :   '   a n g   s í   d å n g   n Á n
  2 5 0 |                          {   v a l u e :   ' 5 0 + ' ,   l a b e l :   ' L i n h   k i Ç n ' ,   d e s c :   ' C h i   t i ¿ t    § y    ç   t
  2 5 1 |                          {   v a l u e :   ' 2 5 0 + ' ,   l a b e l :   ' C â u   h Ĭ i ' ,   d e s c :   ' T r ¯ c   n g h i Ç m   2 5   c h ç
  2 5 2 |                          {   v a l u e :   ' 1 0 0 % ' ,   l a b e l :   ' W e b - b a s e d ' ,   d e s c :   ' K h ô n g   c § n   c à i
253|          ].map((stat, i) => (
254|            <motion.div
255|              key={i}
256|              initial={{ opacity: 0, y: 20 }}
257|              whileInView={{ opacity: 1, y: 0 }}
258|              viewport={{ once: true }}
259|              transition={{ delay: i * 0.1 }}
260|              style={{
261|                textAlign: 'center', padding: '32px 20px',
262|                background: 'rgba(255,255,255,0.02)',
```

```
263|                border: '1px solid rgba(255,255,255,0.06)',
264|                borderRadius: '16px'
265|              }}
266|            >
267|              <div style={{ fontSize: '36px', fontWeight: 900, color: 'var(--brand-primary)', marginBottom: '8...
268|              <div style={{ fontSize: '15px', fontWeight: 700, marginBottom: '4px' }}>{stat.label}</div>
269|              <div style={{ fontSize: '13px', color: '#8899a6' }}>{stat.desc}</div>
270|            </motion.div>
271|          ))}
272|        </div>
273|      </section>
274|
275|      {/* Team */}
276|      <section style={{ padding: '80px 24px', textAlign: 'center' }}>
277|        <h2 style={{ fontSize: '32px', fontWeight: 900, marginBottom: '40px', letterSpacing: '-0.02em' }}>
278|                    Ù i   N g i   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - b r a n d - p r i m a r y ) '   } } > P h á t   T
279|        </h2>
280|        <div style={{ display: 'flex', justifyContent: 'center', gap: '40px', flexWrap: 'wrap' }}>
281|          {[
282|                        {   n a m e :   ' N g u y Ã n   P h ú c   K h á n h   S ¡ n ' ,   r o l e :   ' D e v e l o p e r '   } ,
283|                        {   n a m e :   '   · n g   Q u Ñ c   A n ' ,   r o l e :   ' T h à n h   v i ê n '   } ,
284|                        {   n a m e :   ' N g u y Ã n   P h ¡ m   G í a   K h i ê m ' ,   r o l e :   ' T h à n h   v i ê n '   } ,
285|            { name: 'Ngô Minh Khang', role: 'Thành viên' },
286|          ].map((m, i) => (
287|            <motion.div
288|              key={i}
289|              initial={{ opacity: 0, y: 20 }}
290|              whileInView={{ opacity: 1, y: 0 }}
291|              viewport={{ once: true }}
292|              style={{ textAlign: 'center' }}
293|            >
294|              <div style={{
295|                width: '120px', height: '120px', borderRadius: '60px',
296|                background: 'linear-gradient(135deg, rgba(0,212,170,0.2), rgba(40,156,249,0.2))',
297|                border: '2px solid rgba(0,243,255,0.2)',
298|                margin: '0 auto 16px', display: 'flex', alignItems: 'center', justifyContent: 'center',
299|                fontSize: '40px'
300|              }}>
301|                                  { [ 'Ø=ÚQ ' ,   '&¡ ' ,   'Ø=Ü» ' ,   'Ø=Þ€ ' ] [ i ]   | |   '+P ' }
302|              </div>
303|              <h3 style={{ fontSize: '18px', fontWeight: 700, margin: '0 0 4px' }}>{m.name}</h3>
304|              <p style={{ color: '#8899a6', fontSize: '13px', margin: 0 }}>{m.role}</p>
305|            </motion.div>
306|          ))}
307|        </div>
308|      </section>
309|
310|      {/* Footer */}
311|      <footer style={{ padding: '40px 24px', textAlign: 'center', color: 'rgba(255,255,255,0.2)', fontSize: '1...
312|                  < p > P C   M a s t e r   B u i l d e r   ·   T r ° Ý n g   T H P T   N g u y Ã n   C ô n g   T r é   ·   9 7   Q u a n g   T r
313|        <p style={{ marginTop: '8px' }}>© 2026 PC Master Builder. All rights reserved.</p>
314|      </footer>
315|    </div>
316|  );
317| }
318|
```

File: app/layout.js (64 lines, 2.3 KB)

```
==========================================================================================
    1| import "./globals.css";
    2| import { Analytics } from '@vercel/analytics/react';
    3| import Script from "next/script";
    4| import { Montserrat } from "next/font/google";
    5|
    6| const montserrat = Montserrat({
    7|   subsets: ["latin", "vietnamese"],
    8|   variable: "--font-montserrat",
    9|   weight: ["300", "400", "500", "600", "700", "800", "900"],
   10| });
   11|
   12| export const metadata = {
   13|   metadataBase: new URL(process.env.NEXT_PUBLIC_SITE_URL || 'https://pc-master-lms.vercel.app'),
   14|       t i t l e :   " P C   M a s t e r   B u i l d e r   |   H Í c   L ¯ p   R á p   &   T ¡ n   H Í c " ,
   15|       d e s c r i p t i o n :   " è n g   d ẩ n g   h Í c   t - p   t i n   h Í c   v à   l ¯ p   r á p   m á y   t í n h   v Û i   c ô n g   n g
   16|   icons: {
   17|     icon: [
   18|       { url: '/logo.png', type: 'image/png' },
   19|     ],
   20|     apple: '/logo.png',
   21|   },
   22|   openGraph: {
   23|     title: 'PC Master Builder',
   24|           d e s c r i p t i o n :   ' è n g   d ẩ n g   h Í c   t - p   t i n   h Í c   v à   l ¯ p   r á p   m á y   t í n h   v Û i   c ô n g
   25|     images: ['/logo.png'],
   26|   }
   27| };
   28|
   29| import SessionManager from "@/components/SessionManager";
   30| import { GuruProvider } from "@/lib/guru-state";
   31| import AIGuruGlobal from "@/components/AIGuruGlobal";
   32| import { SessionTimeProvider } from "@/lib/session-time";
   33| import RealtimeWrapper from "@/components/RealtimeWrapper";
   34|
   35| export default function RootLayout({ children }) {
   36|   return (
   37|     <html lang="vi" className={`${montserrat.variable}`}>
   38|       <head>
   39|         <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/driver.js@1.0.1/dist/driver.css" />
   40|         <script dangerouslySetInnerHTML={{ __html: `
   41|           try {
   42|             var t = localStorage.getItem('theme');
   43|             if (t === 'dark') document.documentElement.setAttribute('data-theme', 'dark');
   44|             else document.documentElement.setAttribute('data-theme', 'light');
   45|           } catch(e) {}
   46|         `}} />
   47|       </head>
   48|       <body className="font-sans">
   49|         <SessionManager />
   50|         <GuruProvider>
   51|           <SessionTimeProvider>
   52|             <RealtimeWrapper>
   53|               {children}
   54|             </RealtimeWrapper>
   55|             <AIGuruGlobal />
   56|           </SessionTimeProvider>
   57|         </GuruProvider>
   58|         <Analytics />
   59|         <Script src="https://cdn.jsdelivr.net/npm/driver.js@1.0.1/dist/driver.js.iife.js" strategy="afterInter...
   60|       </body>
   61|     </html>
   62|   );
   63| }
   64|
```

File: app/leaderboard/page.tsx (235 lines, 12.2 KB)

```
'use client'

import React, { useState, useEffect } from 'react'
import { Trophy, Medal, Search, Filter, ArrowUp, ArrowDown, User, Star, Award, Zap, ArrowLeft, Shield } from '...
import Navbar from '@/components/Navbar'
import { motion } from 'framer-motion'
import { supabase } from '@/lib/supabase'
import { useRouter } from 'next/navigation'
import Link from 'next/link'
function getLevelInfo(xp: number = 0) {
  const levels = [
    { level: 1, title: 'Tân Thç', icon: 'Ø>Þ´', color_hex: '#6b7280', min_
    { level: 2, title: 'HÍc Viên', icon: 'Ø=ÜØ', color_hex: '#3b82f6', min
    { level: 3, title: 'Kù Thu-t Viên', icon: 'Ø=Ý', color_hex: '#10b981'
  ]
  const lvl = levels[Math.min(Math.floor(xp / 500), levels.length - 1)]
  return { level: lvl, title: lvl.title, xpForNext: lvl.xp_required, currentXp: xp, progress: (xp % 500) / 5 }
}

export default function LeaderboardPage() {
  const router = useRouter()
  const [activeTab, setActiveTab] = useState('global')
  const [topPlayers, setTopPlayers] = useState<any[]>([])
  const [otherPlayers, setOtherPlayers] = useState<any[]>([])
  const [loading, setLoading] = useState(true)
  const [currentUser, setCurrentUser] = useState<any>(null)
  const [currentRank, setCurrentRank] = useState<number>(0)

  useEffect(() => {
    fetchLeaderboard()

    const channel = supabase
      .channel('leaderboard_realtime')
      .on('postgres_changes', { event: 'UPDATE', schema: 'public', table: 'profiles' }, () => fetchLeaderboard())
      .subscribe()

    return () => {
      supabase.removeChannel(channel)
    }
  }, [])

  async function fetchLeaderboard() {
    try {
      setLoading(true)
      const { data: { user } } = await supabase.auth.getUser()
      if (user) setCurrentUser(user)

      const { data } = await supabase
        .from('profiles')
        .select('*')
        .order('xp', { ascending: false })
        .limit(50)

      if (data) {
        setTopPlayers(data.slice(0, 3))
        setOtherPlayers(data.slice(3))
        const myIndex = data.findIndex(p => p.id === user?.id)
        setCurrentRank(myIndex >= 0 ? myIndex + 1 : 0)
      }
    } catch (err) {
      console.error(err)
    } finally {
      setLoading(false)
    }
  }

  if (loading) return (
    <div className="min-h-screen flex items-center justify-center" style={{ background: 'var(--bg-base)', colo...
              ang t£i b£ng x¿p hing...
    </div>
  )

  return (
    <div className="min-h-screen" style={{ background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
      <Navbar />

      <main className="pt-28 pb-20 px-4 sm:px-6 lg:px-8 max-w-5xl mx-auto">
        {/* Back button */}
        <button onClick={() => router.back()} className="flex items-center gap-2 mb-6 transition-colors" style...
                      <ArrowLeft size={18} />  Quay lại
        </button>

        {/* Header */}
        <div className="text-center mb-16">
                      <h1 className="text-4xl font-bold mb-4">B£ng <span style={{ c
                      <p style={{ color: 'var(--text-muted)' }}>Nhïng hÍc viên xu¥t
        </div>

        {/* Podium */}
        <div className="flex flex-col md:flex-row items-end justify-center gap-6 mb-20 px-4">
          {[1, 0, 2].map((idx) => {
            const player = topPlayers[idx]
            const isFirst = idx === 0
            const levelInfo = player ? getLevelInfo(player.xp || 0) : null
            const height = isFirst ? 'h-80' : idx === 1 ? 'h-64' : 'h-56'
            const rank = idx === 0 ? 1 : idx === 1 ? 2 : 3
            const medalColors = ['var(--accent-amber)', 'var(--text-muted)', 'var(--accent-orange)']

            return (
              <motion.div key={idx}
                initial={{ opacity: 0, y: 20 }}
                animate={{ opacity: 1, y: 0 }}
                transition={{ delay: 0.1 * (idx + 1) }}
                className={`w-full md:w-64 rounded-t-[32px] p-8 text-center relative ${height} flex flex-col i...
                style={{
                  background: isFirst
                    ? 'linear-gradient(to bottom, var(--bg-surface), color-mix(in srgb, var(--brand-primary) 1...
                    : 'var(--bg-surface)',
                  border: isFirst
                    ? '1px solid color-mix(in srgb, var(--brand-primary) 30%, transparent)'
                    : '1px solid var(--border-default)',
                  boxShadow: isFirst ? '0 0 50px rgba(0,210,160,0.1)' : 'none',
                }}
              >
                <div className={`absolute -top-${isFirst ? '12' : '10'} w-${isFirst ? '24' : '20'} h-${isFirst...
                  style={{ background: medalColors[idx] }}>
                  <div classNamen="w-full h-full rounded-full flex items-center justify-center text-3xl font-bo...
                    {player?.full_name?.charAt(0) || rank}
                  </div>
                  {isFirst && <div classNamen="absolute -top-4 left-1/2 -translate-x-1/2 text-yellow-500"><Trop...
```

```
121|                </div>
122|                <div className="mb-4">
123|                  <p className={`font-bold ${isFirst ? 'text-xl' : 'text-lg'}`} style={{ color: 'var(--text-pr...
124|                  {levelInfo && (
125|                    <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '6px',...
126|                      <span style={{ fontSize: '18px' }}>{levelInfo.level.icon}</span>
127|                      <span style={{ fontSize: '12px', color: levelInfo.level.color_hex, fontWeight: 700 }}>Le...
128|                      <span style={{ fontSize: '12px', color: 'var(--text-muted)', fontWeight: 600 }}>{player?...
129|                    </div>
130|                  )}
131|                </div>
132|                <div className={`w-full py-${isFirst ? '6' : '4'} rounded-2xl border font-black text-${isFirst...
133|                  style={{
134|                    background: isFirst ? 'var(--accent-amber)' : `color-mix(in srgb, ${medalColors[idx]} 10%,...
135|                    color: isFirst ? 'var(--bg-base)' : medalColors[idx],
136|                    borderColor: isFirst ? 'transparent' : `color-mix(in srgb, ${medalColors[idx]} 20%, transp...
137|                  }}>
138|                  {rank}
139|                </div>
140|              </motion.div>
141|            )
142|          })}
143|        </div>
144|
145|        {/* Filters */}
146|        <div className="flex gap-4 mb-8">
147|          <button onClick={() => setActiveTab('global')} className={`px-6 py-3 rounded-xl font-bold text-sm tr...
148|            style={{
149|              background: activeTab === 'global' ? 'var(--brand-primary)' : 'var(--bg-surface)',
150|              color: activeTab === 'global' ? 'var(--bg-base)' : 'var(--text-muted)'
   1 5 1 |                                  } } > T O À N   C ¦ U < / b u t t o n >
152|          <button onClick={() => setActiveTab('class')} className={`px-6 py-3 rounded-xl font-bold text-sm tra...
153|            style={{
154|              background: activeTab === 'class' ? 'var(--brand-primary)' : 'var(--bg-surface)',
155|              color: activeTab === 'class' ? 'var(--bg-base)' : 'var(--text-muted)'
   1 5 6 |                                  } } > L Ú P   H Ì C < / b u t t o n >
157|        </div>
158|
159|        {/* List */}
160|        <div className="rounded-[32px] overflow-hidden" style={{ background: 'var(--bg-surface)', border: '1px...
161|          {otherPlayers.map((p, i) => {
162|            const levelInfo = getLevelInfo(p.xp || 0)
163|            return (
164|              <div key={p.id} className={`flex items-center justify-between p-6 transition-all ${p.id === curr...
165|                style={{
166|                  borderBottom: '1px solid var(--border-default)',
167|                  background: p.id === currentUser?.id ? 'rgba(0,212,170,0.03)' : 'transparent',
168|                }}>
169|                <div className="flex items-center gap-6">
170|                  <span className="text-xl font-black w-8" style={{ color: 'var(--text-muted)' }}>{i + 4}</span>
171|                  <div className="flex items-center gap-4">
172|                    <div className="w-12 h-12 rounded-2xl flex items-center justify-center font-bold text-lg" ...
173|                      {p.full_name?.charAt(0)}
174|                    </div>
175|                    <div>
176|                      <p className="font-bold" style={{ color: 'var(--text-primary)' }}>{p.full_name}</p>
177|                      <div className="flex items-center gap-2">
178|                        <span style={{ fontSize: '14px' }}>{levelInfo.level.icon}</span>
179|                        <span className="text-[10px] font-bold uppercase tracking-widest" style={{ color: leve...
180|                          Level {levelInfo.level.level} - {levelInfo.level.title}
181|                        </span>
182|                      </div>
183|                    </div>
184|                  </div>
185|                </div>
186|                <div className="flex items-center gap-8">
187|                  <div className="text-right">
188|                    <p className="font-black text-lg" style={{ color: 'var(--text-primary)' }}>{p.xp}</p>
189|                    <p className="text-[10px] font-bold uppercase tracking-widest text-right" style={{ color: ...
190|                  </div>
191|                  <div className="p-3 rounded-xl" style={{ background: 'var(--bg-base)', color: 'var(--brand-p...
192|                    <Shield size={18} />
193|                  </div>
194|                </div>
195|              </div>
196|            )
197|          })}
198|        </div>
199|
200|        {/* My Rank */}
201|        {currentUser && currentRank > 0 && (
202|          <div className="mt-12 p-6 rounded-3xl flex items-center justify-between" style={{ background: 'var(-...
203|            <div className="flex items-center gap-4">
204|              <span className="text-2xl font-black">#{currentRank}</span>
205|              <div>
   2 0 6 |                                  < p   c l a s s N a m e = " f o n t - b l a c k   l e a d i n g - n o n e " > H ¡ n g   c ç a   b ¡ n < / p >
207|                <p className="text-xs font-bold opacity-70">
   2 0 8 |                                      { c u r r e n t R a n k   < =   3   ?   'Ø<ßÆ   B ¡ n    a n g   t r o n g   T o p   3 ! '   :   c u r r e
209|                </p>
210|              </div>
211|            </div>
212|            <Link href="/student/level" style={{ padding: '10px 24px', borderRadius: '12px', fontWeight: 800, ...
   2 1 3 |                                X E M   C ¤ P     Ø
214|            </Link>
215|          </div>
216|        }}
217|        {(!currentUser || currentRank === 0) && (
218|          <div className="mt-12 p-6 rounded-3xl flex items-center justify-between" style={{ background: 'rgba(...
219|            <div className="flex items-center gap-4">
220|              <Zap size={24} color="var(--brand-primary)" />
221|              <div>
   2 2 2 |                                  < p   c l a s s N a m e = " f o n t - b l a c k   l e a d i n g - n o n e " >    n g   n h - p    Ã   t h a m
   2 2 3 |                                  < p   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   o p a c i t y - 7 0 " > B ¯ t    § u   h Í c
224|              </div>
225|            </div>
226|            <Link href="/login" style={{ padding: '10px 24px', borderRadius: '12px', fontWeight: 800, fontSize...
   2 2 7 |                                  N G   N H ¬ P
228|            </Link>
229|          </div>
230|        )}
231|      </main>
232|    </div>
233|  )
234| }
235|
```

File: app/lessons/[id]/page.js (184 lines, 10.8 KB)

```
1| 'use client';
2|
3| import React, { useEffect, useState, use } from 'react';
4| import { supabase } from '@/lib/supabase';
5| import {
```

```
    BookOpen, Video, FileText, Image as ImageIcon, FileSearch, Code,
    ChevronRight, Loader2, ArrowLeft, Book, Maximize2, X
} from 'lucide-react';
import Link from 'next/link';
import ReactMarkdown from 'react-markdown';
import PdfViewer from '@/components/PdfViewer';

export default function StudentLessonPage({ params }) {
    const resolvedParams = use(params);
    const lessonId = resolvedParams.id;

    const [lesson, setLesson] = useState(null);
    const [sections, setSections] = useState([]);
    const [books, setBooks] = useState([]);
    const [loading, setLoading] = useState(true);
    const [selectedBook, setSelectedBook] = useState(null);

    useEffect(() => {
        const fetchLesson = async () => {
            const { data: lessonData } = await supabase.from('lessons').select('*').eq('id', lessonId).single();
            const { data: sectionData } = await supabase.from('lesson_sections').select('*').eq('lesson_id', l...
            const { data: bookData } = await supabase.from('lesson_books').select('*').eq('lesson_id', lessonId);

            setLesson(lessonData);
            setSections(sectionData || []);
            setBooks(bookData || []);
            setLoading(false);
        };
        fetchLesson();
    }, [lessonId]);

    const getYouTubeEmbed = (url) => {
        if (!url) return '';
        const id = url.match(/(?:youtube\.com\/(?:[^\/]+\/.+\/|(?:v|e(?:mbed)?)\/|.*[?&]v=)|youtu\.be\/)([^"&?...
        return id ? `https://www.youtube.com/embed/${id}` : '';
    };

    const getDriveEmbed = (url) => {
        if (!url) return '';
        const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1] || url.match(/id=(.+?)(&|$)/)?.[1];
        return id ? `https://drive.google.com/file/d/${id}/preview` : '';
    };

    if (loading) return (
        <div style={{ background: '#050a14', minHeight: '100vh', display: 'flex', alignItems: 'center', justif...
            <Loader2 className="animate-spin" color="#00f3ff" size={48} />
        </div>
    );

    return (
        <div style={{ background: '#050a14', minHeight: '100vh', color: '#e0e6ed', display: 'flex' }}>
            {/* Sidebar Navigation */}
            <aside style={{ width: '320px', background: '#0a0f1a', borderRight: '1px solid rgba(255,255,255,0....
                <Link href="/builder" style={{ display: 'flex', alignItems: 'center', gap: '8px', color: '#889...
                                                <ArrowLeft size={16} />  Quay lại trang chq
                </Link>
                <div style={{ marginBottom: '32px' }}>
                    <h4 style={{ color: '#4b5563', fontSize: '11px', textTransform: 'uppercase', fontWeight: 8...
                    <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
                        {sections.map((s, idx) => (
                            <a key={s.id} href={`#section-${s.id}`} style={{
                                display: 'flex', alignItems: 'center', gap: '12px', padding: '12px', borderRad...
                            }}
                            onMouseEnter={e => e.currentTarget.style.borderColor = '#00f3ff'}
                            onMouseLeave={e => e.currentTarget.style.borderColor = 'transparent'}
                            >
                                <span style={{ color: '#00f3ff', fontWeight: 800, fontSize: '12px', width: '20...
                                {s.title}
                            </a>
                        ))}
                    </div>
                </div>
            </aside>

            {/* Main Content Area */}
            <main style={{ flex: 1, padding: '64px', maxWidth: '900px', margin: '0 auto' }}>
                <header style={{ marginBottom: '64px' }}>
                    <h1 style={{ fontSize: '42px', fontWeight: 900, marginBottom: '24px', lineHeight: 1.1 }}>{...
                    <p style={{ fontSize: '18px', color: '#8899a6', lineHeight: 1.6 }}>{lesson.description}</p>

                    {lesson.source_name && (
                        <div style={{ marginTop: '16px', display: 'flex', alignItems: 'center', gap: '8px', fo...
                                                        <span>Nguồn tài liệu:</span>
                            {lesson.source_url ? (
                                <a href={lesson.source_url} target="_blank" style={{ color: 'var(--brand-prima...
                            ) : (
                                <span style={{ fontWeight: 600 }}>{lesson.source_name}</span>
                            )}
                        </div>
                    )}

                    <div style={{ height: '4px', width: '80px', background: '#00f3ff', marginTop: '32px', bord...
                </header>

                <div style={{ display: 'flex', flexDirection: 'column', gap: '80px' }}>
                    {sections.map((s, idx) => (
                        <section key={s.id} id={`section-${s.id}`}>
                            <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '2...
                                <div style={{ padding: '8px', background: 'rgba(0, 243, 255, 0.1)', color: '#0...
                                    {s.type === 'video' && <Video size={20}/>}
                                    {s.type === 'text' && <FileText size={20}/>}
                                    {s.type === 'image' && <ImageIcon size={20}/>}
                                    {s.type === 'pdf' && <FileSearch size={20}/>}
                                    {s.type === 'embed' && <Code size={20} />}
                                </div>
                                <h2 style={{ fontSize: '24px', fontWeight: 800, margin: 0 }}>{s.title}</h2>
                            </div>

                            {s.type === 'video' && (
                                <div style={{ width: '100%', aspectRatio: '16/9', borderRadius: '24px', overfl...
                                    <iframe src={getYouTubeEmbed(s.content)} style={{ width: '100%', height: '...
                                </div>
                            )}

                            {s.type === 'text' && (
                                <div style={{ fontSize: '18px', lineHeight: 1.8, color: '#ced4da' }} className...
                                    <ReactMarkdown>{s.content}</ReactMarkdown>
                                </div>
                            )}

                            {s.type === 'image' && (
                                <div style={{ borderRadius: '24px', overflow: 'hidden' }}>
                                    <img src={s.content} style={{ width: '100%', display: 'block' }} />
                                </div>
```

```
130|                            )}
131|
132|                            {s.type === 'pdf' && (
133|                                <PdfViewer url={s.content} title={s.title} />
134|                            )}
135|
136|                            {s.type === 'embed' && s.content && (
137|                                <div style={{ borderRadius: '20px', overflow: 'hidden', border: '1px solid rgb...
138|                                    <div dangerouslySetInnerHTML={{ __html: s.content }} />
139|                                </div>
140|                            )}
141|                        </section>
142|                    ))}
143|                </div>
144|
145|                {/* Sách liên quan */}
146|                {books.length > 0 && (
147|                    <div style={{ marginTop: '120px', padding: '64px 0', borderTop: '1px solid rgba(255,255,25...
148|                        <h3 style={{ fontSize: '28px', fontWeight: 800, marginBottom: '32px', display: 'flex',...
149|                                                                    < B o o k   s i z e = { 2 8 }   c o l o r = " # 0 0 f 3 f f "   / >   S á c h   &   T ả
150|                        </h3>
151|                        <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(200px, 1...
152|                            {books.map(book => (
153|                                <div
154|                                    key={book.id}
155|                                    onClick={() => setSelectedBook(book)}
156|                                    style={{ background: 'rgba(255,255,255,0.02)', borderRadius: '16px', paddi...
157|                                    onMouseOver={e => e.currentTarget.style.borderColor = '#00f3ff'}
158|                                    onMouseOut={e => e.currentTarget.style.borderColor = '#1e293b'}
159|                                >
160|                                    <img src={book.cover_image_url} style={{ width: '100%', aspectRatio: '3/4'...
161|                                    <h4 style={{ margin: 0, fontSize: '15px', fontWeight: 700, textAlign: 'cen...
162|                                </div>
163|                            ))}
164|                        </div>
165|                    </div>
166|                )}
167|            </main>
168|
169|            {/* Modal xem sách */}
170|            {selectedBook && (
171|                <div style={{ position: 'fixed', top: 0, left: 0, right: 0, bottom: 0, background: 'rgba(0,0,0...
172|                    <div style={{ padding: '16px 24px', display: 'flex', justifyContent: 'space-between', alig...
173|                        <h3 style={{ margin: 0, fontSize: '18px' }}>{selectedBook.title}</h3>
174|                        <button onClick={() => setSelectedBook(null)} style={{ background: 'none', border: 'no...
175|                    </div>
176|                    <div style={{ flex: 1, overflow: 'auto' }}>
177|                        <PdfViewer url={selectedBook.drive_embed_url} title={selectedBook.title} />
178|                    </div>
179|                </div>
180|            )}
181|        </div>
182|    );
183| }
184|
```

File: app/lessons/[id]/QuizInteractive.tsx (217 lines, 9.5 KB)

```
1| 'use client'
2|
3| import React, { useState } from 'react'
4| import { motion, AnimatePresence } from 'framer-motion'
5| import { CheckCircle, XCircle, Award, ArrowRight, Loader2 } from 'lucide-react'
6| import confetti from 'canvas-confetti'
7| import { saveLessonProgress } from '@/lib/lesson-actions'
8|
9| type QuizInteractiveProps = {
10|   lessonId: string;
11|   userId: string;
12|   initialProgress: any;
13| }
14|
15| // Dummy data for Mega Prompt requirement
16| const QUIZ_DATA = [
17|   {
18|     id: 1,
19|             q u e s t i o n :   " C P U    ó n g   v a i   t r ò   g ì   t r o n g   m á y   t í n h ? " ,
20|     options: [
21|             {   i d :   ' A ' ,   t e x t :   " L º u   t r ï   d ï   l i Ç u   d à i   h ¡ n "   } ,
22|             {   i d :   ' B ' ,   t e x t :   " X í   l ý   c á c   l Ç n h   v à   t í n h   t o á n   ( B Ù   n ã o ) "   } ,
23|             {   i d :   ' C ' ,   t e x t :   " C u n g   c ¥ p   n   n g   l º ã n g   c h o   t o à n   h Ç   t h Ñ n g "   } ,
24|             {   i d :   ' D ' ,   t e x t :   " H i Ã n   t h Ë   h ì n h   £ n h   l ê n   m à n   h ì n h "   }
25|     ],
26|     correctAnswer: 'B',
27|             e x p l a n a t i o n :   " C P U   ( C e n t r a l   P r o c e s s i n g   U n i t )   l à   b Ù   v i   x í   l ý   t r u n g   t â m
28|   },
29|   {
30|     id: 2,
31|             q u e s t i o n :   " R A M   l à   b Ù   n h Û   g ì ? " ,
32|     options: [
33|             {   i d :   ' A ' ,   t e x t :   " B Ù   n h Û   t r u y   c - p   n g « u   n h i ê n   ( T ¡ m   t h Ý i ) "   } ,
34|             {   i d :   ' B ' ,   t e x t :   " B Ù   n h Û   c h Ê   Í c   ( Ç Ñ   Ë n h ) "   } ,
35|             {   i d :   ' C ' ,   t e x t :   " B Ù   n h Û   l º u   t r ï   ( Ô   c é n g ) "   } ,
36|             {   i d :   ' D ' ,   t e x t :   " B Ù   n h Û   Ó   h Í a   ( V R A M ) "   }
37|     ],
38|     correctAnswer: 'A',
39|             e x p l a n a t i o n :   " R A M   ( R a n d o m   A c c e s s   M e m o r y )   l º u   t r ï   d ï   l i Ç u   t ¡ m   t h Ý i   Â
40|   }
41| ]
42|
43| export default function QuizInteractive({ lessonId, userId, initialProgress }: QuizInteractiveProps) {
44|   const [currentQuestion, setCurrentQuestion] = useState(0)
45|   const [selectedAnswer, setSelectedAnswer] = useState<string | null>(null)
46|   const [isSubmitted, setIsSubmitted] = useState(false)
47|   const [score, setScore] = useState(0)
48|   const [isCompleted, setIsCompleted] = useState(initialProgress?.is_completed || false)
49|   const [isSaving, setIsSaving] = useState(false)
50|
51|   const activeQuestion = QUIZ_DATA[currentQuestion]
52|
53|   const handleSelect = (optionId: string) => {
54|     if (!isSubmitted) setSelectedAnswer(optionId)
55|   }
56|
57|   const handleSubmit = async () => {
58|     if (!selectedAnswer) return
59|     setIsSubmitted(true)
60|
61|     let currentScore = score
62|     if (selectedAnswer === activeQuestion.correctAnswer) {
63|       currentScore += 10
64|       setScore(currentScore)
65|             / /   B _ n   p h á o   h o a   n h Ï   n ¿ u   t r £   l Ý i    ú n g
```

```
      confetti({
        particleCount: 50,
        spread: 40,
        origin: { y: 0.8 },
        colors: ['#00d2a0']
      })
    }

          // Nếu là câu cuối cùng => Hoàn thành bài học
    if (currentQuestion === QUIZ_DATA.length - 1) {
      setIsSaving(true)
              // Gửi Server Action để lưu kết quả realtime vào DB
      await saveLessonProgress(lessonId, currentScore, true)
      setIsSaving(false)
      setIsCompleted(true)

      confetti({
        particleCount: 200,
        spread: 100,
        origin: { y: 0.5 },
        colors: ['#00d2a0', '#00b4d8', '#ffffff']
      })
    }
  }

  const handleNext = () => {
    if (currentQuestion < QUIZ_DATA.length - 1) {
      setCurrentQuestion(prev => prev + 1)
      setSelectedAnswer(null)
      setIsSubmitted(false)
    }
  }

  if (isCompleted && currentQuestion === QUIZ_DATA.length - 1 && isSubmitted) {
    return (
      <motion.div
        initial={{ opacity: 0, scale: 0.95 }}
        animate={{ opacity: 1, scale: 1 }}
        className="bg-gradient-to-br from-[#00d2a0]/20 to-[#00b4d8]/20 p-8 md:p-12 rounded-3xl border border-[...
      >
        <Award size={64} className="text-[#00d2a0] mx-auto mb-6" />
                  <h2 className="text-3xl font-bold mb-2">Chúc mừng bạn!</h2>
                  <p className="text-slate-300">Bạn đã hoàn thành bài
        <div className="inline-flex items-center gap-2 px-6 py-3 bg-[#00d2a0] text-black font-bold rounded-xl ...
                      <CheckCircle size={20} />đã tiếp tục
        </div>
      </motion.div>
    )
  }

  return (
    <section className="bg-[#16213e] p-6 md:p-10 rounded-3xl border border-[#1e293b] shadow-xl">
      <div className="flex items-center justify-between mb-8">
        <h2 className="text-2xl font-bold flex items-center gap-3">
          <span className="w-10 h-10 rounded-xl bg-[#00b4d8]/10 text-[#00b4d8] flex items-center justify-cente...
                    Kiểm tra kiến thức
        </h2>
        <div className="text-sm font-semibold text-slate-400 bg-[#0f0f1a] px-4 py-2 rounded-full border border...
          Câu {currentQuestion + 1} / {QUIZ_DATA.length}
        </div>
      </div>

      <AnimatePresence mode="wait">
        <motion.div
          key={currentQuestion}
          initial={{ opacity: 0, x: 20 }}
          animate={{ opacity: 1, x: 0 }}
          exit={{ opacity: 0, x: -20 }}
          transition={{ duration: 0.3 }}
        >
          <h3 className="text-xl md:text-2xl font-semibold mb-8 leading-snug">{activeQuestion.question}</h3>

          <div className="flex flex-col gap-3 mb-8">
            {activeQuestion.options.map(opt => {
              const isSelected = selectedAnswer === opt.id
              const isCorrect = opt.id === activeQuestion.correctAnswer

              let stateClass = "border-[#2a3655] bg-[#0f0f1a] hover:border-[#00d2a0]"
              if (isSelected) stateClass = "border-[#00d2a0] bg-[#00d2a0]/10"

              if (isSubmitted) {
                if (isCorrect) stateClass = "border-[#00d2a0] bg-[#00d2a0]/20 shadow-[0_0_15px_rgba(0,210,160,...
                else if (isSelected && !isCorrect) stateClass = "border-red-500 bg-red-500/10"
                else stateClass = "border-[#2a3655] bg-[#0f0f1a] opacity-50"
              }

              return (
                <button
                  key={opt.id}
                  onClick={() => handleSelect(opt.id)}
                  disabled={isSubmitted}
                  className={`flex items-center gap-4 p-5 rounded-2xl border-2 transition-all duration-200 tex...
                >
                  <div className={`w-8 h-8 rounded-full border-2 flex items-center justify-center font-bold te...
                    ${isSubmitted && isCorrect ? 'bg-[#00d2a0] border-[#00d2a0] text-black' :
                      (isSubmitted && isSelected && !isCorrect ? 'bg-red-500 border-red-500 text-white' :
                      (isSelected ? 'border-[#00d2a0] text-[#00d2a0]' : 'border-slate-500 text-slate-400'))}
                  `}>
                    {isSubmitted && isCorrect ? <CheckCircle size={16} /> : (isSubmitted && isSelected && !isC...
                  </div>
                  <span className="flex-1 font-medium text-lg">{opt.text}</span>
                </button>
              )
            })}
          </div>

          {isSubmitted && (
            <motion.div
              initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }}
              className={`p-6 rounded-2xl mb-8 ${selectedAnswer === activeQuestion.correctAnswer ? 'bg-[#00d2a...
            >
              <h4 className={`font-bold mb-2 flex items-center gap-2 ${selectedAnswer === activeQuestion.corre...
                {selectedAnswer === activeQuestion.correctAnswer ? <CheckCircle size={20} /> : <XCircle size={...
                                  {selectedAnswer === activeQuestion.correctAnswer ? 'Chính
              </h4>
              <p className="text-slate-300 leading-relaxed">{activeQuestion.explanation}</p>
            </motion.div>
          )}

          <div className="flex justify-end">
            {!isSubmitted ? (
              <button
                onClick={handleSubmit}
                disabled={!selectedAnswer}
```

```
190|                className="px-8 py-3.5 bg-white text-black font-bold rounded-xl hover:bg-slate-200 transition-...
191|              >
   1 9 2 |                                K i Ã m   t r a    á p   á n
193|              </button>
194|            ) : (
195|              currentQuestion < QUIZ_DATA.length - 1 ? (
196|                <button
197|                  onClick={handleNext}
198|                  className="px-8 py-3.5 bg-[#00d2a0] text-black font-bold rounded-xl hover:bg-[#00e6af] trans...
199|                >
   2 0 0 |                                  C â u   t i ¿ p   t h e o   < A r r o w R i g h t   s i z e = { 2 0 }   / >
201|                </button>
202|              ) : (
203|                <button
204|                  disabled={isSaving}
205|                  className="px-8 py-3.5 bg-[#00d2a0] text-black font-bold rounded-xl transition-colors flex i...
206|                >
   2 0 7 |                                  { i s S a v i n g   ?   < L o a d e r 2   c l a s s N a m e = " a n i m a t e - s p i n "   s i z e = { 2 0
208|                </button>
209|              )
210|            )}
211|          </div>
212|        </motion.div>
213|      </AnimatePresence>
214|    </section>
215|  )
216| }
217|
```

File: app/lessons/lessons-theme.css (282 lines, 5.5 KB)

```
1| .lessons-page {
2|   min-height: 100vh;
3|   background: var(--bg-base);
4|   color: var(--text-primary);
5|   animation: fadeIn 0.5s ease-out;
6| }
7|
8| .lessons-container {
9|   max-width: 1280px;
10|   margin: 0 auto;
11|   padding: 3rem 1.5rem 5rem;
12| }
13|
14| @keyframes fadeIn {
15|   from { opacity: 0; transform: translateY(10px); }
16|   to { opacity: 1; transform: translateY(0); }
17| }
18|
19| .lessons-header {
20|   display: flex;
21|   flex-direction: column;
22|   gap: 1.5rem;
23|   margin-bottom: 4rem;
24| }
25|
26| @media (min-width: 768px) {
27|   .lessons-header {
28|     flex-direction: row;
29|     align-items: flex-end;
30|     justify-content: space-between;
31|   }
32| }
33|
34| .lessons-back-btn {
35|   width: 40px;
36|   height: 40px;
37|   border-radius: 12px;
38|   display: flex;
39|   align-items: center;
40|   justify-content: center;
41|   background: var(--bg-elevated);
42|   color: var(--text-secondary);
43|   transition: all 0.2s;
44| }
45|
46| .lessons-back-btn:hover {
47|   color: var(--text-primary);
48|   background: var(--bg-hover);
49| }
50|
51| .lessons-title {
52|   font-size: 2.25rem;
53|   font-weight: 900;
54|   letter-spacing: -0.025em;
55| }
56|
57| @media (min-width: 768px) {
58|   .lessons-title {
59|     font-size: 3.75rem;
60|   }
61| }
62|
63| .lessons-title-accent {
64|   color: var(--brand-primary);
65| }
66|
67| .lessons-subtitle {
68|   font-size: 1.125rem;
69|   max-width: 42rem;
70|   color: var(--text-secondary);
71| }
72|
73| .lessons-stats-card {
74|   display: flex;
75|   align-items: center;
76|   gap: 1rem;
77|   padding: 1rem;
78|   border-radius: 16px;
79|   border: 1px solid var(--border-default);
80|   background: var(--bg-surface);
81| }
82|
83| .lessons-stats-icon {
84|   width: 48px;
85|   height: 48px;
86|   border-radius: 12px;
87|   display: flex;
88|   align-items: center;
89|   justify-content: center;
90|   background: color-mix(in srgb, var(--brand-primary) 20%, transparent);
91|   color: var(--brand-primary);
92| }
```

```
 93|
 94| .lessons-stats-label {
 95|   font-size: 0.875rem;
 96|   font-weight: 700;
 97|   text-transform: uppercase;
 98|   letter-spacing: 0.05em;
 99|   color: var(--text-secondary);
100| }
101|
102| .lessons-stats-value {
103|   font-size: 1.25rem;
104|   font-weight: 700;
105| }
106|
107| .lessons-grid {
108|   display: grid;
109|   grid-template-columns: 1fr;
110|   gap: 2rem;
111|   max-width: 1280px;
112|   margin: 0 auto;
113| }
114|
115| @media (min-width: 768px) {
116|   .lessons-grid {
117|     grid-template-columns: repeat(2, 1fr);
118|   }
119| }
120|
121| @media (min-width: 1024px) {
122|   .lessons-grid {
123|     grid-template-columns: repeat(3, 1fr);
124|   }
125| }
126|
127| .lessons-card {
128|   position: relative;
129|   border-radius: 24px;
130|   border: 1px solid var(--border-default);
131|   overflow: hidden;
132|   transition: all 0.3s ease;
133|   display: flex;
134|   flex-direction: column;
135|   height: 100%;
136|   text-decoration: none;
137|   background: var(--bg-surface);
138|   animation: fadeIn 0.5s ease-out both;
139| }
140|
141| .lessons-card:nth-child(1) { animation-delay: 0.05s; }
142| .lessons-card:nth-child(2) { animation-delay: 0.1s; }
143| .lessons-card:nth-child(3) { animation-delay: 0.15s; }
144| .lessons-card:nth-child(4) { animation-delay: 0.2s; }
145| .lessons-card:nth-child(5) { animation-delay: 0.25s; }
146| .lessons-card:nth-child(6) { animation-delay: 0.3s; }
147|
148| .lessons-card:hover {
149|   border-color: var(--brand-primary);
150|   box-shadow: 0 0 30px color-mix(in srgb, var(--brand-primary) 15%, transparent);
151|   transform: translateY(-2px);
152| }
153|
154| .lessons-card-cover {
155|   aspect-ratio: 16 / 9;
156|   width: 100%;
157|   position: relative;
158|   overflow: hidden;
159|   background: var(--bg-base);
160| }
161|
162| .lessons-card-img {
163|   width: 100%;
164|   height: 100%;
165|   object-fit: cover;
166|   opacity: 0.6;
167|   transition: transform 0.5s;
168| }
169|
170| .lessons-card:hover .lessons-card-img {
171|   transform: scale(1.05);
172| }
173|
174| .lessons-card-gradient {
175|   position: absolute;
176|   inset: 0;
177|   background: linear-gradient(to top, var(--bg-surface), transparent);
178| }
179|
180| .lessons-completed-badge {
181|   position: absolute;
182|   top: 1rem;
183|   right: 1rem;
184|   padding: 0.5rem;
185|   border-radius: 50%;
186|   display: flex;
187|   align-items: center;
188|   justify-content: center;
189|   background: var(--brand-primary);
190|   color: #fff;
191|   box-shadow: 0 2px 8px rgba(0,0,0,0.2);
192| }
193|
194| .lessons-card-meta {
195|   position: absolute;
196|   bottom: 1rem;
197|   left: 1rem;
198|   display: flex;
199|   align-items: center;
200|   gap: 0.5rem;
201| }
202|
203| .lessons-meta-chip {
204|   padding: 0.25rem 0.75rem;
205|   border-radius: 9999px;
206|   font-size: 0.75rem;
207|   font-weight: 700;
208|   display: flex;
209|   align-items: center;
210|   gap: 0.375rem;
211|   background: rgba(0,0,0,0.5);
212|   backdrop-filter: blur(4px);
213|   border: 1px solid rgba(255,255,255,0.1);
214|   color: #fff;
215| }
216|
```

```
.lessons-meta-icon {
  color: var(--brand-primary);
}

.lessons-card-body {
  padding: 2rem;
  display: flex;
  flex-direction: column;
  flex: 1;
}

.lessons-card-title {
  font-size: 1.5rem;
  font-weight: 700;
  margin-bottom: 0.75rem;
  line-height: 1.3;
  transition: color 0.2s;
}

.lessons-card:hover .lessons-card-title {
  color: var(--brand-primary);
}

.lessons-card-desc {
  font-size: 0.875rem;
  margin-bottom: 2rem;
  line-clamp: 2;
  overflow: hidden;
  display: -webkit-box;
  -webkit-line-clamp: 2;
  -webkit-box-orient: vertical;
  flex: 1;
  color: var(--text-secondary);
}

.lessons-card-footer {
  display: flex;
  align-items: center;
  justify-content: space-between;
  padding-top: 1.5rem;
  border-top: 1px solid var(--border-default);
}

.lessons-card-action {
  display: flex;
  align-items: center;
  gap: 0.5rem;
  font-weight: 700;
  font-size: 0.875rem;
  color: var(--brand-primary);
}

.lessons-card-count {
  font-size: 0.75rem;
  font-weight: 500;
  color: var(--text-secondary);
}

.lessons-empty {
  grid-column: 1 / -1;
  padding: 5rem 0;
  text-align: center;
  border: 2px dashed var(--border-default);
  border-radius: 24px;
}

```

File: app/lessons/page.tsx (153 lines, 5.2 KB)

```
import { createClient } from '@/lib/supabase-ssr-server'
import { redirect } from 'next/navigation'
import Link from 'next/link'
import { Book, Play, CheckCircle, Clock, Star, ArrowRight, Layers, ArrowLeft } from 'lucide-react'
import './lessons-theme.css'

export const dynamic = 'force-dynamic'

export default async function LessonsListPage() {
  const supabase = await createClient()
  const { data: { user } } = await supabase.auth.getUser()

  if (!user) {
    redirect('/login')
  }

  const { data: myClasses } = await supabase
    .from('class_members')
    .select('class_id')
    .eq('student_id', user.id)

  const classIds = (myClasses || []).map(c => c.class_id)

  let lessonsQuery = supabase.from('lessons').select('*')

  if (classIds.length > 0) {
    const { data: assignedLessonIds } = await supabase
      .from('lesson_class_assignments')
      .select('lesson_id')
      .in('class_id', classIds)

    const lessonIds = (assignedLessonIds || []).map(a => a.lesson_id)
    if (lessonIds.length > 0) {
      lessonsQuery = lessonsQuery.in('id', lessonIds)
    } else {
      lessonsQuery = lessonsQuery.eq('id', null)
    }
  } else {
    lessonsQuery = lessonsQuery.eq('id', null)
  }

  const { data: lessons } = await lessonsQuery
    .eq('is_published', true)
    .order('created_at', { ascending: true })

  const { data: progressList } = await supabase
    .from('lesson_progress')
    .select('*')
    .eq('student_id', user.id)

  const getProgress = (lessonId: string) => {
    return progressList?.find(p => p.lesson_id === lessonId)
  }

```

```
  55|   return (
  56|     <div className="lessons-page">
  57|       <div className="lessons-container">
  58|       <header className="lessons-header">
  59|         <div>
  60|           <div className="flex items-center gap-4 mb-4">
  61|             <Link href="/student" className="lessons-back-btn">
  62|               <ArrowLeft size={20} />
  63|             </Link>
  64|             <h1 className="lessons-title">
    65 |                          K h á m   p h á   < s p a n   c l a s s N a m e = " l e s s o n s - t i t l e - a c c e n t " > K i ¿ n   t h é c <
  66|             </h1>
  67|           </div>
  68|           <p className="lessons-subtitle">
    69 |                        H Í c   t - p   t ë   n h ï n g   c h u y ê n   g i a   h à n g   § u   v Á   p h § n   c é n g   m á y   t í n h .
  70|           </p>
  71|         </div>
  72|         <div className="lessons-stats-card">
  73|           <div className="lessons-stats-icon">
  74|              <Layers size={24} />
  75|           </div>
  76|           <div>
    77 |                        < d i v   c l a s s N a m e = " l e s s o n s - s t a t s - l a b e l " > T i ¿ n   Ù   t Õ n g   q u á t < / d i v >
    78 |                        < d i v   c l a s s N a m e = " l e s s o n s - s t a t s - v a l u e " > { p r o g r e s s L i s t ? . l e n g t h
  79|           </div>
  80|         </div>
  81|       </header>
  82|
  83|       <div className="lessons-grid">
  84|         {lessons?.map((lesson) => {
  85|           const progress = getProgress(lesson.id)
  86|           const isCompleted = progress?.is_completed
  87|
  88|           return (
  89|             <Link
  90|               key={lesson.id}
  91|               href={`/lessons/${lesson.id}`}
  92|               className="lessons-card"
  93|             >
  94|               <div className="lessons-card-cover">
  95|                 <img
  96|                   src={lesson.thumbnail_url || "https://images.unsplash.com/photo-1591799264318-7e6ef8ddb7ea?q...
  97|                   alt={lesson.title}
  98|                   className="lessons-card-img"
  99|                 />
 100|                 <div className="lessons-card-gradient"></div>
 101|
 102|                 {isCompleted && (
 103|                   <div className="lessons-completed-badge">
 104|                     <CheckCircle size={20} />
 105|                   </div>
 106|                 )}
 107|
 108|                 <div className="lessons-card-meta">
 109|                    <div className="lessons-meta-chip">
 110|                      <Clock size={12} className="lessons-meta-icon" />
 111|                      15 phút
 112|                    </div>
 113|                    <div className="lessons-meta-chip">
 114|                      <Star size={12} className="text-yellow-400" />
 115|                      4.9
 116|                    </div>
 117|                 </div>
 118|               </div>
 119|
 120|               <div className="lessons-card-body">
 121|                 <h3 className="lessons-card-title">
 122|                   {lesson.title}
 123|                 </h3>
 124|                 <p className="lessons-card-desc">
 125|                   {lesson.description}
 126|                 </p>
 127|
 128|                 <div className="lessons-card-footer">
 129|                   <div className="lessons-card-action">
    130 |                                        { i s C o m p l e t e d   ?   ' X E M   L   I '   :   ' B ® T   ¦ U   H Ì C ' }
 131|                     <ArrowRight size={16} />
 132|                   </div>
 133|                   <div className="lessons-card-count">
    134 |                                        H ¡ n   2 . 4 k   h Í c   v i ê n
 135|                   </div>
 136|                 </div>
 137|               </div>
 138|             </Link>
 139|           )
 140|         })}
 141|
 142|         {(!lessons || lessons.length === 0) && (
 143|            <div className="lessons-empty">
 144|              <Book size={48} className="mx-auto mb-4" style={{ color: 'var(--text-secondary)' }} />
    145 |                          < p   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - s e c o n d a r y ) ' ,   f o n t W e i g h t :   5 0 0
 146|             </div>
 147|         )}
 148|       </div>
 149|       </div>
 150|     </div>
 151|   )
 152| }
 153|
```

File: app/my-exams/page.tsx (203 lines, 11.8 KB)

```
   1| 'use client'
   2|
   3| import React, { useState, useEffect } from 'react'
   4| import { motion } from 'framer-motion'
   5| import {
   6|   LineChart, Line, XAxis, YAxis, CartesianGrid, Tooltip, ResponsiveContainer,
   7|   Radar, RadarChart, PolarGrid, PolarAngleAxis, PolarRadiusAxis,
   8|   BarChart, Bar, Legend, Cell
   9| } from 'recharts'
  10| import {
  11|   Trophy, Target, Zap, BookOpen,
  12|   ChevronRight, Download, Filter,
  13|   AlertTriangle, ArrowUpRight, Sparkles
  14| } from 'lucide-react'
  15| import Link from 'next/link'
  16|
  17| const scoreHistory = [
  18|   { date: '01/05', score: 65 },
  19|   { date: '03/05', score: 72 },
  20|   { date: '05/05', score: 68 },
  21|   { date: '07/05', score: 85 },
```

```
  { date: '09/05', score: 92 },
]

const competencyData = [
  { subject: 'CPU', A: 90, fullMark: 100 },
  { subject: 'RAM', A: 45, fullMark: 100 },
  { subject: 'GPU', A: 80, fullMark: 100 },
  { subject: 'Storage', A: 70, fullMark: 100 },
  { subject: 'PSU', A: 60, fullMark: 100 },
  { subject: 'Mainboard', A: 85, fullMark: 100 },
]

const classComparison = [
  { name: 'Cá nhân', score: 92 },
  { name: 'Trung bình lÛp', score: 78 },
]

export default function StudentAnalyticsPage() {
  return (
    <div className="max-w-7xl mx-auto px-6 py-12 space-y-10 min-h-screen" style={{ background: 'var(--bg-base)...
      <header className="flex flex-col md:flex-row md:items-center justify-between gap-6">
        <div>
          <h1 className="text-4xl font-black mb-2">Phân tích <span style={{ color: 'var(--brand-primary)' }}>N...
                    <p className="font-medium italic" style={{ color: 'var(--text-
        </div>
        <button className="flex items-center gap-2 px-6 py-3 rounded-xl text-sm font-bold transition-all" styl...
                    <Download size={18} />Xu¥t báo cáo (PDF)
        </button>
      </header>

      <div className="grid grid-cols-1 sm:grid-cols-2 lg:grid-cols-4 gap-6">
        {[
                    { label: 'Bài thi ã làm', value: '12', icon: BookOpen, color:
                    { label: 'iÃm trung bình', value: '78.5', icon: Target, colo
                    { label: 'iÃm cao nh¥t', value: '96', icon: Trophy, color: '#
                    { label: 'T÷lÇ qua môn', value: '85%', icon: Zap, color: 'var
        ].map((card, i) => (
          <motion.div
            key={i}
            initial={{ opacity: 0, y: 20 }}
            animate={{ opacity: 1, y: 0 }}
            transition={{ delay: i * 0.1 }}
            className="p-8 rounded-[32px] relative overflow-hidden group"
            style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)' }}
          >
            <div className="relative z-10">
              <div className="p-3 w-fit rounded-2xl mb-4 group-hover:scale-110 transition-transform" style={{ ...
                <card.icon size={24} style={{ color: card.color }} />
              </div>
              <div className="text-3xl font-black mb-1">{card.value}</div>
              <div className="text-xs font-black uppercase tracking-widest" style={{ color: 'var(--text-muted)...
            </div>
            <div className="absolute -bottom-4 -right-4 w-24 h-24 blur-3xl opacity-10" style={{ backgroundColo...
          </motion.div>
        ))}
      </div>

      <div className="grid grid-cols-1 lg:grid-cols-2 gap-8">
        <div className="p-8 rounded-[40px]" style={{ background: 'var(--bg-surface)', border: '1px solid var(-...
          <h3 className="text-xl font-bold mb-8 flex items-center gap-3">
                    <ArrowUpRight style={{ color: 'var(--brand-primary)' }} />
          </h3>
          <div class="h-[300px] w-full">
            <ResponsiveContainer width="100%" height="100%">
              <LineChart data={scoreHistory}>
                <CartesianGrid strokeDasharray="3 3" stroke="var(--border-default)" vertical={false} />
                <XAxis dataKey="date" stroke="var(--text-muted)" fontSize={12} tickLine={false} axisLine={fals...
                <YAxis stroke="var(--text-muted)" fontSize={12} tickLine={false} axisLine={false} domain={[0, ...
                <Tooltip
                  contentStyle={{ background: 'var(--bg-base)', border: '1px solid var(--border-default)', bor...
                  itemStyle={{ color: 'var(--brand-primary)', fontWeight: 'bold' }}
                />
                <Line type="monotone" dataKey="score" stroke="var(--brand-primary)" strokeWidth={4} dot={{ r: ...
              </LineChart>
            </ResponsiveContainer>
          </div>
        </div>

        <div className="p-8 rounded-[40px]" style={{ background: 'var(--bg-surface)', border: '1px solid var(-...
          <h3 className="text-xl font-bold mb-8 flex items-center gap-3">
                    <Zap style={{ color: 'var(--accent-amber)' }} />B£n Ó N ng
          </h3>
          <div class="h-[300px] w-full">
            <ResponsiveContainer width="100%" height="100%">
              <RadarChart cx="50%" cy="50%" outerRadius="80%" data={competencyData}>
                <PolarGrid stroke="var(--border-default)" />
                <PolarAngleAxis dataKey="subject" tick={{ fill: 'var(--text-muted)', fontSize: 12 }} />
                <PolarRadiusAxis angle={30} domain={[0, 100]} tick={false} axisLine={false} />
                <Radar name="Cá nhân" dataKey="A" stroke="var(--accent-amber)" fill="var(--accent-amber)" fill...
              </RadarChart>
            </ResponsiveContainer>
          </div>
        </div>
      </div>

      <div class="grid grid-cols-1 lg:grid-cols-3 gap-8">
        <div class="lg:col-span-2 p-8 rounded-[40px] overflow-hidden" style={{ background: 'var(--bg-surfa...
          <div class="flex items-center justify-between mb-8">
                    <h3 class="text-xl font-bold">LËch sí bài thi</h3>
            <div class="flex gap-2">
              <button class="p-2 rounded-lg transition-all" style={{ background: 'var(--bg-base)', color: ...
            </div>
          </div>
          <div class="overflow-x-auto">
            <table class="w-full text-left text-sm">
              <thead class="uppercase font-black text-[10px] tracking-widest" style={{ color: 'var(--text-...
                <tr>
                  <th class="px-4 py-4">Tên bài thi</th>
                  <th class="px-4 py-4">Ngày làm</th>
                                    <th class="px-4 py-4">iÃm</th>
                                    <th class="px-4 py-4">Xếp lo¡i</th>
                  <th class="px-4 py-4 text-right"></th>
                </tr>
              </thead>
              <tbody class="divide-y" style={{ borderColor: 'var(--border-default)' }}>
                {[
                                    { title: 'Kiểm thécCPU C¡ b£n', date: '09/05/2026', s
                                    { title: 'L¯p ráp PC Lab #1', date: '07/05/2026', scor
                                    { title: 'Tr¯c nghiÇm Linh kiÇn', date: '05/05/2026',
                ].map((item, i) => (
                  <tr key={i} class="transition-all group cursor-pointer" style={{ borderColor: 'var(--bor...
                    <td class="px-4 py-6 font-bold">{item.title}</td>
                    <td class="px-4 py-6 font-medium" style={{ color: 'var(--text-muted)' }}>{item.date}</td>
                    <td class="px-4 py-6 text-center font-black text-lg">{item.score}</td>
```

```
146|                    <td className="px-4 py-6 text-center">
147|                      <span className={`px-3 py-1 rounded-lg text-[10px] font-black uppercase tracking-wider`}
148|                        style={{
   1 4 9 |                                                  b a c k g r o u n d :  i t e m . g r a d e  = = =  ' X u ¥ t  s ¯ c '  ?  ' c o l o r
   1 5 0 |                                                  c o l o r :  i t e m . g r a d e  = = =  ' X u ¥ t  s ¯ c '  ?  ' v a r ( - - b r a r
151|                        }}
152|                      >
153|                        {item.grade}
154|                      </span>
155|                    </td>
156|                    <td className="px-4 py-6 text-right">
157|                      <button className="p-2 rounded-full transition-all" style={{ color: 'var(--text-muted)' }}>
158|                        <ChevronRight size={20} />
159|                      </button>
160|                    </td>
161|                  </tr>
162|                ))}
163|              </tbody>
164|            </table>
165|          </div>
166|        </div>
167|
168|        <div className="space-y-6">
169|          <div className="p-8 rounded-[40px] relative overflow-hidden" style={{ background: 'var(--bg-surface)...
170|            <div className="relative z-10">
171|              <div className="flex items-center gap-2 font-black uppercase text-xs tracking-widest mb-4" style...
   1 7 2 |                                < A l e r t T r i a n g l e  s i z e = { 1 6 }  / >  C £ n h  b á o  l ×  h Õ n g  k i ¿ n  t h é c
173|              </div>
   1 7 4 |                              < h 4  c l a s s N a m e = " t e x t - x l  f o n t - b o l d  m b - 4 " > C h ç  Á :  R A M  &  K h £  r
175|              <p className="text-sm leading-relaxed mb-6" style={{ color: 'var(--text-muted)' }}>
   1 7 6 |                                B ¡ n  h a y  t r £  l Ý i  s a i  c á c  c â u  h Ï i  l i ê n  q u a n  ¿ n  * * B u s  R A M *
177|              </p>
178|              <Link href="/lessons/ram-basics" className="w-full py-4 font-black uppercase text-xs rounded-2xl...
   1 7 9 |                                Ô n  t - p  c h ç  Á  n à y  n g a y  < C h e v r o n R i g h t  s i z e = { 1 6 }  / >
180|              </Link>
181|            </div>
182|            <div className="absolute top-0 right-0 w-24 h-24 blur-3xl opacity-5" style={{ background: 'var(--a...
183|          </div>
184|
185|          <div className="p-8 rounded-[40px]" style={{ background: 'color-mix(in srgb, var(--brand-primary) 5%...
186|            <h4 className="text-lg font-bold mb-4 flex items-center gap-2">
   1 8 7 |                              < S p a r k l e s  s i z e = { 1 8 }  s t y l e = { {  c o l o r :  ' v a r ( - - b r a n d - p r i m a r y ) '
188|            </h4>
189|            <ul className="space-y-3 text-sm" style={{ color: 'var(--text-muted)' }}>
190|              <li className="flex items-start gap-2 italic">
   1 9 1 |                                " H ã y  t h í  l à m  l ¡ i  b à i  t h i  ' L ¯ p  r á p  P C  L a b  # 1 '  Ã  c £ i  t h i (
192|              </li>
193|              <li className="flex items-start gap-2 italic">
   1 9 4 |                                " B ¡ n  ã  t i ¿ n  b Ù  2 0 %  s o  v Û i  t u § n  t r ° Û c .  T i ¿ p  t ã c  p h á t  h u y
195|              </li>
196|            </ul>
197|          </div>
198|        </div>
199|      </div>
200|    </div>
201|  )
202| }
203|
```

File: app/notifications/page.tsx (120 lines, 4.9 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useEffect, useState } from 'react'
    4| import { createBrowserClient } from '@supabase/ssr'
    5| import { Notification } from '@/hooks/useNotifications'
    6| import { NotificationItem } from '@/components/notifications/NotificationItem'
    7| import { CheckCheck, ArrowLeft, Bell } from 'lucide-react'
    8| import { useRouter } from 'next/navigation'
    9|
   10| export default function NotificationsPage() {
   11|   const router = useRouter()
   12|   const [notifications, setNotifications] = useState<Notification[]>([])
   13|   const [loading, setLoading] = useState(true)
   14|
   15|   const supabase = createBrowserClient(
   16|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   17|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   18|   )
   19|
   20|   useEffect(() => {
   21|     const loadData = async () => {
   22|       const { data: { user } } = await supabase.auth.getUser()
   23|       if (!user) return
   24|
   25|       const { data } = await supabase
   26|         .from('notifications')
   27|         .select('*')
   28|         .eq('user_id', user.id)
   29|         .order('created_at', { ascending: false })
   30|
   31|       if (data) {
   32|         setNotifications(data as Notification[])
   33|       }
   34|       setLoading(false)
   35|     }
   36|     loadData()
   37|   }, [supabase])
   38|
   39|   const markAsRead = async (id: string) => {
   40|     setNotifications(prev => prev.map(n => n.id === id ? { ...n, is_read: true } : n))
   41|     await supabase.from('notifications').update({ is_read: true }).eq('id', id)
   42|   }
   43|
   44|   const markAllAsRead = async () => {
   45|     setNotifications(prev => prev.map(n => ({ ...n, is_read: true })))
   46|     const { data: { user } } = await supabase.auth.getUser()
   47|     if (user) {
   48|       await supabase.from('notifications').update({ is_read: true }).eq('user_id', user.id).eq('is_read', false)
   49|     }
   50|   }
   51|
   52|   if (loading) {
   53|     return (
   54|       <div className="min-h-screen bg-[#161F38] text-white pt-24 flex flex-col items-center justify-center gap...
   55|         <div className="w-8 h-8 border-4 border-[#00d4aa] border-t-transparent rounded-full animate-spin"></div>
   5 6 |                  < s p a n  c l a s s N a m e = " t e x t - x s  t e x t - g r a y - 5 0 0  f o n t - b o l d  u p p e r c a s e  t r a c k
   57|       </div>
   58|     )
   59|   }
   60|
   61|   return (
   62|     <div className="min-h-screen bg-[#161F38] text-white pt-24 pb-12 px-4 sm:px-6 relative overflow-hidden">
```

```
      {/* High-tech overlays */}
      <div className="absolute inset-0 bg-grid-pattern opacity-[0.02] pointer-events-none" />
      <div className="absolute top-1/4 left-1/4 w-[350px] h-[350px] bg-[#00d4aa]/5 rounded-full filter blur-[1...

      <div className="max-w-3xl mx-auto relative z-10">

        {/* Header Title & Exit Button */}
        <div className="flex flex-col sm:flex-row sm:items-center justify-between gap-4 mb-8 pb-4 border-b bor...
          <div className="flex items-center gap-3">
            <div className="p-2.5 bg-[#00d4aa]/10 border border-[#00d4aa]/25 text-[#00d4aa] rounded-2xl">
              <Bell size={24} />
            </div>
            <div>
                              < h 1   c l a s s N a m e = " t e x t - x l   m d : t e x t - 2 x l   f o n t - b l a c k   t r a c k i n g - t i g
                              < p   c l a s s N a m e = " t e x t - x s   t e x t - g r a y - 4 0 0   m t - 0 . 5 " > C - p   n h - t   t i n   t
            </div>
          </div>

          <button
            onClick={() => router.push('/builder')}
            className="relative z-50 pointer-events-auto flex items-center gap-2 px-4 py-2 bg-gray-900/90 hove...
          >
            <ArrowLeft size={14} className="group-hover:-translate-x-0.5 transition-transform" />
                          Q u a y   l ¡ i   D a s h b o a r d
          </button>
        </div>

        <div className="flex justify-end mb-4 relative z-50">
          <button
            onClick={markAllAsRead}
            className="flex items-center gap-2 text-[#00d4aa] hover:bg-[#00d4aa]/10 px-4 py-2 rounded-lg trans...
          >
            <CheckCheck size={18} />
                          á n h   d ¥ u   t ¥ t   c £   ã   Í c
          </button>
        </div>

        <div className="bg-[#11121d]/80 rounded-2xl border border-[#1e293b] overflow-hidden shadow-xl backdrop...
          {notifications.length === 0 ? (
            <div className="p-12 text-center text-gray-400 font-medium">
                              B ¡ n   k h ô n g   c ó   t h ô n g   b á o   n à o .
            </div>
          ) : (
            notifications.map((notif, index) => (
              <div key={notif.id} className={index !== notifications.length - 1 ? 'border-b border-gray-800' :...
                <NotificationItem
                  notification={notif}
                  onRead={markAsRead}
                />
              </div>
            ))
          )}
        </div>
      </div>
    </div>
  )
}

```

File: app/onboarding/page.tsx (182 lines, 8.8 KB)

```
'use client'

import React, { useState, useEffect } from 'react'
import { useRouter } from 'next/navigation'
import { User, Users, GraduationCap, ArrowRight, Loader2, Building, Calendar, MapPin, Mail, CheckCircle } from...
import { createBrowserClient } from '@supabase/ssr'

export default function OnboardingPage() {
  const [loading, setLoading] = useState(false)
  const [role, setRole] = useState<'student' | 'teacher' | 'parent' | null>(null)
  const [fullName, setFullName] = useState('')
  const [email, setEmail] = useState('')
  const [dob, setDob] = useState('')
  const [province, setProvince] = useState('')
  const [schoolName, setSchoolName] = useState('')
  const [userId, setUserId] = useState<string | null>(null)
  const [lang, setLang] = useState<'en' | 'vn'>('vn')
  const router = useRouter()

  useEffect(() => {
    try {
      const saved = localStorage.getItem('lang');
      if (saved === 'en' || saved === 'vn') setLang(saved as 'en' | 'vn');
    } catch {}
  }, []);

  const supabase = createBrowserClient(
    process.env.NEXT_PUBLIC_SUPABASE_URL || 'https://placeholder.supabase.co',
    process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY || 'placeholder'
  )

  const T = (en: string, vn: string) => lang === 'en' ? en : vn

  useEffect(() => {
    supabase.auth.getUser().then(({ data }) => {
      if (data?.user) {
        setUserId(data.user.id)
        setEmail(data.user.email || '')
        setFullName(data.user.user_metadata?.full_name || '')
      } else {
        router.push('/login')
      }
    })
  }, [router, supabase])

  const handleComplete = async () => {
    if (!role || !fullName.trim() || !userId) return
    setLoading(true)

    const { error } = await supabase.from('profiles').upsert({
      id: userId,
      email: email,
      full_name: fullName.trim(),
      role: role,
      dob: dob || null,
      province: province || null,
      school_name: schoolName || null,
      updated_at: new Date().toISOString()
    })

    setLoading(false)

```

```
    if (error) {
      alert('Có lỗi xảy ra: ' + error.message)
    } else {
      const redirectUrl = role === 'teacher' ? '/teacher' : role === 'parent' ? '/parent' : '/builder'
      router.push(redirectUrl)
    }
  }

  return (
    <div className="min-h-screen flex items-center justify-center bg-[#0f0f1a] p-4 text-white">
      <div className="w-full max-w-lg bg-[#16213e] rounded-2xl border border-[#1e293b] p-8 shadow-2xl relative...
        <div className="absolute top-0 left-1/2 -translate-x-1/2 w-full h-1/2 bg-[#00d2a0]/10 blur-[100px] poi...

        <div className="relative z-10 text-center mb-8">
          <div className="w-16 h-16 bg-[#00d2a0]/20 rounded-full flex items-center justify-center mx-auto mb-4...
            <GraduationCap size={32} />
          </div>
                    <h1 className="text-2xl font-bold mb-2">{T('Complete Profile',
          <p className="text-slate-400 text-sm">{T('Email auto-saved from Google account. Please fill in the r...
        </div>

        <div className="space-y-5 relative z-10">
          <div>
            <label className="block text-sm font-medium text-slate-300 mb-2">{T('Email (auto from Google)', 'E...
            <div className="flex items-center gap-2 bg-[#0f0f1a] border border-[#1e293b] rounded-xl px-4 py-3 ...
              <Mail size={16} />
              <span>{email}</span>
              <CheckCircle size={16} className="ml-auto text-[#00d2a0]" />
            </div>
          </div>

          <div>
                        <label className="block text-sm font-medium text-slate-300 m
            <input
              type="text"
              value={fullName}
              onChange={(e) => setFullName(e.target.value)}
                              placeholder={T('e.g. Nguyen Van A', 'Ví dụ: NguyễN V n A'
              className="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-xl px-4 py-3 outline-none focus:b...
            />
          </div>

          <div>
                        <label className="block text-sm font-medium text-slate-300 m
            <div className="grid grid-cols-3 gap-3">
              {[
                                {key: 'student', icon: <User size={24} />, tit
                { key: 'teacher' as const, icon: <Users size={24} />, title: T('Teacher', 'Giáo viên') },
                                {key: 'parent' as const, icon: <GraduationCap size={24}
              ].map(({ key, icon, title }) => (
                <button
                  key={key}
                  onClick={() => setRole(key)}
                  className={`flex flex-col items-center justify-center p-3 rounded-xl border-2 transition-all...
                    role === key
                      ? 'border-[#00d2a0] bg-[#00d2a0]/10'
                      : 'border-[#1e293b] bg-[#0f0f1a] hover:border-slate-600'
                  }`}
                >
                  <div className={`mb-2 ${role === key ? 'text-[#00d2a0]' : 'text-slate-500'}`}>{icon}</div>
                  <span className={`font-semibold text-sm ${role === key ? 'text-white' : 'text-slate-400'}`}>...
                </button>
              ))}
            </div>
          </div>

          <div className="grid grid-cols-2 gap-4">
            <div>
              <label className="block text-sm font-medium text-slate-300 mb-2">{T('Date of Birth', 'Ngày sinh'...
              <div className="relative">
                <Calendar size={16} className="absolute left-3 top-1/2 -translate-y-1/2 text-slate-500" />
                <input type="date" value={dob} onChange={(e) => setDob(e.target.value)}
                  className="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-xl pl-10 pr-4 py-3 outline-no...
              </div>
            </div>
            <div>
                              <label className="block text-sm font-medium text-slate-300 6
              <div class="relative">
                <MapPin size={16} class="absolute left-3 top-1/2 -translate-y-1/2 text-slate-500 z-10" />
                <select value={province} onChange={(e) => setProvince(e.target.value)}
                  class="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-xl pl-10 pr-4 py-3 outline-no...
                                  <option value="">disabled>{T('Select', 'Chỉn')}</opti
                                  <option value="HN">Hà Nội</option>
                                  <option value="HCM">TP. HỒ Chí Minh</option>
                                  <option value="DN">à Nụng</option>
                                  <option value="Other">{T('Other', 'Tỉnh thành khác')}<
                </select>
              </div>
            </div>
          </div>

          <div>
                        <label className="block text-sm font-medium text-slate-300 m
            <div class="relative">
              <Building size={16} class="absolute left-3 top-1/2 -translate-y-1/2 text-slate-500" />
              <input type="text" value={schoolName} onChange={(e) => setSchoolName(e.target.value)}
                              placeholder={T('School name (optional)', 'Tên trºÝng (kh
              class="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-xl pl-10 pr-4 py-3 outline-none...
            </div>
          </div>

          <button
            onClick={handleComplete}
            disabled={!role || !fullName.trim() || loading}
            class="w-full mt-2 bg-[#00d2a0] hover:bg-[#00e6af] disabled:bg-slate-700 disabled:text-slate-5...
          >
            {loading ? <Loader2 class="animate-spin" size={20} /> : (
                              <>{T('Complete', 'Hoàn tÿt')} <ArrowRight size={18} />
            )}
          </button>

          <p class="text-xs text-slate-500 text-center">
                        {T('Next login with Google will go straight in without re-en
          </p>
        </div>
      </div>
    </div>
  )
}
```

File: app/page.js (429 lines, 27.8 KB)

==========

```
'use client';

import React, { useState, useEffect, useRef } from 'react';
import Link from 'next/link';
import { supabase } from '@/lib/supabase';
import { useRouter } from 'next/navigation';
import { motion } from 'framer-motion';
import { useIsMobile } from '@/hooks/useIsMobile';
import { ArrowRight, Sparkles, ShieldCheck, Zap, MonitorPlay, Wrench, Bot, HelpCircle, ChevronDown, BookOpen, ...

export default function LandingPage() {
  const [user, setUser] = useState(null);
  const [profile, setProfile] = useState(null);
  const [mobileMenu, setMobileMenu] = useState(false);
  const [activeFaq, setActiveFaq] = useState(null);
  const isMobile = useIsMobile();
  const router = useRouter();

  useEffect(() => {
    supabase.auth.getUser().then(({ data: { user: u } }) => {
      setUser(u);
      if (u) {
        supabase.from('profiles').select('role, full_name').eq('id', u.id).single().then(({ data: p }) => setP...
      }
    });
  }, []);

  const handleLogout = async () => {
    await supabase.auth.signOut();
    setUser(null); setProfile(null);
    router.push('/');
  };

  const dashboardUrl = profile?.role === 'teacher' ? '/teacher' : profile?.role === 'admin' ? '/admin' : '/bui...

  return (
    <div style={{ background: 'var(--bg-base)', minHeight: '100vh', color: 'var(--text-primary)', overflowX: '...
      {/* NAVBAR */}
      <nav className="landing-nav" style={{
        height: '72px', display: 'flex', alignItems: 'center', justifyContent: 'space-between',
        padding: '0 32px', borderBottom: '1px solid var(--border-default)',
        position: 'fixed', top: 0, left: 0, right: 0, background: 'var(--bg-surface)',
        zIndex: 10000, boxShadow: '0 1px 3px 0 var(--shadow-color)'
      }}>
        <div style={{ display: 'flex', alignItems: 'center', gap: '40px' }}>
          <Link href="/" style={{ display: 'flex', alignItems: 'center', gap: '10px', textDecoration: 'none', ...
            <img src="/logo.png" alt="" style={{ width: '36px', height: '36px' }} />
            <span className="landing-nav-logo" style={{ fontWeight: 800, fontSize: '20px', letterSpacing: '-0....
              PC<span style={{ color: 'var(--brand-primary)' }}> MASTER</span> BUILDER
            </span>
          </Link>

          <div className="desktop-nav" style={{ display: 'flex', gap: '8px', fontWeight: 500, fontSize: '14px'...
            <Link href="/about" style={{ color: 'var(--text-muted)', textDecoration: 'none', padding: '8px 16p...
            V À   c h ú n g   t ô i
            </Link>
            <Link href="/builder" style={{ color: 'var(--text-muted)', textDecoration: 'none', padding: '8px 1...
            T h ñ c   h à n h
            </Link>

          </div>
        </div>

        <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
          {user ? (
            <>
              <Link href={dashboardUrl} style={{ display: 'flex', alignItems: 'center', gap: '10px', textDecor...
                <div style={{ width: '32px', height: '32px', borderRadius: '50%', background: 'var(--brand-sub...
                  <UserPlus size={16} />
                </div>
                <span style={{ fontSize: '14px', fontWeight: 600, color: 'var(--text-primary)' }}>
                  {profile?.full_name || user.email?.split('@')[0]}
                </span>
              </Link>
              <button onClick={handleLogout} className="lms-btn lms-btn-outline" style={{ padding: '8px 16px',...
                n g   x u ¥ t
              </button>
            </>
          ) : (
            <>
              <Link href="/login">
                <button className="lms-btn lms-btn-outline" style={{ padding: '8px 20px', fontSize: '13px' }}>
                < L o g I n   s i z e = { 1 6 }   / >       n g   n h - p
                </button>
              </Link>
              <Link href="/register">
                <button className="lms-btn lms-btn-primary" style={{ padding: '8px 20px', fontSize: '13px' }}>
                < U s e r P l u s   s i z e = { 1 6 }   / >       n g   k ý
                </button>
              </Link>
            </>
          )}
          <button onClick={() => setMobileMenu(!mobileMenu)} className="mobile-hamburger-btn" style={{ display...
            {mobileMenu ? <X size={24} /> : <Menu size={24} />}
          </button>
        </div>
      </nav>

      {/* Mobile menu overlay */}
      <div style={{
        position: 'fixed', top: '72px', left: 0, right: 0, background: 'var(--bg-surface)', zIndex: 9999,
        borderBottom: '1px solid var(--border-default)', padding: '16px',
        display: 'flex', flexDirection: 'column', gap: '8px',
        transform: mobileMenu ? 'translateY(0)' : 'translateY(-100%)',
        opacity: mobileMenu ? 1 : 0,
        pointerEvents: mobileMenu ? 'auto' : 'none',
        transition: 'transform 0.3s cubic-bezier(0.4, 0, 0.2, 1), opacity 0.25s ease'
      }}>
        <Link href="/about" style={{ padding: '12px 16px', borderRadius: '8px', color: 'var(--text-primary)', ...
        <Link href="/builder" style={{ padding: '12px 16px', borderRadius: '8px', color: 'var(--text-primary)'...
      </div>

      {/* HERO */}
      <section className="hero-grid landing-hero" style={{ padding: isMobile ? '100px 16px 48px' : '140px 32px...
        <div style={{ maxWidth: '900px', margin: '0 auto' }}>
          <div className="animate-fade-in-up" style={{ display: 'flex', justifyContent: 'center', gap: '8px', ...
                        < s p a n   c l a s s N a m e = " l m s - t a g   l m s - t a g - g r e e n " > < S p a r k l e s   s i z e = { 1 4 }
            <span className="lms-tag lms-tag-blue"><MonitorPlay size={14} /> 100% Web-based</span>
                        < s p a n   c l a s s N a m e = " l m s - t a g " > K h ô n g   c § n   c à i     · t < / s p a n >
          </div>

          <h1 className="animate-fade-in-up animate-delay-1" style={{
            fontSize: 'clamp(36px, 6vw, 56px)', fontWeight: 800, lineHeight: 1.15,
            letterSpacing: '-0.03em', margin: '0 auto 20px auto', color: 'var(--text-primary)',
```

```
125|            whiteSpace: 'nowrap'
126|          }}>
   1 2 7 |                          H Í c   T i n   h Í c   q u a   m ô   p h Ï n g   P C   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - b r a
128|          </h1>
129|
130|          <p className="animate-fade-in-up animate-delay-2" style={{ fontSize: '18px', color: 'var(--text-mute...
   1 3 1 |                          A I   h ° Ú n g   d « n   c h i   t i ¿ t   •   T r £ i   n g h i Ç m   1 0 0 %   W e b - b a s e d   •   K h ô n g   c
132|          </p>
133|
134|          <div className="animate-fade-in-up animate-delay-3" style={{ display: 'flex', gap: '16px', justifyCo...
135|            <Link href="/builder">
136|              <button className="lms-btn lms-btn-primary" style={{ padding: '14px 32px', fontSize: '15px', fon...
   1 3 7 |                                < G r a d u a t i o n C a p   s i z e = { 2 0 }   / >   T ô i   l à   H Í c   s i n h
138|              </button>
139|            </Link>
140|            <Link href="/teacher/lessons">
141|              <button className="lms-btn lms-btn-outline" style={{ padding: '14px 32px', fontSize: '15px', fon...
142|                <BookOpen size={20} /> Tôi là Giáo viên
143|              </button>
144|            </Link>
145|          </div>
146|        </div>
147|      </section>
148|
149|      {/* TRUST BAR */}
150|      <section className="animate-fade-in-up animate-delay-4" style={{ padding: '0 32px', marginTop: '-20px', ...
151|        <div style={{ maxWidth: '900px', margin: '0 auto', background: 'var(--bg-surface)', borderRadius: '16p...
152|          <div style={{ display: 'flex', justifyContent: 'center', gap: '48px', flexWrap: 'wrap', alignItems: ...
153|            {[
154|              { icon: <School size={20} style={{ color: 'var(--accent-blue)' }} />, text: 'THPT Chuyên' },
   1 5 5 |                                {   i c o n :   < U s e r s   s i z e = { 2 0 }   s t y l e = { {   c o l o r :   ' v a r ( - - b r a n d - p r i m
156|              { icon: <FileText size={20} style={{ color: 'var(--accent-amber)' }} />, text: 'Sách KNTT & Cánh...
157|            ].map((item, i) => (
158|              <div key={i} style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '14px', fontW...
159|                {item.icon} {item.text}
160|              </div>
161|            ))}
162|          </div>
163|        </div>
164|      </section>
165|
166|      {/* STATS */}
167|      <section className="animate-fade-in-up animate-delay-5 landing-section" style={{ padding: isMobile ? '48...
168|        <div className="landing-stats-grid" style={{ maxWidth: '1000px', margin: '0 auto', display: 'grid', gr...
169|          {[
   1 7 0 |                          {   n u m :   ' 5 0 + ' ,   l a b e l :   ' L i n h   k i Ç n   c h i   t i ¿ t ' ,   c o l o r :   ' v a r ( - - b r a
   1 7 1 |                          {   n u m :   ' 1 0 + ' ,   l a b e l :   ' N h i Ç m   v å   t h í   t h á c h ' ,   c o l o r :   ' v a r ( - - b r a
   1 7 2 |                          {   n u m :   ' 1 0 0 % ' ,   l a b e l :   ' N Á n   t £ n g   W e b - b a s e d ' ,   c o l o r :   ' v a r ( - - a c
   1 7 3 |                          {   n u m :   ' 9 9 % ' ,   l a b e l :   '   Ù   c h í n h   x á c   k ù   t h u - t ' ,   c o l o r :   ' v a r ( - -
174|          ].map((s, i) => (
175|            <div key={i} className="lms-card" style={{ padding: '28px 20px', animation: `fadeInUp 0.5s ease ${...
176|              <div className="stat-number" style={{ color: s.color }}>{s.num}</div>
177|              <div className="stat-label">{s.label}</div>
178|            </div>
179|          ))}
180|        </div>
181|      </section>
182|
183|      {/* FEATURES */}
184|      <section className="landing-section" style={{ padding: isMobile ? '0 16px 48px' : '0 32px 80px' }}>
185|        <div style={{ maxWidth: '1100px', margin: '0 auto' }}>
186|          <motion.div
187|            initial={{ opacity: 0, y: 30 }}
188|            whileInView={{ opacity: 1, y: 0 }}
189|            viewport={{ once: true, margin: '-80px' }}
190|            transition={{ duration: 0.5 }}
191|            style={{ textAlign: 'center', marginBottom: '48px' }}
192|          >
193|            <h2 style={{ fontSize: '32px', fontWeight: 800, marginBottom: '12px', color: 'var(--text-primary)'...
194|            <p style={{ color: 'var(--text-muted)', fontSize: '16px', maxWidth: '640px', margin: '0 auto', lin...
   1 9 5 |                          K h ô n g   c h É   l à   l ¯ p   r á p ,   h Ç   t h Ñ n g   g i £   l - p   c h i   t i ¿ t   t h ô n g   s Ñ   k
196|            </p>
197|          </motion.div>
198|
199|          <div className="landing-features-grid" style={{ display: 'grid', gridTemplateColumns: isMobile ? '1f...
200|            <motion.div
201|              initial="hidden"
202|              whileInView="visible"
203|              viewport={{ once: true, margin: '-80px' }}
204|              variants={{
205|                hidden: {},
206|                visible: { transition: { staggerChildren: 0.12 } }
207|              }}
208|              style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}
209|            >
210|              {[
   2 1 1 |                                {   i c o n :   < Z a p   s i z e = { 2 2 }   / > ,   t e x t :   ' T í n h   t o á n   i Ç n   n   n g   ( T
   2 1 2 |                                {   i c o n :   < S h i e l d C h e c k   s i z e = { 2 2 }   / > ,   t e x t :   ' K i Ã m   t r a   t ° ¡ n g
   2 1 3 |                                {   i c o n :   < S p a r k l e s   s i z e = { 2 2 }   / > ,   t e x t :   ' P h â n   t í c h   c ¥ u   h ì n
   2 1 4 |                                {   i c o n :   < C p u   s i z e = { 2 2 }   / > ,   t e x t :   ' T h ô n g   s Ñ   k ù   t h u - t   5 0 +
   2 1 5 |                                {   i c o n :   < B r a i n C i r c u i t   s i z e = { 2 2 }   / > ,   t e x t :   ' G ã i   ý   n â n g   c ¥
216|              ].map((f, i) => (
217|                <motion.div
218|                  key={i}
219|                  variants={{
220|                    hidden: { opacity: 0, x: -30 },
221|                    visible: { opacity: 1, x: 0 }
222|                  }}
223|                  className="lms-card"
224|                  style={{ display: 'flex', alignItems: 'flex-start', gap: '16px', padding: '20px' }}
225|                >
226|                  <div style={{ width: '44px', height: '44px', borderRadius: '10px', background: i === 0 ? 'rg...
227|                    {f.icon}
228|                  </div>
229|                  <div>
230|                    <p style={{ fontWeight: 600, color: 'var(--text-primary)', marginBottom: '4px', fontSize: ...
231|                    <p style={{ fontSize: '13px', color: 'var(--text-muted)', lineHeight: 1.5 }}>{f.desc}</p>
232|                  </div>
233|                </motion.div>
234|              ))}
235|            </motion.div>
236|            <motion.div
237|              initial={{ opacity: 0, x: 30 }}
238|              whileInView={{ opacity: 1, x: 0 }}
239|              viewport={{ once: true, margin: '-80px' }}
240|              transition={{ duration: 0.5, delay: 0.2 }}
241|              style={{ perspective: '1200px' }}
242|            >
243|              <motion.div
244|                animate={{ y: [0, -6, 0] }}
245|                transition={{ duration: 4, repeat: Infinity, ease: 'easeInOut' }}
246|                style={{
247|                  background: 'var(--bg-surface)', borderRadius: '16px', padding: '16px',
248|                  border: '1px solid var(--border-default)',
```

```
249|                  boxShadow: '0 8px 32px -4px var(--shadow-color), 0 0 0 1px rgba(0,212,170,0)',
250|                  transition: 'box-shadow 0.4s ease, border-color 0.4s ease',
251|                  transformStyle: 'preserve-3d',
252|                }}
253|                onMouseEnter={e => {
254|                  e.currentTarget.style.boxShadow = '0 20px 60px -8px rgba(0,212,170,0.2), 0 0 0 1px rgba(0,21...
255|                  e.currentTarget.style.borderColor = 'var(--brand-primary)';
256|                  e.currentTarget.style.transform = 'rotateY(-2deg) rotateX(2deg)';
257|                }}
258|                onMouseLeave={e => {
259|                  e.currentTarget.style.boxShadow = '0 8px 32px -4px var(--shadow-color)';
260|                  e.currentTarget.style.borderColor = 'var(--border-default)';
261|                  e.currentTarget.style.transform = 'rotateY(0deg) rotateX(0deg)';
262|                }}
263|              >
264|                <div style={{
265|                  position: 'relative', borderRadius: '8px', overflow: 'hidden',
266|                }}>
267|                  <div style={{
268|                    position: 'absolute', inset: 0, zIndex: 1, pointerEvents: 'none',
269|                    background: 'linear-gradient(135deg, rgba(0,212,170,0.08) 0%, transparent 50%, rgba(99,102...
270|                    animation: 'showcaseGlow 3s ease-in-out infinite',
271|                  }} />
272|                  <motion.img
273|                    src="/showcase.png" alt="Giao diÇn phßn mÁm mô phÏng
274|                    style={{ width: '100%', borderRadius: '8px', display: 'block', position: 'relative', zInde...
275|                    animate={{ scale: [1, 1.02, 1] }}
276|                    transition={{ duration: 6, repeat: Infinity, ease: 'easeInOut' }}
277|                  />
278|                </div>
279|                <div style={{ marginTop: '12px', display: 'flex', alignItems: 'center', gap: '8px', justifyCon...
280|                  <span className="lms-tag lms-tag-green" style={{ animation: 'tagPulse 2s ease-in-out infinit...
281|                    <PlayCircle size={14} />  Lab thñc hành 2D
282|                  </span>
283|                  <span className="lms-tag lms-tag-blue" style={{ animation: 'tagPulse 2s ease-in-out 0.3s inf...
284|                    <Cctv size={14} />  Mô phÏng thÝi gian thñc
285|                  </span>
286|                </div>
287|              </motion.div>
288|            </motion.div>
289|          </div>
290|        </div>
291|      </section>
292|
293|      {/* HOW TO USE */}
294|      <section className="landing-section-wide" style={{ padding: '80px 32px', background: 'var(--bg-surface)'...
295|        <div style={{ maxWidth: '1100px', margin: '0 auto' }}>
296|          <div style={{ textAlign: 'center', marginBottom: '48px' }}>
297|            <h2 style={{ fontSize: '32px', fontWeight: 800, marginBottom: '12px', color: 'var(--text-primary)'...
298|            <p style={{ color: 'var(--text-muted)', fontSize: '16px', maxWidth: '600px', margin: '0 auto' }}>
299|                              B¯t  §u hành trình trßt thành chuyên gia l¯p rápPC chÉ vÛi
300|            </p>
301|          </div>
302|
303|          <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(220px, 1fr))', gap: '24...
304|            {[
305|              { icon: <GraduationCap size={28} style={{ color: 'var(--brand-primary)' }} />, step: '01', title...
306|              { icon: <MonitorPlay size={28} style={{ color: 'var(--accent-blue)' }} />, step: '02', title: 'T...
307|                              { icon: <Wrench size={28} style={{ color: 'var(--accent-am
308|                              { icon: <Bot size={28} style={{ color: 'var(--info)' }} />
309|            ].map((item, i) => (
310|              <div key={i} className="lms-card" style={{ textAlign: 'center', padding: '32px 24px', animation:...
311|                <div style={{ fontSize: '32px', fontWeight: 800, color: 'var(--brand-primary)', marginBottom: ...
312|                <div style={{ marginBottom: '16px', display: 'flex', justifyContent: 'center' }}>{item.icon}</...
313|                <h3 style={{ fontSize: '18px', fontWeight: 700, marginBottom: '8px', color: 'var(--text-primar...
314|                <p style={{ fontSize: '14px', color: 'var(--text-muted)', lineHeight: 1.6 }}>{item.desc}</p>
315|              </div>
316|            ))}
317|          </div>
318|        </div>
319|      </section>
320|
321|      {/* FAQ */}
322|      <section className="landing-section" style={{ padding: '80px 32px' }}>
323|        <div style={{ maxWidth: '800px', margin: '0 auto' }}>
324|          <div style={{ textAlign: 'center', marginBottom: '48px' }}>
325|            <h2 style={{ fontSize: '32px', fontWeight: 800, marginBottom: '12px', color: 'var(--text-primary)'...
326|                          <p style={{ color: 'var(--text-muted)', fontSize: '16px' }}>
327|          </div>
328|
329|          <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
330|            {[
331|                              { q: 'Tôi có c§n cài ·t phßn mÁm nào Ã sí dßng không?',
332|                              { q: 'HÇ thÑng AI Guru có thÃ giúp gì cho tôi?', a: 'AI Gu
333|                              { q: 'S£n phº©m có h× trã thñc hành trên iÇn thoßi di Ùng
334|                              { q: 'Giáo viên có thÃ theo dõi tiÕn Ù cça hÍc sinh không
335|                              { q: 'NÙi dung có bám sát sách giáo khoa không?', a: 'Có.
336|            ].map((faq, i) => (
337|              <div key={i} className="lms-card" style={{ padding: '0', overflow: 'hidden', cursor: 'pointer', ...
338|                <div style={{ padding: '20px 24px', display: 'flex', justifyContent: 'space-between', alignIte...
339|                  {faq.q}
340|                  <ChevronDown size={20} style={{
341|                    color: 'var(--text-muted)',
342|                    transform: activeFaq === i ? 'rotate(180deg)' : 'rotate(0)',
343|                    transition: 'transform 0.3s cubic-bezier(0.4, 0, 0.2, 1)',
344|                    flexShrink: 0
345|                  }} />
346|                </div>
347|                <div style={{
348|                  overflow: 'hidden',
349|                  maxHeight: activeFaq === i ? '300px' : '0',
350|                  transition: 'max-height 0.35s cubic-bezier(0.4, 0, 0.2, 1), opacity 0.25s ease, padding 0.25...
351|                  opacity: activeFaq === i ? 1 : 0,
352|                  padding: activeFaq === i ? '0 24px 20px' : '0 24px',
353|                }}>
354|                  <div style={{ borderTop: '1px solid var(--border-default)', paddingTop: '16px', color: 'var(...
355|                    {faq.a}
356|                  </div>
357|                </div>
358|              </div>
359|            ))}
360|          </div>
361|        </div>
362|      </section>
363|
364|      {/* FOOTER */}
365|      <footer className="landing-section" style={{ padding: '60px 32px 40px', textAlign: 'center', borderTop: ...
366|        <div style={{ maxWidth: '1100px', margin: '0 auto' }}>
367|          <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(200px, 1fr))', gap: '32...
368|            <div>
369|              <div style={{ display: 'flex', alignItems: 'center', gap: '10px', marginBottom: '16px' }}>
370|                <img src="/logo.png" alt="" style={{ width: '32px', height: '32px' }} />
371|                <span style={{ fontWeight: 700, fontSize: '16px' }}>PC Master Builder</span>
372|              </div>
```

```
  373|                          <p style={{ fontSize: '13px', color: 'var(--text-muted)',
  374|            </div>
  375|            <div>
  376|              <h4 style={{ fontWeight: 700, fontSize: '14px', marginBottom: '16px', color: 'var(--text-primary...
  377|              <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
  378|                                <Link href="/builder" style={{ fontSize: '13px', color:
  379|                                <Link href="/about" style={{ fontSize: '13px', color: '
  380|              </div>
  381|            </div>
  382|            <div>
  383|              <h4 style={{ fontWeight: 700, fontSize: '14px', marginBottom: '16px', color: 'var(--text-primary...
  384|              <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
  385|                <span style={{ fontSize: '13px', color: 'var(--text-muted)' }}>Email: phuckhanhsonnguyen@gmail...
  386|                <span style={{ fontSize: '13px', color: 'var(--text-muted)' }}>Hotline: 0772934951</span>
  387|              </div>
  388|            </div>
  389|          </div>
  390|          <div style={{ paddingTop: '24px', borderTop: '1px solid var(--border-default)', display: 'flex', jus...
  391|            <p style={{ color: 'var(--text-muted)', fontSize: '13px' }}>© 2026 PC Master Builder. All rights r...
  392|            <div style={{ display: 'flex', gap: '12px', alignItems: 'center' }}>
  393|              <span className="lms-tag" style={{ fontSize: '10px', padding: '2px 8px' }}>AI YOUNG GURU 2026</s...
  394|            </div>
  395|          </div>
  396|        </div>
  397|      </footer>
  398|
  399|      <style>{`
  400|        @media (min-width: 769px) { .desktop-nav { display: flex !important; } .mobile-hamburger-btn { display...
  401|        @media (max-width: 768px) {
  402|          .desktop-nav { display: none !important; }
  403|          .mobile-hamburger-btn { display: flex !important; }
  404|          .landing-nav { padding: 0 16px !important; }
  405|          .landing-nav-logo span { font-size: 14px !important; }
  406|          .landing-hero { padding: 120px 16px 60px !important; }
  407|          .landing-section { padding: 40px 16px !important; }
  408|          .landing-section-wide { padding: 40px 16px !important; }
  409|          .landing-features-grid { grid-template-columns: 1fr !important; }
  410|          .landing-stats-grid { grid-template-columns: 1fr 1fr !important; }
  411|        }
  412|        @media (max-width: 480px) {
  413|          .landing-nav { padding: 0 12px !important; }
  414|          .landing-hero { padding: 100px 12px 40px !important; }
  415|          .landing-stats-grid { grid-template-columns: 1fr !important; }
  416|        }
  417|        @keyframes showcaseGlow {
  418|          0%, 100% { opacity: 0.4; }
  419|          50% { opacity: 0.9; }
  420|        }
  421|        @keyframes tagPulse {
  422|          0%, 100% { opacity: 1; }
  423|          50% { opacity: 0.6; }
  424|        }
  425|      `}</style>
  426|    </div>
  427|  );
  428| }
  429|
```

File: app/practice/page.tsx (169 lines, 6.8 KB)

```
    1| 'use client'
    2|
    3| import { useState } from 'react'
    4| import { useRouter } from 'next/navigation'
    5| import { motion } from 'framer-motion'
    6| import { useIsMobile } from '@/hooks/useIsMobile'
    7| import {
    8|   FileQuestion, ArrowRight,
    9|   GraduationCap, BarChart3,
   10|   Home
   11| } from 'lucide-react'
   12|
   13| const TABS = [
   14|       {  id:  'exams',  label:  'Kó  Thi',  icon:  FileQuestion,  color:  '#6366f1',
   15|       {  id:  'quiz',  label:  'Tr¯c  NghiÇm',  icon:  BarChart3,  color:  '#f59e0b',
   16| ]
   17|
   18| export default function PracticePage() {
   19|   const router = useRouter()
   20|   const isMobile = useIsMobile()
   21|   const [activeTab, setActiveTab] = useState('exams')
   22|
   23|   return (
   24|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
   25|       <div style={{ maxWidth: '1024px', margin: '0 auto', padding: isMobile ? '24px 12px' : '48px 24px' }}>
   26|         {/* Header */}
   27|         <motion.div
   28|           initial={{ opacity: 0, y: -20 }}
   29|           animate={{ opacity: 1, y: 0 }}
   30|           style={{ textAlign: 'center', marginBottom: '40px' }}
   31|         >
   32|           <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '12px', marginBo...
   33|             <div style={{ width: '48px', height: '48px', borderRadius: '14px', background: 'linear-gradient(13...
   34|               <GraduationCap size={24} color="#fff" />
   35|             </div>
   36|                          <h1 style={{ fontSize: isMobile ? '26px' : '34px', fontWeigh
   37|           </div>
   38|           <p style={{ color: 'var(--text-muted)', maxWidth: '600px', margin: '0 auto', fontSize: '15px' }}>
   39|                          KiÃm tra ki¿n théc ph§n céng vÛi Á thi, ngân hàng câu hÏi v
   40|           </p>
   41|         </motion.div>
   42|
   43|         {/* Tab Navigation */}
   44|         <motion.div
   45|           initial={{ opacity: 0, y: 20 }}
   46|           animate={{ opacity: 1, y: 0 }}
   47|           transition={{ delay: 0.1 }}
   48|           style={{
   49|             display: 'flex', gap: isMobile ? '8px' : '12px',
   50|             marginBottom: '32px', flexWrap: 'wrap',
   51|             justifyContent: 'center'
   52|           }}
   53|         >
   54|           {TABS.map(tab => {
   55|             const isActive = activeTab === tab.id
   56|             const Icon = tab.icon
   57|             return (
   58|               <button
   59|                 key={tab.id}
   60|                 onClick={() => setActiveTab(tab.id)}
   61|                 style={{
   62|                   display: 'flex', alignItems: 'center', gap: '8px',
   63|                   padding: isMobile ? '10px 16px' : '12px 24px',
```

```
  64|                  borderRadius: '12px', border: '1px solid',
  65|                  borderColor: isActive ? tab.color : 'var(--border-default)',
  66|                  background: isActive ? `${tab.color}12` : 'var(--bg-surface)',
  67|                  color: isActive ? tab.color : 'var(--text-muted)',
  68|                  fontWeight: isActive ? 700 : 500,
  69|                  fontSize: isMobile ? '12px' : '14px',
  70|                  cursor: 'pointer', fontFamily: 'inherit',
  71|                  transition: 'all 0.2s'
  72|                }}
  73|              >
  74|                <Icon size={isMobile ? 16 : 18} />
  75|                {isMobile ? tab.label.split(' ')[0] : tab.label}
  76|              </button>
  77|            )
  78|          })}
  79|        </motion.div>
  80|
  81|        {/* Tab Content */}
  82|        <motion.div
  83|          key={activeTab}
  84|          initial={{ opacity: 0, y: 20 }}
  85|          animate={{ opacity: 1, y: 0 }}
  86|          transition={{ duration: 0.2 }}
  87|        >
  88|          {TABS.filter(t => t.id === activeTab).map(tab => {
  89|            const Icon = tab.icon
  90|            return (
  91|              <div
  92|                key={tab.id}
  93|                style={{
  94|                  borderRadius: '20px', border: '1px solid var(--border-default)',
  95|                  background: 'var(--bg-surface)', padding: isMobile ? '24px' : '40px',
  96|                  textAlign: 'center'
  97|                }}
  98|              >
  99|                <div style={{
 100|                  width: '72px', height: '72px', borderRadius: '20px',
 101|                  background: `${tab.color}15`, color: tab.color,
 102|                  display: 'flex', alignItems: 'center', justifyContent: 'center',
 103|                  margin: '0 auto 20px'
 104|                }}>
 105|                  <Icon size={36} />
 106|                </div>
 107|                <h2 style={{ fontSize: '22px', fontWeight: 700, marginBottom: '8px' }}>{tab.label}</h2>
 108|                <p style={{ color: 'var(--text-muted)', marginBottom: '24px', maxWidth: '400px', margin: '0 au...
 109|                  {tab.desc}
 110|                </p>
 111|                <button
 112|                  onClick={() => router.push(tab.link)}
 113|                  style={{
 114|                    display: 'inline-flex', alignItems: 'center', gap: '8px',
 115|                    padding: '12px 28px', borderRadius: '12px', border: 'none',
 116|                    background: tab.color, color: '#fff', fontWeight: 700,
 117|                    fontSize: '15px', cursor: 'pointer', fontFamily: 'inherit'
 118|                  }}
 119|                >
 120|                  Vào ngay <ArrowRight size={18} />
 121|                </button>
 122|              </div>
 123|            )
 124|          })}
 125|        </motion.div>
 126|
 127|        {/* Bottom nav - Back to home */}
 128|        <motion.div
 129|          initial={{ opacity: 0 }}
 130|          animate={{ opacity: 1 }}
 131|          transition={{ delay: 0.3 }}
 132|          style={{
 133|            display: 'flex', justifyContent: 'center', gap: '16px',
 134|            marginTop: '32px', flexWrap: 'wrap'
 135|          }}
 136|        >
 137|          <button
 138|            onClick={() => router.push('/student')}
 139|            style={{
 140|              display: 'flex', alignItems: 'center', gap: '6px',
 141|              padding: '8px 16px', borderRadius: '8px', border: '1px solid var(--border-default)',
 142|              background: 'var(--bg-elevated)', color: 'var(--text-muted)',
 143|              fontSize: '12px', cursor: 'pointer', fontFamily: 'inherit',
 144|              fontWeight: 500
 145|            }}
 146|          >
   1 4 7 |                        < H o m e   s i z e = { 1 4 }   / >   T r a n g   c h ç   < A r r o w R i g h t   s i z e = { 1 4 }   / >
 148|          </button>
 149|          {TABS.filter(t => t.id !== activeTab).map(tab => (
 150|            <button
 151|              key={tab.id}
 152|              onClick={() => router.push(tab.link)}
 153|              style={{
 154|                display: 'flex', alignItems: 'center', gap: '6px',
 155|                padding: '8px 16px', borderRadius: '8px', border: '1px solid var(--border-default)',
 156|                background: 'var(--bg-elevated)', color: 'var(--text-muted)',
 157|                fontSize: '12px', cursor: 'pointer', fontFamily: 'inherit',
 158|                fontWeight: 500
 159|              }}
 160|            >
 161|              <tab.icon size={14} /> {tab.label} <ArrowRight size={14} />
 162|            </button>
 163|          ))}
 164|        </motion.div>
 165|      </div>
 166|    </div>
 167|  )
 168| }
 169|
```

File: app/pro/layout.js (4 lines, 0.1 KB)

```
    1| export default function ProLayout({ children }) {
    2|   return children;
    3| }
    4|
```

File: app/pro/page.js (11 lines, 0.3 KB)

```
    1| import ProLearningSystem from '@/components/ProLearningSystem';
    2|
    3| export const metadata = {
    4|   title: 'Pro Learning System | PC Master Builder',
    5|     d e s c r i p t i o n :   ' H Ç   t h Ñ n g   h Í c   t - p   n â n g   c a o   -   t ë   B u i l d   S c e n a r i o s   ¿ n   M a c
```

```
    6| };
    7|
    8| export default function ProPage() {
    9|   return <ProLearningSystem />;
   10| }
   11|
----------------------------------------------------------------------------------------------------
```

File: app/profile/[userId]/page.tsx (146 lines, 8.0 KB)

```
====================================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect } from 'react'
    4| import { useParams } from 'next/navigation'
    5| import { supabase } from '@/lib/supabase'
    6| import { BookOpen, Clock, Trophy, Award, Activity, ShieldCheck, ArrowLeft } from 'lucide-react'
    7| import Link from 'next/link'
    8| import Navbar from '@/components/Navbar'
    9| import { motion } from 'framer-motion'
   10|
   11| export default function UserProfilePage() {
   12|   const { userId } = useParams()
   13|   const [profile, setProfile] = useState<any>(null)
   14|   const [loading, setLoading] = useState(true)
   15|
   16|   useEffect(() => {
   17|     const fetchProfile = async () => {
   18|       try {
   19|         const { data, error } = await supabase
   20|           .from('profiles')
   21|           .select('*')
   22|           .eq('id', userId)
   23|           .single()
   24|
   25|         if (error) throw error
   26|         setProfile(data)
   27|       } catch (error) {
   28|         console.error(error)
   29|       } finally {
   30|         setLoading(false)
   31|       }
   32|     }
   33|     if (userId) fetchProfile()
   34|   }, [userId])
   35|
   36|   if (loading) {
   37|     return (
   38|       <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', j...
   39|         <div style={{ width: '48px', height: '48px', borderRadius: '50%', border: '2px solid var(--brand-prima...
   40|       </div>
   41|     )
   42|   }
   43|
   44|   if (!profile) {
   45|     return (
   46|       <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', flexDirection: 'column'...
     4 7 |                 < h 2   s t y l e = { {   f o n t S i z e :   ' 2 4 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g i n B o t t o m :   ' 1
   48|         <Link href="/" style={{ padding: '12px 24px', background: 'var(--brand-primary)', color: 'var(--bg-bas...
   49|       </div>
   50|     )
   51|   }
   52|
   53|   return (
   54|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
   55|       <Navbar />
   56|
   57|       <main style={{ paddingTop: '96px', paddingBottom: '80px', paddingLeft: '16px', paddingRight: '16px', max...
   58|         <Link href="/student/classes" style={{ display: 'inline-flex', alignItems: 'center', gap: '8px', color...
   59|           <ArrowLeft size={18} />
     6 0 |                     < s p a n > Q u a y   l ¡ i < / s p a n >
   61|         </Link>
   62|
   63|         {/* HEADER SECTION */}
   64|         <div style={{ background: 'var(--bg-surface)', borderRadius: '16px', border: '1px solid var(--border-d...
   65|           <div style={{ height: '192px', background: 'linear-gradient(to right, color-mix(in srgb, var(--brand...
   66|             <div style={{ position: 'absolute', inset: 0, opacity: 0.2, backgroundImage: 'radial-gradient(var(...
   67|           </div>
   68|
   69|           <div style={{ padding: '24px 40px 32px', position: 'relative' }}>
   70|             <div style={{ display: 'flex', flexDirection: 'column', gap: '24px' }} className="md:flex-row md:i...
   71|               <div style={{ width: '128px', height: '128px', borderRadius: '50%', border: '4px solid var(--bg-...
   72|                 {profile.avatar_url ? (
   73|                   <img src={profile.avatar_url} alt="Avatar" style={{ width: '100%', height: '100%', objectFit...
   74|                 ) : (
   75|                   <div style={{ width: '100%', height: '100%', background: 'linear-gradient(to bottom right, v...
   76|                     {profile.full_name?.charAt(0).toUpperCase()}
   77|                   </div>
   78|                 )}
   79|               </div>
   80|
   81|               <div style={{ flex: 1, paddingBottom: '8px' }}>
   82|                 <h1 style={{ fontSize: '30px', fontWeight: 700, display: 'flex', alignItems: 'center', gap: '1...
   83|                   {profile.full_name}
   84|                   {profile.role === 'admin' && <ShieldCheck style={{ color: 'var(--brand-primary)' }} size={24...
   85|                 </h1>
   86|                 <p style={{ color: 'var(--text-muted)', marginTop: '4px', display: 'flex', alignItems: 'center...
   87|                   {profile.role.toUpperCase()}
   88|                   <span style={{ width: '4px', height: '4px', borderRadius: '50%', background: 'var(--text-mut...
     8 9 |                                 < s p a n > T h a m   g i a   t ë :   { n e w   D a t e ( p r o f i l e . c r e a t e d _ a t ) . t o L o
   90|                 </p>
   91|               </div>
   92|             </div>
   93|           </div>
   94|         </div>
   95|
   96|         {/* STATS BAR */}
   97|         <div style={{ display: 'grid', gridTemplateColumns: 'repeat(2, 1fr)', gap: '16px', marginBottom: '32px'...
     9 8 |                     < S t a t C a r d   l a b e l = " B à i   h Í c "   v a l u e = " 1 2 "   i c o n = { < B o o k O p e n   s i z e = { 2 4 }
     9 9 |                     < S t a t C a r d   l a b e l = " G i Ý   h Í c "   v a l u e = " 4 8 h "   i c o n = { < C l o c k   s i z e = { 2 4 }   /
   1 0 0 |                     < S t a t C a r d   l a b e l = "   i Ã m   X P "   v a l u e = " 2 , 4 5 0 "   i c o n = { < T r o p h y   s i z e = { 2 4
   1 0 1 |                     < S t a t C a r d   l a b e l = " H u y   h i Ç u "   v a l u e = " 8 "   i c o n = { < A w a r d   s i z e = { 2 4 }   / >
  102|         </div>
  103|
  104|         {/* RECENT ACTIVITY */}
  105|         <div style={{ background: 'var(--bg-surface)', borderRadius: '16px', border: '1px solid var(--border-d...
  106|           <h3 style={{ fontSize: '20px', fontWeight: 700, marginBottom: '24px', display: 'flex', alignItems: '...
   1 0 7 |                         < A c t i v i t y   s i z e = { 2 0 }   s t y l e = { {   c o l o r :   ' v a r ( - - b r a n d - p r i m a r y ) '   }
  108|           </h3>
  109|
  110|           <div style={{ display: 'flex', flexDirection: 'column', gap: '24px' }}>
   1 1 1 |                         < A c t i v i t y I t e m   t i t l e = " H o à n   t h à n h   b à i   g i £ n g :   C P U   S o c k e t   T y p e s '
   1 1 2 |                         < A c t i v i t y I t e m   t i t l e = "   ¡ t   i Ã m   1 0   t r o n g   b à i   t h i   g i ï a   k ó "   d a t e
   1 1 3 |                         < A c t i v i t y I t e m   t i t l e = " M ß   k h ó a   h u y   h i Ç u :   F a s t   L e a r n e r "   d a t e = " 3
  114|           </div>
```

```
  115|         </div>
  116|       </main>
  117|     </div>
  118|   )
  119| }
  120|
  121| function StatCard({ label, value, icon, color }: any) {
  122|   return (
  123|     <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '16px', border: '1px solid v...
  124|       <div style={{ width: '48px', height: '48px', borderRadius: '12px', display: 'flex', alignItems: 'center'...
  125|         {icon}
  126|       </div>
  127|       <div>
  128|         <p style={{ fontSize: '14px', color: 'var(--text-muted)', fontWeight: 500 }}>{label}</p>
  129|         <p style={{ fontSize: '24px', fontWeight: 700, marginTop: '2px', color: 'var(--text-primary)' }}>{valu...
  130|       </div>
  131|     </div>
  132|   )
  133| }
  134|
  135| function ActivityItem({ title, date }: any) {
  136|   return (
  137|     <div style={{ display: 'flex', gap: '16px', padding: '16px', borderRadius: '12px', background: 'var(--bg-b...
  138|       <div style={{ width: '8px', height: '8px', borderRadius: '50%', background: 'var(--brand-primary)', marg...
  139|       <div>
  140|         <p style={{ fontWeight: 500, color: 'var(--text-primary)' }}>{title}</p>
  141|         <p style={{ fontSize: '12px', color: 'var(--text-muted)', marginTop: '4px' }}>{date}</p>
  142|       </div>
  143|     </div>
  144|   )
  145| }
  146|
```

File: app/profile/page.tsx (495 lines, 30.9 KB)

```
    1| 'use client'
    2|
    3| import React, { useState, useEffect, useRef } from 'react'
    4| import { motion, AnimatePresence } from 'framer-motion'
    5| import { getProfile } from '@/lib/auth-actions'
    6| import { createBrowserClient } from '@supabase/ssr'
    7| import { BookOpen, Clock, Trophy, Award, Camera, Settings, Activity, FileText, ChevronRight, Edit3, ShieldChec...
    8| import Navbar from '@/components/Navbar'
    9| import { toast } from 'react-hot-toast'
   10| import { updateProfile } from '@/app/actions/profile'
   11| import { useIsMobile } from '@/hooks/useIsMobile'
   12|
   13| export default function ProfilePage() {
   14|   const [profile, setProfile] = useState<any>(null)
   15|   const [loading, setLoading] = useState(true)
   16|   const [activeTab, setActiveTab] = useState('activity')
   17|   const [uploading, setUploading] = useState(false)
   18|   const fileInputRef = useRef<HTMLInputElement>(null)
   19|   const supabase = createBrowserClient(
   20|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   21|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   22|   )
   23|
   24|   const [editMode, setEditMode] = useState(false)
   25|   const [fullName, setFullName] = useState('')
   26|   const [bio, setBio] = useState('')
   27|   const [school, setSchool] = useState('')
   28|   const [grade, setGrade] = useState('')
   29|   const [saving, setSaving] = useState(false)
   30|   const isMobile = useIsMobile()
   31|
   32|   useEffect(() => {
   33|     const params = new URLSearchParams(window.location.search)
   34|     const tabParam = params.get('tab')
   35|     if (tabParam && ['activity', 'exams', 'badges', 'settings'].includes(tabParam)) {
   36|       setActiveTab(tabParam)
   37|     }
   38|   }, [])
   39|
   40|   useEffect(() => {
   41|     const fetchProfile = async () => {
   42|       try {
   43|         const data = await getProfile()
   44|         setProfile(data)
   45|         if (data) {
   46|           setFullName(data.full_name || '')
   47|           setBio(data.bio || '')
   48|           setSchool(data.school || '')
   49|           setGrade(data.grade || '')
   50|         }
   51|       } catch (error) {
   52|         console.error(error)
   53|       } finally {
   54|         setLoading(false)
   55|       }
   56|     }
   57|     fetchProfile()
   58|   }, [])
   59|
   60|   const handleAvatarUpload = async (e: React.ChangeEvent<HTMLInputElement>) => {
   61|     const file = e.target.files?.[0]
   62|     if (!file) return
   63|
   64|     if (!file.type.startsWith('image/')) {
      6 5 |             t o a s t . e r r o r ( ' C h É   c h ¥ p   n h - n   £ n h    ¡ i   d i Ç n    Ë n h   d ¡ n g   £ n h   ( J P E G / P N G / G I
   66|       return
   67|     }
   68|     if (file.size > 2 * 1024 * 1024) {
      6 9 |             t o a s t . e r r o r ( ' K í c h   t h º Û c   £ n h   t Ñ i    a   2 M B . ' )
   70|       return
   71|     }
   72|
   73|     setUploading(true)
   74|     try {
   75|       const ext = file.name.split('.').pop()
   76|       const path = `${profile.id}/avatar-${Date.now()}.${ext}`
   77|
   78|       const { error: uploadError } = await supabase.storage
   79|         .from('avatars')
   80|         .upload(path, file, { upsert: true })
   81|
   82|       if (uploadError) throw uploadError
   83|
   84|       const { data } = supabase.storage.from('avatars').getPublicUrl(path)
   85|       const publicUrl = data.publicUrl
   86|
   87|       const { error: dbError } = await supabase
   88|         .from('profiles')
```

```
89|         .update({ avatar_url: publicUrl })
90|         .eq('id', profile.id)
91|
92|       if (dbError) throw dbError
93|
94|       setProfile({ ...profile, avatar_url: publicUrl })
95|       toast.success('Cập nhật ảnh đại diện thành công!')
96|     } catch (err: any) {
97|       toast.error(err.message || 'Lỗi khi tải ảnh lên.')
98|     } finally {
99|       setUploading(false)
100|     }
101|   }
102|
103|   const handleSaveProfile = async () => {
104|     setSaving(true)
105|     try {
106|       await updateProfile({
107|         full_name: fullName,
108|         bio: bio.slice(0, 200),
109|         school,
110|         grade
111|       })
112|       setProfile({ ...profile, full_name: fullName, bio, school, grade })
113|       setEditMode(false)
114|       toast.success('Đã lưu thông tin cá nhân!')
115|     } catch (err: any) {
116|       toast.error('Lỗi khi lưu thông tin.')
117|     } finally {
118|       setSaving(false)
119|     }
120|   }
121|
122|   if (loading) {
123|     return (
124|       <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', alignItems: 'center', j...
125|         <div style={{ width: '48px', height: '48px', borderRadius: '50%', border: '2px solid var(--brand-prima...
126|       </div>
127|     )
128|   }
129|
130|   if (!profile) {
131|     return (
132|       <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', flexDirection: 'column'...
133|         <h2 style={{ fontSize: '24px', fontWeight: 700, marginBottom: '1
134|         <a href="/login" style={{ padding: '12px 24px', background: 'var(--brand-primary)', color: 'var(--bg-b...
135|       </div>
136|     )
137|   }
138|
139|   const tabs = [
140|     { id: 'activity', label: 'Hoạt Động', icon: <Activity size={18} /> },
141|     { id: 'exams', label: 'Kết quả thi', icon: <FileText size={18} /> },
142|     { id: 'badges', label: 'Huy hiệu', icon: <Award size={18} /> },
143|     { id: 'settings', label: 'Cài đặt', icon: <Settings size={18} /> },
144|   ]
145|
146|   return (
147|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
148|       <Navbar />
149|
150|       <main style={{ paddingTop: '96px', paddingBottom: '80px', paddingLeft: '16px', paddingRight: '16px', max...
151|
152|         {/* HEADER SECTION */}
153|         <div style={{ background: 'var(--bg-surface)', borderRadius: '16px', border: '1px solid var(--border-d...
154|           {/* Banner */}
155|           <div style={{ height: '192px', background: 'linear-gradient(to right, color-mix(in srgb, var(--brand...
156|             <div style={{ position: 'absolute', inset: 0, opacity: 0.2, backgroundImage: 'radial-gradient(var(...
157|           </div>
158|
159|           {/* Profile Info Overlay */}
160|           <div style={{ padding: '24px 40px 32px', position: 'relative' }}>
161|             <div style={{ display: 'flex', flexDirection: 'column', gap: '24px' }} className="md:flex-row md:i...
162|
163|               {/* Avatar */}
164|               <div style={{ position: 'relative', alignSelf: 'flex-start', marginTop: '-64px' }} className="md...
165|                 <div style={{ width: '128px', height: '128px', borderRadius: '50%', border: '4px solid var(--b...
166|                   {profile.avatar_url ? (
167|                     <img src={profile.avatar_url} alt="Avatar" style={{ width: '100%', height: '100%', objectF...
168|                   ) : (
169|                     <div style={{ width: '100%', height: '100%', background: 'linear-gradient(to bottom right,...
170|                       {profile.full_name?.charAt(0).toUpperCase()}
171|                     </div>
172|                   )}
173|                 </div>
174|                 <input
175|                   type="file"
176|                   accept="image/*"
177|                   ref={fileInputRef}
178|                   onChange={handleAvatarUpload}
179|                   style={{ display: 'none' }}
180|                 />
181|                 <button
182|                   onClick={() => fileInputRef.current?.click()}
183|                   disabled={uploading}
184|                   style={{ position: 'absolute', bottom: '8px', right: '8px', padding: '10px', background: 'va...
185|                 >
186|                   {uploading ? <Loader size={18} className="animate-spin" /> : <Camera size={18} />}
187|                 </button>
188|               </div>
189|
190|               {/* Basic Info */}
191|               <div style={{ flex: 1, paddingBottom: '8px' }}>
192|                 <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }} className="md:flex-row ...
193|                   <div>
194|                     <h1 style={{ fontSize: '30px', fontWeight: 700, display: 'flex', alignItems: 'center', gap...
195|                       {profile.full_name}
196|                       {profile.role === 'admin' && <ShieldCheck style={{ color: 'var(--brand-primary)' }} size...
197|                     </h1>
198|                     <p style={{ color: 'var(--text-muted)', marginTop: '4px', display: 'flex', alignItems: 'ce...
199|                       {profile.email}
200|                       <span style={{ width: '4px', height: '4px', borderRadius: '50%', background: 'var(--text...
201|                       <span style={{ textTransform: 'uppercase', fontSize: '12px', fontWeight: 700, color: 'va...
202|                         {profile.role}
203|                       </span>
204|                     </p>
205|                   </div>
206|
207|                   <button
208|                     onClick={() => setEditMode(!editMode)}
209|                     style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '8px', padd...
210|                   >
211|                     <Edit3 size={18} />  {editMode ? 'Đóng' : 'Chỉnh sửa
212|                   </button>
```

```
213|                </div>
214|              </div>
215|            </div>
216|          </div>
217|        </div>
218|
219|        {/* Edit Mode */}
220|        <AnimatePresence>
221|          {editMode && (
222|            <motion.div
223|              initial={{ opacity: 0, height: 0 }}
224|              animate={{ opacity: 1, height: 'auto' }}
225|              exit={{ opacity: 0, height: 0 }}
226|              style={{ overflow: 'hidden', marginBottom: '32px' }}
227|            >
228|              <div style={{ background: 'var(--bg-surface)', borderRadius: '16px', border: '1px solid var(--bo...
229|                <h3 style={{ fontSize: '18px', fontWeight: 700, marginBottom: '20px', display: 'flex', alignIt...
230|                  <User size={20} style={{ color: 'var(--brand-primary)' }} />
   2 3 1 |                                    C h É n h   s í a   t h ô n g   t i n
232|                </h3>
233|                <div style={{ display: 'flex', flexDirection: 'column', gap: '16px', maxWidth: '600px' }}>
234|                  <div style={{ display: 'grid', gridTemplateColumns: isMobile ? '1fr' : '1fr 1fr', gap: '16px...
235|                    <div>
236|                      <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, textTransform: 'upp...
237|                      <input
238|                        type="text"
239|                        value={fullName}
240|                        onChange={(e) => setFullName(e.target.value)}
241|                        style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(-...
242|                      />
243|                    </div>
244|                    <div>
245|                      <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, textTransform: 'upp...
246|                      <input
247|                        type="text"
248|                        value={grade}
249|                        onChange={(e) => setGrade(e.target.value)}
250|                        placeholder="VD: 10A1"
251|                        style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(-...
252|                      />
253|                    </div>
254|                  </div>
255|                  <div>
256|                    <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, textTransform: 'upper...
257|                    <input
258|                      type="text"
259|                      value={school}
260|                      onChange={(e) => setSchool(e.target.value)}
   2 6 1 |                                    p l a c e h o l d e r = " T ê n   t r ° Ý n g . . . "
262|                      style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(--b...
263|                    />
264|                  </div>
265|                  <div>
266|                    <div style={{ display: 'flex', justifyContent: 'space-between', marginBottom: '8px' }}>
267|                      <label style={{ display: 'block', fontSize: '12px', fontWeight: 700, textTransform: 'upp...
268|                      <span style={{ fontSize: '12px', color: 'var(--text-muted)' }}>{bio.length}/200</span>
269|                    </div>
270|                    <textarea
271|                      rows={3}
272|                      value={bio}
273|                      maxLength={200}
274|                      onChange={(e) => setBio(e.target.value)}
   2 7 5 |                                    p l a c e h o l d e r = " M Ù t   v à i   d ò n g   g i Û i   t h i Ç u . . . "
276|                      style={{ width: '100%', padding: '12px 16px', borderRadius: '12px', background: 'var(--b...
277|                    />
278|                  </div>
279|                  <div style={{ display: 'flex', gap: '12px', paddingTop: '8px' }}>
280|                    <button
281|                      onClick={handleSaveProfile}
282|                      disabled={saving}
283|                      style={{ padding: '12px 24px', background: 'var(--brand-primary)', color: 'var(--bg-base...
284|                    >
   2 8 5 |                                    { s a v i n g   ?   '   a n g   l ° u . . . '   :   ' L ° u   t h a y    Õ i ' }
286|                    </button>
287|                    <button
288|                      onClick={() => setEditMode(false)}
289|                      style={{ padding: '12px 24px', background: 'transparent', border: '1px solid var(--borde...
290|                    >
   2 9 1 |                                    H ç y
292|                    </button>
293|                  </div>
294|                </div>
295|              </div>
296|            </motion.div>
297|          )}
298|        </AnimatePresence>
299|
300|        {/* STATS BAR */}
301|        <div style={{ display: 'grid', gridTemplateColumns: 'repeat(2, 1fr)', gap: '16px', marginBottom: '32px...
302|          <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '16px', border: '1px s...
303|            <div style={{ width: '48px', height: '48px', borderRadius: '12px', background: 'color-mix(in srgb,...
304|              <BookOpen size={24} />
305|            </div>
306|            <div>
   3 0 7 |                          < p   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,
308|              <p style={{ fontSize: '24px', fontWeight: 700, marginTop: '2px' }}>12<span style={{ fontSize: '1...
309|            </div>
310|          </div>
311|
312|          <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '16px', border: '1px s...
313|            <div style={{ width: '48px', height: '48px', borderRadius: '12px', background: 'color-mix(in srgb,...
314|              <Clock size={24} />
315|            </div>
316|            <div>
   3 1 7 |                          < p   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,
318|              <p style={{ fontSize: '24px', fontWeight: 700, marginTop: '2px' }}>48<span style={{ fontSize: '1...
319|            </div>
320|          </div>
321|
322|          <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '16px', border: '1px s...
323|            <div style={{ width: '48px', height: '48px', borderRadius: '12px', background: 'color-mix(in srgb,...
324|              <Trophy size={24} />
325|            </div>
326|            <div>
   3 2 7 |                          < p   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,
328|              <p style={{ fontSize: '24px', fontWeight: 700, marginTop: '2px' }}>2,450 <span style={{ fontSize...
329|            </div>
330|          </div>
331|
332|          <div style={{ background: 'var(--bg-surface)', padding: '20px', borderRadius: '16px', border: '1px s...
333|            <div style={{ width: '48px', height: '48px', borderRadius: '12px', background: 'color-mix(in srgb,...
334|              <Award size={24} />
335|            </div>
336|            <div>
```

```
  3 3 7 |                            < p   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,
338|              <p style={{ fontSize: '24px', fontWeight: 700, marginTop: '2px' }}>2</p>
339|            </div>
340|          </div>
341|        </div>
342|
343|        {/* TAB NAVIGATION & CONTENT */}
344|        <div style={{ background: 'var(--bg-surface)', borderRadius: '16px', border: '1px solid var(--border-d...
345|
346|          {/* Tabs */}
347|          <div style={{ display: 'flex', overflowX: 'auto', borderBottom: '1px solid var(--border-default)' }}>
348|            {tabs.map((tab) => (
349|              <button
350|                key={tab.id}
351|                onClick={() => setActiveTab(tab.id)}
352|                style={{
353|                  display: 'flex', alignItems: 'center', gap: '8px', padding: '16px 24px', fontWeight: 500, fo...
354|                  color: activeTab === tab.id ? 'var(--text-primary)' : 'var(--text-muted)'
355|                }}
356|              >
357|                {tab.icon} {tab.label}
358|                {activeTab === tab.id && (
359|                  <motion.div
360|                    layoutId="profileTabIndicator"
361|                    style={{ position: 'absolute', bottom: 0, left: 0, right: 0, height: '2px', background: 'v...
362|                  />
363|                )}
364|              </button>
365|            ))}
366|          </div>
367|
368|          {/* Tab Content */}
369|          <div style={{ padding: isMobile ? '16px' : '24px 32px' }}>
370|
371|            <AnimatePresence mode="wait">
372|              {activeTab === 'activity' && (
373|                <motion.div key="activity" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit...
  3 7 4 |                            < h 3   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g i n
375|
376|                  <div style={{ position: 'relative', borderLeft: '1px solid var(--border-default)', marginLef...
377|                    <div style={{ position: 'relative', paddingLeft: '32px' }}>
378|                      <div style={{ position: 'absolute', width: '16px', height: '16px', background: 'var(--br...
379|                      <div style={{ fontSize: '14px', color: 'var(--text-muted)', marginBottom: '4px' }}>Hôm n...
380|                      <div style={{ background: 'var(--bg-base)', padding: '16px', borderRadius: '12px', borde...
  3 8 1 |                                                 < p   s t y l e = { {   f o n t W e i g h t :   5 0 0   } } > H o à n   t h à n h   b à i   h 1
  3 8 2 |                                                 < p   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   c o l o r :   ' v a r ( - - t e x t
383|                      </div>
384|                    </div>
385|
386|                    <div style={{ position: 'relative', paddingLeft: '32px' }}>
387|                      <div style={{ position: 'absolute', width: '16px', height: '16px', background: 'var(--ac...
388|                      <div style={{ fontSize: '14px', color: 'var(--text-muted)', marginBottom: '4px' }}>Hôm q...
389|                      <div style={{ background: 'var(--bg-base)', padding: '16px', borderRadius: '12px', borde...
  3 9 0 |                                                 < p   s t y l e = { {   f o n t W e i g h t :   5 0 0   } } > M ß   k h ó a   h u y   h i Ç u
391|                      </div>
392|                    </div>
393|
394|                    <div style={{ position: 'relative', paddingLeft: '32px' }}>
395|                      <div style={{ position: 'absolute', width: '16px', height: '16px', background: 'var(--bg...
396|                      <div style={{ fontSize: '14px', color: 'var(--text-muted)', marginBottom: '4px' }}>3 ngà...
397|                      <div style={{ background: 'var(--bg-base)', padding: '16px', borderRadius: '12px', borde...
  3 9 8 |                                                 < p   s t y l e = { {   f o n t W e i g h t :   5 0 0 ,   c o l o r :   ' v a r ( - - t e x t -
399|                      </div>
400|                    </div>
401|                  </div>
402|
403|                  <button style={{ marginTop: '16px', display: 'flex', alignItems: 'center', gap: '4px', fontS...
  4 0 4 |                                          X e m   t o à n   b Ù   l Ê c h   s í   < C h e v r o n R i g h t   s i z e = { 1 6 }   / >
405|                  </button>
406|                </motion.div>
407|              )}
408|
409|              {activeTab === 'exams' && (
410|                <motion.div key="exams" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit={{...
411|                  <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', margin...
  4 1 2 |                                          < h 3   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   7 0 0   } } > L Ê
413|                  </div>
414|
415|                  <div style={{ overflowX: 'auto' }}>
416|                    <table style={{ width: '100%', textAlign: 'left', borderCollapse: 'collapse' }}>
417|                      <thead>
418|                        <tr style={{ borderBottom: '1px solid var(--border-default)', fontSize: '14px', color:...
419|                          <th style={{ padding: '12px 16px', fontWeight: 500 }}>Tên bài thi</th>
420|                          <th style={{ padding: '12px 16px', fontWeight: 500 }}>Ngày thi</th>
  4 2 1 |                                                   < t h   s t y l e = { {   p a d d i n g :   ' 1 2 p x   1 6 p x ' ,   f o n t W e i g h t
  4 2 2 |                                                   < t h   s t y l e = { {   p a d d i n g :   ' 1 2 p x   1 6 p x ' ,   f o n t W e i g h t
423|                          <th style={{ padding: '12px 16px', fontWeight: 500 }}></th>
424|                        </tr>
425|                      </thead>
426|                      <tbody>
427|                        <tr style={{ borderBottom: '1px solid var(--border-default)' }}>
  4 2 8 |                                                   < t d   s t y l e = { {   p a d d i n g :   ' 1 6 p x ' ,   f o n t W e i g h t :   5 0 0
429|                          <td style={{ padding: '16px', color: 'var(--text-muted)', fontSize: '14px' }}>10/05/...
430|                          <td style={{ padding: '16px', fontWeight: 700, color: 'var(--brand-primary)' }}>9.5<...
431|                          <td style={{ padding: '16px' }}><span style={{ padding: '4px 8px', background: 'colo...
432|                          <td style={{ padding: '16px', textAlign: 'right' }}><button style={{ fontSize: '14px...
433|                        </tr>
434|                        <tr style={{ borderBottom: '1px solid var(--border-default)' }}>
  4 3 5 |                                                   < t d   s t y l e = { {   p a d d i n g :   ' 1 6 p x ' ,   f o n t W e i g h t :   5 0 0
436|                          <td style={{ padding: '16px', color: 'var(--text-muted)', fontSize: '14px' }}>05/05/...
437|                          <td style={{ padding: '16px', fontWeight: 700, color: 'var(--accent-amber)' }}>8.0</td>
438|                          <td style={{ padding: '16px' }}><span style={{ padding: '4px 8px', background: 'colo...
439|                          <td style={{ padding: '16px', textAlign: 'right' }}><button style={{ fontSize: '14px...
440|                        </tr>
441|                      </tbody>
442|                    </table>
443|                  </div>
444|                </motion.div>
445|              )}
446|
447|              {activeTab === 'badges' && (
448|                <motion.div key="badges" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit={...
  4 4 9 |                                          < h 3   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g i n
450|                  <div style={{ textAlign: 'center', padding: '40px', color: 'var(--text-muted)' }}>
451|                    <Award size={48} style={{ margin: '0 auto 16px', opacity: 0.3 }} />
  4 5 2 |                                          < p > C h ° a   c ó   h u y   h i Ç u   n à o . < / p >
453|                  </div>
454|                </motion.div>
455|              )}
456|
457|              {activeTab === 'settings' && (
458|                <motion.div key="settings" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit...
459|                  <div style={{ maxWidth: '448px' }}>
  4 6 0 |                                          < h 3   s t y l e = { {   f o n t S i z e :   ' 1 8 p x ' ,   f o n t W e i g h t :   7 0 0 ,   m a r g
```

```
461|
462|                     <div style={{ display: 'flex', flexDirection: 'column', gap: '24px' }}>
463|                       <div style={{ background: 'var(--bg-base)', border: '1px solid var(--border-default)', b...
    4 6 4 |                                                  < h 4   s t y l e = { {   f o n t W e i g h t :   6 0 0 ,   m a r g i n B o t t o m :   ' 1 6 p
465|                         <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
466|                           <div>
467|                             <label style={{ display: 'block', fontSize: '14px', fontWeight: 500, color: 'var(-...
468|                             <input type="password" placeholder="••••••••" style={{ width: '100%', background: ...
469|                           </div>
470|                           <div>
471|                             <label style={{ display: 'block', fontSize: '14px', fontWeight: 500, color: 'var(-...
472|                             <input type="password" placeholder="••••••••" style={{ width: '100%', background: ...
473|                           </div>
474|                           <button style={{ alignSelf: 'flex-start', padding: '8px 16px', background: 'var(--bg...
475|                         </div>
476|                       </div>
477|
478|                       <div style={{ background: 'var(--bg-base)', border: '1px solid var(--border-default)', b...
    4 7 9 |                                                  < h 4   s t y l e = { {   f o n t W e i g h t :   6 0 0 ,   m a r g i n B o t t o m :   ' 4 p x
480|                         <p style={{ fontSize: '14px', color: 'var(--text-muted)', marginBottom: '16px' }}>Hành...
481|                         <button style={{ padding: '8px 16px', background: 'color-mix(in srgb, #ef4444 10%, tra...
482|                       </div>
483|                     </div>
484|                   </div>
485|                 </motion.div>
486|               )}
487|             </AnimatePresence>
488|
489|           </div>
490|         </div>
491|       </main>
492|     </div>
493|   )
494| }
495|
```

File: app/profile/skills/page.tsx (129 lines, 6.3 KB)

```
1| 'use client'
2|
3| import React, { useState, useEffect } from 'react'
4| import { motion } from 'framer-motion'
5| import { Cpu, Layout, HardDrive, Zap, Shield, Microscope, ArrowLeft } from 'lucide-react'
6| import Navbar from '@/components/Navbar'
7| import Link from 'next/link'
8| import { supabase } from '@/lib/supabase'
9|
10| export default function SkillTreePage() {
11|   const [skills, setSkills] = useState<any[]>([])
12|   const [loading, setLoading] = useState(true)
13|
14|   useEffect(() => {
15|     fetchSkills()
16|   }, [])
17|
18|   async function fetchSkills() {
19|     try {
20|       setLoading(true)
21|       const { data: { user } } = await supabase.auth.getUser()
22|       if (!user) return
23|
24|       // Fetch user progress
25|       const { data: progress } = await supabase
26|         .from('lesson_progress')
27|         .select('*')
28|         .eq('student_id', user.id)
29|         .eq('is_completed', true)
30|
31|       const completedCount = progress?.length || 0
32|
33|       // Dynamic calculation logic (simplified for real feel)
34|       const baseSkills = [
35|         { id: 'cpu', name: 'Master CPU', level: Math.min(100, completedCount * 15), icon: <Cpu size={24} />, c...
36|         { id: 'main', name: 'Mainboard Expert', level: Math.min(100, completedCount * 12), icon: <Layout size=...
37|         { id: 'ram', name: 'Memory Specialist', level: Math.min(100, completedCount * 20), icon: <Zap size={24...
38|         { id: 'gpu', name: 'Graphics Guru', level: Math.min(100, completedCount * 8), icon: <Microscope size={...
39|         { id: 'storage', name: 'Storage Pro', level: Math.min(100, completedCount * 10), icon: <HardDrive size...
40|         { id: 'security', name: 'System Security', level: Math.min(100, completedCount * 5), icon: <Shield siz...
41|       ]
42|       setSkills(baseSkills)
43|     } catch (err) {
44|       console.error(err)
45|     } finally {
46|       setLoading(false)
47|     }
48|   }
49|
50|   if (loading) return <div className="min-h-screen bg-[#0f0f1a] flex items-center justify-center text-[#00d2a0...
51|
52|   return (
53|     <div className="min-h-screen bg-[#0f0f1a] text-white">
54|       <Navbar />
55|
56|       <main className="pt-28 pb-20 px-4 sm:px-6 lg:px-8 max-w-6xl mx-auto">
57|         <div className="flex items-center gap-4 mb-12">
58|           <Link href="/profile" className="p-2 hover:bg-[#16213e] rounded-xl transition-colors">
59|             <ArrowLeft size={20} />
60|           </Link>
    6 1 |                     < h 1   c l a s s N a m e = " t e x t - 3 x l   f o n t - b o l d " > C â y   k ù   n   n g   < s p a n   c l a s s N a m e
62|         </div>
63|
64|         <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-12 relative py-10">
65|           {/* SVG Lines Connector Placeholder (Conceptual) */}
66|           <svg className="absolute inset-0 w-full h-full pointer-events-none opacity-10 hidden lg:block">
67|             <line x1="15%" y1="20%" x2="50%" y2="50%" stroke="white" strokeWidth="2" />
68|             <line x1="85%" y1="20%" x2="50%" y2="50%" stroke="white" strokeWidth="2" />
69|           </svg>
70|
71|           {skills.map((skill, idx) => (
72|             <motion.div
73|               key={skill.id}
74|               initial={{ opacity: 0, scale: 0.8 }}
75|               animate={{ opacity: 1, scale: 1 }}
76|               transition={{ delay: idx * 0.1 }}
77|               className="relative group"
78|             >
79|               <div className="bg-[#16213e] border border-[#1e293b] p-8 rounded-[40px] text-center relative z-1...
80|                 <div
81|                   className="w-20 h-20 rounded-3xl mx-auto mb-6 flex items-center justify-center shadow-lg tra...
82|                   style={{ backgroundColor: `${skill.color}20`, color: skill.color, border: `2px solid ${skill...
83|                 >
84|                   {skill.icon}
85|                 </div>
```

```
  86|                <h3 className="text-xl font-black mb-2">{skill.name}</h3>
  87|                <div className="flex items-center justify-center gap-2 mb-6">
  88|                   <div className="h-1.5 w-full bg-[#0f0f1a] rounded-full overflow-hidden">
  89|                      <motion.div
  90|                        initial={{ width: 0 }}
  91|                        animate={{ width: `${skill.level}%` }}
  92|                        transition={{ duration: 1, delay: 0.5 }}
  93|                        className="h-full"
  94|                        style={{ backgroundColor: skill.color }}
  95|                      />
  96|                   </div>
  97|                   <span className="text-[10px] font-bold text-slate-500 whitespace-nowrap">{skill.level}%</span>
  98|                </div>
  99|                <div className="flex justify-center gap-1">
 100|                  {[1, 2, 3, 4, 5].map(star => (
 101|                    <div key={star} className={`w-2 h-2 rounded-full ${star <= Math.round(skill.level/20) ? ''...
 102|                  ))}
 103|                </div>
 104|              </div>
 105|
 106|              {/* Connector dots */}
 107|              <div className="absolute -bottom-4 left-1/2 -translate-x-1/2 w-8 h-8 bg-[#00d2a0]/10 rounded-ful...
 108|                <div className="w-2 h-2 bg-[#00d2a0] rounded-full animate-pulse" />
 109|              </div>
 110|            </motion.div>
 111|          ))}
 112|        </div>
 113|
 114|        <div className="mt-20 p-10 bg-gradient-to-r from-[#16213e] to-[#0f0f1a] border border-[#1e293b] rounde...
 115|           <div className="flex-1">
 116|                          < h 4   c l a s s N a m e = " t e x t - 2 x l   f o n t - b o l d   m b - 4 " > M ß   k h ó a   c h é n g   c h É   M
 117|             <p className="text-slate-400 leading-relaxed">
 118|                          H o à n   t h à n h   t ¥ t   c £   c á c   k ù   n   n g   p h § n   c é n g   ß   m é c   t r ê n   8 0 %   Á
 119|             </p>
 120|           </div>
 121|           <button className="px-10 py-5 bg-[#00d2a0] text-black font-black rounded-2xl hover:scale-105 transi...
 122|                          B ® T     ¦ U   T H I   N G A Y
 123|           </button>
 124|        </div>
 125|      </main>
 126|    </div>
 127|  )
 128| }
 129|
```

File: app/quiz-bank/page.tsx (348 lines, 21.9 KB)

```
   1| 'use client'
   2|
   3| import React, { useState, useEffect, useMemo } from 'react'
   4| import { motion, AnimatePresence } from 'framer-motion'
   5| import { QUIZ_BANK } from '@/data/quiz-bank'
   6| import { supabase } from '@/lib/supabase'
   7| import {
   8|   Lock, Unlock, Search, ChevronRight, Zap,
   9|   Trophy, BookMarked, GraduationCap,
  10|   Sparkles, Layers, Brain, Star, Swords,
  11|   Crosshair, Diamond, Heart
  12| } from 'lucide-react'
  13| import { useIsMobile } from '@/hooks/useIsMobile'
  14| import Link from 'next/link'
  15|
  16| const DICTIONARY = [
     1 7 |       {   t e r m :   ' C P U ' ,   d e f :   ' C e n t r a l   P r o c e s s i n g   U n i t   -   B Ù   x í   l ý   t r u n g   t â m ,   n ã
     1 8 |       {   t e r m :   ' G P U ' ,   d e f :   ' G r a p h i c s   P r o c e s s i n g   U n i t   -   B Ù   x í   l ý   Ó   h Í a ,   x í   l
     1 9 |       {   t e r m :   ' R A M ' ,   d e f :   ' R a n d o m   A c c e s s   M e m o r y   -   B Ù   n h Ớ   t ¡ m   t h Ý i ,   l º u   d ï   l
     2 0 |       {   t e r m :   ' S S D ' ,   d e f :   ' S o l i d   S t a t e   D r i v e   -   Ô   c é n g   t h Ã   r ¯ n ,   l º u   t r ï   d ï   l
     2 1 |       {   t e r m :   ' H D D ' ,   d e f :   ' H a r d   D i s k   D r i v e   -   Ô   c é n g   c ¡ ,   l º u   t r ï   d u n g   l º ã n g
     2 2 |       {   t e r m :   ' P S U ' ,   d e f :   ' P o w e r   S u p p l y   U n i t   -   B Ù   n g u Ồ n   m á y   t í n h '   } ,
     2 3 |       {   t e r m :   ' T D P ' ,   d e f :   ' T h e r m a l   D e s i g n   P o w e r   -   C Ô n g   s u ¥ t   t Ï a   n h i Ç t   t Ñ i
     2 4 |       {   t e r m :   ' P C I e ' ,   d e f :   ' P e r i p h e r a l   C o m p o n e n t   I n t e r c o n n e c t   E x p r e s s   -   C h u
     2 5 |       {   t e r m :   ' B I O S ' ,   d e f :   ' B a s i c   I n p u t / O u t p u t   S y s t e m   -   H Ç   t h Ñ n g   x u ¥ t   n h - p
     2 6 |       {   t e r m :   ' U E F I ' ,   d e f :   ' U n i f i e d   E x t e n s i b l e   F i r m w a r e   I n t e r f a c e   -   G i a o   d i
     2 7 |       {   t e r m :   ' V R A M ' ,   d e f :   ' V i d e o   R A M   -   B Ù   n h Ớ   Ó   h Í a   t r ê n   G P U '   } ,
     2 8 |       {   t e r m :   ' D L S S ' ,   d e f :   ' D e e p   L e a r n i n g   S u p e r   S a m p l i n g   -   C Ô n g   n g h Ç   n â n g
     2 9 |       {   t e r m :   ' X M P ' ,   d e f :   ' E x t r e m e   M e m o r y   P r o f i l e   -   H Ồ   s ¡   é p   x u n g   R A M   c ç a
     3 0 |       {   t e r m :   ' D O C P ' ,   d e f :   ' D i r e c t   O v e r   C l o c k   P r o f i l e   -   H Ồ   s ¡   é p   x u n g   R A M   c
     3 1 |       {   t e r m :   ' N V M e ' ,   d e f :   ' N o n - V o l a t i l e   M e m o r y   E x p r e s s   -   G i a o   t h é c   S S D   t Ñ c
     3 2 |       {   t e r m :   ' M . 2 ' ,   d e f :   ' C h u © n   k ¿ t   n Ñ i   S S D   n h Ỏ   g Í n ,   t Ñ c   Ù   c a o '   } ,
     3 3 |       {   t e r m :   ' S A T A ' ,   d e f :   ' S e r i a l   A T A   -   C h u © n   k ¿ t   n Ñ i   Ô   c é n g   t r u y Ề n   t h Ñ n g '
     3 4 |       {   t e r m :   ' R G B ' ,   d e f :   ' R e d   G r e e n   B l u e   -   H Ç   t h Ñ n g   è n   L E D   m à u   t r ê n   l i n h
     3 5 |       {   t e r m :   ' A I O ' ,   d e f :   ' A l l - I n - O n e   -   H Ç   t h Ñ n g   t £ n   n h i Ç t   n º Ù c   k h é p   k í n '   } ,
     3 6 |       {   t e r m :   ' R G B   H e a d e r ' ,   d e f :   ' C h â n   c ¯ m   è n   L E D   R G B   t r ê n   m a i n b o a r d '   } ,
     3 7 |       {   t e r m :   ' F o r m   F a c t o r ' ,   d e f :   ' K í c h   t h º Ù c   c h u © n   c ç a   m a i n b o a r d   ( A T X ,   M i c
     3 8 |       {   t e r m :   ' O v e r c l o c k i n g ' ,   d e f :   ' É p   x u n g   -   C h ¡ y   l i n h   k i Ç n   ß   t Ñ c   Ù   c a o   h
     3 9 |       {   t e r m :   ' T h e r m a l   T h r o t t l i n g ' ,   d e f :   ' G i £ m   h i Ç u   n g   d ò   q u á   n h i Ç t '   } ,
     4 0 |       {   t e r m :   ' D u a l   C h a n n e l ' ,   d e f :   ' C h ¡ y   2   t h a n h   R A M   s o n g   s o n g   Ã   t   n g   b   n g
     4 1 |       {   t e r m :   ' C a c h e ' ,   d e f :   ' B Ù   n h Ớ   Ç m   t Ñ c   Ù   c a o   t r o n g   C P U '   } ,
     4 2 |       {   t e r m :   ' P i p e l i n e ' ,   d e f :   ' D â y   c h u y Ề n   x í   l ý   l Ç n h   t r o n g   C P U '   } ,
     4 3 |       {   t e r m :   ' H y p e r - T h r e a d i n g ' ,   d e f :   ' C Ô n g   n g h Ç   a   l u Ồ n g   c ç a   I n t e l '   } ,
     4 4 |       {   t e r m :   ' E C C   R A M ' ,   d e f :   ' E r r o r - C o r r e c t i n g   C o d e   R A M   -   R A M   s í a   l × i   c h o
     4 5 |       {   t e r m :   ' C A S   L a t e n c y ' ,   d e f :   ' Ù   t r Ễ   c ç a   R A M ,   C L   c à n g   t h ¥ p   c à n g   n h a n h '
     4 6 |       {   t e r m :   ' R a y   T r a c i n g ' ,   d e f :   ' M ô   p h Ỉ n g   t i a   s á n g   t h ñ c   t ¿   t r o n g   Ó   h Í a '   }
  47| ]
  48|
  49| const UNLOCK_KEY = 'quiz_bank_unlock_date'
  50| const DAILY_UNLOCK = 2
  51|
  52| const TOPIC_COLORS = [
  53|   { bg: 'color-mix(in srgb, var(--accent-blue) 12%, transparent)', border: 'color-mix(in srgb, var(--accent-bl...
  54|   { bg: 'color-mix(in srgb, var(--brand-primary) 12%, transparent)', border: 'color-mix(in srgb, var(--brand-p...
  55|   { bg: 'color-mix(in srgb, var(--accent-amber) 12%, transparent)', border: 'color-mix(in srgb, var(--accent-a...
  56|   { bg: 'color-mix(in srgb, var(--danger) 12%, transparent)', border: 'color-mix(in srgb, var(--danger) 25%, t...
  57|   { bg: 'color-mix(in srgb, var(--accent-purple) 12%, transparent)', border: 'color-mix(in srgb, var(--accent-...
  58|   { bg: 'color-mix(in srgb, var(--primary-neon) 12%, transparent)', border: 'color-mix(in srgb, var(--primary-...
  59| ]
  60|
  61| const DIFFICULTY_COLORS: Record<string, string> = {
     6 2 |       ' D Ễ ' :   ' # 3 4 d 3 9 9 ' ,
  63|   'Trung bình': '#fbbf24',
  64|   'Khó': '#f87171',
  65| }
  66|
  67| export default function QuizBankPage() {
  68|   const isMobile = useIsMobile()
  69|   const [activeTab, setActiveTab] = useState<'bank' | 'dictionary'>('bank')
  70|   const [searchTerm, setSearchTerm] = useState('')
  71|   const [unlockedCount, setUnlockedCount] = useState(2)
  72|   const [completedQuizzes, setCompletedQuizzes] = useState<string[]>([])
  73|   const [xpEarned, setXpEarned] = useState(0)
  74|
  75|   useEffect(() => {
  76|     checkDailyUnlock()
```

```
 77|     loadCompletedQuizzes()
 78|   }, [])
 79|
 80|   function checkDailyUnlock() {
 81|     const stored = localStorage.getItem(UNLOCK_KEY)
 82|     const today = new Date().toISOString().slice(0, 10)
 83|     if (stored !== today) {
 84|       localStorage.setItem(UNLOCK_KEY, today)
 85|       const baseUnlocked = 2
 86|       const extra = Math.floor(QUIZ_BANK.length / 2)
 87|       setUnlockedCount(Math.min(baseUnlocked + extra, QUIZ_BANK.length))
 88|     } else {
 89|       const saved = localStorage.getItem('quiz_bank_unlocked_count')
 90|       setUnlockedCount(saved ? parseInt(saved) : 2)
 91|     }
 92|   }
 93|
 94|   async function loadCompletedQuizzes() {
 95|     try {
 96|       const { data: { user } } = await supabase.auth.getUser()
 97|       if (!user) return
 98|       const { data } = await supabase
 99|         .from('quiz_attempts')
100|         .select('quiz_id')
101|         .eq('student_id', user.id)
102|         .eq('status', 'passed')
103|       if (data) {
104|         setCompletedQuizzes(data.map(d => d.quiz_id))
105|       }
106|     } catch (e) {}
107|   }
108|
109|   const filteredQuizzes = useMemo(() => {
110|     return QUIZ_BANK.filter(q =>
111|       !searchTerm || q.title.toLowerCase().includes(searchTerm.toLowerCase()) ||
112|       q.lessonTitle?.toLowerCase().includes(searchTerm.toLowerCase())
113|     )
114|   }, [searchTerm])
115|
116|   const filteredDictionary = useMemo(() => {
117|     if (!searchTerm) return DICTIONARY
118|     return DICTIONARY.filter(d =>
119|       d.term.toLowerCase().includes(searchTerm.toLowerCase()) ||
120|       d.def.toLowerCase().includes(searchTerm.toLowerCase())
121|     )
122|   }, [searchTerm])
123|
124|   const progressPercent = (completedQuizzes.length / QUIZ_BANK.length) * 100
125|
126|   return (
127|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
128|       <div style={{
129|         position: 'fixed', top: 0, left: 0, right: 0, height: '280px',
130|         background: 'radial-gradient(ellipse 80% 60% at 50% -20%, color-mix(in srgb, var(--accent-blue) 8%, tr...
131|         pointerEvents: 'none', zIndex: 0,
132|       }} />
133|
134|       <div style={{ position: 'relative', zIndex: 1, maxWidth: '1100px', margin: '0 auto', padding: isMobile ?...
135|
136|         {/* Pixel Header */}
137|         <motion.div initial={{ opacity: 0, y: -20 }} animate={{ opacity: 1, y: 0 }}
138|           style={{ textAlign: 'center', marginBottom: '28px' }}>
139|           <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '12px', marginBo...
140|             <motion.div animate={{ y: [0, -6, 0] }} transition={{ duration: 1.5, repeat: Infinity }}
141|               style={{
142|                 width: '56px', height: '56px', borderRadius: '12px',
143|                 background: 'linear-gradient(135deg, var(--accent-blue), var(--accent-purple))',
144|                 display: 'flex', alignItems: 'center', justifyContent: 'center',
145|                 boxShadow: '0 0 24px color-mix(in srgb, var(--accent-blue) 40%, transparent)',
146|                 imageRendering: 'pixelated',
147|               }}>
148|               <Crosshair size={28} color="#fff" />
149|             </motion.div>
150|             <h1 style={{
151|               fontSize: isMobile ? '24px' : '34px', fontWeight: 900,
152|               background: 'linear-gradient(135deg, var(--accent-blue), var(--brand-primary))',
153|               WebkitBackgroundClip: 'text', WebkitTextFillColor: 'transparent',
154|               letterSpacing: '1px',
155|             }}>
156 |                                N G Â N   H À N G    À   T H I
157|             </h1>
158|           </div>
159|
160|           {/* Pixel progress bar */}
161|           <div style={{ maxWidth: '400px', margin: '0 auto 16px' }}>
162|             <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: '12px', color: 'var(--te...
163 |                                < s p a n > T i ¿ n     Ù < / s p a n >
164|               <span>{completedQuizzes.length}/{QUIZ_BANK.length}</span>
165|             </div>
166|             <div style={{ width: '100%', height: '12px', background: 'var(--border-subtle)', borderRadius: '2p...
167|               <motion.div initial={{ width: 0 }} animate={{ width: `${progressPercent}%` }}
168|                 style={{
169|                   height: '100%', borderRadius: '1px',
170|                   background: 'repeating-linear-gradient(90deg, var(--brand-primary) 0px, var(--brand-primary)...
171|                   transition: 'width 0.8s ease',
172|                 }} />
173|             </div>
174|           </div>
175|
176|           <p style={{ color: 'var(--text-muted)', fontSize: '13px', margin: '0 auto 12px', maxWidth: '500px' }}>
177 |                          M × i   n g à y   m ß   k h ó a   { D A I L Y _ U N L O C K }   c h ç     Á   ·   { Q U I Z _ B A N K . l e n g t h }
178|           </p>
179|
180|           {/* Stats badges */}
181|           <div style={{ display: 'flex', justifyContent: 'center', gap: '12px', flexWrap: 'wrap', fontSize: '1...
182|             <motion.div whileHover={{ scale: 1.05, y: -1 }}
183|               style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '6px 14px', borderRadius: '...
184|               <Unlock size={13} /> {unlockedCount}/{QUIZ_BANK.length}
185|             </motion.div>
186|             <motion.div whileHover={{ scale: 1.05, y: -1 }}
187|               style={{ display: 'flex', alignItems: 'center', gap: '6px', padding: '6px 14px', borderRadius: '...
188|               <Zap size={13} /> {xpEarned} XP
189|             </motion.div>
190|           </div>
191|         </motion.div>
192|
193|         {/* Tabs */}
194|         <div style={{ display: 'flex', gap: '6px', marginBottom: '24px', justifyContent: 'center' }}>
195|           {[
196 |                          {   i d :   ' b a n k '   a s   c o n s t ,   l a b e l :   ' C â u   h Ï i ' ,   i c o n :   S w o r d s ,   c o l o r
197 |                          {   i d :   ' d i c t i o n a r y '   a s   c o n s t ,   l a b e l :   ' T ë   i Ã n   t h u - t   n g í ' ,   i c o
198|           ].map(tab => (
199|             <motion.button key={tab.id} onClick={() => setActiveTab(tab.id)} whileHover={{ scale: 1.02 }} whil...
200|               style={{
```

```
201|                display: 'flex', alignItems: 'center', gap: '6px', padding: '8px 18px',
202|                borderRadius: '4px', border: '1px solid', cursor: 'pointer', fontFamily: 'inherit',
203|                fontSize: '12px', fontWeight: activeTab === tab.id ? 800 : 500,
204|                borderColor: activeTab === tab.id ? tab.color : 'var(--border-default)',
205|                background: activeTab === tab.id ? 'color-mix(in srgb, ' + tab.color + ' 12%, transparent)' : ...
206|                color: activeTab === tab.id ? tab.color : 'var(--text-muted)',
207|                transition: 'all 0.2s',
208|                textTransform: 'uppercase',
209|                letterSpacing: '0.5px',
210|              }}>
211|              <tab.icon size={14} /> {tab.label}
212|            </motion.button>
213|          ))}
214|        </div>
215|
216|        {/* Search */}
217|        <motion.div initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }}
218|          style={{ position: 'relative', maxWidth: '400px', margin: '0 auto 24px' }}>
219|          <Search size={14} style={{ position: 'absolute', left: '14px', top: '50%', transform: 'translateY(-5...
220|          <input value={searchTerm} onChange={e => setSearchTerm(e.target.value)}
  2 2 1 |                          p l a c e h o l d e r = "Ø=Ý   T ì m   k i ¿ m   c h ç    Á   h o · c   t h u - t   n g ï . . . "
222|            style={{
223|              width: '100%', padding: '10px 16px 10px 38px', borderRadius: '4px',
224|              border: '1px solid var(--border-default)', background: 'transparent',
225|              color: 'var(--text-primary)', fontSize: '13px', outline: 'none',
226|              fontFamily: 'inherit',
227|            }} />
228|        </motion.div>
229|
230|        {/* Content */}
231|        {activeTab === 'bank' ? (
232|          <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
233|            <AnimatePresence mode="popLayout">
234|              {filteredQuizzes.map((quiz, index) => {
235|                const isUnlocked = index < unlockedCount
236|                const isCompleted = completedQuizzes.includes(quiz.id)
237|                const color = TOPIC_COLORS[index % TOPIC_COLORS.length]
238|                const diffColor = DIFFICULTY_COLORS[quiz.difficulty] || 'var(--accent-blue)'
239|
240|                return (
241|                  <motion.div key={quiz.id} layout initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0...
242|                    {isUnlocked ? (
243|                      <Link href={`/quiz/${quiz.id}`} style={{ textDecoration: 'none' }}>
244|                        <motion.div whileHover={{ scale: 1.01, y: -2 }} whileTap={{ scale: 0.99 }}
245|                          style={{
246|                            display: 'flex', alignItems: 'center', gap: '14px', padding: '16px 18px',
247|                            borderRadius: isCompleted ? '4px' : '4px',
248|                            background: isCompleted ? 'color-mix(in srgb, var(--brand-primary) 6%, transparent...
249|                            border: `1px solid ${isCompleted ? 'color-mix(in srgb, var(--brand-primary) 20%, t...
250|                            cursor: 'pointer', transition: 'all 0.2s',
251|                            position: 'relative', overflow: 'hidden',
252|                          }}>
253|                          {/* Pixel corner decorations */}
254|                          <div style={{ position: 'absolute', top: 0, left: 0, width: '6px', height: '6px', bo...
255|                          <div style={{ position: 'absolute', top: 0, right: 0, width: '6px', height: '6px', b...
256|                          <div style={{ position: 'absolute', bottom: 0, left: 0, width: '6px', height: '6px',...
257|                          <div style={{ position: 'absolute', bottom: 0, right: 0, width: '6px', height: '6px'...
258|
259|                          <div style={{
260|                            width: '44px', height: '44px', borderRadius: '4px',
261|                            background: isCompleted ? 'color-mix(in srgb, var(--brand-primary) 15%, transparen...
262|                            border: `1px solid ${isCompleted ? 'color-mix(in srgb, var(--brand-primary) 20%, t...
263|                            display: 'flex', alignItems: 'center', justifyContent: 'center', flexShrink: 0,
264|                          }}>
265|                            {isCompleted ? <Diamond size={18} style={{ color: 'var(--brand-primary)' }} /> : <...
266|                          </div>
267|                          <div style={{ flex: 1, minWidth: 0 }}>
268|                            <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '4p...
269|                              <span style={{ fontSize: '14px', fontWeight: 800, color: 'var(--text-primary)', ...
270|                              {isCompleted && (
271|                                <motion.span initial={{ scale: 0 }} animate={{ scale: 1 }}
272|                                  style={{ fontSize: '9px', padding: '2px 7px', borderRadius: '2px', backgroun...
273|                                  CLEAR
274|                                </motion.span>
275|                              )}
276|                            </div>
277|                            <div style={{ display: 'flex', gap: '8px', fontSize: '11px', color: 'var(--text-mu...
278|                              <span style={{ display: 'flex', alignItems: 'center', gap: '3px', fontFamily: 'v...
279|                                <Layers size={11} /> {quiz.questions?.length || 10}
280|                              </span>
281|                              <span style={{ width: '2px', height: '2px', borderRadius: '50%', background: 'va...
282|                              <span style={{ color: diffColor, fontWeight: 700, fontSize: '10px', padding: '1p...
283|                              <span style={{ width: '2px', height: '2px', borderRadius: '50%', background: 'va...
284|                              <span style={{ display: 'flex', alignItems: 'center', gap: '3px', color: 'var(--...
285|                                <Zap size={11} /> +{quiz.xp || 100}
286|                              </span>
287|                            </div>
288|                          </div>
289|                          <motion.div whileHover={{ x: 3 }} style={{ flexShrink: 0, color: 'var(--text-muted)'...
290|                            <ChevronRight size={18} />
291|                          </motion.div>
292|                        </motion.div>
293|                      </Link>
294|                    ) : (
295|                      <div style={{
296|                        display: 'flex', alignItems: 'center', gap: '14px', padding: '16px 18px',
297|                        borderRadius: '4px',
298|                        background: 'transparent',
299|                        border: '1px solid var(--border-subtle)', opacity: 0.5,
300|                      }}>
301|                        <div style={{ width: '44px', height: '44px', borderRadius: '4px', background: 'var(--b...
302|                          <Lock size={18} style={{ color: 'var(--text-muted)' }} />
303|                        </div>
304|                        <div style={{ flex: 1 }}>
305|                          <div style={{ fontSize: '14px', fontWeight: 700, color: 'var(--text-muted)', fontFam...
306|                          <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>
  3 0 7 |                                                    Ø=Ý   M ß   k h ó a   s a u   ·   { q u i z . q u e s t i o n s ? . l e n g t h   | |
308|                          </div>
309|                        </div>
310|                      </div>
311|                    )}
312|                  </motion.div>
313|                )
314|              })}
315|            </AnimatePresence>
316|          </div>
317|        ) : (
318|          <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} style={{ display: 'flex', flexDirectio...
319|            <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginBottom: '8px', textAlign: 'cente...
  3 2 0 |                            [ { f i l t e r e d D i c t i o n a r y . l e n g t h }   t h u - t   n g ï ]
321|            </div>
322|            {filteredDictionary.map((item, i) => (
323|              <motion.div key={item.term} initial={{ opacity: 0, x: -10 }} animate={{ opacity: 1, x: 0 }} tran...
324|                whileHover={{ scale: 1.005, x: 4 }}
```

```
325|                style={{ padding: '10px 14px', borderRadius: '4px', background: 'var(--bg-surface)', border: '...
326|                <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
327|                  <div style={{
328|                    width: '32px', height: '32px', borderRadius: '2px',
329|                    background: 'linear-gradient(135deg, color-mix(in srgb, var(--brand-primary) 15%, transpar...
330|                    border: '1px solid color-mix(in srgb, var(--brand-primary) 15%, transparent)',
331|                    display: 'flex', alignItems: 'center', justifyContent: 'center', flexShrink: 0,
332|                    fontSize: '10px', fontWeight: 800, color: 'var(--brand-primary)',
333|                    fontFamily: 'var(--font-mono)',
334|                  }}>{item.term.slice(0, 2).toUpperCase()}</div>
335|                  <div style={{ flex: 1 }}>
336|                    <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)', fontFamily:...
337|                    <div style={{ fontSize: '11px', color: 'var(--text-muted)', marginTop: '1px' }}>{item.def}...
338|                  </div>
339|                </div>
340|              </motion.div>
341|            ))}
342|          </motion.div>
343|        )}
344|      </div>
345|    </div>
346|  )
347| }
348|
```

File: app/quiz/[quizId]/page.tsx (476 lines, 20.6 KB)

```
=================================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect, use } from 'react'
    4| import { motion, AnimatePresence } from 'framer-motion'
    5| import { supabase } from '@/lib/supabase'
    6| import { QUIZ_BANK } from '@/data/quiz-bank'
    7| import {
    8|   Trophy, Flame, Clock, Swords,
    9|   CheckCircle, XCircle, ChevronRight, Crosshair,
   10|   Loader2, Sparkles, Star, Heart, Skull,
   11|   Target, Diamond, Zap
   12| } from 'lucide-react'
   13| import confetti from 'canvas-confetti'
   14| import Link from 'next/link'
   15|
       1 6 |   c o n s t   S H A P E S   =   [ '+  ' ,   '%Æ ' ,   '%Ï ' ,   '%  ' ]
   17| const COLORS = ['#ef4444', '#3b82f6', '#f59e0b', '#8b5cf6']
   18|
   19| export default function MiniQuizPage({ params }: { params: Promise<{ quizId: string }> }) {
   20|   const resolvedParams = use(params);
   21|   const { quizId } = resolvedParams;
   22|
   23|   const [questions, setQuestions] = useState<any[]>([])
   24|   const [currentIdx, setCurrentIdx] = useState(-1)
   25|   const [score, setScore] = useState(0)
   26|   const [streak, setStreak] = useState(0)
   27|   const [loading, setLoading] = useState(true)
   28|   const [feedback, setFeedback] = useState<'correct' | 'wrong' | null>(null)
   29|   const [selectedIdx, setSelectedIdx] = useState<number | null>(null)
   30|   const [timeLeft, setTimeLeft] = useState(15)
   31|   const [gameEnded, setGameEnded] = useState(false)
   32|   const [quizTitle, setQuizTitle] = useState('')
   33|   const [quizXp, setQuizXp] = useState(100)
   34|   const [shake, setShake] = useState(false)
   35|
   36|   useEffect(() => {
   37|     initQuiz()
   38|   }, [])
   39|
   40|   async function initQuiz() {
   41|     try {
   42|       setLoading(true)
   43|       const bankTopic = QUIZ_BANK.find(q => q.id === quizId)
   44|       if (bankTopic) {
   45|         const qs = bankTopic.questions.map((q: any) => ({
   46|           question: q.q,
   47|           options: q.options,
   48|           correctIndex: q.answer,
   49|           explanation: q.q,
   50|         }))
   51|         setQuestions(qs)
   52|         setQuizTitle(bankTopic.title)
   53|         setQuizXp(bankTopic.xp || 100)
   54|         setLoading(false)
   55|         setCurrentIdx(0)
   56|         return
   57|       }
   58|       const { data: section } = await supabase
   59|         .from('lesson_sections')
   60|         .select('*, lessons(*)')
   61|         .eq('id', quizId)
   62|         .single()
       6 3 |                 i f   ( ! s e c t i o n )   t h r o w   n e w   E r r o r ( ' K h ô n g   t ì m   t h ¥ y   b à i   t r ¯ c   n g h i Ç m ' )
       6 4 |                 s e t Q u i z T i t l e ( s e c t i o n . l e s s o n s ? . t i t l e   | |   ' T r ¯ c   n g h i Ç m ' )
   65|       const res = await fetch('/api/ai/generate-quiz', {
   66|         method: 'POST',
   67|         headers: { 'Content-Type': 'application/json' },
   68|         body: JSON.stringify({
   69|           lessonTitle: section.lessons.title,
   70|           lessonContent: section.content_body || section.lessons.description,
   71|           count: 5
   72|         })
   73|       })
   74|       const quizData = await res.json()
   75|       setQuestions(quizData)
   76|       setLoading(false)
   77|       setCurrentIdx(0)
   78|     } catch (err) {
   79|       console.error('Quiz init error:', err)
   80|       setLoading(false)
   81|     }
   82|   }
   83|
   84|   useEffect(() => {
   85|     if (currentIdx < 0 || gameEnded || feedback) return
   86|     if (timeLeft <= 0) {
   87|       handleAnswer(-1)
   88|       return
   89|     }
   90|     const timer = setInterval(() => setTimeLeft(prev => prev - 1), 1000)
   91|     return () => clearInterval(timer)
   92|   }, [timeLeft, currentIdx, gameEnded, feedback])
   93|
   94|   const handleAnswer = (index: number) => {
   95|     if (feedback) return
   96|     setSelectedIdx(index)
```

```
 97|
 98|     const correct = index === questions[currentIdx].correctIndex
 99|     if (correct) {
100|       setFeedback('correct')
101|       const timeBonus = timeLeft * 10
102|       const streakBonus = streak * 50
103|       setScore(prev => prev + 100 + timeBonus + streakBonus)
104|       setStreak(prev => prev + 1)
105|       confetti({ particleCount: 40, spread: 50, origin: { y: 0.7 }, colors: ['#00d4aa', '#00f3ff', '#a78bfa'] })
106|     } else {
107|       setFeedback('wrong')
108|       setStreak(0)
109|       setShake(true)
110|       setTimeout(() => setShake(false), 500)
111|     }
112|
113|     setTimeout(() => {
114|       if (currentIdx < questions.length - 1) {
115|         setCurrentIdx(prev => prev + 1)
116|         setFeedback(null)
117|         setSelectedIdx(null)
118|         setTimeLeft(15)
119|       } else {
120|         setGameEnded(true)
121|         confetti({ particleCount: 200, spread: 80, origin: { y: 0.5 }, colors: ['#00d4aa', '#00f3ff', '#fbbf24...
122|       }
123|     }, 3000)
124|   }
125|
126|   if (loading) return (
127|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', flexDirection: 'column', ...
128|       <motion.div animate={{ rotate: 360 }} transition={{ duration: 2, repeat: Infinity, ease: 'linear' }}>
129|         <Crosshair size={64} style={{ color: 'var(--brand-primary)' }} />
130|       </motion.div>
131|       <h1 style={{ fontSize: '28px', fontWeight: 900, marginTop: '24px', marginBottom: '8px', color: 'var(--te...
132|         LOADING...
133|       </h1>
134|       <p style={{ color: 'var(--text-muted)', fontSize: '13px', fontFamily: 'var(--font-mono)' }}>
  1 3 5 |                   C h u © n   b Ë   v í   k h í   c h o   b ¡ n
136|       </p>
137|     </div>
138|   )
139|
140|   if (gameEnded) return (
141|     <div style={{ minHeight: '100vh', background: 'var(--bg-base)', display: 'flex', flexDirection: 'column', ...
142|       <motion.div initial={{ scale: 0.8, opacity: 0 }} animate={{ scale: 1, opacity: 1 }} style={{ textAlign: ...
143|         <motion.div animate={{ y: [0, -10, 0] }} transition={{ duration: 2, repeat: Infinity }}>
144|           <Trophy size={100} style={{ color: 'var(--accent-amber)', margin: '0 auto 24px' }} />
145|         </motion.div>
146|         <h1 style={{ fontSize: '42px', fontWeight: 900, marginBottom: '12px', letterSpacing: '3px', fontFamily...
147|           VICTORY!
148|         </h1>
149|         <p style={{ fontSize: '18px', color: 'var(--text-muted)', marginBottom: '12px', fontFamily: 'var(--fon...
150|           {quizTitle}
151|         </p>
152|         {/* Pixel score display */}
153|         <div style={{
154|           display: 'inline-block',
155|           padding: '16px 32px',
156|           background: 'var(--bg-surface)',
157|           border: '2px solid var(--brand-primary)',
158|           marginBottom: '24px',
159|         }}>
160|           <div style={{ fontSize: '10px', color: 'var(--text-muted)', marginBottom: '4px', fontFamily: 'var(--...
161|           <div style={{ fontSize: '56px', fontWeight: 900, color: 'var(--brand-primary)', fontFamily: 'var(--f...
162|         </div>
163|         <div style={{ display: 'flex', gap: '12px', justifyContent: 'center' }}>
164|           <Link href="/quiz-bank" style={{
165|             padding: '12px 28px',
166|             border: '1px solid var(--border-strong)',
167|             color: 'var(--text-primary)',
168|             fontSize: '13px',
169|             fontWeight: 700,
170|             fontFamily: 'var(--font-mono)',
171|             letterSpacing: '1px',
172|             textDecoration: 'none',
173|             display: 'inline-flex',
174|             alignItems: 'center',
175|             gap: '8px',
176|           }}>
  1 7 7 |                     !•   V À   T R A N G   C H æ
178|           </Link>
179|           <button onClick={() => window.location.reload()} style={{
180|             padding: '12px 28px',
181|             background: 'var(--brand-primary)',
182|             color: 'var(--bg-base)',
183|             border: 'none',
184|             fontSize: '13px',
185|             fontWeight: 700,
186|             fontFamily: 'var(--font-mono)',
187|             letterSpacing: '1px',
188|             cursor: 'pointer',
189|             display: 'inline-flex',
190|             alignItems: 'center',
191|             gap: '8px',
192|           }}>
  1 9 3 |                       &    C H   I   L   I
194|           </button>
195|         </div>
196|       </motion.div>
197|     </div>
198|   )
199|
200|   const q = questions[currentIdx]
201|
202|   return (
203|     <div style={{
204|       minHeight: '100vh',
205|       background: 'var(--bg-base)',
206|       color: 'var(--text-primary)',
207|       display: 'flex',
208|       flexDirection: 'column',
209|       padding: '16px',
210|       overflow: 'hidden',
211|       position: 'relative',
212|     }}>
213|       {/* Pixel grid background */}
214|       <div style={{
215|         position: 'fixed', top: 0, left: 0, right: 0, bottom: 0,
216|         backgroundImage:
217|           linear-gradient(rgba(255,255,255,0.02) 1px, transparent 1px),
218|           linear-gradient(90deg, rgba(255,255,255,0.02) 1px, transparent 1px)
219|         `,
220|         backgroundSize: '32px 32px',
```

```
221|         pointerEvents: 'none',
222|         zIndex: 0,
223|       }} />
224|
225|       <div style={{ position: 'relative', zIndex: 1, flex: 1, display: 'flex', flexDirection: 'column', maxWid...
226|         {/* HUD */}
227|         <header style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', marginBottom:...
228|           <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
229|             <div style={{
230|               padding: '6px 14px',
231|               border: '1px solid var(--border-default)',
232|               background: 'var(--bg-surface)',
233|             }}>
234|               <span style={{ fontSize: '11px', fontWeight: 700, color: 'var(--brand-primary)', fontFamily: 'va...
235|                 {(currentIdx+1)}/{questions.length}
236|               </span>
237|             </div>
238|             <div style={{
239|               padding: '6px 14px',
240|               border: '1px solid var(--border-default)',
241|               background: 'var(--bg-surface)',
242|               display: 'flex', alignItems: 'center', gap: '6px',
243|             }}>
244|               <Star size={11} style={{ color: 'var(--accent-amber)' }} />
245|               <span style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', fontFamily: 'var(-...
246|             </div>
247|             {/* HP Bar */}
248|             <div style={{
249|               padding: '6px 12px',
250|               border: '1px solid var(--border-default)',
251|               background: 'var(--bg-surface)',
252|               display: 'flex', alignItems: 'center', gap: '6px',
253|             }}>
254|               <Heart size={11} style={{ color: streak > 0 ? '#ef4444' : 'var(--text-muted)' }} />
255|               <div style={{ width: '50px', height: '8px', background: 'var(--border-subtle)', border: '1px sol...
256|                 <div style={{
257|                   width: `${Math.max(10, 100 - (streak > 0 ? 0 : 30))}%`,
258|                   height: '100%',
259|                   background: streak > 0 ? '#ef4444' : 'var(--text-muted)',
260|                   transition: 'width 0.3s',
261|                 }} />
262|               </div>
263|             </div>
264|           </div>
265|           <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
266|             {streak > 1 && (
267|               <motion.div initial={{ scale: 0 }} animate={{ scale: 1 }}
268|                 style={{ display: 'flex', alignItems: 'center', gap: '6px', color: 'var(--accent-amber)', font...
269|                 <Flame size={16} style={{ color: 'var(--accent-amber)' }} /> x{streak}
270|               </motion.div>
271|             )}
272|             <div style={{
273|               padding: '8px 20px',
274|               border: '1px solid var(--border-default)',
275|               background: timeLeft <= 5 ? 'color-mix(in srgb, #ef4444 15%, transparent)' : 'var(--bg-surface)',
276|               fontSize: '22px', fontWeight: 900,
277|               fontFamily: 'var(--font-mono)',
278|               color: timeLeft <= 5 ? '#ef4444' : 'var(--text-primary)',
279|               transition: 'all 0.3s',
280|             }}>
281|               {timeLeft}s
282|             </div>
283|           </div>
284|         </header>
285|
286|         {/* Title bar */}
287|         <div style={{
288|           padding: '8px 14px',
289|           background: 'var(--bg-surface)',
290|           border: '1px solid var(--border-default)',
291|           textAlign: 'center',
292|           marginBottom: '16px',
293|         }}>
294|           <span style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-muted)', fontFamily: 'var(--fon...
   2 9 5 |                          %¸   { q u i z T i t l e }  %Â
296|           </span>
297|         </div>
298|
299|         {/* Progress Bar */}
300|         <div style={{ width: '100%', height: '8px', background: 'var(--border-subtle)', marginBottom: '32px', ...
301|           <motion.div
302|             initial={{ width: 0 }}
303|             animate={{ width: `${((currentIdx + 1) / questions.length) * 100}%` }}
304|             style={{
305|               height: '100%',
306|               background: 'repeating-linear-gradient(90deg, var(--brand-primary) 0px, var(--brand-primary) 4px...
307|               transition: 'width 0.5s',
308|             }}
309|           />
310|         </div>
311|
312|         {/* Question Card */}
313|         <main style={{ flex: 1, display: 'flex', flexDirection: 'column', gap: '24px' }}>
314|           <AnimatePresence mode="wait">
315|             <motion.div
316|               key={currentIdx}
317|               initial={{ x: 300, opacity: 0 }}
318|               animate={{ x: 0, opacity: 1, ...(shake ? { x: [-8, 8, -6, 6, -3, 3, 0] } : {}) }}
319|               exit={{ x: -300, opacity: 0 }}
320|               transition={{ type: 'spring', stiffness: 200, damping: 20 }}
321|               style={{
322|                 background: 'var(--bg-surface)',
323|                 padding: '32px',
324|                 border: '1px solid var(--border-default)',
325|                 textAlign: 'center',
326|                 position: 'relative',
327|                 overflow: 'hidden',
328|               }}
329|             >
330|               {/* Pixel corner decorations */}
331|               <div style={{ position: 'absolute', top: 0, left: 0, width: '8px', height: '8px', borderTop: '2p...
332|               <div style={{ position: 'absolute', top: 0, right: 0, width: '8px', height: '8px', borderTop: '2...
333|               <div style={{ position: 'absolute', bottom: 0, left: 0, width: '8px', height: '8px', borderBotto...
334|               <div style={{ position: 'absolute', bottom: 0, right: 0, width: '8px', height: '8px', borderBott...
335|
336|               {/* Question number badge */}
337|               <div style={{
338|                 display: 'inline-flex', alignItems: 'center', gap: '6px',
339|                 padding: '4px 12px',
340|                 border: '1px solid color-mix(in srgb, var(--accent-blue) 30%, transparent)',
341|                 color: 'var(--accent-blue)',
342|                 fontSize: '10px', fontWeight: 700,
343|                 fontFamily: 'var(--font-mono)',
344|                 marginBottom: '16px',
```

```
                letterSpacing: '1px',
              }}>
                <Target size={12} />
                QUESTION {currentIdx + 1}
              </div>

              <h2 style={{
                fontSize: 'clamp(20px, 4vw, 36px)',
                fontWeight: 900,
                lineHeight: 1.3,
                fontFamily: 'var(--font-sans)',
              }}>
                {q.question}
              </h2>

              {/* Feedback Overlay */}
              <AnimatePresence>
                {feedback && (
                  <motion.div
                    initial={{ scale: 0, opacity: 0 }}
                    animate={{ scale: 1, opacity: 1 }}
                    exit={{ scale: 0, opacity: 0 }}
                    style={{
                      position: 'absolute', inset: 0, zIndex: 10,
                      display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center',
                      background: feedback === 'correct'
                        ? 'color-mix(in srgb, var(--brand-primary) 85%, transparent)'
                        : 'color-mix(in srgb, var(--danger) 85%, transparent)',
                      backdropFilter: 'blur(4px)',
                    }}
                  >
                    <motion.div initial={{ scale: 0, rotate: -180 }} animate={{ scale: 1, rotate: 0 }} transit...
                      {feedback === 'correct'
                        ? <Diamond size={80} style={{ color: 'var(--bg-base)' }} />
                        : <Skull size={80} style={{ color: '#fff' }} />
                      }
                    </motion.div>
                    <h3 style={{
                      fontSize: '32px', fontWeight: 900, marginTop: '12px',
                      fontFamily: 'var(--font-mono)',
                      letterSpacing: '2px',
                      color: feedback === 'correct' ? 'var(--bg-base)' : '#fff',
                    }}>
                      {feedback === 'correct' ? 'CHÍNH XÁC!' : 'SAI RÒI!
                    </h3>
                    {/* Show correct answer when wrong */}
                    {feedback === 'wrong' && (
                      <motion.p initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} transition={{ d...
                        style={{ marginTop: '8px', fontSize: '15px', fontWeight: 700, color: 'rgba(255,255,255...
                      áp án úng: <span style={{ color: '#0d4aa' }}>
                      </motion.p>
                    )}
                    <p style={{ marginTop: '12px', padding: '0 24px', fontSize: '13px', fontWeight: 500, color...
                      {q.explanation}
                    </p>
                  </motion.div>
                )}
              </AnimatePresence>
            </motion.div>
          </AnimatePresence>

          {/* Answer Buttons */}
          <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(280px, 1fr))', gap: '12...
            {q.options.map((opt: string, i: number) => {
              const isCorrectOption = feedback && i === q.correctIndex
              const isWrongSelected = feedback === 'wrong' && selectedIdx === i

              return (
                <motion.button
                  key={i}
                  whileHover={!feedback ? { scale: 1.02, y: -2 } : {}}
                  whileTap={!feedback ? { scale: 0.98 } : {}}
                  onClick={() => handleAnswer(i)}
                  disabled={!!feedback}
                  style={{
                    background: isCorrectOption
                      ? 'var(--brand-primary)'
                      : isWrongSelected
                        ? 'var(--danger)'
                        : COLORS[i],
                    padding: '16px 20px',
                    display: 'flex',
                    alignItems: 'center',
                    gap: '14px',
                    color: '#fff',
                    fontWeight: 700,
                    fontSize: '16px',
                    textAlign: 'left',
                    border: 'none',
                    cursor: feedback ? 'default' : 'pointer',
                    opacity: feedback && !isCorrectOption && !isWrongSelected ? 0.4 : 1,
                    transition: 'all 0.2s',
                    fontFamily: 'var(--font-sans)',
                    position: 'relative',
                    overflow: 'hidden',
                  }}
                >
                  {/* Shape indicator */}
                  <div style={{
                    width: '40px', height: '40px',
                    background: 'rgba(255,255,255,0.15)',
                    display: 'flex', alignItems: 'center', justifyContent: 'center',
                    fontSize: '20px',
                    flexShrink: 0,
                  }}>
                    {SHAPES[i]}
                  </div>
                  <span style={{ flex: 1 }}>{opt}</span>
                  {isCorrectOption && <CheckCircle size={20} />}
                  {isWrongSelected && <XCircle size={20} />}
                </motion.button>
              )
            })}
          </div>
        </main>

        {/* Footer */}
        <div style={{ marginTop: '24px', display: 'flex', justifyContent: 'space-between', alignItems: 'center...
          <div style={{ display: 'flex', alignItems: 'center', gap: '6px', color: 'var(--text-muted)', fontSiz...
            <Zap size={12} style={{ color: 'var(--accent-amber)' }} />
            SCORE: {score}
          </div>
          <div style={{ display: 'flex', alignItems: 'center', gap: '6px', color: 'var(--text-muted)', fontSiz...
            <Swords size={12} />
```

```
469|            STREAK: x{streak}
470|          </div>
471|        </div>
472|      </div>
473|    </div>
474|  )
475| }
476|
```

File: app/quiz/page.tsx (102 lines, 4.1 KB)

```
==========================================================================================
  1| 'use client'
  2|
  3| import React, { useState, useEffect } from 'react'
  4| import { supabase } from '@/lib/supabase'
  5| import Navbar from '@/components/Navbar'
  6| import { motion } from 'framer-motion'
  7| import { HelpCircle, Zap, Star, ArrowRight, Loader2, Search } from 'lucide-react'
  8| import Link from 'next/link'
  9|
 10| export default function QuizzesListingPage() {
 11|   const [quizzes, setQuizzes] = useState<any[]>([])
 12|   const [loading, setLoading] = useState(true)
 13|
 14|   useEffect(() => {
 15|     fetchQuizzes()
 16|   }, [])
 17|
 18|   async function fetchQuizzes() {
 19|     try {
 20|       setLoading(true)
 21|       const { data } = await supabase
 22|         .from('lesson_sections')
 23|         .select(`
 24|           *,
 25|           lessons (title)
 26|         `)
 27|         .eq('content_type', 'quiz')
 28|         .limit(20)
 29|
 30|       setQuizzes(data || [])
 31|     } catch (err) {
 32|       console.error(err)
 33|     } finally {
 34|       setLoading(false)
 35|     }
 36|   }
 37|
 38|   return (
 39|     <div className="min-h-screen bg-[#0f0f1a] text-white">
 40|       <Navbar />
 41|
 42|       <main className="max-w-7xl mx-auto px-4 sm:px-6 lg:px-8 pt-28 pb-20">
 43|         <header className="mb-12">
    4 4 |                    < h 1   c l a s s N a m e = " t e x t - 4 x l   f o n t - b l a c k   m b - 4 " > T h í   t h á c h   < s p a n   c l a s s
    4 5 |                    < p   c l a s s N a m e = " t e x t - s l a t e - 4 0 0 " > K i Ã m   t r a   k i ¿ n   t h é c   t é c   t h ì   v Û i   c
 46|         </header>
 47|
 48|         <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-4 gap-4 mb-12">
 49|           <div className="p-6 bg-gradient-to-br from-[#00d2a0]/20 to-[#00b4d8]/20 border border-[#00d2a0]/30 r...
 50|              <Zap size={32} className="text-[#00d2a0] mb-4" />
    5 1 |                           < h 3   c l a s s N a m e = " f o n t - b o l d " >   Ù n g   l ñ c   h Í c < / h 3 >
    5 2 |                           < p   c l a s s N a m e = " t e x t - x s   t e x t - s l a t e - 5 0 0   m t - 1 " > T r £   l Ý i   ú n g   n h -
 53|           </div>
 54|           <div className="p-6 bg-[#16213e] border border-[#1e293b] rounded-3xl">
 55|              <Star size={32} className="text-yellow-500 mb-4" />
    5 6 |                           < h 3   c l a s s N a m e = " f o n t - b o l d " > B £ n g   v à n g < / h 3 >
    5 7 |                           < p   c l a s s N a m e = " t e x t - x s   t e x t - s l a t e - 5 0 0   m t - 1 " > T o p   1 0   n h - n   h u y
 58|           </div>
 59|         </div>
 60|
 61|         {loading ? (
 62|           <div className="flex justify-center py-20">
 63|             <Loader2 className="animate-spin text-[#00d2a0]" size={40} />
 64|           </div>
 65|         ) : quizzes.length > 0 ? (
 66|           <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6">
 67|             {quizzes.map((quiz) => (
 68|               <motion.div
 69|                 key={quiz.id}
 70|                 initial={{ opacity: 0, scale: 0.9 }}
 71|                 animate={{ opacity: 1, scale: 1 }}
 72|                 className="bg-[#16213e] border border-[#1e293b] rounded-3xl p-6 hover:shadow-[0_0_30px_rgba(0,...
 73|               >
 74|                 <div className="flex items-center gap-3 mb-4">
 75|                   <div className="w-10 h-10 bg-[#1e293b] text-[#00d2a0] rounded-xl flex items-center justify-c...
 76|                     <HelpCircle size={20} />
 77|                   </div>
 78|                   <span className="text-[10px] font-bold text-slate-500 uppercase tracking-widest">{quiz.lesso...
 79|                 </div>
 80|
 81|                 <h3 className="text-lg font-bold mb-6 min-h-[50px]">{quiz.title}</h3>
 82|
 83|                 <Link
 84|                   href={`/quiz/${quiz.id}`}
 85|                   className="w-full py-4 bg-[#0f0f1a] text-white border border-[#1e293b] group-hover:border-[#...
 86|                 >
 87|                   LÀM BÀI NGAY <Zap size={16} />
 88|                 </Link>
 89|               </motion.div>
 90|             ))}
 91|           </div>
 92|         ) : (
 93|           <div className="text-center py-20 bg-[#16213e]/30 border border-dashed border-[#1e293b] rounded-[40p...
 94|              <Zap size={48} className="mx-auto text-slate-600 mb-4" />
    9 5 |                           < p   c l a s s N a m e = " t e x t - s l a t e - 5 0 0   f o n t - m e d i u m   i t a l i c " > C h ° a   c ó   b ã
 96|           </div>
 97|         )}
 98|       </main>
 99|     </div>
100|   )
101| }
102|
```

File: app/student/certificates/page.tsx (652 lines, 32.2 KB)

```
==========================================================================================
  1| 'use client'
  2|
  3| import React, { useEffect, useState, useRef, useCallback } from 'react'
  4| import { createBrowserClient } from '@supabase/ssr'
  5| import { motion } from 'framer-motion'
```

```
 6| import { Award, FileText, CheckCircle, Copy, RefreshCw, Lock, ShieldCheck, Target, ArrowLeft, Sparkles, Downlo...
 7| import { toast } from 'react-hot-toast'
 8| import { useRouter } from 'next/navigation'
 9| import html2canvas from 'html2canvas'
10| import jsPDF from 'jspdf'
11| import Link from 'next/link'
12|
13| const CERTIFICATE_TYPES = [
14|   {
15|     id: 'cert_hardware_basics',
    1 6 |          t i t l e :   ' K ù   S °   P h § n   C é n g   T - p   S ñ ' ,
    1 7 |          d e s c r i p t i o n :   ' N ¯ m   v ï n g   k i ¿ n   t h é c   n Á n   t £ n g   v Á   c á c   l i n h   k i Ç n   c ¥ u   t h à n h
    1 8 |          m i s s i o n :   ' H o à n   t h à n h   3   b à i   h Í c   l ý   t h u y ¿ t   c ¡   b £ n   v à   ¡ t   t Ñ i   t h i Ã u   7 0 %
19|     levelReq: 3,
20|     icon: <ShieldCheck size={28} />
21|   },
22|   {
23|     id: 'cert_pc_master',
    2 4 |          t i t l e :   ' C h u y ê n   G i a   L ¯ p   R á p   P C   M a s t e r ' ,
    2 5 |          d e s c r i p t i o n :   ' C h é n g   n h - n   k h £   n   n g   l ¯ p   r á p ,   x í   l ý   s ñ   c Ñ   v à   t ° ¡ n g   t h í c
    2 6 |          m i s s i o n :   ' H o à n   t h à n h   t o à n   b Ù   k h ó a   h Í c   P C   M a s t e r ,   b a o   g Ó m   g i £   l - p   L a b
27|     levelReq: 5,
28|     icon: <Award size={28} />
29|   },
30|   {
31|     id: 'cert_troubleshooting',
    3 2 |          t i t l e :   ' K ù   T h u - t   V i ê n   X í   L ý   S ñ   C Ñ ' ,
    3 3 |          d e s c r i p t i o n :   ' C h é n g   n h - n   k ù   n   n g   c h u © n   o á n   v à _ k h ¯ c   p h ¯ c   c á c   l × i   h Ç
    3 4 |          m i s s i o n :   ' T r £   l Ý i   ú n g   l i ê n   t i ¿ p   1 0   c â u   h Ï i   K h ¯ c   P h ¯ c   S ñ   C Ñ   t r o n g   N g
35|     levelReq: 7,
36|     icon: <Target size={28} />
37|   }
38| ]
39|
40| function generateVerificationCode() {
41|   const chars = 'ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789'
42|   let result = 'PCM-'
43|   for (let i = 0; i < 8; i++) {
44|     result += chars.charAt(Math.floor(Math.random() * chars.length))
45|   }
46|   return result
47| }
48|
49| export default function StudentCertificatesPage() {
50|   const router = useRouter()
51|   const [certs, setCerts] = useState<any[]>([])
52|   const [activePath, setActivePath] = useState<any>(null)
53|   const [loading, setLoading] = useState(true)
54|   const [issuing, setIssuing] = useState(false)
55|   const [justEarnedId, setJustEarnedId] = useState<string | null>(null)
56|   const [profile, setProfile] = useState<any>(null)
57|   const [user, setUser] = useState<any>(null)
58|   const [showCertModal, setShowCertModal] = useState<any>(null)
59|   const [userLevel, setUserLevel] = useState(1)
60|   const certRef = useRef<HTMLDivElement>(null)
61|   const supabase = createBrowserClient(
62|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
63|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
64|   )
65|
66|   const loadData = useCallback(async () => {
67|     setLoading(true)
68|     const { data: { user: currentUser } } = await supabase.auth.getUser()
69|     if (!currentUser) { setLoading(false); return }
70|     setUser(currentUser)
71|
72|     const { data: userProfile } = await supabase
73|       .from('profiles')
74|       .select('full_name, avatar_url, level, xp')
75|       .eq('id', currentUser.id)
76|       .single()
77|     if (userProfile) { setProfile(userProfile); setUserLevel(userProfile.level || 1) }
78|
79|     const { data: c } = await supabase
80|       .from('certificates')
81|       .select('*')
82|       .eq('student_id', currentUser.id)
83|       .eq('is_revoked', false)
84|       .order('issued_at', { ascending: false })
85|
86|     if (c) {
87|       const newIds = c.filter(cert => !certs.some(old => old.id === cert.id)).map(cert => cert.id)
88|       if (newIds.length > 0) {
89|         setJustEarnedId(newIds[newIds.length - 1])
    9 0 |                  t o a s t . s u c c e s s ( ' C h ú c   m ë n g !   B ¡ n   ã   n h - n   ° ã c   c h é n g   c h É   m Û i ! ' )
91|       }
92|       setCerts(c)
93|     }
94|
95|     const { data: path } = await supabase
96|       .from('learning_paths')
97|       .select('id, title')
98|       .eq('is_active', true)
99|       .limit(1)
100|       .maybeSingle()
101|     if (path) setActivePath(path)
102|
103|     setLoading(false)
104|   }, [])
105|
106|   useEffect(() => { loadData() }, [])
107|
108|   useEffect(() => {
109|     const sub = supabase
110|       .channel('certs-realtime')
111|       .on('postgres_changes',
112|         { event: 'INSERT', schema: 'public', table: 'certificates' },
113|         (payload: any) => {
114|           const newCert = payload.new
115|           setCerts(prev => {
116|             if (prev.some(c => c.id === newCert.id)) return prev
    1 1 7 |                      t o a s t . s u c c e s s ( ' C h é n g   c h É   m Û i   ã   ° ã c   c ¥ p ! ' )
118|             setJustEarnedId(newCert.id)
119|             return [newCert, ...prev]
120|           })
121|         }
122|       )
123|       .subscribe()
124|     return () => { supabase.removeChannel(sub) }
125|   }, [])
126|
127|   const autoCheckAndIssue = async () => {
128|     const { data: { user: currentUser } } = await supabase.auth.getUser()
129|     if (!currentUser) return
```

```
130|
131|     const { data: existing } = await supabase
132|       .from('certificates')
133|       .select('course_title')
134|       .eq('student_id', currentUser.id)
135|       .eq('is_revoked', false)
136|
137|     const existingTitles = (existing || []).map(e => e.course_title)
138|
139|     for (const certType of CERTIFICATE_TYPES) {
140|       if (existingTitles.includes(certType.title)) continue
141|       try {
142|         const code = generateVerificationCode()
143|         const { error } = await supabase.from('certificates').insert({
144|           student_id: currentUser.id,
  1 4 5 |           s t u d e n t _ n a m e :   p r o f i l e ? . f u l l _ n a m e   | |   c u r r e n t U s e r . e m a i l ? . s p l i t ( '
146|           course_title: certType.title,
147|           certificate_number: code,
148|           issued_at: new Date().toISOString(),
149|           completion_date: new Date().toISOString().split('T')[0],
150|           final_score: 100,
151|           is_revoked: false,
152|         })
153|         if (error) throw error
154|         await loadData()
155|         return
156|       } catch {
157|       }
158|     }
159|   }
160|
161|   const handleRequestCertificate = async () => {
162|     setIssuing(true)
163|     try {
164|       await autoCheckAndIssue()
  1 6 5 |       t o a s t . s u c c e s s ( ' C h ú c   m ë n g !   B ¡ n   ã   n h - n   c h é n g   c h É   t h à n h   c ô n g . ' )
166|       await loadData()
167|     } catch (err: any) {
  1 6 8 |       t o a s t . e r r o r ( e r r . m e s s a g e   | |   ' C h º a   ç   i Á u   k i Ç n .   H ã y   h o à n   t h à n h   c á c
169|     } finally {
170|       setIssuing(false)
171|     }
172|   }
173|
174|   const handleDownloadPDF = async (cert: any) => {
175|     setShowCertModal(cert)
176|     await new Promise(r => setTimeout(r, 100))
177|     try {
178|       const element = document.getElementById(`cert-preview-${cert.id}`)
  1 7 9 |       i f   ( ! e l e m e n t )   {   t o a s t . e r r o r ( ' K h ô n g   t h Ã   t ¡ o   c h é n g   c h É ' ) ;   r e t u r n   }
180|       const canvas = await html2canvas(element, {
181|         scale: 3, useCORS: true, allowTaint: true,
182|         backgroundColor: '#0a0c1a', logging: false,
183|       })
184|       const imgData = canvas.toDataURL('image/png')
185|       const pdf = new jsPDF({
186|         orientation: 'landscape', unit: 'px',
187|         format: [canvas.width / 3, canvas.height / 3]
188|       })
189|       pdf.addImage(imgData, 'PNG', 0, 0, canvas.width / 3, canvas.height / 3)
190|       pdf.save(`chung-chi-${cert.certificate_number || cert.id}.pdf`)
  1 9 1 |       t o a s t . s u c c e s s ( ' T £ i   x u Ñ n g   P D F   t h à n h   c ô n g ! ' )
192|     } catch (err) {
  1 9 3 |       t o a s t . e r r o r ( ' K h ô n g   t h Ã   t ¡ o   P D F .   T h í   t £ i   x u Ñ n g   £ n h . ' )
194|     }
195|     setShowCertModal(null)
196|   }
197|
198|   const handleDownloadImage = async (cert: any) => {
199|     setShowCertModal(cert)
200|     await new Promise(r => setTimeout(r, 100))
201|     try {
202|       const element = document.getElementById(`cert-preview-${cert.id}`)
  2 0 3 |       i f   ( ! e l e m e n t )   {   t o a s t . e r r o r ( ' K h ô n g   t h Ã   t ¡ o   c h é n g   c h É ' ) ;   r e t u r n   }
204|       const canvas = await html2canvas(element, {
205|         scale: 3, useCORS: true, allowTaint: true,
206|         backgroundColor: '#0a0c1a', logging: false,
207|       })
208|       const link = document.createElement('a')
209|       link.download = `chung-chi-${cert.certificate_number || cert.id}.png`
210|       link.href = canvas.toDataURL('image/png')
211|       link.click()
  2 1 2 |       t o a s t . s u c c e s s ( ' T £ i   x u Ñ n g   £ n h   t h à n h   c ô n g ! ' )
213|     } catch (err) {
  2 1 4 |       t o a s t . e r r o r ( ' K h ô n g   t h Ã   t ¡ o   £ n h   c h é n g   c h É . ' )
215|     }
216|     setShowCertModal(null)
217|   }
218|
219|   const handleCopyLink = (code: string) => {
220|     const link = `${window.location.origin}/verify/${code}`
221|     navigator.clipboard.writeText(link)
  2 2 2 |       t o a s t . s u c c e s s ( '   ã   s a o   c h é p   l i ê n   k ¿ t   x á c   t h ñ c ! ' )
223|   }
224|
225|   if (loading) {
226|     return (
227|       <div className="min-h-screen" style={{ background: 'var(--bg-base)', color: 'var(--text-primary)', paddi...
228|         <motion.div animate={{ rotate: 360 }} transition={{ duration: 2, repeat: Infinity, ease: 'linear' }}>
229|           <Swords size={28} style={{ color: 'var(--brand-primary)' }} />
230|         </motion.div>
231|         <span style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 700, fontFamily: 'var(--font-...
232|       </div>
233|     )
234|   }
235|
236|   return (
237|     <div className="min-h-screen" style={{ background: 'var(--bg-base)', color: 'var(--text-primary)', padding...
238|       <div style={{ maxWidth: '900px', margin: '0 auto' }}>
239|         {/* Header */}
240|         <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'space-between', marginBottom: '2...
241|           <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
242|             <div style={{
243|               width: '48px', height: '48px', borderRadius: '4px',
244|               background: 'linear-gradient(135deg, var(--brand-primary), var(--accent-purple))',
245|               display: 'flex', alignItems: 'center', justifyContent: 'center',
246|               boxShadow: '0 0 20px color-mix(in srgb, var(--brand-primary) 30%, transparent)',
247|             }}>
248|               <Trophy size={24} color="#fff" />
249|             </div>
250|             <div>
251|               <h1 style={{ fontSize: '20px', fontWeight: 900, fontFamily: 'var(--font-mono)', letterSpacing: '...
  2 5 2 |                 C H è N G   C H È   &   D A N H   H I Æ U
253|               </h1>
```

```
254|              <p style={{ fontSize: '12px', color: 'var(--text-muted)' }}>
  2 5 5 |                                H o à n   t h à n h   n h i Ç m   v å   -   t ñ    Ù n g   n h - n   c h é n g   c h É
256|              </p>
257|            </div>
258|          </div>
259|          <button onClick={() => router.push('/builder')} style={{
260|            display: 'flex', alignItems: 'center', gap: '6px',
261|            padding: '8px 16px',
262|            border: '1px solid var(--border-default)',
263|            background: 'transparent',
264|            color: 'var(--text-muted)',
265|            fontSize: '11px', fontWeight: 700,
266|            fontFamily: 'var(--font-mono)',
267|            cursor: 'pointer',
268|            transition: 'all 0.2s',
269|          }}>
270|            <ArrowLeft size={14} /> BACK
271|          </button>
272|        </div>
273|
274|        {/* User Level Badge */}
275|        <div style={{
276|          marginBottom: '24px',
277|          padding: '12px 16px',
278|          border: '1px solid var(--border-default)',
279|          background: 'var(--bg-surface)',
280|          display: 'flex', alignItems: 'center', gap: '12px',
281|        }}>
282|          <div style={{
283|            width: '36px', height: '36px', borderRadius: '4px',
284|            background: 'color-mix(in srgb, var(--accent-amber) 15%, transparent)',
285|            border: '1px solid color-mix(in srgb, var(--accent-amber) 25%, transparent)',
286|            display: 'flex', alignItems: 'center', justifyContent: 'center',
287|            color: 'var(--accent-amber)',
288|            fontSize: '16px',
289|          }}>
  2 9 0 |                          +P
291|          </div>
292|          <div style={{ flex: 1 }}>
293|            <div style={{ fontSize: '12px', color: 'var(--text-muted)', fontFamily: 'var(--font-mono)', margin...
  2 9 4 |                                C ¤ P     Ø   H I Æ N   T   I
295|            </div>
296|            <div style={{ fontSize: '16px', fontWeight: 800 }}>
  2 9 7 |                                L e v e l   { u s e r L e v e l }   -   { p r o f i l e ? . f u l l _ n a m e   | |   u s e r ? . e m a i l ? . s p
298|            </div>
299|          </div>
300|          <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontFamily: 'var(--font-mono)', textAlig...
  3 0 1 |                          < d i v > { c e r t s . l e n g t h }   c h é n g   c h É < / d i v >
302|            <div style={{ color: 'var(--brand-primary)' }}>{profile?.xp || 0} XP</div>
303|          </div>
304|        </div>
305|
306|        {/* Certificate List */}
307|        <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
308|          {CERTIFICATE_TYPES.map((certType) => {
309|            const earnedCert = certs.find(c => c.course_title === certType.title)
310|            const isEarned = !!earnedCert
311|            const isJustEarned = justEarnedId === earnedCert?.id
312|            const levelMet = userLevel >= certType.levelReq
313|
314|            return (
315|              <div key={certType.id}>
316|                <div style={{
317|                  border: `1px solid ${isEarned ? 'color-mix(in srgb, var(--brand-primary) 40%, transparent)' ...
318|                  background: isEarned ? 'color-mix(in srgb, var(--brand-primary) 4%, transparent)' : 'var(--b...
319|                  padding: '20px',
320|                  position: 'relative', overflow: 'hidden',
321|                  opacity: isEarned ? 1 : 0.7,
322|                  transition: 'all 0.3s',
323|                }}>
324|                  {/* Corner decorations */}
325|                  <div style={{ position: 'absolute', top: 0, left: 0, width: '6px', height: '6px', borderTop:...
326|                  <div style={{ position: 'absolute', top: 0, right: 0, width: '6px', height: '6px', borderTop...
327|                  <div style={{ position: 'absolute', bottom: 0, left: 0, width: '6px', height: '6px', borderB...
328|                  <div style={{ position: 'absolute', bottom: 0, right: 0, width: '6px', height: '6px', border...
329|
330|                  <div style={{ display: 'flex', gap: '16px', alignItems: 'flex-start' }}>
331|                    {/* Icon */}
332|                    <div style={{
333|                      width: '52px', height: '52px', borderRadius: '4px',
334|                      background: isEarned ? 'color-mix(in srgb, var(--brand-primary) 15%, transparent)' : 'co...
335|                      border: `1px solid ${isEarned ? 'color-mix(in srgb, var(--brand-primary) 25%, transparen...
336|                      display: 'flex', alignItems: 'center', justifyContent: 'center',
337|                      flexShrink: 0,
338|                      color: isEarned ? 'var(--brand-primary)' : 'var(--text-muted)',
339|                    }}>
340|                      {certType.icon}
341|                    </div>
342|
343|                    {/* Content */}
344|                    <div style={{ flex: 1 }}>
345|                      <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '4px' }}>
346|                        <h3 style={{
347|                          fontSize: '15px', fontWeight: 800,
348|                          fontFamily: 'var(--font-mono)',
349|                          color: isEarned ? 'var(--text-primary)' : 'var(--text-muted)',
350|                        }}>
351|                          {certType.title}
352|                        </h3>
353|                        {isEarned && <CheckCircle size={16} style={{ color: 'var(--brand-primary)' }} />}
354|                        {isJustEarned && <Sparkles size={16} style={{ color: 'var(--accent-amber)' }} />}
355|                      </div>
356|                      <p style={{ fontSize: '12px', color: 'var(--text-muted)', marginBottom: '8px' }}>{certTy...
357|
358|                      {/* Mission & Level Requirement */}
359|                      <div style={{ display: 'flex', gap: '8px', flexWrap: 'wrap' }}>
360|                        <div style={{
361|                          padding: '6px 10px',
362|                          border: '1px solid var(--border-default)',
363|                          background: 'var(--bg-base)',
364|                          fontSize: '11px',
365|                          color: 'var(--text-muted)',
366|                        }}>
367|                          <span style={{ fontWeight: 700, color: levelMet ? 'var(--brand-primary)' : 'var(--ac...
  3 6 8 |                                                  { l e v e l M e t   ?   ''   '   :   ' L v . ' } { c e r t T y p e . l e v e l R e q }
369|                          </span>
  3 7 0 |                                          < s p a n   s t y l e = { {   m a r g i n L e f t :   ' 4 p x '   } } > Y ê u   c § u   c ¥
371|                        </div>
372|                        {isEarned && earnedCert?.certificate_number && (
373|                          <div style={{
374|                            padding: '6px 10px',
375|                            border: '1px solid var(--border-default)',
376|                            background: 'var(--bg-base)',
377|                            fontSize: '11px',
```

```
                          color: 'var(--text-muted)',
                          fontFamily: 'var(--font-mono)',
                        }}>
                          #{earnedCert.certificate_number}
                        </div>
                      )}
                    </div>

                    {/* Mission detail */}
                    <div style={{
                      marginTop: '8px',
                      padding: '8px 10px',
                      border: 'var(--border-default)',
                      background: 'var(--bg-base)',
                      fontSize: '11px',
                      color: 'var(--text-muted)',
                    }}>
                      <span style={{ color: 'var(--accent-blue)', fontWeight: 700, fontFamily: 'var(--font-m...
                      {certType.mission}
                    </div>
                  </div>

                  {/* Actions */}
                  <div style={{ display: 'flex', flexDirection: 'column', gap: '6px', flexShrink: 0 }}>
                    {isEarned ? (
                      <>
                        <button onClick={() => handleDownloadImage(earnedCert)}
                          style={{
                            padding: '8px 14px',
                            background: 'var(--brand-primary)',
                            color: 'var(--bg-base)',
                            border: 'none',
                            fontSize: '10px', fontWeight: 700,
                            fontFamily: 'var(--font-mono)',
                            cursor: 'pointer',
                            display: 'flex', alignItems: 'center', gap: '4px',
                          }}>
                          <Image size={12} />  ¢NH
                        </button>
                        <button onClick={() => handleDownloadPDF(earnedCert)}
                          style={{
                            padding: '8px 14px',
                            background: 'var(--accent-blue)',
                            color: '#fff',
                            border: 'none',
                            fontSize: '10px', fontWeight: 700,
                            fontFamily: 'var(--font-mono)',
                            cursor: 'pointer',
                            display: 'flex', alignItems: 'center', gap: '4px',
                          }}>
                          <FileText size={12} /> PDF
                        </button>
                        <button onClick={() => handleCopyLink(earnedCert.certificate_number)}
                          style={{
                            padding: '8px 14px',
                            border: '1px solid var(--border-default)',
                            background: 'transparent',
                            color: 'var(--text-muted)',
                            fontSize: '10px', fontWeight: 700,
                            fontFamily: 'var(--font-mono)',
                            cursor: 'pointer',
                            display: 'flex', alignItems: 'center', gap: '4px',
                          }}>
                          <Copy size={12} /> COPY
                        </button>
                      </>
                    ) : (
                      <button onClick={handleRequestCertificate} disabled={issuing}
                        style={{
                          padding: '8px 14px',
                          border: '1px solid var(--border-default)',
                          background: 'transparent',
                          color: 'var(--text-muted)',
                          fontSize: '10px', fontWeight: 700,
                          fontFamily: 'var(--font-mono)',
                          cursor: 'pointer',
                          display: 'flex', alignItems: 'center', gap: '4px',
                          opacity: issuing ? 0.5 : 1,
                        }}>
                        {issuing ? <RefreshCw size={12} className="animate-spin" /> : <Lock size={12} />}
                        {issuing ? 'ĐANG KIỂM TRA...' : 'YÊU CẦU'}
                      </button>
                    )}
                  </div>
                </div>
              </div>

              {/* Certificate preview (hidden, for rendering) */}
              {isEarned && (
                <div className="fixed" style={{ left: '-9999px', top: 0 }} ref={certRef}>
                  <div id={`cert-preview-${earnedCert.id}`} style={{
                    width: '800px', height: '566px', padding: '28px',
                    background: 'linear-gradient(135deg, #0a0c1a 0%, #1a1c2e 50%, #0a0c1a 100%)',
                    position: 'relative', overflow: 'hidden',
                    display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center',
                  }}>
                    {/* Outer gold border */}
                    <div style={{
                      position: 'absolute', inset: '0',
                      padding: '3px',
                      background: 'linear-gradient(135deg, #d4a843, #f5d68a, #d4a843, #8b6914, #d4a843)',
                      WebkitMask: 'linear-gradient(#fff 0 0) content-box, linear-gradient(#fff 0 0)',
                      WebkitMaskComposite: 'xor',
                      maskComposite: 'exclude',
                    }} />
                    <div style={{
                      position: 'absolute', top: '10px', left: '10px', right: '10px', bottom: '10px',
                      border: '1px solid rgba(212, 168, 67, 0.12)',
                      pointerEvents: 'none',
                    }} />

                    {/* Corner ornaments */}
                    {[
                      { top: '20px', left: '20px', borderRight: '2px solid rgba(212,168,67,0.4)', borderBott...
                      { top: '20px', right: '20px', borderLeft: '2px solid rgba(212,168,67,0.4)', borderBott...
                      { bottom: '20px', left: '20px', borderRight: '2px solid rgba(212,168,67,0.4)', borderT...
                      { bottom: '20px', right: '20px', borderLeft: '2px solid rgba(212,168,67,0.4)', borderT...
                    ].map((pos, i) => (
                      <div key={i} style={{ position: 'absolute', ...pos, borderRadius: '2px' }} />
                    ))}

                    {/* Decorative lines */}
                    <div style={{ position: 'absolute', top: '14px', left: '50%', transform: 'translateX(-50...
                    <div style={{ position: 'absolute', bottom: '14px', left: '50%', transform: 'translateX(...
```

```
502|
503|                        {/* Background pattern */}
504|                        <div style={{ position: 'absolute', top: '100px', right: '50px', width: '120px', height:...
505|                        <div style={{ position: 'absolute', bottom: '100px', left: '50px', width: '80px', height...
506|
507|                        {/* Logo */}
508|                        <div style={{
509|                          width: '52px', height: '52px', borderRadius: '50%',
510|                          background: 'linear-gradient(135deg, #d4a843, #f5d68a)',
511|                          display: 'flex', alignItems: 'center', justifyContent: 'center',
512|                          marginBottom: '6px', boxShadow: '0 4px 20px rgba(212,168,67,0.3)',
513|                        }}>
514|                          <Award size={26} color="#0a0c1a" />
515|                        </div>
516|
517|                        {/* School name */}
518|                        <div style={{ fontSize: '10px', fontWeight: 600, letterSpacing: '3px', color: '#d4a843',...
519|                          PC MASTER ACADEMY
520|                        </div>
521|                        <div style={{ fontSize: '8px', fontWeight: 500, letterSpacing: '2px', color: 'rgba(212,1...
  5 2 2 |                                                C H è N G   N H ¬ N   H O À N   T H À N H
523|                        </div>
524|
525|                        {/* Certificate title */}
526|                        <div style={{ fontSize: '9px', fontWeight: 600, letterSpacing: '2px', color: 'rgba(212,1...
  5 2 7 |                                                C H è N G   C H Ê
528|                        </div>
529|                        <div style={{ fontSize: '20px', fontWeight: 900, color: '#f5d68a', textAlign: 'center', ...
530|                          {earnedCert.course_title}
531|                        </div>
532|
533|                        {/* Separator */}
534|                        <div style={{ width: '120px', height: '1px', background: 'linear-gradient(90deg, transpa...
535|
536|                        {/* Recipient */}
537|                        <div style={{ fontSize: '10px', color: 'rgba(255,255,255,0.4)', marginBottom: '3px', let...
  5 3 8 |                                                C ¥ p   c h o
539|                        </div>
540|                        <div style={{ fontSize: '24px', fontWeight: 800, color: '#fff', marginBottom: '12px', le...
  5 4 1 |                                                { e a r n e d C e r t . s t u d e n t _ n a m e   | |   p r o f i l e ? . f u l l _ n a m e   |
542|                        </div>
543|
544|                        {/* Description */}
545|                        <div style={{ fontSize: '10px', color: 'rgba(255,255,255,0.45)', textAlign: 'center', ma...
  5 4 6 |                                                  ã   h o à n   t h à n h   x u ¥ t   s   c   c á c   y ê u   c § u   c ç a   c h ° ¡ n g   t r
547|                        </div>
548|
549|                        {/* Score badge */}
550|                        {earnedCert.final_score && (
551|                          <div style={{
552|                            marginBottom: '12px',
553|                            padding: '3px 14px',
554|                            border: '1px solid rgba(212,168,67,0.3)',
555|                            fontSize: '10px', fontWeight: 700, color: '#d4a843',
556|                          }}>
  5 5 7 |                                                    I Â M :   { e a r n e d C e r t . f i n a l _ s c o r e } %
558|                          </div>
559|                        )}
560|
561|                        {/* Info row */}
562|                        <div style={{ display: 'flex', gap: '24px', alignItems: 'center', marginBottom: '10px' }}>
563|                          <div style={{ display: 'flex', alignItems: 'center', gap: '5px' }}>
564|                            <Calendar size={11} color="#d4a843" />
565|                            <span style={{ fontSize: '9px', color: 'rgba(255,255,255,0.4)' }}>
566|                              {new Date(earnedCert.issued_at || Date.now()).toLocaleDateString('vi-VN')}
567|                            </span>
568|                          </div>
569|                          <div style={{ display: 'flex', alignItems: 'center', gap: '5px' }}>
570|                            <Hash size={11} color="#d4a843" />
571|                            <span style={{ fontSize: '9px', color: 'rgba(255,255,255,0.3)', fontFamily: 'monospa...
572|                              {earnedCert.certificate_number}
573|                            </span>
574|                          </div>
575|                        </div>
576|
577|                        {/* Gold seal */}
578|                        <div style={{
579|                          width: '44px', height: '44px', borderRadius: '50%',
580|                          border: '2px solid #d4a843',
581|                          display: 'flex', alignItems: 'center', justifyContent: 'center',
582|                          background: 'radial-gradient(circle at 30% 30%, rgba(245,214,138,0.15), transparent)',
583|                          position: 'relative',
584|                        }}>
585|                          <Star size={18} color="#d4a843" fill="#d4a843" />
586|                          <div style={{ position: 'absolute', inset: '-3px', borderRadius: '50%', border: '1px s...
587|                        </div>
588|                      </div>
589|                    </div>
590|                  )}
591|                </div>
592|              )
593|            })}
594|          </div>
595|
596|          {/* Level Guide */}
597|          <div style={{
598|            marginTop: '24px',
599|            padding: '16px',
600|            border: '1px solid var(--border-default)',
601|            background: 'var(--bg-surface)',
602|          }}>
603|            <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '12px' }}>
604|              <Target size={16} style={{ color: 'var(--accent-blue)' }} />
605|              <h3 style={{ fontSize: '13px', fontWeight: 800, fontFamily: 'var(--font-mono)' }}>
  6 0 6 |                                  H   Ú N G   D ª N   N H ¬ N   C H è N G   C H Ê
607|              </h3>
608|            </div>
609|            <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(200px, 1fr))', gap: '8p...
610|              {CERTIFICATE_TYPES.map(ct => (
611|                <div key={ct.id} style={{
612|                  padding: '10px',
613|                  border: '1px solid var(--border-default)',
614|                  background: 'var(--bg-base)',
615|                }}>
616|                  <div style={{ fontWeight: 700, color: 'var(--text-primary)', marginBottom: '4px', fontFamily: ...
617|                    {ct.title}
618|                  </div>
  6 1 9 |                                      < d i v > Y ê u   c § u   L e v e l   < s t r o n g   s t y l e = { {   c o l o r :   u s e r L e v e l   > =
620|                  {userLevel >= ct.levelReq ? (
621|                    <div style={{ color: 'var(--brand-primary)', fontFamily: 'var(--font-mono)', fontSize: '10px...
  6 2 2 |                                                '       ç     i Á u   k i Ç n
623|                    </div>
624|                  ) : (
625|                    <div style={{ color: 'var(--text-muted)', fontFamily: 'var(--font-mono)', fontSize: '10px', ...
```

```
    6 2 6 |                                   C § n   t h ê m   { c t . l e v e l R e q   -   u s e r L e v e l }   l e v e l
  627|                  </div>
  628|                )}
  629|              </div>
  630|            ))}
  631|          </div>
  632|          <div style={{ marginTop: '12px', textAlign: 'center' }}>
  633|            <Link href="/student/level" style={{
  634|              display: 'inline-flex', alignItems: 'center', gap: '6px',
  635|              padding: '8px 20px',
  636|              background: 'var(--bg-base)',
  637|              border: '1px solid var(--border-default)',
  638|              color: 'var(--text-muted)',
  639|              fontSize: '11px', fontWeight: 700,
  640|              fontFamily: 'var(--font-mono)',
  641|              textDecoration: 'none',
  642|              transition: 'all 0.2s',
  643|            }}>
    6 4 4 |                            < Z a p   s i z e = { 1 4 }   / >   X E M   C ¤ P    Ø   &   N H I Æ M   V ä
  645|            </Link>
  646|          </div>
  647|        </div>
  648|      </div>
  649|    </div>
  650|  )
  651| }
  652|
```

File: app/student/discussion/page.tsx (419 lines, 21.7 KB)

```
    1| 'use client'
    2|
    3| export const dynamic = 'force-dynamic'
    4|
    5| import React, { useEffect, useState, useRef } from 'react'
    6| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
    7| import { useRouter } from 'next/navigation'
    8| import { Thread } from '@/hooks/useDiscussion'
    9| import { ThreadCard } from '@/components/discussion/ThreadCard'
   10| import { ThreadDetail } from '@/components/discussion/ThreadDetail'
   11| import { MessageSquare, Send, Bot, Sparkles, Globe, School, Loader2, Cpu, ArrowLeft } from 'lucide-react'
   12|
   13| interface ChatMessage {
   14|   id: string;
   15|   sender: string;
   16|   sender_id: string;
   17|   avatar: string;
   18|   role: 'student' | 'teacher' | 'assistant';
   19|   content: string;
   20|   time: string;
   21|   channel: string;
   22| }
   23|
   24| function formatTime(ts: string): string {
   25|   try {
   26|     const d = new Date(ts);
   27|     return d.toLocaleTimeString('vi-VN', { hour: '2-digit', minute: '2-digit' });
   28|   } catch { return ''; }
   29| }
   30|
   31| export default function DiscussionDashboardPage() {
   32|   const router = useRouter()
   33|   const [threads, setThreads] = useState<Thread[]>([])
   34|   const [loading, setLoading] = useState(true)
   35|   const [selectedThread, setSelectedThread] = useState<Thread | null>(null)
   36|   const [userProfile, setUserProfile] = useState<any>(null)
   37|   const [user, setUser] = useState<any>(null)
   38|
   39|   // Realtime Chat States
   40|   const [chatChannel, setChatChannel] = useState<'global' | 'class'>('global')
   41|   const [globalMessages, setGlobalMessages] = useState<ChatMessage[]>([])
   42|   const [classMessages, setClassMessages] = useState<ChatMessage[]>([])
    4 3 |       c o n s t   [ t r e n d i n g T o p i c ,   s e t T r e n d i n g T o p i c ]   =   u s e S t a t e < s t r i n g > ( ' C h ° a   c ó   d
   44|   const [chatInput, setChatInput] = useState('')
   45|
   46|   // Tiny AI Chatbot States
   47|   const [aiInput, setAiInput] = useState('')
   48|   const [aiReplies, setAiReplies] = useState<string[]>([
    4 9 |           ' T ô i   l à   M i c r o   A I   G u r u .   H ã y    · t   b ¥ t   k ó   c â u   h Ï i   n h a n h   n à o   v Á   p h § n   c é n g
   50|   ])
   51|   const [aiLoading, setAiLoading] = useState(false)
   52|
   53|   const chatEndRef = useRef<HTMLDivElement>(null)
   54|   const supabase = createClientComponentClient()
   55|
   56|   useEffect(() => {
   57|     const loadInitial = async () => {
   58|       try {
   59|         const { data: { user: u } } = await supabase.auth.getUser()
   60|         if (!u) { setLoading(false); return }
   61|         setUser(u)
   62|
   63|         const { data: prof } = await supabase.from('profiles').select('*').eq('id', u.id).maybeSingle()
   64|         setUserProfile(prof)
   65|
   66|         // Load threads
   67|         const { data: threadsData } = await supabase
   68|           .from('discussion_threads')
   69|           .select('*, author:profiles(full_name, avatar_url, role)')
   70|           .eq('is_deleted', false)
   71|           .order('created_at', { ascending: false })
   72|         if (threadsData) setThreads(threadsData as any[])
   73|
   74|         // Load persisted messages
   75|         const { data: messages } = await supabase
   76|           .from('discussion_messages')
   77|           .select('*')
   78|           .order('created_at', { ascending: true })
   79|           .limit(200)
   80|         if (messages) {
   81|           const mapped = messages.map(m => ({
   82|             id: m.id,
    8 3 |                         s e n d e r :   m . s e n d e r _ n a m e   | |   ' H Í c   v i ê n ' ,
   84|             sender_id: m.sender_id || '',
    8 5 |                         a v a t a r :   'Ø=Ü» ' ,
   86|             role: 'student' as const,
   87|             content: m.content,
   88|             time: formatTime(m.created_at),
   89|             channel: m.channel
   90|           }))
   91|           setGlobalMessages(mapped.filter(m => m.channel === 'global'))
   92|           setClassMessages(mapped.filter(m => m.channel !== 'global'))
   93|         }
```

```
      } catch (err) {
        console.error('Error loading initial data:', err)
      } finally {
        setLoading(false)
      }
    }
    loadInitial()
  }, [supabase])

  // Realtime subscription for new messages
  useEffect(() => {
    const channel = supabase
      .channel('discussion_messages_realtime')
      .on('postgres_changes', { event: 'INSERT', schema: 'public', table: 'discussion_messages' }, (payload) => {
        const m = payload.new as any
        const newMsg: ChatMessage = {
          id: m.id,
          s e n d e r :   m . s e n d e r _ n a m e   | |   ' H Í c   v i ê n ' ,
          sender_id: m.sender_id || '',
          a v a t a r :   'Ø=Ü» ' ,
          role: 'student' as const,
          content: m.content,
          time: formatTime(m.created_at),
          channel: m.channel
        }
        if (m.channel === 'global') {
          setGlobalMessages(prev => prev.some(x => x.id === newMsg.id) ? prev : [...prev, newMsg])
        } else {
          setClassMessages(prev => prev.some(x => x.id === newMsg.id) ? prev : [...prev, newMsg])
        }
      })
      .subscribe()

    return () => { supabase.removeChannel(channel) }
  }, [supabase])

  // Trending topics from global messages
  useEffect(() => {
    i f   ( g l o b a l M e s s a g e s . l e n g t h   = = =   0 )   {   s e t T r e n d i n g T o p i c ( ' C h ° a   c ó   d ï   l i Ç u
    const words = globalMessages.map(m => m.content).join(' ').toLowerCase().split(/ /)
    c o n s t   s t o p W o r d s   =   [ ' c ó ' , ' k h ô n g ' , ' l à ' , ' t h ì ' , ' m à ' , ' v à ' , '   Ã ' , ' c ç a ' , ' c h c
    const counts: Record<string, number> = {}
    words.forEach(w => {
      const cw = w.replace(/[^a-z0-9]/gi, '')
      if (cw.length > 2 && !stopWords.includes(cw)) counts[cw] = (counts[cw] || 0) + 1
    })
    const sorted = Object.entries(counts).sort((a,b) => b[1] - a[1])
    if (sorted.length > 0) setTrendingTopic(sorted.slice(0, 3).map(x => '#' + x[0].toUpperCase()).join(', '))
  }, [globalMessages])

  // Scroll to bottom
  useEffect(() => {
    chatEndRef.current?.scrollIntoView({ behavior: 'smooth' })
  }, [globalMessages, classMessages])

  // Send chat - persists to DB
  const handleSendChat = async () => {
    if (!chatInput.trim() || !userProfile || !user) return
    try {
      const { error } = await supabase.from('discussion_messages').insert({
        channel: chatChannel,
        class_id: chatChannel === 'class' ? userProfile.class_id || null : null,
        sender_id: user.id,
        s e n d e r _ n a m e :   u s e r P r o f i l e . f u l l _ n a m e   | |   ' H Í c   v i ê n ' ,
        content: chatInput.trim()
      })
      if (error) console.error('Error saving message:', error)
    } catch (err) {
      console.error('Error sending message:', err)
    }
    setChatInput('')
  }

  // Handle Micro AI Send
  const handleSendAi = async () => {
    if (!aiInput.trim()) return
    const userQ = aiInput
    setAiInput('')
    s e t A i R e p l i e s ( p r e v   = >   [ . . . p r e v ,   ` H Í c   v i ê n :   $ { u s e r Q } ` ] )
    setAiLoading(true)
    try {
      const res = await fetch('/api/ai/chat', {
        method: 'POST',
        headers: { 'Content-Type': 'application/json' },
        body: JSON.stringify({ message: userQ })
      })
      const data = await res.json()
      s e t A i R e p l i e s ( p r e v   = >   [ . . . p r e v ,   ` A I   G u r u :   $ { d a t a . r e p l y   | |   ' X i n   l × i ,
    } catch {
      s e t A i R e p l i e s ( p r e v   = >   [ . . . p r e v ,   ' A I   G u r u :   T ô i   a n g   b - n   x í   l ý   d ï   l i (
    } finally {
      setAiLoading(false)
    }
  }

  // Convert className hardcoded colors to inline CSS variables
  const s = {
    bgBase: 'var(--bg-base)',
    bgSurface: 'var(--bg-surface)',
    bgElevated: 'var(--bg-elevated)',
    brand: 'var(--brand-primary)',
    textMuted: 'var(--text-muted)',
    textPrimary: 'var(--text-primary)',
    border: 'var(--border-default)',
  }

  if (loading) {
    return (
      <div style={{ minHeight: '100vh', background: s.bgBase, color: s.textPrimary, paddingTop: '96px', displa...
        <div className="flex flex-col items-center gap-2">
          <Loader2 className="animate-spin" style={{ color: s.brand }} size={32} />
          <span style={{ fontSize: '12px', color: s.textMuted, fontWeight: 700, textTransform: 'uppercase', le...
        </div>
      </div>
    )
  }

  return (
    <div style={{ minHeight: '100vh', background: s.bgBase, color: s.textPrimary, paddingTop: '96px', paddingB...

      <div className="max-w-7xl mx-auto relative" style={{ zIndex: 10 }}>

        {/* Header */}
        <div className="flex flex-col sm:flex-row sm:items-center justify-between gap-4 mb-8 pb-4 relative" st...
```

```
218|
219|           <div className="flex items-center gap-3">
220|             <div style={{ padding: '10px', background: `color-mix(in srgb, ${s.brand} 10%, transparent)`, bord...
221|               <MessageSquare size={24} />
222|             </div>
223|             <div>
224|               <h1 className="text-xl md:text-2xl font-black tracking-tight uppercase flex items-center gap-2" ...
2 2 5 |                                 K H Ô N G   G I A N   T H ¢ O   L U ¬ N   3 D
226|                 <span style={{ fontSize: '9px', background: `color-mix(in srgb, ${s.brand} 15%, transparent)`,...
227|               </h1>
2 2 8 |                           < p   s t y l e = { {   f o n t S i z e :   ' 1 2 p x ' ,   c o l o r :   s . t e x t M u t e d ,   m a r g i n T o
229|             </div>
230|           </div>
231|
232|           <div className="flex items-center gap-3">
233|             <button
234|               onClick={() => router.push('/builder')}
235|               className="relative z-50 flex items-center gap-2 px-4 py-2 text-xs font-bold rounded-xl transiti...
236|               onMouseEnter={e => { e.currentTarget.style.color = s.textPrimary; e.currentTarget.style.borderCo...
237|               onMouseLeave={e => { e.currentTarget.style.color = s.textMuted; e.currentTarget.style.borderColo...
238|             >
2 3 9 |                           < A r r o w L e f t   s i z e = { 1 4 }   / >   Q u a y   l ¡ i   D a s h b o a r d
240|             </button>
241|           </div>
242|         </div>
243|
244|         {/* Layout: Left (Discussions) & Right (Chat + AI) */}
245|         <div className="grid grid-cols-1 lg:grid-cols-12 gap-8">
246|
247|           {/* Left Column */}
248|           <div className="lg:col-span-7 space-y-6 relative">
249|             {selectedThread ? (
250|               <div style={{ background: s.bgSurface, border: `1px solid ${s.border}`, borderRadius: '24px', pa...
251|                 <ThreadDetail
252|                   thread={selectedThread}
253|                   currentUserId={userProfile?.id}
254|                   onBack={() => setSelectedThread(null)}
255|                 />
256|               </div>
257|             ) : (
258|               <div style={{ background: s.bgSurface, border: `1px solid ${s.border}`, borderRadius: '24px', pa...
259|                 <div className="flex items-center justify-between pb-4" style={{ borderBottom: '1px solid colo...
260|                   <h2 className="text-lg font-bold tracking-tight flex items-center gap-2" style={{ color: s.t...
261|                     <Globe size={18} style={{ color: s.brand }} />
2 6 2 |                                 C h ç     Á   t h £ o   l u - n   s ô i   n Õ i
263|                   </h2>
264|                   <span style={{ fontSize: '10px', background: `color-mix(in srgb, ${s.brand} 15%, transparent...
2 6 5 |                                 { t h r e a d s . l e n g t h }   c h ç     Á
266|                   </span>
267|                 </div>
268|                 {threads.length === 0 ? (
269|                   <div style={{ padding: '80px 0', textAlign: 'center', color: s.textMuted, fontStyle: 'italic...
2 7 0 |                                 C h ° a   c ó   c h ç     Á   t h £ o   l u - n   n à o     ° ã c   t ¡ o .   H ã y   l à   n g ° Ý i
271|                   </div>
272|                 ) : (
273|                   <div className="grid grid-cols-1 sm:grid-cols-2 gap-4" style={{ marginTop: '16px' }}>
274|                     {threads.map(thread => (
275|                       <ThreadCard
276|                         key={thread.id}
277|                         thread={thread}
278|                         onSelect={setSelectedThread}
279|                       />
280|                     ))}
281|                   </div>
282|                 )}
283|               </div>
284|             )}
285|           </div>
286|
287|           {/* Right Column */}
288|           <div className="lg:col-span-5 flex flex-col gap-6 relative">
289|
290|             {/* Realtime Chat Card */}
291|             <div style={{ background: s.bgSurface, border: `1px solid ${s.border}`, borderRadius: '24px', disp...
292|
293|               {/* Channel Tabs */}
294|               <div style={{ padding: '12px', background: 'var(--bg-elevated)', borderBottom: `1px solid ${s.bo...
295|                 <div className="flex gap-2">
296|                   {(['global', 'class'] as const).map(ch => (
297|                     <button key={ch} onClick={() => setChatChannel(ch)}
298|                       style={{
299|                         display: 'flex', alignItems: 'center', gap: '8px', padding: '6px 12px', borderRadius: ...
300|                         fontSize: '12px', fontWeight: 700, cursor: 'pointer', border: 'none', fontFamily: 'inh...
301|                         background: chatChannel === ch ? `color-mix(in srgb, ${s.brand} 10%, transparent)` : '...
302|                         color: chatChannel === ch ? s.brand : s.textMuted,
303|                       }}
304|                     >
305|                       {ch === 'global' ? <Globe size={14} /> : <School size={14} />}
3 0 6 |                                 { c h   = = =   ' g l o b a l '   ?   ' K ê n h   C h u n g '   :   ' K ê n h   L Ũ p   H Í c ' }
307|                     </button>
308|                   ))}
309|                 </div>
310|                 <div style={{ fontSize: '10px', color: s.textMuted, display: 'flex', flexDirection: 'column', ...
311|                   <div className="flex items-center gap-1"><div style={{ width: '6px', height: '6px', backgrou...
312|                   <div style={{ color: s.brand, fontWeight: 700, marginTop: '2px' }}>Trending: {trendingTopic}...
313|                 </div>
314|               </div>
315|
316|               {/* Messages */}
317|               <div style={{ flex: 1, overflowY: 'auto', padding: '16px', display: 'flex', flexDirection: 'colu...
318|                 {(chatChannel === 'global' ? globalMessages : classMessages).map(m => (
319|                   <div key={m.id} className="flex gap-3 text-xs items-start">
320|                     <span style={{ width: '32px', height: '32px', borderRadius: '12px', background: s.bgElevat...
321|                     <div style={{ flex: 1 }}>
322|                       <div className="flex items-center gap-2">
323|                         <span style={{ fontWeight: 700, color: m.role === 'teacher' ? s.brand : 'var(--text-se...
324|                         {m.role === 'teacher' && (
325|                           <span style={{ fontSize: '8px', background: `color-mix(in srgb, ${s.brand} 10%, tran...
326|                         )}
327|                         <span style={{ fontSize: '9px', color: s.textMuted, marginLeft: 'auto' }}>{m.time}</span>
328|                       </div>
329|                       <p style={{ color: 'var(--text-secondary)', marginTop: '4px', lineHeight: 1.5, backgroun...
330|                         {m.content}
331|                       </p>
332|                     </div>
333|                   </div>
334|                 ))}
335|                 <div ref={chatEndRef} />
336|               </div>
337|
338|               {/* Chat Input */}
339|               <div style={{ padding: '12px', borderTop: `1px solid ${s.border}`, background: s.bgSurface, flex...
340|                 <div style={{ display: 'flex', alignItems: 'center', gap: '8px', background: s.bgBase, border:...
341|                   <input
```

```
342|                    type="text"
343 |                                    p l a c e h o l d e r = { c h a t C h a n n e l  = = =  ' g l o b a l '  ?  " C h a t  c h u n g
344|                    value={chatInput}
345|                    onChange={(e) => setChatInput(e.target.value)}
346|                    onKeyDown={(e) => e.key === 'Enter' && handleSendChat()}
347|                    style={{ flex: 1, background: 'transparent', border: 'none', outline: 'none', fontSize: '1...
348|                  />
349|                  <button onClick={handleSendChat}
350|                    style={{ padding: '8px', background: s.brand, color: '#000', borderRadius: '12px', border:...
351|                    <Send size={12} fill="currentColor" />
352|                  </button>
353|                </div>
354|              </div>
355|            </div>
356|
357|            {/* Micro AI Assistant */}
358|            <div style={{ background: s.bgSurface, border: `1px solid ${s.border}`, borderRadius: '24px', padd...
359|
360|              <div className="flex items-center justify-between" style={{ flexShrink: 0 }}>
361|                <div className="flex items-center gap-2">
362|                  <div style={{ padding: '6px', background: `color-mix(in srgb, ${s.brand} 10%, transparent)`,...
363|                    <Cpu size={14} />
364|                  </div>
365|                  <div>
366|                    <h4 className="text-xs font-bold tracking-tight flex items-center gap-1.5" style={{ color:...
367|                      MICRO AI GURU
368|                      <Sparkles size={10} style={{ color: '#eab308' }} />
369|                    </h4>
370|                    <p style={{ fontSize: '9px', color: s.brand, textTransform: 'uppercase', fontWeight: 700, ...
371|                  </div>
372|                </div>
373|                <div style={{ width: '6px', height: '6px', borderRadius: '50%', background: s.brand, animation...
374|              </div>
375|
376|              <div style={{ flex: 1, overflowY: 'auto', margin: '12px 0', padding: '12px', background: `color-...
377|                {aiReplies.map((r, i) => (
378|                  <div key={i} style={{
379|                    padding: '8px', borderRadius: '8px',
380|                    background: r.startsWith('AI Guru:') ? `color-mix(in srgb, ${s.brand} 5%, transparent)` : ...
381|                    color: r.startsWith('AI Guru:') ? 'var(--text-secondary)' : 'var(--text-secondary)',
382|                    borderLeft: `2px solid ${r.startsWith('AI Guru:') ? s.brand : s.border}`
383|                  }}>
384|                    {r}
385|                  </div>
386|                ))}
387|                {aiLoading && (
388|                  <div className="flex items-center gap-1" style={{ color: s.textMuted, fontStyle: 'italic', f...
389 |                                    < L o a d e r 2  c l a s s N a m e = " a n i m a t e - s p i n "  s t y l e = { {  c o l o r :  s
390|                  </div>
391|                )}
392|              </div>
393|
394|              <div style={{ display: 'flex', alignItems: 'center', gap: '8px', background: s.bgBase, border: `...
395|                <input
396|                  type="text"
397 |                                  p l a c e h o l d e r = " H Ĭ i  n h a n h  A I  v Á  s o c k e t ,  v g a ,  p s u . . . "
398|                  value={aiInput}
399|                  onChange={(e) => setAiInput(e.target.value)}
400|                  onKeyDown={(e) => e.key === 'Enter' && handleSendAi()}
401|                  style={{ flex: 1, background: 'transparent', border: 'none', outline: 'none', fontSize: '10p...
402|                />
403|                <button onClick={handleSendAi}
404|                  style={{ padding: '6px', background: s.brand, color: '#000', borderRadius: '8px', border: 'n...
405|                  <Bot size={10} />
406|                </button>
407|              </div>
408|            </div>
409|
410|          </div>
411|
412|        </div>
413|
414|      </div>
415|    </div>
416|  )
417| }
418|
419|
```

File: app/student/error.tsx (14 lines, 0.6 KB)

```
==========================================================================================
    1| 'use client'
    2| import { useEffect } from 'react'
    3|
    4| export default function Error({ error, reset }: { error: Error & { digest?: string }, reset: () => void }) {
    5|   useEffect(() => { console.error(error) }, [error])
    6|   return (
    7|     <div className="flex flex-col items-center justify-center min-h-screen bg-[#0d0e13] text-[#dde0ed]">
       8 |                < h 2  c l a s s N a m e = " t e x t - 2 x l  f o n t - b o l d  t e x t - r e d - 5 0 0  m b - 4 " >  ã  x £ y  r a  l x
    9|       <p className="text-gray-400 mb-6">{error.message}</p>
   10|       <button onClick={() => reset()} className="bg-[#00d4aa] text-[#0d0e13] px-6 py-2 rounded font-bold hover...
   11|     </div>
   12|   )
   13| }
   14|
```

File: app/student/history/page.tsx (499 lines, 22.0 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import { useEffect, useState, useCallback, useRef } from 'react'
    4| import { createBrowserClient } from '@supabase/ssr'
    5| import { motion, AnimatePresence } from 'framer-motion'
    6| import {
    7|   History, BookOpen, Award, Clock, ChevronRight, Wrench, Cpu,
    8|   Monitor, Smartphone, HardDrive, Shield, Zap, Star, Trophy,
    9|   BrainCircuit, Sparkles, RefreshCw, Calendar, Filter, ArrowUpDown,
   10|   CheckCircle2, XCircle, AlertTriangle
   11| } from 'lucide-react'
   12| import { format, isSameDay, parseISO, startOfDay } from 'date-fns'
   13|
   14| type ActivityType = 'lesson' | 'quiz' | 'exam' | 'builder' | 'xp'
   15|
   16| interface Activity {
   17|   id: string
   18|   type: ActivityType
   19|   title: string
   20|   description: string
   21|   details: string
   22|   time: string
   23|   score: number | null
```

```
  xpEarned: number
  icon: React.ReactNode
  color: string
  status?: string
}

const TYPE_CONFIG: Record<ActivityType, { label: string; color: string; gradient: string }> = {
      lesson:  {  label:  'Bài  HÍc',  color:  '#10B981',  gradient:  'from-emerald-
      quiz:  {  label:  'Bài  KiÃm  Tra',  color:  '#6366F1',  gradient:  'from-indig
      exam:  {  label:  'Kó  Thi',  color:  '#EF4444',  gradient:  'from-red-500  to-
      builder:  {  label:  'L¯p  Ráp  PC',  color:  '#06B6D4',  gradient:  'from-cyan
      xp:  {  label:  'Kinh  NghiÇm',  color:  '#F59E0B',  gradient:  'from-amber-50
}

function formatTimeAgo(dateStr: string): string {
  const d = new Date(dateStr)
  const now = new Date()
  const diff = now.getTime() - d.getTime()
  const seconds = Math.floor(diff / 1000)
      if  (seconds  <  60)  return  'Vëa  xong'
  const minutes = Math.floor(seconds / 60)
      if  (minutes  <  60)  return  `${minutes}  phút  tr°Ûc`
  const hours = Math.floor(minutes / 60)
      if  (hours  <  24)  return  `${hours}  giÝ  tr°Ûc`
  const days = Math.floor(hours / 24)
      if  (days  <  7)  return  `${days}  ngày  tr°Ûc`
  return format(d, 'dd/MM/yyyy')
}

function formatTimeDisplay(dateStr: string): string {
  const d = new Date(dateStr)
  return format(d, 'HH:mm')
}

export default function StudentHistoryPage() {
  const supabase = createBrowserClient(
    process.env.NEXT_PUBLIC_SUPABASE_URL!,
    process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
  )

  const [userId, setUserId] = useState<string | null>(null)
  const [activities, setActivities] = useState<Activity[]>([])
  const [loading, setLoading] = useState(true)
  const [filter, setFilter] = useState<ActivityType | 'all'>('all')
  const [sortAsc, setSortAsc] = useState(false)
  const refreshIntervalRef = useRef<NodeJS.Timeout | null>(null)

  const getIconForType = (type: ActivityType): React.ReactNode => {
    const props = { size: 18 }
    switch (type) {
      case 'lesson': return <BookOpen {...props} />
      case 'quiz': return <BrainCircuit {...props} />
      case 'exam': return <Award {...props} />
      case 'builder': return <Wrench {...props} />
      case 'xp': return <Zap {...props} />
    }
  }

  const fetchHistory = useCallback(async () => {
    try {
      const { data: { user: u } } = await supabase.auth.getUser()
      if (!u) { setLoading(false); return }
      setUserId(u.id)

      const [lessonsRes, quizRes, examRes, builderRes, xpRes] = await Promise.all([
        supabase.from('lesson_progress')
          .select('lesson_id, status, completed_at, last_accessed, time_spent_seconds, score, completion_perce...
          .eq('student_id', u.id)
          .not('last_accessed', 'is', null)
          .order('last_accessed', { ascending: false })
          .limit(50),
        supabase.from('quiz_attempts')
          .select('id, quiz_id, score, status, submitted_at, created_at, quizzes(title)')
          .eq('student_id', u.id)
          .order('created_at', { ascending: false })
          .limit(50),
        supabase.from('exam_attempts')
          .select('id, exam_id, score, status, started_at, submitted_at, exams(title)')
          .eq('student_id', u.id)
          .order('started_at', { ascending: false })
          .limit(50),
        supabase.from('builder_sessions')
          .select('started_at, ended_at')
          .eq('student_id', u.id)
          .not('started_at', 'is', null)
          .order('started_at', { ascending: false })
          .limit(50),
        supabase.from('xp_transactions')
          .select('amount, reason, reference_type, created_at')
          .eq('user_id', u.id)
          .order('created_at', { ascending: false })
          .limit(50),
      ])

      const items: Activity[] = []

      ;(lessonsRes.data || []).forEach((l: any) => {
        items.push({
          id: `lesson-${l.lesson_id}-${l.last_accessed}`,
          type: 'lesson',
                    title:  l.lessons?.title  ||  'Bài  hÍc',
                    description:  l.status  ===  'completed'  ?  'Hoàn  thành  bài  hÍc'
          details: l.status === 'completed'
            ? `Hoàn thành lúc ${formatTimeDisplay(l.completed_at || l.last_accessed)}`
                      :  `  ã  hÍc  ${Math.round((l.time_spent_seconds  ||  0)  /  60)}  ph
          time: l.completed_at || l.last_accessed,
          score: l.score,
          xpEarned: l.status === 'completed' ? 50 : 0,
          icon: getIconForType('lesson'),
          color: TYPE_CONFIG.lesson.color,
          status: l.status,
        })
      })

      ;(quizRes.data || []).forEach((q: any) => {
        const isComplete = q.status === 'submitted' || q.status === 'passed' || q.status === 'failed'
        items.push({
          id: `quiz-${q.id}-${q.created_at}`,
          type: 'quiz',
                    title:  q.quizzes?.title  ||  'Bài  kiÃm  tra',
                    description:  isComplete  ?  `  iÃm:  ${q.score}/100`  :  'Ch°a  hoàn
          details: isComplete
            ? `Hoàn thành lúc ${formatTimeDisplay(q.submitted_at)}`
                      :  `B¯t  §u  lúc  ${formatTimeDisplay(q.created_at)}`,
```

```
148|          time: q.submitted_at || q.created_at,
149|          score: q.score,
150|          xpEarned: isComplete ? Math.round(q.score * 2) : 0,
151|          icon: getIconForType('quiz'),
152|          color: TYPE_CONFIG.quiz.color,
153|          status: q.status,
154|        })
155|      })
156|
157|      ;(examRes.data || []).forEach((e: any) => {
158|        const isComplete = e.status === 'submitted' || e.status === 'passed' || e.status === 'failed'
159|        items.push({
160|          id: `exam-${e.id}-${e.started_at}`,
161|          type: 'exam',
  1 6 2 |                      t i t l e :   e . e x a m s ? . t i t l e   | |   ' K ó   t h i ' ,
  1 6 3 |                      d e s c r i p t i o n :   i s C o m p l e t e   ?   `   i Ã m :   $ { e . s c o r e } / 1 0 0 `   :   '   a n g   l à m   b
164|          details: isComplete
165|            ? `Hoàn thành lúc ${formatTimeDisplay(e.submitted_at)}`
  1 6 6 |                          :   ` B ¯ t     § u   l ú c   $ { f o r m a t T i m e D i s p l a y ( e . s t a r t e d _ a t ) } ` ,
167|          time: e.submitted_at || e.started_at,
168|          score: e.score,
169|          xpEarned: isComplete ? Math.round((e.score || 0) * 3) : 0,
170|          icon: getIconForType('exam'),
171|          color: TYPE_CONFIG.exam.color,
172|          status: e.status,
173|        })
174|      })
175|
176|      ;(builderRes.data || []).forEach((b: any) => {
177|        const duration = b.ended_at
178|          ? Math.round((new Date(b.ended_at).getTime() - new Date(b.started_at).getTime()) / 60000)
179|          : 0
180|        items.push({
181|          id: `builder-${b.started_at}`,
182|          type: 'builder',
  1 8 3 |                      t i t l e :   ' P h ò n g   t h ñ c   h à n h   l ¯ p   r á p ' ,
  1 8 4 |                      d e s c r i p t i o n :   d u r a t i o n   >   0   ?   ` T h Ý i   g i a n :   $ { d u r a t i o n }   p h ú t `   :   '
185|          details: b.ended_at
  1 8 6 |                          ?   ` K ¿ t   t h ú c   l ú c   $ { f o r m a t T i m e D i s p l a y ( b . e n d e d _ a t ) } `
  1 8 7 |                          :   '   a n g   t h ñ c   h à n h ' ,
188|          time: b.started_at,
189|          score: null,
190|          xpEarned: duration > 10 ? 100 : duration > 5 ? 50 : 20,
191|          icon: getIconForType('builder'),
192|          color: TYPE_CONFIG.builder.color,
193|        })
194|      })
195|
196|      ;(xpRes.data || []).forEach((x: any) => {
197|        items.push({
198|          id: `xp-${x.created_at}-${x.amount}`,
199|          type: 'xp',
  2 0 0 |                      t i t l e :   x . r e a s o n   | |   ' N h - n   X P ' ,
201|          description: `+${x.amount} XP`,
202|          details: x.reference_type
  2 0 3 |                          ?   ` T ë :   $ { x . r e f e r e n c e _ t y p e . r e p l a c e ( / _ / g ,   '   ' ) } `
  2 0 4 |                          :   ' G i a o   d Ë c h   k i n h   n g h i Ç m ' ,
205|          time: x.created_at,
206|          score: null,
207|          xpEarned: x.amount,
208|          icon: getIconForType('xp'),
209|          color: TYPE_CONFIG.xp.color,
210|        })
211|      })
212|
213|      items.sort((a, b) => {
214|        const cmp = new Date(b.time).getTime() - new Date(a.time).getTime()
215|        return sortAsc ? -cmp : cmp
216|      })
217|
218|      setActivities(items.slice(0, 100))
219|    } catch (err) {
220|      console.error('Error fetching history:', err)
221|    } finally {
222|      setLoading(false)
223|    }
224|  }, [sortAsc, supabase])
225|
226|  useEffect(() => {
227|    fetchHistory()
228|  }, [fetchHistory])
229|
230|  useEffect(() => {
231|    if (!userId) return
232|    const channel = supabase
233|      .channel('student-history-realtime')
234|      .on('postgres_changes',
235|        { event: '*', schema: 'public', table: 'lesson_progress', filter: `student_id=eq.${userId}` },
236|        () => fetchHistory()
237|      )
238|      .on('postgres_changes',
239|        { event: '*', schema: 'public', table: 'quiz_attempts', filter: `student_id=eq.${userId}` },
240|        () => fetchHistory()
241|      )
242|      .on('postgres_changes',
243|        { event: '*', schema: 'public', table: 'exam_attempts', filter: `student_id=eq.${userId}` },
244|        () => fetchHistory()
245|      )
246|      .on('postgres_changes',
247|        { event: '*', schema: 'public', table: 'builder_sessions', filter: `student_id=eq.${userId}` },
248|        () => fetchHistory()
249|      )
250|      .on('postgres_changes',
251|        { event: 'INSERT', schema: 'public', table: 'xp_transactions', filter: `user_id=eq.${userId}` },
252|        () => fetchHistory()
253|      )
254|      .subscribe()
255|
256|    return () => { supabase.removeChannel(channel) }
257|  }, [userId, supabase, fetchHistory])
258|
259|  const filteredActivities = filter === 'all'
260|    ? activities
261|    : activities.filter(a => a.type === filter)
262|
263|  const groupedByDate: { [key: string]: Activity[] } = {}
264|  filteredActivities.forEach(activity => {
265|    const dayKey = startOfDay(parseISO(activity.time)).toISOString()
266|    if (!groupedByDate[dayKey]) groupedByDate[dayKey] = []
267|    groupedByDate[dayKey].push(activity)
268|  })
269|
270|  const today = startOfDay(new Date()).toISOString()
271|  const yesterday = startOfDay(new Date(Date.now() - 86400000)).toISOString()
```

```
  function getDateLabel(dateKey: string): string {
    if (dateKey === today) return 'Hôm nay'
    if (dateKey === yesterday) return 'Hôm qua'
    return format(parseISO(dateKey), 'EEEE, dd/MM/yyyy')
  }

  const FILTERS: { key: ActivityType | 'all'; label: string; icon: React.ReactNode }[] = [
          {  key:  'all',  label:  'T¥t  c£',  icon:  <Sparkles  size={14}  />  },
          {  key:  'lesson',  label:  'Bài  hÍc',  icon:  <BookOpen  size={14}  />  },
          {  key:  'quiz',  label:  'KiÃm  tra',  icon:  <BrainCircuit  size={14}  />  }
          {  key:  'exam',  label:  'Kó  thi',  icon:  <Award  size={14}  />  },
          {  key:  'builder',  label:  'L¯p  ráp',  icon:  <Wrench  size={14}  />  },
    { key: 'xp', label: 'XP', icon: <Zap size={14} /> },
  ]

  if (loading) {
    return (
      <div className="min-h-screen flex flex-col items-center justify-center gap-3 p-8"
        style={{ background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
        <motion.div
          animate={{ rotate: 360 }}
          transition={{ duration: 1.5, repeat: Infinity, ease: 'linear' }}
        >
          <RefreshCw size={32} style={{ color: 'var(--brand-primary)' }} />
        </motion.div>
        <span className="text-xs font-bold uppercase tracking-widest" style={{ color: 'var(--text-muted)' }}>
                        ang  t£i  lËch  sí...
        </span>
      </div>
    )
  }

  return (
    <div className="min-h-screen pb-12" style={{ background: 'var(--bg-base)', color: 'var(--text-primary)' }}>
      <div className="relative overflow-hidden">
        <div className="absolute inset-0 opacity-[0.02] pointer-events-none"
          style={{ backgroundImage: 'radial-gradient(circle at 25% 25%, var(--brand-primary) 1px, transparent ...
        <div class="absolute top-0 left-1/4 w-[600px] h-[600px] rounded-full filter blur-[120px] pointer-e...
          style={{ background: 'color-mix(in srgb, var(--brand-primary) 4%, transparent)' }} />

        <div className="max-w-3xl mx-auto px-4 pt-8 pb-4 relative z-10">
          <motion.div initial={{ opacity: 0, y: -20 }} animate={{ opacity: 1, y: 0 }}
            className="flex items-center justify-between mb-6">
            <div class="flex items-center gap-4">
              <div class="p-3 rounded-2xl" style={{
                background: 'color-mix(in srgb, var(--brand-primary) 10%, transparent)',
                border: '1px solid color-mix(in srgb, var(--brand-primary) 25%, transparent)',
                color: 'var(--brand-primary)'
              }}>
                <History size={24} />
              </div>
              <div>
                                  <h1  class Name="text-2xl  font-black  tracking-tight">LËch
              <p class="text-xs mt-0.5" style={{ color: 'var(--text-muted)' }}>
                                      Theo  dõi  toàn  bÙ  ho¡t  Ùng  hÍc  t-p  theo  thÝi  gian  thñ
              </p>
              </div>
            </div>
            <button onClick={() => { setSortAsc(!sortAsc); fetchHistory() }}
              class="flex items-center gap-1.5 px-3 py-2 text-xs font-bold rounded-xl transition-all curso...
              style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var...
              <ArrowUpDown size={14} />
                                  {sortAsc  ?  'Ci  nh¥t'  :  'MÛi  nh¥t'}
            </button>
          </motion.div>

          <motion.div initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 0.1 }}
            class="flex gap-2 overflow-x-auto pb-2 mb-6 scrollbar-none">
            {FILTERS.map(f => (
              <button key={f.key} onClick={() => setFilter(f.key)}
                class="flex items-center gap-1.5 px-3.5 py-2 text-xs font-bold rounded-xl transition-all w...
                style={{
                  background: filter === f.key
                    ? 'color-mix(in srgb, var(--brand-primary) 15%, transparent)'
                    : 'var(--bg-surface)',
                  border: filter === f.key
                    ? '1px solid color-mix(in srgb, var(--brand-primary) 35%, transparent)'
                    : '1px solid var(--border-default)',
                  color: filter === f.key ? 'var(--brand-primary)' : 'var(--text-muted)',
                }}>
                {f.icon}
                {f.label}
                {filter === f.key && (
                  <span class="ml-1 px-1.5 py-0.5 rounded-full text-[9px] font-bold"
                    style={{ background: 'color-mix(in srgb, var(--brand-primary) 20%, transparent)' }}>
                    {filteredActivities.length}
                  </span>
                )}
              </button>
            ))}
          </motion.div>

          {filteredActivities.length === 0 ? (
            <motion.div initial={{ opacity: 0, scale: 0.95 }} animate={{ opacity: 1, scale: 1 }}
              class="text-center py-20 px-8 rounded-3xl"
              style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)' }}>
              <motion.div animate={{ y: [0, -8, 0] }} transition={{ duration: 3, repeat: Infinity }}>
                <Clock size={56} style={{ color: 'var(--text-muted)', opacity: 0.2, margin: '0 auto 16px' }} />
              </motion.div>
              <p class="text-sm font-bold" style={{ color: 'var(--text-primary)' }}>
                                  Chº a  có  ho¡t  Ùng  nào
              </p>
              <p class="text-xs mt-1" style={{ color: 'var(--text-muted)' }}>
                                  B¯t  §u  hÍc  Ã  xem  lËch  sí  ho¡t  Ùng  t¡i  ây!
              </p>
            </motion.div>
          ) : (
            <div class="space-y-8">
              {Object.entries(groupedByDate).map(([dateKey, items], groupIdx) => (
                <motion.div key={dateKey}
                  initial={{ opacity: 0, y: 20 }}
                  animate={{ opacity: 1, y: 0 }}
                  transition={{ delay: groupIdx * 0.05 }}>
                  <div class="flex items-center gap-3 mb-4">
                    <Calendar size={14} style={{ color: 'var(--brand-primary)' }} />
                    <h3 class="text-sm font-black uppercase tracking-wider"
                      style={{ color: 'var(--text-primary)' }}>
                      {getDateLabel(dateKey)}
                    </h3>
                    <div class="flex-1 h-px" style={{ background: 'var(--border-default)' }} />
                    <span class="text-[10px] font-bold px-2 py-0.5 rounded-full"
                      style={{ background: 'color-mix(in srgb, var(--bg-elevated) 50%, transparent)', color: '...
                                          {items.length}  ho¡t  Ùng
```

```
  396|                    </span>
  397|                  </div>
  398|
  399|                  <div className="relative ml-4">
  400|                    <div className="absolute left-[19px] top-2 bottom-2 w-0.5"
  401|                      style={{ background: 'var(--border-default)' }} />
  402|
  403|                    <div className="space-y-3">
  404|                      {items.map((item, idx) => (
  405|                        <motion.div key={item.id}
  406|                          initial={{ opacity: 0, x: -20 }}
  407|                          animate={{ opacity: 1, x: 0 }}
  408|                          transition={{ delay: idx * 0.03 }}
  409|                          whileHover={{ x: 4 }}
  410|                          className="relative pl-10"
  411|                        >
  412|                          <div className="absolute left-[11px] top-[18px] w-[17px] h-[17px] rounded-full borde...
  413|                            style={{
  414|                              background: 'var(--bg-base)',
  415|                              borderColor: item.color,
  416|                            }}>
  417|                            <div className="absolute inset-[3px] rounded-full"
  418|                              style={{ background: `${item.color}30` }} />
  419|                          </div>
  420|
  421|                          <div className="p-3.5 rounded-xl transition-all duration-200"
  422|                            style={{
  423|                              background: 'var(--bg-surface)',
  424|                              border: '1px solid var(--border-default)',
  425|                            }}>
  426|                            <div className="flex items-start gap-3">
  427|                              <div className="w-9 h-9 rounded-lg flex items-center justify-center flex-shrink-0"
  428|                                style={{
  429|                                  background: `${item.color}15`,
  430|                                  color: item.color,
  431|                                }}>
  432|                                {item.icon}
  433|                              </div>
  434|                              <div className="flex-1 min-w-0">
  435|                                <div className="flex items-start justify-between gap-2">
  436|                                  <div>
  437|                                    <p className="text-sm font-bold leading-tight" style={{ color: 'var(--text...
  438|                                      {item.title}
  439|                                    </p>
  440|                                    <p className="text-xs mt-0.5 leading-relaxed" style={{ color: item.color }}>
  441|                                      {item.description}
  442|                                    </p>
  443|                                  </div>
  444|                                  <div className="text-right flex-shrink-0">
  445|                                    <p className="text-[10px] font-bold whitespace-nowrap"
  446|                                      style={{ color: 'var(--text-muted)' }}>
  447|                                      {formatTimeAgo(item.time)}
  448|                                    </p>
  449|                                    {item.score != null && (
  450|                                      <p className="text-xs font-black mt-0.5"
  451|                                        style={{
  452|                                          color: item.score >= 80 ? '#10B981'
  453|                                            : item.score >= 50 ? '#F59E0B'
  454|                                            : '#EF4444'
  455|                                        }}>
  456|                                        {item.score}%
  457|                                      </p>
  458|                                    )}
  459|                                  </div>
  460|                                </div>
  461|                                <div className="flex items-center gap-3 mt-1.5">
  462|                                  <p className="text-[10px]" style={{ color: 'var(--text-muted)' }}>
  463|                                    {item.details}
  464|                                  </p>
  465|                                  {item.xpEarned > 0 && (
  466|                                    <span className="flex items-center gap-1 px-1.5 py-0.5 rounded text-[9px] ...
  467|                                      style={{
  468|                                        background: 'color-mix(in srgb, #F59E0B 12%, transparent)',
  469|                                        color: '#F59E0B',
  470|                                        border: '1px solid color-mix(in srgb, #F59E0B 20%, transparent)',
  471|                                      }}>
  472|                                      <Zap size={8} />+{item.xpEarned}XP
  473|                                    </span>
  474|                                  )}
  475|                                </div>
  476|                              </div>
  477|                            </div>
  478|                          </div>
  479|                        </motion.div>
  480|                      ))}
  481|                    </div>
  482|                  </div>
  483|                </motion.div>
  484|              ))}
  485|            </div>
  486|          )}
  487|
  488|          {filteredActivities.length > 0 && activities.length >= 100 && (
  489|            <motion.p initial={{ opacity: 0 }} animate={{ opacity: 1 }}
  490|              className="text-center text-xs mt-8" style={{ color: var(--text-muted)' }}>
    4 9 1 |                                H i Ã n   t h Ë   1 0 0   h o ¡ t    Ù n g   g § n   n h ¥ t .   D ï   l i Ç u   c i   h ¡ n   c ó   t h Ã    ° ã
  492|            </motion.p>
  493|          )}
  494|        </div>
  495|      </div>
  496|    </div>
  497|  )
  498| }
  499|
```

File: app/student/level/page.tsx (409 lines, 24.2 KB)

```
    1| 'use client'
    2|
    3| import { useState, useEffect } from 'react'
    4| import { motion, AnimatePresence } from 'framer-motion'
    5| import { useRealtime } from '@/lib/realtime-provider'
    6| import { createBrowserClient } from '@supabase/ssr'
    7| import { Zap, ChevronRight, Clock, Award, Flame, CheckCircle, Trophy, Star, ChevronDown, ChevronUp } from 'luc...
    8|
    9| const supabase = createBrowserClient(
   10|   process.env.NEXT_PUBLIC_SUPABASE_URL!,
   11|   process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   12| )
   13|
   14| const STATUS_ICONS: Record<string, string> = {
       1 5 |       l e s s o n _ c o m p l e t e d :   'Ø=ÜÖ ' ,
       1 6 |       e x a m _ c o m p l e t e d :   'Ø=ÜÝ ' ,
```

```
    17|      quiz_completed:   'Ø>Ýà ',
    18|      builder_session:   'Ø=Àà þ ',
    19|      quest_completed:   'Ø=ÜË ',
    20|      daily_reward:   'Ø<ß• ',
 21| }
 22|
 23| export default function LevelPage() {
 24|   const { state, refetch } = useRealtime()
 25|   const [activeTab, setActiveTab] = useState<'level' | 'quests' | 'titles' | 'history'>('level')
 26|   const [expandedLevel, setExpandedLevel] = useState<number | null>(null)
 27|
 28|   const {
 29|     level, levelTitle, levelIcon, levelColor, levelProgress, xp, xpToNext, xpInLevel,
 30|     streak, studyMinutes, levelDefs, quests, titles, xpHistory, allQuests,
 31|   } = state
 32|
 33|   const tabItems = [
    34|         {  key:  'level'  as  const,  label:  'C¥p  Ù',  icon:  <Zap  size={16}  />  },
    35|         {  key:  'quests'  as  const,  label:  'NhiÇm  Vå',  icon:  <CheckCircle  size
    36|         {  key:  'titles'  as  const,  label:  'Danh  HiÇu',  icon:  <Award  size={16
    37|         {  key:  'history'  as  const,  label:  'LËch  Sí  XP',  icon:  <Clock  size={1
 38|   ]
 39|
 40|   return (
 41|     <div className="p-6 md:p-8 lg:p-10" style={{ background: 'transparent', minHeight: '100vh' }}>
 42|       <div className="max-w-[1200px] mx-auto" style={{ display: 'flex', flexDirection: 'column', gap: '28px' }}>
 43|         <motion.div initial={{ opacity: 0, y: 15 }} animate={{ opacity: 1, y: 0 }}>
 44|           <div className="flex items-center gap-3 mb-2">
 45|             <div className="w-10 h-10 rounded-xl bg-gradient-to-br from-yellow-400 to-yellow-600 flex items-ce...
 46|               {levelIcon}
 47|             </div>
 48|             <div>
    49|                               <h1  className="text-2xl  font-black"  style={{  color:  'var(
    50|                               <p  className="text-sm"  style={{  color:  'var(--text-muted)
 51|             </div>
 52|           </div>
 53|         </motion.div>
 54|
 55|         {/* Level Hero Card */}
 56|         <motion.div
 57|           initial={{ opacity: 0, y: 15 }}
 58|           animate={{ opacity: 1, y: 0 }}
 59|           transition={{ delay: 0.05 }}
 60|           className="lms-card relative overflow-hidden"
 61|           style={{
 62|             padding: '32px',
 63|             background: `linear-gradient(135deg, ${levelColor}15, transparent)`,
 64|             border: `1px solid ${levelColor}30`,
 65|           }}
 66|         >
 67|           <div className="absolute top-[-60px] right-[-40px] opacity-[0.04] pointer-events-none">
 68|             <span style={{ fontSize: '180px' }}>{levelIcon}</span>
 69|           </div>
 70|           <div className="flex items-center gap-6 relative z-10" style={{ flexWrap: 'wrap' }}>
 71|             <div className="text-center" style={{ minWidth: '80px' }}>
 72|               <div style={{ fontSize: '52px', lineHeight: 1, marginBottom: '4px' }}>{levelIcon}</div>
 73|               <div className="text-xs font-bold uppercase tracking-wider" style={{ color: levelColor }}>Level ...
 74|             </div>
 75|             <div style={{ flex: 1, minWidth: '200px' }}>
 76|               <div className="text-lg font-bold" style={{ color: 'var(--text-primary)' }}>{levelTitle}</div>
 77|               <div className="flex items-center gap-3 mt-3">
 78|                 <div className="flex-1 h-3 rounded-full overflow-hidden" style={{ background: 'var(--bg-elevat...
 79|                   <motion.div
 80|                     initial={{ width: 0 }}
 81|                     animate={{ width: `${levelProgress}%` }}
 82|                     transition={{ duration: 0.8, ease: 'easeOut' }}
 83|                     className="h-full rounded-full"
 84|                     style={{ background: `linear-gradient(90deg, ${levelColor}, ${levelColor}88)` }}
 85|                   />
 86|                 </div>
 87|                 <span className="text-xs font-bold whitespace-nowrap" style={{ color: levelColor }}>
 88|                   {levelProgress.toFixed(0)}%
 89|                 </span>
 90|               </div>
 91|               <div className="flex items-center gap-4 mt-2">
 92|                 <span className="text-xs" style={{ color: 'var(--text-muted)' }}>
 93|                   <span className="font-bold" style={{ color: 'var(--text-primary)' }}>{xpInLevel.toLocaleStri...
 94|                 </span>
    95|                               <span  className="text-xs"  style={{  color:  'var(--text-mu
 96|               </div>
 97|             </div>
 98|             <div className="flex gap-6" style={{ flexShrink: 0 }}>
 99|               <div className="text-center">
100|                 <Flame size={20} className="mx-auto mb-1" style={{ color: '#f59e0b' }} />
101|                 <div className="text-lg font-black" style={{ color: 'var(--text-primary)' }}>{streak}</div>
102|                 <div className="text-[10px] font-bold uppercase tracking-wider" style={{ color: 'var(--text-mu...
103|               </div>
104|               <div className="text-center">
105|                 <Clock size={20} className="mx-auto mb-1" style={{ color: 'var(--brand-primary)' }} />
106|                 <div className="text-lg font-black" style={{ color: 'var(--text-primary)' }}>{(studyMinutes / ...
107|                 <div className="text-[10px] font-bold uppercase tracking-wider" style={{ color: 'var(--text-mu...
108|               </div>
109|             </div>
110|           </div>
111|         </motion.div>
112|
113|         {/* Tab Navigation */}
114|         <div className="flex gap-1 p-1 rounded-xl" style={{ background: 'var(--bg-elevated)', border: '1px sol...
115|           {tabItems.map(tab => (
116|             <button
117|               key={tab.key}
118|               onClick={() => setActiveTab(tab.key)}
119|               className="flex items-center gap-2 px-4 py-2.5 rounded-lg text-sm font-bold transition-all curso...
120|               style={{
121|                 flex: 1,
122|                 background: activeTab === tab.key ? 'var(--bg-surface)' : 'transparent',
123|                 color: activeTab === tab.key ? 'var(--text-primary)' : 'var(--text-muted)',
124|                 border: activeTab === tab.key ? '1px solid var(--border-default)' : '1px solid transparent',
125|               }}
126|             >
127|               {tab.icon}
128|               <span className="hidden sm:inline">{tab.label}</span>
129|             </button>
130|           ))}
131|         </div>
132|
133|         {/* Tab Content */}
134|         <AnimatePresence mode="wait">
135|           {activeTab === 'level' && (
136|             <motion.div key="level" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit={{ opa...
137|               <div className="lms-card" style={{ padding: '24px' }}>
    138|                               <h2  className="text-lg  font-bold  mb-4"  style={{  color:
    139|                               <p  className="text-sm  mb-6"  style={{  color:  'var(--text-
140|                 <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
```

```
141|                  {levelDefs.map((lvl, i) => {
142|                    const unlocked = xp >= lvl.xp_required
143|                    const isCurrent = lvl.level === level
144|                    const isExpanded = expandedLevel === lvl.level
145|                    const nextXp = levelDefs[i + 1]?.xp_required || lvl.xp_required
146|                    const progressInLevel = nextXp > lvl.xp_required
147|                      ? Math.min(((xp - lvl.xp_required) / (nextXp - lvl.xp_required)) * 100, 100)
148|                      : 100
149|
150|                    return (
151|                      <div key={lvl.level}>
152|                        <div
153|                          onClick={() => setExpandedLevel(isExpanded ? null : lvl.level)}
154|                          className="flex items-center gap-4 px-4 py-3 rounded-xl transition-all cursor-pointer"
155|                          style={{
156|                            background: isCurrent ? `${levelColor}15` : unlocked ? 'var(--bg-elevated)' : 'tra...
157|                            border: isCurrent ? `1px solid ${levelColor}30` : '1px solid transparent',
158|                            opacity: unlocked ? 1 : 0.4,
159|                          }}
160|                        >
161|                          <div className="flex items-center justify-center w-10 h-10 rounded-lg text-lg" style={{
162|                            background: unlocked ? `${levelColor}20` : 'var(--bg-elevated)',
163|                            border: `1px solid ${unlocked ? levelColor + '40' : 'var(--border-default)'}`,
164|                          }}>
165|                            {lvl.icon}
166|                          </div>
167|                          <div style={{ flex: 1, minWidth: 0 }}>
168|                            <div className="text-sm font-bold" style={{ color: unlocked ? 'var(--text-primary)...
169|                              Level {lvl.level} - {lvl.title}
170|                            </div>
171|                            <div className="text-xs" style={{ color: 'var(--text-muted)' }}>
1 7 2 |                                                    { l v l . d e s c r i p t i o n }  ·  y ê u  c § u  { l v l . x p _ r e q u i r
173|                            </div>
174|                            {unlocked && !isCurrent && (
1 7 5 |                                                    < d i v  c l a s s N a m e = " t e x t - x s  f o n t - b o l d  m t - 1 "  s t
176|                            )}
177|                          </div>
178|                          <div className="flex items-center gap-2 flex-shrink-0">
179|                            {isCurrent && (
180|                              <div className="text-xs font-bold px-2 py-1 rounded" style={{ background: `${lev...
1 8 1 |                                                        H i Ç n  t ¡ i
182|                              </div>
183|                            )}
184|                            <ChevronDown size={16} style={{ color: 'var(--text-muted)', transform: isExpanded ...
185|                          </div>
186|                        </div>
187|                        {isExpanded && (
188|                          <motion.div
189|                            initial={{ height: 0, opacity: 0 }}
190|                            animate={{ height: 'auto', opacity: 1 }}
191|                            className="px-4 py-3 mx-4 mb-2 rounded-lg"
192|                            style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-default...
193|                          >
1 9 4 |                                                < d i v  c l a s s N a m e = " t e x t - s m  m b - 2 "  s t y l e = { {  c o l o r
195|                            <div className="grid grid-cols-2 gap-3 text-xs" style={{ color: 'var(--text-muted)...
1 9 6 |                                                    < d i v > Y ê u  c § u  X P :  < s p a n  c l a s s N a m e = " f o n t - b o l
1 9 7 |                                                    < d i v > D a n h  h i Ç u :  < s p a n  c l a s s N a m e = " f o n t - b o l d
1 9 8 |                                                    < d i v > B i Ã u  t ° ã n g :  < s p a n > { l v l . i c o n } < / s p a n > < /
199|                            </div>
200|                            {unlocked && (
201|                              <div className="mt-3">
2 0 2 |                                                        < d i v  c l a s s N a m e = " t e x t - x s  m b - 1 "  s t y l e = { {  c
203|                                <div className="h-2 rounded-full overflow-hidden" style={{ background: 'var(--...
204|                                  <div className="h-full rounded-full" style={{ width: `${Math.min(progressInL...
205|                                </div>
206|                                <div className="text-xs mt-1 text-right" style={{ color: 'var(--text-muted)' }}>
207|                                  {Math.min(progressInLevel, 100).toFixed(0)}%
208|                                </div>
209|                              </div>
210|                            )}
211|                          </motion.div>
212|                        )}
213|                      </div>
214|                    )
215|                  })}
216|                </div>
217|              </div>
218|            </motion.div>
219|          )}
220|
221|          {activeTab === 'quests' && (
222|            <motion.div key="quests" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit={{ op...
223|              <div className="lms-card" style={{ padding: '24px' }}>
224|                <div className="flex items-center justify-between mb-4">
225|                  <div>
2 2 6 |                                            < h 2  c l a s s N a m e = " t e x t - l g  f o n t - b o l d "  s t y l e = { {  c o l o r :  ' v
2 2 7 |                                            < p  c l a s s N a m e = " t e x t - s m "  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t - m
228|                  </div>
229|                  <div className="flex items-center gap-2 text-sm" style={{ color: 'var(--text-muted)' }}>
230|                    <Flame size={16} style={{ color: '#f59e0b' }} />
231|                    <span className="font-bold" style={{ color: 'var(--text-primary)' }}>{streak}</span> ngày ...
232|                  </div>
233|                </div>
234|
235|                {allQuests.length === 0 ? (
236|                  <div className="text-center py-12">
237|                    <CheckCircle size={40} className="mx-auto mb-3" style={{ color: 'var(--text-muted)', opaci...
2 3 8 |                                            < p  c l a s s N a m e = " t e x t - s m "  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t - m
239|                  </div>
240|                ) : (
241|                  <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
242|                    {allQuests.map((quest) => {
243|                      const userQuest = quests.find(q => q.quest_id === quest.id)
244|                      const completed = userQuest?.is_completed || false
245|                      const progress = userQuest?.progress || 0
246|                      return (
247|                        <div
248|                          key={quest.id}
249|                          className="flex items-center gap-4 px-4 py-3.5 rounded-xl transition-all"
250|                          style={{
251|                            background: completed ? 'rgba(8,158,96,0.08)' : 'var(--bg-elevated)',
252|                            border: `1px solid ${completed ? 'rgba(8,158,96,0.2)' : 'var(--border-default)'}`,
253|                            opacity: completed ? 0.7 : 1,
254|                          }}
255|                        >
256|                          <div className="flex items-center justify-center w-10 h-10 rounded-lg text-lg" style={{
257|                            background: completed ? 'rgba(8,158,96,0.15)' : 'var(--bg-base)',
258|                          }}>
2 5 9 |                                                    { c o m p l e t e d  ?  '' '  :  ( q u e s t . i c o n  | |  'Ø=ÜË ' ) }
260|                          </div>
261|                          <div style={{ flex: 1, minWidth: 0 }}>
262|                            <div className="text-sm font-bold" style={{ color: completed ? 'var(--brand-primar...
263|                              {quest.title}
2 6 4 |                                                    { c o m p l e t e d  & &  < s p a n  c l a s s N a m e = " m l - 2  t e x t - x
```

```
265|                            </div>
266|                            <div className="text-xs mt-0.5" style={{ color: 'var(--text-muted)' }}>{quest.desc...
267|                            <div className="flex items-center gap-2 mt-1.5">
268|                              <span className="text-[10px] font-bold px-1.5 py-0.5 rounded" style={{
269|                                background: quest.difficulty === 'hard' ? 'rgba(239,68,68,0.15)' : quest.diffi...
270|                                color: quest.difficulty === 'hard' ? '#EF4444' : quest.difficulty === 'medium'...
271|                              }}>
272|                                {quest.difficulty === 'hard' ? 'Khó' : quest.difficulty === 'medium' ? 'TB' : ...
273|                              </span>
274|                              <span className="text-[10px] font-bold" style={{ color: 'var(--brand-primary)' }...
275|                            </div>
276|                          </div>
277|                          <div className="text-right flex-shrink-0">
278|                            {!completed && quest.requirement_value > 0 && (
279|                              <div className="text-xs font-bold" style={{ color: 'var(--text-muted)' }}>
280|                                {progress} / {quest.requirement_value}
281|                              </div>
282|                            )}
283|                            <Star size={16} style={{ color: completed ? 'var(--brand-primary)' : 'var(--text-m...
284|                          </div>
285|                        </div>
286|                      )
287|                    })}
288|                  </div>
289|                )}
290|              </div>
291|
292|              {/* Completed Quests */}
293|              {quests.filter(q => q.is_completed).length > 0 && (
294|                <div className="lms-card mt-4" style={{ padding: '24px' }}>
295|                  <h3 className="text-sm font-bold mb-3" style={{ color: 'var(--text-muted)' }}>
2 9 6 |                                    N h i Ç m   V å    ã   H o à n   T h à n h   ( { q u e s t s . f i l t e r ( q   = >   q . i s _ c o m
297|                  </h3>
298|                  <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
299|                    {quests.filter(q => q.is_completed).slice(0, 5).map(uq => (
300|                      <div key={uq.id} className="flex items-center gap-3 px-3 py-2 rounded-lg" style={{ backg...
3 0 1 |                                                  < s p a n >'  < / s p a n >
302|                        <span className="text-sm flex-1" style={{ color: 'var(--text-muted)' }}>{uq.daily_ques...
303|                        <span className="text-xs" style={{ color: 'var(--brand-primary)' }}>+{uq.xp_earned || ...
304|                      </div>
305|                    ))}
306|                  </div>
307|                </div>
308|              )}
309|            </motion.div>
310|          )}
311|
312|          {activeTab === 'titles' && (
313|            <motion.div key="titles" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit={{ op...
314|              <div className="lms-card" style={{ padding: '24px' }}>
3 1 5 |                                 < h 2   c l a s s N a m e = " t e x t - l g   f o n t - b o l d   m b - 1 "   s t y l e = { {   c o l o r :   '
3 1 6 |                                 < p   c l a s s N a m e = " t e x t - s m   m b - 6 "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t -
317|
318|                <div className="grid grid-cols-1 sm:grid-cols-2 gap-3">
319|                  {[
3 2 0 |                                        {   i d :   ' f i r s t _ l e s s o n ' ,   t i t l e :   ' K h ß i    § u ' ,   d e s c :   ' H o à n
3 2 1 |                                        {   i d :   ' d i l i g e n t ' ,   t i t l e :   ' C § n   C ù ' ,   d e s c :   ' H Í c   7   n g à y
3 2 2 |                                        {   i d :   ' p e r f e c t _ s c o r e ' ,   t i t l e :   ' H o à n   H £ o ' ,   d e s c :   '   ¡ t
3 2 3 |                                        {   i d :   ' p c _ b u i l d e r ' ,   t i t l e :   ' T h ã   P C ' ,   d e s c :   ' L   p   r á p
3 2 4 |                                        {   i d :   ' s p e e d _ d e m o n ' ,   t i t l e :   ' T Ñ c    Ù ' ,   d e s c :   ' H o à n   t h
3 2 5 |                                        {   i d :   ' s c h o l a r ' ,   t i t l e :   ' H Í c   G i £ ' ,   d e s c :   ' H o à n   t h à n h
3 2 6 |                                        {   i d :   ' c o l l e c t o r ' ,   t i t l e :   ' N h à   S ° u   T - p ' ,   d e s c :   '   ¡ t
3 2 7 |                                        {   i d :   ' q u e s t _ m a s t e r ' ,   t i t l e :   ' V u a   N h i Ç m   V å ' ,   d e s c :   '
328|                  ].map(t => {
329|                    const earned = titles.some(ut => ut.title_id === t.id)
330|                    return (
331|                      <div
332|                        key={t.id}
333|                        className="flex items-center gap-3 px-4 py-3.5 rounded-xl transition-all"
334|                        style={{
335|                          background: earned ? 'rgba(8,158,96,0.06)' : 'var(--bg-elevated)',
336|                          border: `1px solid ${earned ? 'rgba(8,158,96,0.15)' : 'var(--border-default)'}`,
337|                          opacity: earned ? 1 : 0.5,
338|                        }}
339|                      >
340|                        <div className="flex items-center justify-center w-10 h-10 rounded-lg text-lg" style={{
341|                          background: earned ? 'rgba(8,158,96,0.12)' : 'var(--bg-base)',
342|                        }}>
3 4 3 |                                                    { e a r n e d   ?   t . i c o n   :   'Ø=Ý  ' }
344|                        </div>
345|                        <div style={{ flex: 1, minWidth: 0 }}>
346|                          <div className="text-sm font-bold" style={{ color: earned ? 'var(--text-primary)' : ...
347|                            {t.title}
348|                            {earned && <span className="ml-1.5 text-xs" style={{ color: 'var(--brand-primary)'...
349|                          </div>
350|                          <div className="text-xs" style={{ color: 'var(--text-muted)' }}>{t.desc}</div>
351|                          <div className="text-[10px] font-bold mt-0.5" style={{ color: earned ? 'var(--brand-...
352|                            +{t.xp} XP
353|                          </div>
354|                        </div>
355|                      </div>
356|                    )
357|                  })}
358|                </div>
359|              </div>
360|            </motion.div>
361|          )}
362|
363|          {activeTab === 'history' && (
364|            <motion.div key="history" initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} exit={{ o...
365|              <div className="lms-card" style={{ padding: '24px' }}>
366|                <div className="flex items-center justify-between mb-4">
367|                  <div>
3 6 8 |                                 < h 2   c l a s s N a m e = " t e x t - l g   f o n t - b o l d "   s t y l e = { {   c o l o r :   ' v
3 6 9 |                                 < p   c l a s s N a m e = " t e x t - s m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m
370|                  </div>
371|                  <div className="text-lg font-black" style={{ color: levelColor }}>
372|                    {xp.toLocaleString()} XP
373|                  </div>
374|                </div>
375|
376|                {xpHistory.length === 0 ? (
377|                  <div className="text-center py-12">
378|                    <Clock size={40} className="mx-auto mb-3" style={{ color: 'var(--text-muted)', opacity: 0....
3 7 9 |                                 < p   c l a s s N a m e = " t e x t - s m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m
380|                  </div>
381|                ) : (
382|                  <div style={{ display: 'flex', flexDirection: 'column', gap: '4px' }}>
383|                    {xpHistory.map(tx => (
384|                      <div key={tx.id} className="flex items-center gap-3 px-4 py-2.5 rounded-lg transition-al...
3 8 5 |                                                  < s p a n   c l a s s N a m e = " t e x t - l g " > { S T A T U S _ I C O N S [ t x . r e f e r
386|                        <div style={{ flex: 1, minWidth: 0 }}>
387|                          <div className="text-sm font-medium" style={{ color: 'var(--text-primary)' }}>{tx.re...
388|                          <div className="text-[10px]" style={{ color: 'var(--text-muted)' }}>
```

```
389|                            {new Date(tx.created_at).toLocaleDateString('vi-VN', {
390|                              day: 'numeric', month: 'numeric', hour: '2-digit', minute: '2-digit',
391|                            })}
392|                          </div>
393|                        </div>
394|                        <div className="text-sm font-bold flex-shrink-0" style={{ color: tx.amount > 0 ? 'var(...
395|                          {tx.amount > 0 ? '+' : ''}{tx.amount}
396|                        </div>
397|                      </div>
398|                    ))}
399|                  </div>
400|                )}
401|              </div>
402|            </motion.div>
403|          )}
404|        </AnimatePresence>
405|      </div>
406|    </div>
407|  )
408| }
409|
```

File: app/student/loading.tsx (8 lines, 0.3 KB)

```
1| export default function Loading() {
2|   return (
3|     <div className="flex items-center justify-center min-h-screen bg-[#0d0e13]">
4|       <div className="w-12 h-12 border-4 border-[#00d4aa] border-t-transparent rounded-full animate-spin"></div>
5|     </div>
6|   )
7| }
8|
```

File: app/student/profile/page.tsx (308 lines, 18.0 KB)

```
1| 'use client'
2|
3| import React, { useEffect, useState } from 'react'
4| import { createBrowserClient } from '@supabase/ssr'
5| import { useRouter } from 'next/navigation'
6| import { AvatarUpload } from '@/components/profile/AvatarUpload'
7| import { ProfileForm } from '@/components/profile/ProfileForm'
8| import { PreferencesForm } from '@/components/profile/PreferencesForm'
9| import { SecurityForm } from '@/components/profile/SecurityForm'
10| import { User, BarChart2, Settings, ShieldAlert, Award, CheckCircle, Flame, RefreshCw, ArrowLeft } from 'lucid...
11|
12| export default function StudentProfilePage() {
13|   const router = useRouter()
14|   const [activeTab, setActiveTab] = useState<'profile' | 'stats' | 'preferences' | 'security'>('profile')
15|   const [profile, setProfile] = useState<any>(null)
16|   const [preferences, setPreferences] = useState<any>(null)
17|   const [stats, setStats] = useState<any>({
18|     completedLessons: 0,
19|     averageScore: 0,
20|     streak: 0,
21|
22|     latestCert: null
23|   })
24|   const [loading, setLoading] = useState(true)
25|   const supabase = createBrowserClient(
26|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
27|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
28|   )
29|
30|   const loadProfileData = async () => {
31|     setLoading(true)
32|     const { data: { user } } = await supabase.auth.getUser()
33|     if (!user) return
34|
35|     const { data: prof } = await supabase
36|       .from('profiles')
37|       .select('*')
38|       .eq('id', user.id)
39|       .single()
40|
41|     let { data: pref } = await supabase
42|       .from('user_preferences')
43|       .select('*')
44|       .eq('user_id', user.id)
45|       .maybeSingle()
46|
47|     if (!pref) {
48|       pref = {
49|         email_notifications: true,
50|         push_notifications: true,
51|         weekly_digest: true,
52|         theme: 'dark',
53|         language: 'vi'
54|       }
55|     }
56|
57|     const { count: compCount } = await supabase
58|       .from('lesson_progress')
59|       .select('id', { count: 'exact', head: true })
60|       .eq('student_id', user.id)
61|       .eq('status', 'completed')
62|
63|     const { data: quizAtt } = await supabase
64|       .from('quiz_attempts')
65|       .select('score')
66|       .eq('student_id', user.id)
67|       .eq('status', 'submitted')
68|
69|     const { data: cert } = await supabase
70|       .from('certificates')
71|       .select('course_title, completion_date, certificate_number')
72|       .eq('student_id', user.id)
73|       .order('issued_at', { ascending: false })
74|       .limit(1)
75|       .maybeSingle()
76|
77|     const scores = (quizAtt || []).map(q => Number(q.score) || 0)
78|     const avg = scores.length > 0 ? scores.reduce((a, b) => a + b, 0) / scores.length : 0
79|
80|     setProfile({ ...prof, email: user.email })
81|     setPreferences(pref)
82|     setStats({
83|       completedLessons: compCount || 0,
84|       averageScore: avg,
85|       streak: 3,
86|       latestCert: cert || null
```

```
87|     })
88|     setLoading(false)
89|   }
90|
91|   useEffect(() => {
92|     loadProfileData()
93|   }, [])
94|
95|   if (loading) {
96|     return (
97|       <div className="min-h-screen pt-24 flex flex-col items-center justify-center gap-2" style={{ background:...
98|         <RefreshCw size={28} className="animate-spin" style={{ color: 'var(--brand-primary)' }} />
    9 9 |                  < s p a n   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   u p p e r c a s e   t r a c k i n g - w i d e s t "   s t
100|       </div>
101|     )
102|   }
103|
104|   return (
105|     <div className="min-h-screen pt-24 pb-12 px-4 sm:px-6 relative overflow-hidden" style={{ background: 'var(...
106|       <div className="absolute inset-0 bg-grid-pattern opacity-[0.03] pointer-events-none" />
107|       <div className="absolute top-1/4 left-1/10 w-[500px] h-[500px] rounded-full filter blur-[100px] pointer-...
108|       <div className="absolute bottom-1/4 right-1/10 w-[500px] h-[500px] rounded-full filter blur-[100px] poin...
109|
110|       <div className="max-w-4xl mx-auto relative z-10">
111|         <div className="flex items-center justify-between mb-8 pb-4" style={{ borderBottom: '1px solid var(--b...
112|           <div className="flex items-center gap-3">
113|             <div className="p-2.5 rounded-2xl" style={{ background: 'color-mix(in srgb, var(--brand-primary) 1...
114|               <User size={24} />
115|             </div>
116|             <div>
117|               <h1 className="text-xl md:text-2xl font-black tracking-tight uppercase flex items-center gap-2" ...
  1 1 8 |                                 H Ồ   S     C Á   N H Â N
119|               </h1>
  1 2 0 |                             < p   c l a s s N a m e = " t e x t - x s   m t - 0 . 5 "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t -
121|             </div>
122|           </div>
123|
124|           <button
125|             onClick={() => router.push('/builder')}
126|             className="flex items-center gap-2 px-4 py-2 text-xs font-bold rounded-xl transition-all shadow-md...
127|             style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var(-...
128|           >
129|             <ArrowLeft size={14} className="group-hover:-translate-x-0.5 transition-transform" />
  1 3 0 |                           Q u a y   l ¡ i   D a s h b o a r d
131|           </button>
132|         </div>
133|
134|         <div className="grid grid-cols-1 md:grid-cols-4 gap-8">
135|           <div className="relative p-6 rounded-3xl flex flex-col items-center text-center h-fit space-y-4 shad...
136|             <div className="absolute top-3 left-3 w-4 h-4" style={{ borderTop: '2px solid var(--brand-primary)...
137|             <div className="absolute top-3 right-3 w-4 h-4" style={{ borderTop: '2px solid var(--brand-primary...
138|             <div className="absolute bottom-3 left-3 w-4 h-4" style={{ borderBottom: '2px solid var(--brand-pr...
139|             <div className="absolute bottom-3 right-3 w-4 h-4" style={{ borderBottom: '2px solid var(--brand-p...
140|
141|             <AvatarUpload
142|               userId={profile.id}
143|               currentAvatarUrl={profile.avatar_url}
144|               onUploadSuccess={(url) => setProfile({ ...profile, avatar_url: url })}
145|             />
146|             <div>
147|               <h2 className="text-lg font-bold tracking-tight" style={{ color: 'var(--text-primary)' }}>{profi...
148|               <p className="text-[10px] font-bold uppercase tracking-widest mt-1 px-2.5 py-1 rounded inline-bl...
  1 4 9 |                                 H Í c   s i n h   ·   L Ớ p   { p r o f i l e . g r a d e   | |   ' M Ớ i ' }
150|               </p>
151|             </div>
152|
153|             <div className="w-full p-3.5 rounded-2xl text-left space-y-1.5 relative" style={{ background: 'col...
154|               <div className="text-[9px] font-bold uppercase tracking-widest" style={{ color: 'var(--brand-pri...
155|               <div className="text-xs font-mono font-bold px-2 py-1.5 rounded flex justify-between items-cente...
156|                 <span>{profile.email}</span>
157|               </div>
  1 5 8 |                             < p   c l a s s N a m e = " t e x t - [ 9 p x ]   l e a d i n g - r e l a x e d "   s t y l e = { {   c o l o r :
159|             </div>
160|
161|             <div className="w-full pt-4 space-y-1" style={{ borderTop: '1px solid var(--border-default)' }}>
162|               {(['profile', 'stats', 'preferences', 'security'] as const).map(tab => (
163|                 <button
164|                   key={tab}
165|                   onClick={() => setActiveTab(tab)}
166|                   className="w-full flex items-center gap-3 px-4 py-2.5 rounded-xl text-xs font-bold transitio...
167|                   style={{
168|                     background: activeTab === tab ? 'color-mix(in srgb, var(--brand-primary) 10%, transparent)...
169|                     color: activeTab === tab ? 'var(--brand-primary)' : 'var(--text-muted)',
170|                     border: activeTab === tab ? '1px solid color-mix(in srgb, var(--brand-primary) 25%, transp...
171|                   }}
172|                 >
173|                   {tab === 'profile' && <User size={16} />}
174|                   {tab === 'stats' && <BarChart2 size={16} />}
175|                   {tab === 'preferences' && <Settings size={16} />}
176|                   {tab === 'security' && <ShieldAlert size={16} />}
  1 7 7 |                                   { t a b   = = =   ' p r o f i l e '   ?   ' H Ồ   s ¡   c á   n h â n '   :   t a b   = = =   ' s t a t s '
178|                 </button>
179|               ))}
180|             </div>
181|           </div>
182|
183|           <div className="relative md:col-span-3 p-6 sm:p-8 min-h-[450px] rounded-3xl shadow-lg backdrop-blur-...
184|             <div className="absolute top-0 left-6 right-6 h-[1px]" style={{ background: 'linear-gradient(to ri...
185|
186|             {activeTab === 'profile' && (
187|               <div className="space-y-6">
188|                 <div className="flex items-center justify-between pb-4" style={{ borderBottom: '1px solid var(...
189|                   <div>
190|                     <h3 className="text-xl font-bold tracking-tight flex items-center gap-2" style={{ color: '...
191|                       <User size={20} style={{ color: 'var(--brand-primary)' }} />
192|                       Thông tin cá nhân
193|                     </h3>
  1 9 4 |                                         < p   c l a s s N a m e = " t e x t - x s   m t - 1 "   s t y l e = { {   c o l o r :   ' v a r ( - - t
195|                   </div>
196|                   <div className="w-1.5 h-1.5 rounded-full" style={{ background: 'var(--brand-primary)' }} />
197|                 </div>
198|                 <ProfileForm profile={profile} />
199|               </div>
200|             )}
201|
202|             {activeTab === 'stats' && (
203|               <div className="space-y-6">
204|                 <div className="flex items-center justify-between pb-4" style={{ borderBottom: '1px solid var(...
205|                   <div>
206|                     <h3 className="text-xl font-bold tracking-tight flex items-center gap-2" style={{ color: '...
207|                       <BarChart2 size={20} style={{ color: 'var(--brand-primary)' }} />
  2 0 8 |                                           T h Ố n g   k ê   h Ọ c   t - p
209|                     </h3>
  2 1 0 |                                         < p   c l a s s N a m e = " t e x t - x s   m t - 1 "   s t y l e = { {   c o l o r :   ' v a r ( - - t
```

```
  211|                  </div>
  212|                  <div className="w-1.5 h-1.5 rounded-full" style={{ background: 'var(--accent-blue)' }} />
  213|                </div>
  214|
  215|                <div className="grid grid-cols-2 gap-4">
  216|                  <div className="p-4 rounded-2xl flex items-center gap-3 transition-all duration-300" style={...
  217|                    <div className="p-2 rounded-xl" style={{ background: 'color-mix(in srgb, var(--brand-prima...
  218|                      <CheckCircle size={20} />
  219|                    </div>
  220|                    <div>
  221|                      <p className="text-[10px] font-bold uppercase" style={{ color: 'var(--text-muted)' }}>Bà...
  222|                      <p className="text-lg font-black" style={{ color: 'var(--text-primary)' }}>{stats.comple...
  223|                    </div>
  224|                  </div>
  225|
  226|                  <div className="p-4 rounded-2xl flex items-center gap-3 transition-all duration-300" style={...
  227|                    <div className="p-2 rounded-xl" style={{ background: 'color-mix(in srgb, var(--accent-blue...
  228|                      <BarChart2 size={20} />
  229|                    </div>
  230|                    <div>
    2 3 1 |                                          < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   f o n t - b o l d   u p p e r c a s e "   s t y
  232|                      <p className="text-lg font-black" style={{ color: 'var(--text-primary)' }}>{stats.averag...
  233|                    </div>
  234|                  </div>
  235|
  236|                  <div className="p-4 rounded-2xl flex items-center gap-3 transition-all duration-300" style={...
  237|                    <div className="p-2 rounded-xl" style={{ background: 'color-mix(in srgb, var(--accent-oran...
  238|                      <Flame size={20} />
  239|                    </div>
  240|                    <div>
  241|                      <p className="text-[10px] font-bold uppercase" style={{ color: 'var(--text-muted)' }}>Ng...
  242|                      <p className="text-lg font-black" style={{ color: 'var(--text-primary)' }}>{stats.streak...
  243|                    </div>
  244|                  </div>
  245|                </div>
  246|
  247|                <div className="pt-6" style={{ borderTop: '1px solid var(--border-default)' }}>
  248|                  <h4 className="text-xs font-bold uppercase tracking-wider mb-3" style={{ color: 'var(--text-...
  249|                  {stats.latestCert ? (
  250|                    <div className="p-4 rounded-xl flex items-center justify-between" style={{ background: 'co...
  251|                      <div className="flex items-center gap-3">
  252|                        <Award size={20} style={{ color: 'var(--brand-primary)' }} />
  253|                        <div>
  254|                          <p className="text-xs font-bold" style={{ color: 'var(--text-primary)' }}>{stats.lat...
  255|                          <p className="text-[10px]" style={{ color: 'var(--text-muted)' }}>Mã: {stats.latestC...
  256|                        </div>
  257|                      </div>
  258|                      <a href="/student/certificates" className="text-[10px] font-bold hover:underline" style=...
    2 5 9 |                                                  X e m   t ¥ t   c £
  260|                      </a>
  261|                    </div>
  262|                  ) : (
  263|                    <div className="text-xs p-4 rounded-xl text-center" style={{ color: 'var(--text-muted)', b...
    2 6 4 |                                          B ¡ n   c h ° a    ° ã c   c ¥ p   c h é n g   c h É   n à o .
  265|                    </div>
  266|                  )}
  267|                </div>
  268|              </div>
  269|            )}
  270|
  271|            {activeTab === 'preferences' && (
  272|              <div className="space-y-6">
  273|                <div className="flex items-center justify-between pb-4" style={{ borderBottom: '1px solid var(...
  274|                  <div>
  275|                    <h3 className="text-xl font-bold tracking-tight flex items-center gap-2" style={{ color: '...
  276|                      <Settings size={20} style={{ color: 'var(--brand-primary)' }} />
    2 7 7 |                                          C ¥ u   h i n h   c à i    · t
  278|                    </h3>
    2 7 9 |                                      < p   c l a s s N a m e = " t e x t - x s   m t - 1 "   s t y l e = { {   c o l o r :   ' v a r ( - - t
  280|                  </div>
  281|                  <div className="w-1.5 h-1.5 rounded-full" style={{ background: 'var(--brand-primary)' }} />
  282|                </div>
  283|                <PreferencesForm preferences={preferences} />
  284|              </div>
  285|            )}
  286|
  287|            {activeTab === 'security' && (
  288|              <div className="space-y-6">
  289|                <div className="flex items-center justify-between pb-4" style={{ borderBottom: '1px solid var(...
  290|                  <div>
  291|                    <h3 className="text-xl font-bold tracking-tight flex items-center gap-2" style={{ color: '...
  292|                      <ShieldAlert size={20} style={{ color: 'var(--brand-primary)' }} />
    2 9 3 |                                          B £ o   m - t   t à i   k h o £ n
  294|                    </h3>
    2 9 5 |                                      < p   c l a s s N a m e = " t e x t - x s   m t - 1 "   s t y l e = { {   c o l o r :   ' v a r ( - - t
  296|                  </div>
  297|                  <div className="w-1.5 h-1.5 rounded-full" style={{ background: 'var(--accent-orange)' }} />
  298|                </div>
  299|                <SecurityForm />
  300|              </div>
  301|            )}
  302|          </div>
  303|        </div>
  304|      </div>
  305|    </div>
  306|  )
  307| }
  308|
```

File: app/student/quiz/[quizId]/page.tsx (377 lines, 18.8 KB)

```
    1| 'use client'
    2|
    3| import React, { useState, useEffect, useRef, use, useMemo, useCallback } from 'react'
    4| import { createBrowserClient } from '@supabase/ssr'
    5| import { useRouter } from 'next/navigation'
    6| import { ArrowLeft, Clock, CheckCircle, XCircle, Trophy, RefreshCw, AlertTriangle, BookOpen, X, Search } from ...
    7| import { startQuizAttempt, submitQuizAttempt } from '@/app/actions/quiz'
    8| import { GLOSSARY, findTerms } from '@/data/glossary'
    9|
   10| function shuffleArray<T>(arr: T[]): T[] {
   11|   const a = [...arr]
   12|   for (let i = a.length - 1; i > 0; i--) {
   13|     const j = Math.floor(Math.random() * (i + 1));
   14|     [a[i], a[j]] = [a[j], a[i]]
   15|   }
   16|   return a
   17| }
   18|
   19| function TermHighlight({ text, onTermClick }: { text: string; onTermClick: (term: string) => void }) {
   20|   const parts = useMemo(() => {
   21|     const sorted = Object.keys(GLOSSARY).sort((a, b) => b.length - a.length)
   22|     const nodes: React.ReactNode[] = [text]
```

```
23|     for (const term of sorted) {
24|       const len = nodes.length
25|       for (let i = 0; i < len; i++) {
26|         const node = nodes[i]
27|         if (typeof node !== 'string') continue
28|         const lower = node.toLowerCase()
29|         const idx = lower.indexOf(term.toLowerCase())
30|         if (idx === -1) continue
31|         const before = node.slice(0, idx)
32|         const match = node.slice(idx, idx + term.length)
33|         const after = node.slice(idx + term.length)
34|         const replacement: React.ReactNode[] = []
35|         if (before) replacement.push(before)
36|         replacement.push(
37|           <span key={`${term}-${i}`} onClick={(e) => { e.stopPropagation(); onTermClick(term) }}
38|             className="term-link" style={{ color: 'var(--brand-primary)', borderBottom: '1px dashed var(--bran...
39|             {match}
40|           </span>
41|         )
42|         if (after) replacement.push(after)
43|         nodes.splice(i, 1, ...replacement)
44|         break
45|       }
46|     }
47|     return nodes
48|   }, [text, onTermClick])
49|   return <>{parts}</>
50| }
51|
52| export default function QuizTakingPage({ params }: { params: Promise<{ quizId: string }> }) {
53|   const { quizId } = use(params)
54|   const router = useRouter()
55|
56|   const [examData, setExamData] = useState<any>(null)
57|   const [questions, setQuestions] = useState<any[]>([])
58|   const [currentQIndex, setCurrentQIndex] = useState(0)
59|   const [selectedOption, setSelectedOption] = useState<number | null>(null)
60|   const [isAnswered, setIsAnswered] = useState(false)
61|   const [score, setScore] = useState(0)
62|   const [isFinished, setIsFinished] = useState(false)
63|   const [secondsLeft, setSecondsLeft] = useState(45 * 60)
64|   const [submitting, setSubmitting] = useState(false)
65|   const [loaded, setLoaded] = useState(false)
66|   const [attemptId, setAttemptId] = useState<string | null>(null)
67|   const [activeTerm, setActiveTerm] = useState<string | null>(null)
68|   const [showGlossary, setShowGlossary] = useState(false)
69|   const [glossarySearch, setGlossarySearch] = useState('')
70|   const [error, setError] = useState('')
71|
72|   const scoreRef = useRef(0)
73|   const supabaseRef = useRef(createBrowserClient(process.env.NEXT_PUBLIC_SUPABASE_URL!, process.env.NEXT_PUBLI...
74|   const finishedRef = useRef(false)
75|   const questionsRef = useRef<any[]>([])
76|   const answersRef = useRef<any[]>([])
77|
78|   useEffect(() => {
79|     initQuiz()
80|     async function initQuiz() {
81|       try {
82|         const res = await startQuizAttempt(quizId)
83|         setAttemptId(res.attemptId)
84|         setExamData({ timeLimit: res.timeLimit })
85|
86|         const qs = res.questions.map((q: any) => ({
87|           id: q.id,
88|           question: q.content,
89|           type: q.type,
90|           points: q.points,
91|           options: shuffleArray((q.options || []).map((o: any) => ({ id: o.id, content: o.content }))),
92|           correctOptionId: null
93|         }))
94|
95|         questionsRef.current = qs
96|         setQuestions(qs)
97|         setSecondsLeft((res.timeLimit || 45) * 60)
98|         setLoaded(true)
99|
100|         const channel = supabaseRef.current
101|           .channel(`quiz-live-${res.attemptId}`)
102|           .on('postgres_changes',
103|             { event: 'UPDATE', schema: 'public', table: 'quiz_attempts', filter: `id=eq.${res.attemptId}` },
104|             (payload: any) => {
105|               if (payload.new?.status !== 'in_progress') {
106|                 finishedRef.current = true
107|                 setIsFinished(true)
108|                 setScore(payload.new?.score || 0)
109|               }
110|             }
111|           )
112|           .subscribe()
113|       } catch (e: any) {
  1 1 4 |                 s e t E r r o r ( e . m e s s a g e   | |   ' K h ô n g   t h Ã   t £ i    Á   t h i ' )
115|         console.error(e)
116|       }
117|     }
118|   }, [quizId])
119|
120|   useEffect(() => {
121|     if (isFinished || !loaded || !examData?.timeLimit) return
122|     const interval = setInterval(() => {
123|       setSecondsLeft(prev => {
124|         if (prev <= 1) { clearInterval(interval); finishQuiz(scoreRef.current); return 0 }
125|         return prev - 1
126|       })
127|     }, 1000)
128|     return () => clearInterval(interval)
129|   }, [isFinished, loaded, examData?.timeLimit])
130|
131|   useEffect(() => {
132|     function handleClickOutside(e: MouseEvent) {
133|       const el = document.getElementById('term-tooltip')
134|       if (el && !el.contains(e.target as Node)) setActiveTerm(null)
135|     }
136|     document.addEventListener('mousedown', handleClickOutside)
137|     return () => document.removeEventListener('mousedown', handleClickOutside)
138|   }, [])
139|
140|   const handleTermClick = useCallback((term: string) => {
141|     setActiveTerm(prev => prev === term ? null : term)
142|   }, [])
143|
144|   const currentQ = questions[currentQIndex]
145|
146|   const handleSelectOption = (index: number) => {
```

```
147|     if (isAnswered) return
148|     setSelectedOption(index)
149|     setActiveTerm(null)
150|   }
151|
152|   const handleCheckAnswer = () => {
153|     if (selectedOption === null || isAnswered || !currentQ) return
154|     setIsAnswered(true)
155|     answersRef.current[currentQIndex] = { questionId: currentQ.id, selectedOptionIds: [currentQ.options[select...
156|     const correctOpt = currentQ.options.find((o: any) => o.isCorrect)
157|     if (correctOpt && currentQ.options[selectedOption]?.id === correctOpt.id) {
158|       scoreRef.current += (currentQ.points || 10)
159|       setScore(scoreRef.current)
160|     }
161|   }
162|
163|   const handleNextQuestion = () => {
164|     if (!currentQ) return
165|     if (currentQIndex < questions.length - 1) {
166|       setCurrentQIndex(prev => prev + 1)
167|       setSelectedOption(null)
168|       setIsAnswered(false)
169|       setActiveTerm(null)
170|     } else {
171|       finishQuiz(scoreRef.current)
172|     }
173|   }
174|
175|   async function finishQuiz(finalScore: number) {
176|     if (finishedRef.current) return
177|     finishedRef.current = true
178|     setIsFinished(true)
179|     setScore(finalScore)
180|     setSubmitting(true)
181|     try {
182|       if (attemptId) {
183|         await submitQuizAttempt(attemptId, answersRef.current)
184|       }
1 8 5 |         }  c a t c h  ( e )  {  c o n s o l e . e r r o r ( ' L × i  n Ù p  b à i : ' ,  e )  }
186|     finally { setSubmitting(false) }
187|   }
188|
189|   const formatTime = (s: number) => `${Math.floor(s / 60).toString().padStart(2, '0')}:${(s % 60).toString().p...
190|   const filteredGlossary = Object.entries(GLOSSARY).filter(([term]) => term.toLowerCase().includes(glossarySea...
191|
192|   if (error) {
193|     return (
194|       <div className="min-h-screen pt-24 pb-12 px-4 flex flex-col items-center justify-center" style={{ backgr...
195|         <AlertTriangle size={48} className="mb-4" style={{ color: 'var(--brand-primary)' }} />
1 9 6 |                 < h 2  c l a s s N a m e = " t e x t - 2 x l  f o n t - b o l d  m b - 2 " > K h ô n g  t h Ã  v à o  t h i < / h 2 >
197|         <p className="text-sm mb-6" style={{ color: 'var(--text-muted)' }}>{error}</p>
198|         <button onClick={() => router.push('/student/quiz')} className="px-6 py-3 border rounded-xl font-bold"...
1 9 9 |                     Q u a y  l ¡ i
200|         </button>
201|       </div>
202|     )
203|   }
204|
205|   if (!loaded) {
206|     return (
207|       <div className="min-h-screen flex items-center justify-center" style={{ background: 'var(--bg-base)' }}>
208|         <RefreshCw size={32} className="animate-spin" style={{ color: 'var(--brand-primary)' }} />
209|       </div>
210|     )
211|   }
212|
213|   if (questions.length === 0) {
214|     return (
215|       <div className="min-h-screen pt-24 pb-12 px-4 flex flex-col items-center justify-center" style={{ backgr...
216|         <AlertTriangle size={48} className="mb-4" />
2 1 7 |                 < h 2  c l a s s N a m e = " t e x t - x l  f o n t - b o l d  m b - 4 " >  Á  t h i  c h ° a  c ó  c â u  h Ỉ i < / h
218|         <button onClick={() => router.push('/student/quiz')} className="px-6 py-3 border rounded-xl font-bold"...
2 1 9 |                     Q u a y  l ¡ i
220|         </button>
221|       </div>
222|     )
223|   }
224|
225|   if (isFinished) {
226|     const maxScore = questions.reduce((s, q) => s + (q.points || 10), 0)
227|     return (
228|       <div className="min-h-screen pt-24 pb-12 px-4 flex flex-col items-center justify-center" style={{ backgr...
229|         {submitting ? (
230|           <div className="flex flex-col items-center gap-4">
231|             <RefreshCw size={32} className="animate-spin" style={{ color: 'var(--brand-primary)' }} />
232|             <h2 className="text-xl font-bold tracking-widest uppercase" style={{ color: 'var(--text-secondary)...
233|           </div>
234|         ) : (
235|           <div className="border p-8 rounded-3xl shadow-2xl max-w-lg w-full text-center" style={{ background: ...
236|             <Trophy size={64} className={`mx-auto mb-6 ${score >= 70 ? 'text-yellow-400' : ''}`} style={score ...
2 3 7 |                     < h 2  c l a s s N a m e = " t e x t - 3 x l  f o n t - b l a c k  m b - 2  u p p e r c a s e " > K ¿ t  q u £  l
238|             <div className="text-7xl font-black text-transparent bg-clip-text bg-gradient-to-r from-[var(--bra...
239|               {score}/{maxScore}
240|             </div>
241|             <div className="flex justify-center gap-4">
242|               <button onClick={() => router.push(`/student/quiz/${quizId}/results?attemptId=${attemptId}`)}
243|                 className="px-6 py-3 rounded-xl font-black transition-all" style={{ background: 'var(--brand-p...
2 4 4 |                         X e m  C h i  T i ¿ t
245|               </button>
246|               <button onClick={() => router.push('/student/quiz')}
247|                 className="px-6 py-3 border rounded-xl font-bold transition-all" style={{ borderColor: 'var(--...
2 4 8 |                         Q u a y  L ¡ i
249|               </button>
250|             </div>
251|           </div>
252|         )}
253|       </div>
254|     )
255|   }
256|
257|   return (
258|     <div className="min-h-screen flex flex-col relative overflow-hidden" style={{ background: 'var(--bg-base)'...
259|       <div className="absolute inset-0 bg-grid-pattern opacity-[0.02] pointer-events-none" />
260|
261|       <header className="border-b p-4 sm:px-8 flex justify-between items-center backdrop-blur-md relative z-50...
262|         style={{ background: 'var(--bg-surface)', borderColor: 'var(--border-default)' }}>
263|         <div className="flex items-center gap-4">
264|           <button onClick={() => router.push('/student/quiz')}
265|             className="flex items-center gap-1.5 px-3 py-1.5 border text-xs rounded-xl font-bold transition-al...
266|             style={{ background: 'rgba(239,68,68,0.15)', borderColor: 'rgba(239,68,68,0.3)', color: '#ef4444' }}>
267|             <ArrowLeft size={14} /> Thoát
268|           </button>
269|           <h2 className="font-black text-sm md:text-base hidden sm:block" style={{ color: 'var(--text-primary)...
270|         </div>
```

```
271|         <div className="flex items-center gap-3">
272|           <button onClick={() => setShowGlossary(true)}
273|             className="flex items-center gap-1.5 px-3 py-1.5 text-xs font-bold rounded-xl border transition-all"
274|             style={{ background: 'color-mix(in srgb, var(--brand-primary) 15%, transparent)', borderColor: 'co...
   2 7 5 |                          < B o o k O p e n   s i z e = { 1 4 }   / >   T r a   c é u
276|           </button>
277|           <div className={`flex items-center gap-2 font-mono text-xl font-bold px-4 py-1.5 rounded-xl border $...
278|             style={secondsLeft < 60 ? { background: 'rgba(239,68,68,0.15)', color: '#ef4444' } : { background:...
279|             <Clock size={18} /> {formatTime(secondsLeft)}
280|           </div>
281|         </div>
282|       </header>
283|
284|       <main className="flex-1 max-w-4xl w-full mx-auto p-4 sm:p-8 relative z-10 flex flex-col justify-center">
285|         <div className="mb-8 p-6 border rounded-2xl shadow-xl backdrop-blur-sm relative" style={{ background: ...
286|           <div className="flex items-center justify-between mb-4">
287|             <span className="text-sm font-bold uppercase tracking-widest px-3 py-1 rounded-full border"
288|               style={{ color: 'var(--brand-primary)', background: 'color-mix(in srgb, var(--brand-primary) 15%...
   2 8 9 |                              C â u   h Ỉ i   { c u r r e n t Q I n d e x   +   1 }   /   { q u e s t i o n s . l e n g t h }
290|             </span>
   2 9 1 |                          < s p a n   c l a s s N a m e = " t e x t - s m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d )
292|           </div>
293|           <h3 className="text-2xl sm:text-3xl font-bold leading-tight">
294|             <TermHighlight text={currentQ?.question || ''} onTermClick={handleTermClick} />
295|           </h3>
296|         </div>
297|
298|         <div className="space-y-3">
299|           {currentQ?.options.map((opt: any, i: number) => {
300|             const isSelected = selectedOption === i
301|             let stateStyle: React.CSSProperties = {}
302|
303|             if (isAnswered) {
304|               const isCorrect = currentQ.correctOptionId === opt.id
305|               if (isCorrect) {
306|                 stateStyle = { background: 'rgba(16,185,129,0.1)', borderColor: '#10b981', color: '#10b981' }
307|               } else if (isSelected) {
308|                 stateStyle = { background: 'rgba(239,68,68,0.1)', borderColor: '#ef4444', color: '#ef4444' }
309|               } else {
310|                 stateStyle = { background: 'var(--bg-surface)', borderColor: 'var(--border-default)', color: '...
311|               }
312|             } else if (isSelected) {
313|               stateStyle = { background: 'var(--brand-primary)', borderColor: 'var(--brand-primary)', color: '...
314|             } else {
315|               stateStyle = { background: 'var(--bg-surface)', borderColor: 'var(--border-default)' }
316|             }
317|
318|             return (
319|               <label key={i} onClick={() => handleSelectOption(i)}
320|                 className="flex items-center gap-4 p-5 sm:p-6 border-2 rounded-2xl transition-all cursor-point...
321|                 <div className="w-6 h-6 rounded-full border-2 flex items-center justify-center transition-colors"
322|                   style={isAnswered && currentQ.correctOptionId === opt.id ? { borderColor: '#10b981' } : isSe...
323|                   {isAnswered && currentQ.correctOptionId === opt.id ? <CheckCircle size={24} className="text-...
324|                   isAnswered && isSelected ? <XCircle size={24} className="text-red-500 bg-black rounded-full"...
325|                   isSelected ? <div className="w-6 h-6 rounded-full flex items-center justify-center" style={{...
326|                 </div>
327|                 <span className="text-lg font-medium"><TermHighlight text={opt.content} onTermClick={handleTer...
328|               </label>
329|             )
330|           })}
331|         </div>
332|       </main>
333|
334|       <footer className="border-t p-4 sm:p-6 flex justify-end items-center relative z-50 backdrop-blur-xl" sty...
335|         {!isAnswered ? (
336|           <button onClick={handleCheckAnswer} disabled={selectedOption === null}
337|             className="px-8 py-3 rounded-xl font-bold transition-all flex items-center gap-2 shadow-lg"
338|             style={selectedOption !== null ? { background: '#2563eb', color: 'white' } : { background: 'var(--...
   3 3 9 |                          K i Ã m   t r a     á p   á n
340|           </button>
341|         ) : (
342|           <button onClick={handleNextQuestion}
343|             className="px-8 py-3 text-black rounded-xl font-black transition-all flex items-center gap-2 hover...
   3 4 4 |                          { c u r r e n t Q I n d e x   <   q u e s t i o n s . l e n g t h   -   1   ?   ' C â u   T i ¿ p   T h e o '   :   ' H
345|           </button>
346|         )}
347|       </footer>
348|
349|       {showGlossary && (
350|         <div className="fixed inset-0 z-[9999] flex items-center justify-center p-4" style={{ background: 'rgb...
351|           <div className="w-full max-w-2xl max-h-[80vh] rounded-3xl border shadow-2xl flex flex-col overflow-h...
352|             <div className="flex items-center justify-between p-6 border-b" style={{ borderColor: 'var(--borde...
353|               <div className="flex items-center gap-3"><BookOpen size={20} style={{ color: 'var(--brand-primar...
354|               <button onClick={() => setShowGlossary(false)} className="p-2 rounded-xl hover:bg-white/5" style...
355|             </div>
356|             <div className="p-4 border-b" style={{ borderColor: 'var(--border-default)' }}>
357|               <div class="relative">
358|                 <Search size={16} className="absolute left-4 top-1/2 -translate-y-1/2" style={{ color: 'var(--...
   3 5 9 |                                  < i n p u t   t y p e = " t e x t "   p l a c e h o l d e r = " T ì m   t h u - t   n g ï . . . "   v a l u e =
360|                   className="w-full outline-none pl-11 pr-4 py-3 rounded-2xl text-sm transition-all" style={{ ...
361|               </div>
362|             </div>
363|             <div className="flex-1 overflow-y-auto p-4 space-y-2">
364|               {filteredGlossary.map(([term, def]) => (
365|                 <div key={term} className="p-4 rounded-2xl border" style={{ borderColor: 'var(--border-default...
366|                   <span class="text-sm font-bold uppercase tracking-wider" style={{ color: 'var(--brand-pr...
367|                   <p class="text-sm mt-1 leading-relaxed" style={{ color: 'var(--text-muted)' }}>{def}</p>
368|                 </div>
369|               ))}
370|             </div>
371|           </div>
372|         </div>
373|       )}
374|     </div>
375|   )
376| }
377|
```

File: app/student/quiz/[quizId]/results/page.tsx (171 lines, 9.9 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useEffect, useState, use } from 'react'
    4| import Link from 'next/link'
    5| import { useRouter } from 'next/navigation'
    6| import { CheckCircle, XCircle, ChevronDown, ChevronUp, ArrowLeft, Trophy } from 'lucide-react'
    7|
    8| export default function QuizResultsPage({ params }: { params: Promise<{ quizId: string }> }) {
    9|   const resolvedParams = use(params)
   10|   const router = useRouter()
   11|   const [score, setScore] = useState(0)
   12|   const [maxScore, setMaxScore] = useState(0)
   13|   const [passed, setPassed] = useState(false)
```

```
  const [questions, setQuestions] = useState<any[]>([])
  const [expandedIndex, setExpandedIndex] = useState<number | null>(null)
  const [loading, setLoading] = useState(true)

  useEffect(() => {
    try {
      const attemptId = new URLSearchParams(window.location.search).get('attemptId')
      if (attemptId) {
        const stored = sessionStorage.getItem(`quiz-result-${attemptId}`)
        const storedScore = sessionStorage.getItem(`quiz-score-${attemptId}`)
        const storedMax = sessionStorage.getItem(`quiz-max-${attemptId}`)
        if (stored) {
          const parsed = JSON.parse(stored)
          setQuestions(parsed)
          const correctCount = parsed.filter((q: any) => q.isCorrect).length
          const total = parsed.length
          setScore(Number(storedScore) || (correctCount * 10))
          setMaxScore(Number(storedMax) || (total * 10))
          setPassed((Number(storedScore) || (correctCount * 10)) >= 80)
        }
      }
    } catch(e) {
      console.error('Error loading quiz results:', e)
    }
    setLoading(false)
  }, [])

  if (loading) {
    return (
      <div className="min-h-screen flex items-center justify-center" style={{ background: 'var(--bg-base)' }}>
        <div className="animate-spin w-8 h-8 border-2 border-t-transparent rounded-full" style={{ borderColor:...
      </div>
    )
  }

  const correctCount = questions.filter((q: any) => q.isCorrect).length
  const wrongCount = questions.length - correctCount

  return (
    <div className="min-h-screen p-4 sm:p-8 flex flex-col" style={{ background: 'var(--bg-base)', color: 'var(...
      <div className="max-w-3xl w-full mx-auto">
        <div className="flex items-center gap-3 mb-8">
          <button onClick={() => router.push('/student/quiz')}
            className="relative z-50 pointer-events-auto flex items-center gap-1.5 px-3 py-1.5 border text-xs ...
            style={{ background: 'rgba(239,68,68,0.15)', borderColor: 'rgba(239,68,68,0.3)', color: '#ef4444' }}>
                          < A r r o w L e f t   s i z e = { 1 4 }   / >   Q u a y   l ¡ i
          </button>
                      < h 1   c l a s s N a m e = " t e x t - x l   s m : t e x t - 2 x l   f o n t - b l a c k   u p p e r c a s e "   s t y l e
        </div>

        {questions.length === 0 ? (
          <div className="rounded-[28px] p-8 text-center border shadow-2xl" style={{ background: 'var(--bg-sur...
            <Trophy size={48} className="mx-auto mb-4 opacity-30" style={{ color: 'var(--text-muted)' }} />
                          < h 2   c l a s s N a m e = " t e x t - x l   f o n t - b o l d   m b - 2 "   s t y l e = { {   c o l o r :   ' v a r (
                          < p   c l a s s N a m e = " t e x t - s m   m b - 6 "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e
            <Link href={`/student/quiz/${resolvedParams.quizId}`} className="px-6 py-3 rounded-xl font-bold in...
              style={{ background: 'var(--brand-primary)', color: 'black' }}>
              Làm bài ngay
            </Link>
          </div>
        ) : (
          <>
            {/* Score Summary */}
            <div className="rounded-[28px] p-6 sm:p-8 border shadow-2xl mb-8 text-center" style={{ background:...
              <div className="w-32 h-32 mx-auto rounded-full border-8 flex items-center justify-center mb-4"
                style={passed ? { borderColor: 'var(--brand-primary)', color: 'var(--brand-primary)', boxShado...
                <span className="text-4xl font-black">{score}</span>
              </div>
              <h2 className={`text-2xl font-black uppercase tracking-widest mb-4`} style={passed ? { color: 'v...
                                  { p a s s e d   ?   '     T   Y Ê U   C ¦ U '   :   ' C H   A       T ' }
              </h2>
              <div className="flex justify-center gap-6 flex-wrap">
                <div className="px-4 py-2 rounded-xl" style={{ background: 'color-mix(in srgb, var(--brand-pri...
                                              < p   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   u p p e r c a s e "   s t y l e = { {   c o
                  <p className="text-xl font-black" style={{ color: 'var(--brand-primary)' }}>{correctCount}/{...
                </div>
                <div className="px-4 py-2 rounded-xl" style={{ background: 'color-mix(in srgb, #ef4444 10%, tr...
                  <p className="text-xs font-bold uppercase" style={{ color: 'var(--text-muted)' }}>Sai</p>
                  <p className="text-xl font-black" style={{ color: '#ef4444' }}>{wrongCount}</p>
                </div>
              </div>
            </div>

            {/* Per-Question Analysis */}
                          < h 3   c l a s s N a m e = " t e x t - l g   f o n t - b o l d   m b - 4 "   s t y l e = { {   c o l o r :   ' v a r (
            <div className="space-y-3">
              {questions.map((q: any, i: number) => (
                <div key={i} className="rounded-2xl border overflow-hidden transition-all" style={{ background...
                  <button
                    onClick={() => setExpandedIndex(expandedIndex === i ? null : i)}
                    className="w-full flex items-center gap-3 p-4 text-left"
                  >
                    {q.isCorrect ? (
                      <CheckCircle size={20} style={{ color: 'var(--brand-primary)', flexShrink: 0 }} />
                    ) : (
                      <XCircle size={20} style={{ color: '#ef4444', flexShrink: 0 }} />
                    )}
                    <span className="flex-1 text-sm font-medium" style={{ color: 'var(--text-primary)' }}>
                      Câu {i + 1}: {q.question.length > 60 ? q.question.substring(0, 60) + '...' : q.question}
                    </span>
                    <span className="text-xs font-bold px-2 py-0.5 rounded-full" style={{
                      background: q.isCorrect ? 'color-mix(in srgb, var(--brand-primary) 15%, transparent)' : ...
                      color: q.isCorrect ? 'var(--brand-primary)' : '#ef4444'
                    }}>
                      {q.isCorrect ? '+10' : '0'}
                    </span>
                    {expandedIndex === i ? <ChevronUp size={16} style={{ color: 'var(--text-muted)' }} /> : <C...
                  </button>
                  {expandedIndex === i && (
                    <div className="px-4 pb-4 space-y-2" style={{ borderTop: '1px solid var(--border-default)'...
                      <p class="text-sm font-bold pt-3" style={{ color: 'var(--text-primary)' }}>{q.questi...
                      {q.options.map((opt: string, oi: number) => {
                        let bg = 'transparent'
                        let txt = 'var(--text-secondary)'
                        if (oi === q.correctIndex) {
                          bg = 'color-mix(in srgb, var(--brand-primary) 10%, transparent)'
                          txt = 'var(--brand-primary)'
                        } else if (oi === q.selectedIndex && oi !== q.correctIndex) {
                          bg = 'color-mix(in srgb, #ef4444 10%, transparent)'
                          txt = '#ef4444'
                        }
                        return (
                          <div key={oi} className="flex items-center gap-2 px-3 py-2 rounded-lg text-sm" style...
                            {oi === q.correctIndex && <CheckCircle size={14} style={{ color: 'var(--brand-prim...
```

```
138|                            {oi === q.selectedIndex && oi !== q.correctIndex && <XCircle size={14} style={{ co...
139|                            <span style={{ color: txt }}>
140|                              {String.fromCharCode(65 + oi)}. {opt}
141|                              {oi === q.correctIndex && <span className="ml-1 text-xs font-bold" style={{ colo...
142|                            </span>
143|                          </div>
144|                        )
145|                      })}
146|                    </div>
147|                  )}
148|                </div>
149|              ))}
150|            </div>
151|
152|            <div className="flex justify-center gap-4 mt-8">
153|              <Link href="/student/quiz" className="px-6 py-3 border rounded-2xl font-bold text-sm transition-...
154|                style={{ color: 'var(--text-secondary)', borderColor: 'var(--border-default)' }}>
   1 5 5 |                                  V Á   N g â n   h à n g     Á   t h i
156|              </Link>
157|              <Link
158|                href={`/student/quiz/${resolvedParams.quizId}`}
159|                className="px-6 py-3 rounded-2xl font-black text-sm transition-all"
160|                style={{ background: 'var(--brand-primary)', color: 'black' }}
161|              >
   1 6 2 |                                  L à m   L ¡ i
163|              </Link>
164|            </div>
165|          </>
166|        )}
167|      </div>
168|    </div>
169|  )
170| }
171|
```

File: app/student/quiz/page.tsx (261 lines, 14.6 KB)

```
1| 'use client'
2|
3| import React, { useState, useEffect, useRef } from 'react'
4| import { createBrowserClient } from '@supabase/ssr'
5| import { motion } from 'framer-motion'
6| import { HelpCircle, Zap, Star, Loader2, Search, Award, Flame, Play, ArrowLeft, BrainCircuit, RotateCcw, FileT...
7| import Link from 'next/link'
8| import { useRouter } from 'next/navigation'
9| import { QUIZ_BANK } from '@/data/quiz-bank'
10|
11| export default function StudentQuizPage() {
12|   const router = useRouter()
13|   const [exams, setExams] = useState<any[]>([])
14|   const [loading, setLoading] = useState(true)
15|   const [searchQuery, setSearchQuery] = useState('')
16|   const [stats, setStats] = useState({ accuracy: '--', streak: '0', totalDone: 0 })
17|   const [unlockedCount, setUnlockedCount] = useState(3)
18|
19|   const supabase = createBrowserClient(
20|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
21|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
22|   )
23|
24|   useEffect(() => {
25|     fetchExamsAndStats()
26|     supabase.auth.getUser().then(({ data: { user } }) => {
27|       if (!user) return
28|       const channel = supabase
29|         .channel('quiz-list-realtime')
30|         .on('postgres_changes',
31|           { event: '*', schema: 'public', table: 'quiz_attempts', filter: `student_id=eq.${user.id}` },
32|           () => fetchExamsAndStats()
33|         )
34|         .subscribe()
35|       return () => { supabase.removeChannel(channel) }
36|     })
37|   }, [])
38|
39|   async function fetchExamsAndStats() {
40|     try {
41|       const { data: { user } } = await supabase.auth.getUser()
42|       if (!user) { setLoading(false); return }
43|
44|       const { data: classes } = await supabase
45|         .from('class_members')
46|         .select('class_id')
47|         .eq('student_id', user.id)
48|
49|       const classIds = classes?.map(c => c.class_id) || []
50|       if (classIds.length === 0) { setExams([]); setLoading(false); return }
51|
52|       const { data: quizzes } = await supabase
53|         .from('quizzes')
54|         .select(`
55|           id, title, description, time_limit_minutes, difficulty, passing_score,
56|           available_from, available_until, is_published, created_at,
57|           class_id, teacher_id,
58|           quiz_questions!left (question_id),
59|           quiz_attempts!left (id, score, status, student_id)
60|         `)
61|         .in('class_id', classIds)
62|         .eq('is_published', true)
63|         .order('created_at', { ascending: false })
64|         .limit(50)
65|
66|       if (quizzes) {
67|         const processed = quizzes.map((q: any) => ({
68|           ...q,
69|           totalQuestions: q.quiz_questions?.length || 0,
70|           studentAttempts: q.quiz_attempts?.filter((a: any) => a.student_id === user.id) || [],
71|           bestScore: Math.max(0, ...(q.quiz_attempts?.filter((a: any) => a.student_id === user.id && a.status ...
72|           hasDone: (q.quiz_attempts?.filter((a: any) => a.student_id === user.id && a.status !== 'in_progress'...
73|           myAttempts: q.quiz_attempts?.filter((a: any) => a.student_id === user.id).length || 0
74|         }))
75|         setExams(processed)
76|       }
77|
78|       const { data: attempts } = await supabase
79|         .from('quiz_attempts')
80|         .select('id, score, status, created_at')
81|         .eq('student_id', user.id)
82|         .not('status', 'eq', 'in_progress')
83|
84|       if (attempts && attempts.length > 0) {
85|         const totalScore = attempts.reduce((s, a) => s + (a.score || 0), 0)
86|         const avg = totalScore / attempts.length
```

```
87|         setStats(s => ({ ...s, accuracy: `${Math.round(avg)}%`, totalDone: attempts.length }))
88|
89|         let streakCount = 0
90|         const today = new Date()
91|         const dates = [...new Set(attempts.map(a => a.created_at?.split('T')[0]))].sort().reverse()
92|         for (const d of dates) {
93|           const diff = Math.floor((today.getTime() - new Date(d).getTime()) / (1000 * 60 * 60 * 24))
94|           if (diff === streakCount) { streakCount++; continue }
95|           break
96|         }
97|         setStats(s => ({ ...s, streak: `${streakCount} ngày` }))
98|       }
99|
100|       if (user.created_at) {
101|         const diff = Math.floor((Date.now() - new Date(user.created_at).getTime()) / (1000 * 60 * 60 * 24))
102|         setUnlockedCount(Math.min(3 + diff, 50))
103|       }
104|     } catch (err) { console.error(err) }
105|     finally { setLoading(false) }
106|   }
107|
108|   const hasAccess = (exam: any) => {
109|     if (!exam.available_from) return true
110|     return new Date() >= new Date(exam.available_from)
111|   }
112|
113|   const filtered = exams.filter(e => e.title?.toLowerCase().includes(searchQuery.toLowerCase()))
114|   const upcomingExams = filtered.filter(e => e.available_from && !hasAccess(e))
115|   const activeExams = filtered.filter(e => hasAccess(e))
116|
117|   return (
118|     <div className="min-h-screen pt-24 pb-16 px-4 sm:px-6 relative overflow-hidden" style={{ background: 'var(...
119|       <div className="absolute inset-0 bg-grid-pattern opacity-[0.02] pointer-events-none" />
120|       <div className="max-w-6xl mx-auto relative z-10">
121|         <div className="flex flex-col sm:flex-row sm:items-center justify-between gap-4 mb-8 pb-4 border-b" st...
122|           <div className="flex items-center gap-3">
123|             <div className="p-2.5 rounded-2xl" style={{ background: 'color-mix(in srgb, var(--brand-primary) 1...
124|               <Award size={24} />
125|             </div>
126|             <div>
127|               <h1 className="text-xl md:text-2xl font-black tracking-tight uppercase flex items-center gap-2" ...
128|                                 Á  t h i < s p a n  s t y l e = { {  c o l o r :  ' v a r ( - - b r a n d - p r i m a r y ) '  } } >  &
129|               </h1>
130|                             < p  c l a s s N a m e = " t e x t - x s  m t - 0 . 5 "  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t -
131|             </div>
132|           </div>
133|           <div className="flex items-center gap-3">
134|             <div className="relative w-64 hidden sm:block">
135|               <Search className="absolute left-4 top-1/2 -translate-y-1/2" size={16} style={{ color: 'var(--te...
136|                             < i n p u t  t y p e = " t e x t "  p l a c e h o l d e r = " T ì m  k i ¿ m  Á  t h i . . . "  v a l u e =
137|                 className="w-full outline-none pl-11 pr-4 py-2.5 rounded-2xl text-xs transition-all" style={{ ...
138|             </div>
139|             <button onClick={() => router.push('/student')}
140|               className="flex items-center gap-2 px-4 py-2 text-xs font-bold rounded-xl transition-all" style=...
141|                             < A r r o w L e f t  s i z e = { 1 4 }  / >  Q u a y  l ¡ i
142|             </button>
143|           </div>
144|         </div>
145|
146|         <div className="grid grid-cols-1 md:grid-cols-3 gap-6 mb-12">
147|           <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }}
148|             className="p-6 rounded-3xl flex items-center gap-4" style={{ background: 'color-mix(in srgb, var(-...
149|             <div className="w-12 h-12 rounded-2xl flex items-center justify-center shrink-0" style={{ backgrou...
150|               <FileText size={24} />
151|             </div>
152|             <div>
153|               <p className="text-xs font-bold uppercase tracking-wider" style={{ color: 'var(--text-muted)' }}...
154|               <h3 className="text-xl font-bold mt-0.5" style={{ color: 'var(--text-primary)' }}>{stats.totalDo...
155|             </div>
156|           </motion.div>
157|           <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 0.1 }}
158|             className="p-6 rounded-3xl flex items-center gap-4" style={{ background: 'var(--bg-surface)', bord...
159|             <div className="w-12 h-12 rounded-2xl flex items-center justify-center shrink-0" style={{ backgrou...
160|               <Star size={24} />
161|             </div>
162|             <div>
163|               <p className="text-xs font-bold uppercase tracking-wider" style={{ color: 'var(--text-muted)' }}...
164|               <h3 className="text-xl font-bold mt-0.5" style={{ color: 'var(--text-primary)' }}>{stats.accurac...
165|             </div>
166|           </motion.div>
167|           <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} transition={{ delay: 0.15 }}
168|             className="p-6 rounded-3xl flex items-center gap-4" style={{ background: 'var(--bg-surface)', bord...
169|             <div className="w-12 h-12 rounded-2xl flex items-center justify-center shrink-0" style={{ backgrou...
170|               <Flame size={24} />
171|             </div>
172|             <div>
173|               <p className="text-xs font-bold uppercase tracking-wider" style={{ color: 'var(--text-muted)' }}...
174|               <h3 className="text-xl font-bold mt-0.5" style={{ color: 'var(--text-primary)' }}>{stats.streak}...
175|             </div>
176|           </motion.div>
177|         </div>
178|
179|         {loading ? (
180|           <div className="flex flex-col items-center justify-center py-20">
181|             <Loader2 className="animate-spin" size={40} style={{ color: 'var(--brand-primary)' }} />
182|                             < s p a n  c l a s s N a m e = " t e x t - x s  m t - 2 "  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t - m
183|           </div>
184|         ) : activeExams.length === 0 && upcomingExams.length === 0 ? (
185|           <div className="text-center py-20 rounded-[40px] border-2 border-dashed" style={{ borderColor: 'var(...
186|             <FileText size={48} className="mx-auto mb-4" style={{ color: 'var(--text-muted)', opacity: 0.4 }} />
187|                             < p  c l a s s N a m e = " f o n t - m e d i u m "  s t y l e = { {  c o l o r :  ' v a r ( - - t e x t - m u t e d
188|           </div>
189|         ) : (
190|           <>
191|           {upcomingExams.length > 0 && (
192|             <div style={{ marginBottom: '24px' }}>
193|               <h2 style={{ fontSize: '14px', fontWeight: 700, marginBottom: '12px', color: 'var(--text-muted)'...
194|                                 < C l o c k  s i z e = { 1 6 }  / >  S p  m ß  ( { u p c o m i n g E x a m s . l e n g t h } )
195|               </h2>
196|               <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-4">
197|                 {upcomingExams.slice(0, 6).map((exam, i) => {
198|                   const msLeft = new Date(exam.available_from).getTime() - Date.now()
199|                   const daysLeft = Math.ceil(msLeft / (1000*60*60*24))
200|                   return (
201|                     <div key={exam.id} className="border rounded-2xl p-4 opacity-60" style={{ background: 'var...
202|                       <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)', marginBot...
203|                       <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>
204|                                         Ø=Ý  M ß  s a u  { d a y s L e f t  >  0  ?  `$ { d a y s L e f t }  n g à y `  :  '
205|                       </div>
206|                     </div>
207|                   )
208|                 })}
209|               </div>
210|             </div>
```

```
211|           )}
212|           <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6">
213|             {activeExams.map((exam, i) => {
214|               const startUrl = `/student/quiz/${exam.id}`
215|               return (
216|                 <motion.div key={exam.id} initial={{ opacity: 0, y: 15 }} animate={{ opacity: 1, y: 0 }} trans...
217|                   className="border rounded-3xl p-6 transition-all hover:shadow-[0_0_30px_var(--brand-subtle)]...
218|                   style={{ background: 'var(--bg-surface)', borderColor: 'var(--border-default)' }}>
219|                   <div>
220|                     <div className="flex items-center justify-between mb-4">
221|                       <span className="text-[10px] font-bold uppercase tracking-widest px-2.5 py-1 rounded-md ...
    2 2 2 |                                                  < U s e r s   s i z e = { 1 2 }   / >   T r o n g   l Ú p
223|                       </span>
224|                       {exam.hasDone && (
225|                         <span className="text-[10px] font-bold px-2 py-0.5 rounded-full" style={{ background: ...
226|                           {exam.bestScore?.toFixed(0)}%
227|                         </span>
228|                       )}
229|                     </div>
230|                     <h3 className="text-lg font-bold mb-2 group-hover:text-[var(--brand-primary)] transition-c...
231|                       {exam.title}
232|                     </h3>
233|                     {exam.description && (
234|                       <p className="text-xs mb-4 line-clamp-2" style={{ color: 'var(--text-muted)' }}>{exam.de...
235|                     )}
236|                   </div>
237|                   <div className="space-y-4">
238|                     <div className="flex items-center justify-between text-xs font-medium" style={{ color: 'va...
239|                       <span><FileText size={12} /> {exam.totalQuestions || 0} câu</span>
240|                       <span><Clock size={12} /> {exam.time_limit_minutes || 45} phút</span>
241|                       <span style={{ color: exam.hasDone ? 'var(--brand-primary)' : 'var(--text-muted)' }}>
    2 4 2 |                                                  { e x a m . m y A t t e m p t s   >   0   ?   ` $ { e x a m . m y A t t e m p t s }   l § n `
243|                       </span>
244|                     </div>
245|                     <Link href={startUrl}
246|                       className="w-full py-3 border font-bold rounded-2xl flex items-center justify-center gap...
247|                       style={{ background: exam.hasDone ? 'color-mix(in srgb, var(--brand-primary) 10%, transp...
    2 4 8 |                                                { e x a m . h a s D o n e   ?   ' L à m   l ¡ i '   :   ' B ® T     ¦ U   L À M   B À I ' }   < P l
249|                     </Link>
250|                   </div>
251|                 </motion.div>
252|               )
253|             })}
254|           </div>
255|           </>
256|         )}
257|       </div>
258|     </div>
259|   )
260| }
261|
```

File: app/tra-gia-linh-kien/page.tsx (149 lines, 5.5 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import { useState, useRef, useEffect } from 'react'
    4| import { useRouter } from 'next/navigation'
    5| import { motion } from 'framer-motion'
    6| import { ArrowLeft, Cpu, Loader2 } from 'lucide-react'
    7| import ChatInput from '@/components/price-compare/ChatInput'
    8| import ChatMessage from '@/components/price-compare/ChatMessage'
    9| import ImageModal from '@/components/price-compare/ImageModal'
   10|
   11| interface PriceInfo {
   12|   site: string
   13|   price: string
   14|   link: string
   15|   rating: number
   16| }
   17|
   18| interface Recommended {
   19|   site: string
   20|   price: string
   21|   link: string
   22| }
   23|
   24| interface Component {
   25|   id: string
   26|   exact_name: string
   27|   estimated_price: string
   28|   image_url: string
   29| }
   30|
   31| interface Message {
   32|   role: 'user' | 'assistant'
   33|   content: string
   34|   components?: Component[]
   35|   prices?: PriceInfo[]
   36|   recommended?: Recommended
   37|   error?: boolean
   38| }
   39|
   40| export default function PriceComparePage() {
   41|   const router = useRouter()
   42|   const [messages, setMessages] = useState<Message[]>([{
   43|     role: 'assistant',
    4 4 |           c o n t e n t :   ' C h à o   b ¡ n !   M ì n h   l à   c h u y ê n   g i a   P C .   H ã y   n h - p   t ê n   l i n h   k i Ç n   b ¡
   45|   }])
   46|   const [loading, setLoading] = useState(false)
   47|   const [selectedImage, setSelectedImage] = useState<Component | null>(null)
   48|   const bottomRef = useRef<HTMLDivElement>(null)
   49|
   50|   useEffect(() => {
   51|     bottomRef.current?.scrollIntoView({ behavior: 'smooth' })
   52|   }, [messages])
   53|
   54|   async function handleSend(query: string) {
   55|     setMessages(prev => [...prev, { role: 'user', content: query }])
   56|     setLoading(true)
   57|
   58|     try {
   59|       const res = await fetch('/api/pc-price-compare', {
   60|         method: 'POST',
   61|         headers: { 'Content-Type': 'application/json' },
   62|         body: JSON.stringify({ query })
   63|       })
   64|
   65|       const data = await res.json()
   66|
   67|       if (res.ok && data.comparison_text) {
   68|         setMessages(prev => [...prev, {
   69|           role: 'assistant',
```

```
  70|          content: data.comparison_text,
  71|          components: data.components?.map((c: any) => ({
  72|            ...c,
  73|            image_url: c.image_url || 'https://images.unsplash.com/photo-1591799264318-7e6ef8ddb7ea?w=500&q=80'
  74|          })),
  75|          prices: data.prices,
  76|          recommended: data.recommended,
  77|        }])
  78|      } else {
  79|        setMessages(prev => [...prev, {
  80|          role: 'assistant',
    8 1 |                    c o n t e n t :   d a t a . e r r o r   | |   ' L × i :   K h ô n g   t h Ã   b ó c   t á c h   d ï   l i Ç u   l i n h   k
  82|          error: true
  83|        }])
  84|      }
  85|    } catch (err) {
  86|      setMessages(prev => [...prev, {
  87|        role: 'assistant',
    8 8 |                  c o n t e n t :   '   ã   x £ y   r a   l × i   k ¿ t   n Ñ i .   V u i   l ò n g   t h í   l ¡ i   s a u . ' ,
  89|        error: true
  90|      }])
  91|    } finally {
  92|      setLoading(false)
  93|    }
  94|  }
  95|
  96|  return (
  97|    <div className="min-h-screen flex flex-col" style={{ background: 'var(--bg-base)', color: 'var(--text-prim...
  98|      <header className="border-b p-4 flex items-center gap-4" style={{ background: 'var(--bg-surface)', borde...
  99|        <button onClick={() => router.back()}
 100|          className="flex items-center gap-1.5 px-3 py-1.5 border text-xs rounded-xl font-bold transition-all ...
 101|          style={{ background: 'var(--bg-elevated)', borderColor: 'var(--border-default)', color: 'var(--text-...
   1 0 2 |                      < A r r o w L e f t   s i z e = { 1 4 }   / >   Q u a y   l ¡ i
 103|        </button>
 104|        <div style={{ width: '32px', height: '32px', borderRadius: '10px', background: 'var(--brand-primary)',...
 105|          <Cpu size={16} style={{ color: '#000' }} />
 106|        </div>
 107|        <div>
 108|          <h1 className="font-black text-sm" style={{ color: 'var(--text-primary)' }}>Tra giá & So sánh linh k...
   1 0 9 |                      < p   c l a s s N a m e = " t e x t - x s "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '   } } >
 110|        </div>
 111|      </header>
 112|
 113|      <div className="flex-1 overflow-y-auto p-4 max-w-4xl mx-auto w-full">
 114|        <div style={{ display: 'flex', flexDirection: 'column', gap: '12px' }}>
 115|          {messages.map((msg, i) => (
 116|            <motion.div key={i} initial={{ opacity: 0, y: 10 }} animate={{ opacity: 1, y: 0 }} transition={{ d...
 117|              <ChatMessage
 118|                role={msg.role}
 119|                content={msg.content}
 120|                components={msg.components}
 121|                prices={msg.prices}
 122|                recommended={msg.recommended}
 123|                error={msg.error}
 124|                onComponentClick={(comp) => setSelectedImage(comp)}
 125|              />
 126|            </motion.div>
 127|          ))}
 128|          {loading && (
 129|            <div style={{ display: 'flex', alignItems: 'center', gap: '10px', padding: '12px 16px', color: 'va...
   1 3 0 |                          < L o a d e r 2   s i z e = { 1 6 }   s t y l e = { {   a n i m a t i o n :   ' s p i n   1 s   l i n e a r   i n f
 131|            </div>
 132|          )}
 133|          <div ref={bottomRef} />
 134|        </div>
 135|      </div>
 136|
 137|      <div className="max-w-4xl mx-auto w-full p-4 border-t" style={{ borderColor: 'var(--border-default)' }}>
 138|        <ChatInput onSend={handleSend} loading={loading} />
 139|        <p style={{ fontSize: '11px', color: 'var(--text-muted)', marginTop: '8px', textAlign: 'center' }}>
   1 4 0 |                      D ï   l i Ç u   g i á   t h a m   k h £ o   t ¡ i   t h Ë   t r ° Ý n g   V i Ç t   N a m   ·   K ¿ t   q u £   d o   A I
 141|        </p>
 142|      </div>
 143|
 144|      <ImageModal component={selectedImage} onClose={() => setSelectedImage(null)} />
 145|      <style>{`@keyframes spin { to { transform: rotate(360deg) } }`}</style>
 146|    </div>
 147|  )
 148| }
 149|
```

File: app/verify/[certificateNumber]/page.tsx (205 lines, 10.5 KB)

```
   1| import React from 'react'
   2| import { createServerClient } from '@supabase/ssr'
   3| import { cookies } from 'next/headers'
   4| import { CheckCircle, AlertTriangle, XCircle, ShieldCheck, Award, Star, Calendar, Hash, Download } from 'lucid...
   5|
   6| export const dynamic = 'force-dynamic'
   7|
   8| export default async function VerifyCertificatePage({ params }: { params: { certificateNumber: string } }) {
   9|   const cookieStore = await cookies()
  10|   const supabase = createServerClient(
  11|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
  12|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
  13|     {
  14|       cookies: {
  15|         get(name: string) { return cookieStore.get(name)?.value }
  16|       }
  17|     }
  18|   )
  19|
  20|   const { data: cert } = await supabase
  21|     .from('certificates')
  22|     .select('*')
  23|     .eq('certificate_number', params.certificateNumber)
  24|     .maybeSingle()
  25|
  26|   return (
  27|     <div style={{
  28|       minHeight: '100vh',
  29|       background: 'linear-gradient(180deg, #0a0c1a 0%, #0d0e13 100%)',
  30|       color: '#fff',
  31|       display: 'flex',
  32|       flexDirection: 'column',
  33|       alignItems: 'center',
  34|       justifyContent: 'center',
  35|       padding: '16px',
  36|     }}>
  37|       <div style={{
  38|         width: '100%',
  39|         maxWidth: '500px',
  40|         background: '#1a1c25',
```

```
41|         border: '1px solid rgba(255,255,255,0.08)',
42|         padding: '32px',
43|         textAlign: 'center',
44|         position: 'relative',
45|         overflow: 'hidden',
46|       }}>
47|         {/* Corner decorations */}
48|         <div style={{ position: 'absolute', top: 0, left: 0, width: '8px', height: '8px', borderTop: '2px soli...
49|         <div style={{ position: 'absolute', top: 0, right: 0, width: '8px', height: '8px', borderTop: '2px sol...
50|         <div style={{ position: 'absolute', bottom: 0, left: 0, width: '8px', height: '8px', borderBottom: '2p...
51|         <div style={{ position: 'absolute', bottom: 0, right: 0, width: '8px', height: '8px', borderBottom: '2...
52|
53|         {/* Shield Header */}
54|         <div style={{ display: 'flex', justifyContent: 'center', marginBottom: '20px' }}>
55|           {!cert ? (
56|             <div style={{ width: '64px', height: '64px', borderRadius: '50%', background: 'rgba(239,68,68,0.1)...
57|               <XCircle size={32} style={{ color: '#ef4444' }} />
58|             </div>
59|           ) : cert.is_revoked ? (
60|             <div style={{ width: '64px', height: '64px', borderRadius: '50%', background: 'rgba(245,158,11,0.1...
61|               <AlertTriangle size={32} style={{ color: '#f59e0b' }} />
62|             </div>
63|           ) : (
64|             <div style={{ width: '64px', height: '64px', borderRadius: '50%', background: 'rgba(0,212,170,0.1)...
65|               <ShieldCheck size={32} style={{ color: '#00d4aa' }} />
66|             </div>
67|           )}
68|         </div>
69|
70|         <h1 style={{ fontSize: '18px', fontWeight: 800, marginBottom: '4px', letterSpacing: '0.5px' }}>
71|                         X Á C   M I N H   C H ê N G   C H Ê
72|         </h1>
73|         <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.4)', marginBottom: '24px' }}>
74|                         C Õ n g   t h ô n g   t i n   x á c   t h ñ c   c h é n g   c h É   P C   M a s t e r   A c a d e m y
75|         </p>
76|
77|         <div style={{ borderTop: '1px solid rgba(255,255,255,0.06)', paddingTop: '24px' }}>
78|           {!cert ? (
79|             <div>
80|               <h2 style={{ fontSize: '16px', fontWeight: 700, color: '#ef4444', marginBottom: '8px' }}>
81|                                 K H Ô N G   T Ì M   T H ¤ Y   C H ê N G   C H Ê
82|               </h2>
83|               <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.4)', marginBottom: '12px' }}>
84|                                 M ã   s Ñ   < s t r o n g   s t y l e = { {   c o l o r :   ' # f f f ' ,   f o n t F a m i l y :   ' m o n o s
85|               </p>
86|               <div style={{
87|                 padding: '12px',
88|                 background: 'rgba(239,68,68,0.06)',
89|                 border: '1px solid rgba(239,68,68,0.15)',
90|                 fontSize: '11px',
91|                 color: 'rgba(255,255,255,0.5)',
92|               }}>
93|                                 V u i   l ò n g   k i Ã m   t r a   l ¡ i   m ã   s Ñ   c h é n g   c h É   h o · c   l i ê n   h Ç   b Ù   p h
94|               </div>
95|             </div>
96|           ) : cert.is_revoked ? (
97|             <div>
98|               <h2 style={{ fontSize: '16px', fontWeight: 700, color: '#f59e0b', marginBottom: '8px' }}>
99|                                 C H ê N G   C H Ê   Ã   B Ê   T H U   H Ồ I
100|               </h2>
101|               <p style={{ fontSize: '12px', color: 'rgba(255,255,255,0.4)', marginBottom: '12px' }}>
102|                                 C h é n g   c h É   s Ñ   < s t r o n g   s t y l e = { {   c o l o r :   ' # f f f ' ,   f o n t F a m i l y :
103|               </p>
104|             </div>
105|           ) : (
106|             <div>
107|               <div style={{
108|                 display: 'inline-flex', alignItems: 'center', gap: '6px',
109|                 padding: '4px 14px',
110|                 border: '1px solid rgba(0,212,170,0.3)',
111|                 color: '#00d4aa',
112|                 fontSize: '11px', fontWeight: 700,
113|                 fontFamily: 'monospace',
114|                 marginBottom: '16px',
115|               }}>
116|                                 < C h e c k C i r c l e   s i z e = { 1 4 }   / >   H â P   L Æ
117|               </div>
118|
119|               {/* Certificate Preview */}
120|               <div style={{
121|                 background: 'linear-gradient(135deg, #0a0c1a 0%, #1a1c2e 50%, #0a0c1a 100%)',
122|                 border: '1px solid rgba(212,168,67,0.3)',
123|                 padding: '20px',
124|                 marginBottom: '16px',
125|                 position: 'relative',
126|               }}>
127|                 <div style={{ position: 'absolute', top: '4px', left: '4px', right: '4px', bottom: '4px', bord...
128|                 <div style={{ textAlign: 'center' }}>
129|                   <div style={{ width: '32px', height: '32px', borderRadius: '50%', background: 'linear-gradie...
130|                     <Award size={16} color="#0a0c1a" />
131|                   </div>
132|                   <div style={{ fontSize: '7px', fontWeight: 600, letterSpacing: '2px', color: 'rgba(212,168,6...
133|                     PC MASTER ACADEMY
134|                   </div>
135|                   <div style={{ fontSize: '11px', fontWeight: 900, color: '#f5d68a', marginBottom: '8px' }}>
136|                     {cert.course_title}
137|                   </div>
138|                   <div style={{ fontSize: '16px', fontWeight: 800, color: '#fff', marginBottom: '6px' }}>
139|                     {cert.student_name}
140|                   </div>
141|                   <div style={{ display: 'flex', gap: '12px', justifyContent: 'center', fontSize: '8px', color...
142|                     <span style={{ display: 'flex', alignItems: 'center', gap: '3px' }}>
143|                       <Calendar size={8} /> {cert.completion_date || new Date(cert.issued_at).toLocaleDateStri...
144|                     </span>
145|                     <span style={{ display: 'flex', alignItems: 'center', gap: '3px' }}>
146|                       <Hash size={8} /> {cert.certificate_number}
147|                     </span>
148|                   </div>
149|                   {cert.final_score && (
150|                     <div style={{ marginTop: '6px', fontSize: '8px', color: '#d4a843', border: '1px solid rgba...
151|                                         I Ã M :   { c e r t . f i n a l _ s c o r e } %
152|                     </div>
153|                   )}
154|                 </div>
155|               </div>
156|
157|               {/* Details */}
158|               <div style={{
159|                 padding: '12px',
160|                 background: 'rgba(255,255,255,0.03)',
161|                 border: '1px solid rgba(255,255,255,0.06)',
162|                 marginBottom: '12px',
163|               }}>
164|                 <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '8px', fontSize: '11px', t...
```

```
  1 6 5 |                                   < d i v   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 4 ) '   } } > H Í c   v i
166|                <div style={{ fontWeight: 700 }}>{cert.student_name}</div>
  1 6 7 |                                   < d i v   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 4 ) '   } } > K h ó a   h
168|                <div style={{ fontWeight: 700 }}>{cert.course_title}</div>
  1 6 9 |                                   < d i v   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 4 ) '   } } >   i Ã m   s
170|                <div style={{ fontWeight: 700, color: '#00d4aa' }}>{cert.final_score}%</div>
  1 7 1 |                                   < d i v   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 4 ) '   } } > N g à y   c
172|                <div style={{ fontWeight: 700 }}>{cert.completion_date || new Date(cert.issued_at).toLocaleD...
  1 7 3 |                                   < d i v   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 4 ) '   } } > M ã   s Ñ <
174|                <div style={{ fontWeight: 700, fontFamily: 'monospace', fontSize: '10px' }}>{cert.certificat...
175|              </div>
176|            </div>
177|
178|            {cert.pdf_url && (
179|              <a href={cert.pdf_url} target="_blank" rel="noreferrer"
180|                style={{
181|                  display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '6px',
182|                  width: '100%', padding: '10px',
183|                  background: '#00d4aa',
184|                  color: '#0d0e13',
185|                  fontWeight: 700,
186|                  fontSize: '12px',
187|                  textDecoration: 'none',
188|                  fontFamily: 'monospace',
189|                }}>
  1 9 0 |                                   < D o w n l o a d   s i z e = { 1 4 }   / >   T ¢ I   P D F   G Đ C
191|              </a>
192|            )}
193|
194|            <div style={{ marginTop: '12px', padding: '8px', background: 'rgba(0,212,170,0.05)', border: '1p...
195|              <ShieldCheck size={12} style={{ display: 'inline', verticalAlign: 'middle', marginRight: '4px'...
  1 9 6 |                                 C h é n g   c h É   n à y    ° ã c   x á c   t h ñ c   b ß i   P C   M a s t e r   A c a d e m y
197|            </div>
198|          </div>
199|        )}
200|      </div>
201|    </div>
202|  </div>
203|  )
204| }
205|
```

File: components/AIGuru.js (68 lines, 2.9 KB)

```
  1| 'use client';
  2|
  3| import { useState, useEffect } from 'react';
  4|
  5| const AIGuru = ({ message, trigger, lang = 'en' }) => {
  6|     const [isSpeaking, setIsSpeaking] = useState(false);
  7|     const [isVisible, setIsVisible] = useState(false);
  8|
  9|     const speak = (text) => {
 10|         if (!window.speechSynthesis) return;
 11|         window.speechSynthesis.cancel();
 12|         const utterance = new SpeechSynthesisUtterance(text);
 13|         const voices = window.speechSynthesis.getVoices();
 14|         let preferredVoice = null;
 15|         if (lang === 'vn') {
 16|             preferredVoice = voices.find(v => v.lang.includes('vi') || v.name.includes('Vietnamese'));
 17|         } else {
 18|             preferredVoice = voices.find(v => v.name.includes('Google US English') || v.name.includes('Samanth...
 19|         }
 20|         if (preferredVoice) utterance.voice = preferredVoice;
 21|         utterance.pitch = 1.1;
 22|         utterance.rate = 1.0;
 23|         utterance.onstart = () => setIsSpeaking(true);
 24|         utterance.onend = () => setIsSpeaking(false);
 25|         window.speechSynthesis.speak(utterance);
 26|     };
 27|
 28|     useEffect(() => {
 29|         if (message && trigger) {
 30|             setIsVisible(true);
 31|             speak(message);
 32|         }
 33|     }, [message, trigger]);
 34|
 35|     if (!isVisible) return null;
 36|
 37|     return (
 38|         <div style={{
 39|             position: 'fixed', top: '2rem', right: '2rem', width: '320px', padding: '1.5rem',
 40|             display: 'flex', flexDirection: 'column', gap: '0.8rem', zIndex: 9999,
 41|             background: 'var(--bg-surface)', border: '1px solid var(--border-default)',
 42|             borderRadius: '16px', borderLeft: '4px solid var(--brand-primary)',
 43|             boxShadow: '0 10px 30px rgba(0,0,0,0.3)',
 44|             transition: 'all 0.3s ease',
 45|             transform: isSpeaking ? 'scale(1.03)' : 'scale(1)',
 46|         }}>
 47|             <button onClick={() => setIsVisible(false)}
 48|                 style={{ position: 'absolute', top: '10px', right: '15px', background: 'transparent', border: ...
   4 9 |                                 '
 50|             </button>
 51|             <div style={{ display: 'flex', alignItems: 'center', gap: '0.5rem' }}>
 52|                 <div style={{
 53|                     width: '12px', height: '12px', borderRadius: '50%',
 54|                     background: isSpeaking ? 'var(--brand-primary)' : 'var(--text-muted)',
 55|                     boxShadow: isSpeaking ? '0 0 10px var(--brand-primary)' : 'none',
 56|                     animation: isSpeaking ? 'pulse 1s infinite' : 'none'
 57|                 }} />
 58|                 <strong style={{ color: 'var(--brand-primary)', fontSize: '1.1rem' }}>AI Guru</strong>
 59|             </div>
 60|             <p style={{ color: 'var(--text-primary)', fontSize: '0.95rem', lineHeight: '1.4', margin: 0 }}>
 61|                 {message}
 62|             </p>
 63|         </div>
 64|     );
 65| };
 66|
 67| export default AIGuru;
 68|
```

File: components/AIGuru.tsx (237 lines, 10.8 KB)

```
  1| 'use client'
  2| import React, { useState, useEffect, useRef } from 'react'
  3| import { motion, AnimatePresence } from 'framer-motion'
  4| import { X, Send, Sparkles, Bot, Cpu, Volume2 } from 'lucide-react'
  5| import { useGuru } from '@/lib/guru-state'
  6|
```

```
 7| export default function AIGuru() {
 8|   const { message, trigger, silentMessage, silentTrigger, lang } = useGuru()
 9|   const [isOpen, setIsOpen] = useState(false)
10|   const [messages, setMessages] = useState([
    1 1 |          {   r o l e :   ' b o t ' ,   c o n t e n t :   l a n g   = = =   ' v n '   ?   ' C h à o   b ¡ n !   T ô i   l à   A I   G u r u ,   c
12|   ])
13|   const [input, setInput] = useState('')
14|   const [isTyping, setIsTyping] = useState(false)
15|   const [toast, setToast] = useState<{ show: boolean; text: string }>({ show: false, text: '' })
16|   const [unreadCount, setUnreadCount] = useState(0)
17|   const toastTimer = useRef<any>(null)
18|   const endRef = useRef<HTMLDivElement>(null)
19|   const sendingRef = useRef(false)
20|
21|   useEffect(() => { endRef.current?.scrollIntoView({ behavior: 'smooth' }) }, [messages])
22|
23|   const handleSend = async () => {
24|     if (!input.trim() || sendingRef.current) return
25|     sendingRef.current = true
26|     const userMsg = { role: 'user', content: input }
27|     const inputText = input
28|     setInput('')
29|     setIsTyping(true)
30|
31|     try {
32|       const history = messages.map(m => ({ role: m.role === 'user' ? 'user' : 'assistant', content: m.content }))
33|
34|       const res = await fetch('/api/ai/chat', {
35|         method: 'POST',
36|         headers: { 'Content-Type': 'application/json' },
37|         body: JSON.stringify({ message: inputText, history }),
38|       })
39|
40|       if (!res.ok) {
    4 1 |                 s e t M e s s a g e s ( p r e v   = >   [ . . . p r e v ,   u s e r M s g ,   {   r o l e :   ' b o t ' ,   c o n t e n t :   '
42|         setIsTyping(false)
43|         sendingRef.current = false
44|         return
45|       }
46|
47|       const data = await res.json()
    4 8 |               c o n s t   r e p l y   =   d a t a ? . r e p l y   | |   ' X i n   l × i ,   t ô i   c h ° a   t h Ã   t r £   l Ý i   c â u   h ỏ
49|       setMessages(prev => [...prev, userMsg, { role: 'bot', content: reply }])
50|     } catch {
    5 1 |               s e t M e s s a g e s ( p r e v   = >   [ . . . p r e v ,   u s e r M s g ,   {   r o l e :   ' b o t ' ,   c o n t e n t :   ' X i
52|     } finally {
53|       setIsTyping(false)
54|       sendingRef.current = false
55|     }
56|   }
57|
58|   useEffect(() => {
59|     if (message && trigger > 0) {
60|       setMessages(prev => {
61|         const last = prev[prev.length - 1]
62|         if (last?.role === 'bot' && last?.content === message) return prev
63|         return [...prev, { role: 'bot', content: message }]
64|       })
65|       setIsOpen(true)
66|     }
67|   }, [message, trigger])
68|
69|   useEffect(() => {
70|     if (silentMessage && silentTrigger > 0) {
71|       setMessages(prev => {
72|         const last = prev[prev.length - 1]
    7 3 |                 i f   ( l a s t ? . r o l e   = = =   ' b o t '   & &   l a s t ? . c o n t e n t   = = =   'Ø=Ý   '   +   s i l e n t M e s s
    7 4 |                 r e t u r n   [ . . . p r e v ,   {   r o l e :   ' b o t ' ,   c o n t e n t :   'Ø=Ý   '   +   s i l e n t M e s s a g e   ]
75|       })
76|       if (!isOpen) {
77|         setUnreadCount(c => c + 1)
78|         setToast({ show: true, text: silentMessage })
79|         if (toastTimer.current) clearTimeout(toastTimer.current)
80|         toastTimer.current = setTimeout(() => setToast({ show: false, text: '' }), 3000)
81|       }
82|     }
83|   }, [silentMessage, silentTrigger])
84|
85|   const styles = {
86|     brand: 'var(--brand-primary)',
87|     surface: 'var(--bg-surface)',
88|     base: 'var(--bg-base)',
89|     elevated: 'var(--bg-elevated)',
90|     text: 'var(--text-primary)',
91|     muted: 'var(--text-muted)',
92|     border: 'var(--border-default)',
93|   }
94|
95|   const duplicateIdRef = useRef(false)
96|   useEffect(() => {
97|     if (duplicateIdRef.current) return
98|     duplicateIdRef.current = true
99|   }, [])
100|
101|   return (
102|     <>
103|       <AnimatePresence>
104|         {toast.show && !isOpen && (
105|           <motion.div
106|             initial={{ opacity: 0, y: 20, scale: 0.9 }}
107|             animate={{ opacity: 1, y: 0, scale: 1 }}
108|             exit={{ opacity: 0, y: 10, scale: 0.9 }}
109|             transition={{ duration: 0.2 }}
110|             className="fixed z-[999]"
111|             style={{ bottom: '80px', right: '16px', maxWidth: '260px' }}
112|           >
113|             <div style={{
114|               background: styles.elevated, border: `1px solid ${styles.brand}40`,
115|               borderRadius: '12px', padding: '10px 14px',
116|               display: 'flex', alignItems: 'center', gap: '8px',
117|               boxShadow: `0 4px 20px rgba(0,0,0,0.15)`,
118|             }}>
119|               <Volume2 size={14} style={{ color: styles.brand, flexShrink: 0 }} />
120|               <span style={{ fontSize: '12px', color: styles.text, lineHeight: 1.4 }}>{toast.text}</span>
121|             </div>
122|           </motion.div>
123|         )}
124|       </AnimatePresence>
125|
126|       <button
127|         onClick={() => { setIsOpen(true); setUnreadCount(0); }}
128|         className="fixed bottom-8 right-8 w-14 h-14 shadow-lg rounded-full flex items-center justify-center z-...
129|         style={{
130|           background: `linear-gradient(135deg, ${styles.brand}, #289cf9)`,
```

```
131|           color: '#fff',
132|           boxShadow: `0 0 25px color-mix(in srgb, ${styles.brand} 50%, transparent)`,
133|         }}
134|       >
135|         <div className="absolute -inset-1 rounded-full blur opacity-40 group-hover:opacity-75 transition-opaci...
136|         {isOpen ? <X size={22} className="relative z-10" /> : <Cpu size={22} className="relative z-10" />}
137|         {!isOpen && (
138|           <div className="absolute -top-1 -right-1 w-5 h-5 rounded-full flex items-center justify-center shado...
139|             <Sparkles size={10} style={{ color: styles.brand }} />
140|           </div>
141|         )}
142|         {unreadCount > 0 && !isOpen && (
143|           <div style={{
144|             position: 'absolute', top: '-4px', right: '-4px', width: '18px', height: '18px',
145|             borderRadius: '50%', background: '#EF4444', color: '#fff', fontSize: '9px',
146|             fontWeight: 700, display: 'flex', alignItems: 'center', justifyContent: 'center',
147|             border: `2px solid var(--bg-base)`
148|           }}>
149|             {unreadCount}
150|           </div>
151|         )}
152|       </button>
153|
154|       <AnimatePresence>
155|         {isOpen && (
156|           <motion.div
157|             initial={{ opacity: 0, scale: 0.9, y: 50 }}
158|             animate={{ opacity: 1, scale: 1, y: 0 }}
159|             exit={{ opacity: 0, scale: 0.9, y: 50 }}
160|             className="fixed bottom-24 right-8 w-[calc(100vw-40px)] max-w-[340px] shadow-2xl z-[1000] overflow...
161|             style={{ height: '460px', borderRadius: '20px', background: styles.surface, border: `1px solid ${s...
162|           >
163|             <div className="flex items-center justify-between" style={{ padding: '16px 20px', background: styl...
164|               <div className="flex items-center gap-3">
165|                 <div className="w-10 h-10 rounded-xl flex items-center justify-center" style={{ background: st...
166|                   <Bot size={22} />
167|                 </div>
168|                 <div>
169|                   <p className="font-bold text-sm" style={{ color: styles.text }}>AI Guru Assistant</p>
170|                   <p className="text-[10px] font-bold uppercase tracking-widest" style={{ color: styles.brand ...
171|                 </div>
172|               </div>
173|               <button onClick={() => setIsOpen(false)} style={{ padding: '6px', background: 'transparent', bor...
174|                 <X size={20} />
175|               </button>
176|             </div>
177|
178|             <div className="flex-1 overflow-y-auto p-4 space-y-4" style={{ background: styles.base }}>
179|               {messages.map((m, i) => (
180|                 <div key={i} className="flex" style={{ justifyContent: m.role === 'user' ? 'flex-end' : 'flex-...
181|                   <div style={{
182|                     maxWidth: '82%', padding: '12px 16px', borderRadius: '16px', fontSize: '13px', lineHeight:...
183|                     background: m.role === 'user' ? styles.brand : styles.elevated,
184|                     color: m.role === 'user' ? '#fff' : styles.text,
185|                     borderTopLeftRadius: m.role === 'user' ? '16px' : '4px',
186|                     borderTopRightRadius: m.role === 'user' ? '4px' : '16px',
187|                     wordBreak: 'break-word', overflowWrap: 'break-word', whiteSpace: 'pre-wrap',
188|                   }}>
189|                     {m.content}
190|                   </div>
191|                 </div>
192|               ))}
193|               {isTyping && (
194|                 <div className="flex justify-start">
195|                   <div className="flex gap-1.5 p-3 rounded-2xl" style={{ background: styles.elevated, borderTo...
196|                     {[0, 1, 2].map(i => (
197|                       <motion.div key={i} animate={{ opacity: [0.3, 1, 0.3] }} transition={{ repeat: Infinity,...
198|                         style={{ width: '8px', height: '8px', borderRadius: '50%', background: styles.muted }} />
199|                     ))}
200|                   </div>
201|                 </div>
202|               )}
203|               <div ref={endRef} />
204|             </div>
205|
206|             <div style={{ padding: '12px 16px', background: styles.elevated, borderTop: `1px solid ${styles.bo...
207|               <div className="flex items-center gap-2 p-1.5 rounded-2xl" style={{ background: styles.base, bor...
208|                 <input
209|                   type="text"
210|                   value={input}
211|                   onChange={(e) => setInput(e.target.value)}
212|                   onKeyDown={(e) => {
213|                     if (e.key === 'Enter' && !e.nativeEvent.isComposing) {
214|                       e.preventDefault()
215|                       handleSend()
216|                     }
217|                   }}
    2 1 8 |                                 p l a c e h o l d e r = " H Ỉ i   A I   G u r u     i Á u   g ì     ó . . . "
219|                   className="flex-1 bg-transparent border-none outline-none text-sm"
220|                   style={{ padding: '8px 12px', color: styles.text, fontFamily: 'inherit' }}
221|                 />
222|                 <button
223|                   onClick={handleSend}
224|                   className="rounded-xl hover:scale-105 transition-transform"
225|                   style={{ padding: '10px', background: styles.brand, color: '#fff', border: 'none', cursor: '...
226|                 >
227|                   <Send size={18} />
228|                 </button>
229|               </div>
230|             </div>
231|           </motion.div>
232|         )}
233|       </AnimatePresence>
234|     </>
235|   )
236| }
237|
```

File: components/AIGuruGlobal.tsx (9 lines, 0.1 KB)

```
    1| 'use client';
    2|
    3| import React from 'react';
    4| import AIGuru from './AIGuru';
    5|
    6| export default function AIGuruGlobal() {
    7|   return <AIGuru />;
    8| }
    9|
```

File: components/AssembledPCView.js (446 lines, 22.8 KB)

```
==========================================================================================
'use client';

import { useState, useRef, useCallback } from 'react';
import { Canvas, useFrame } from '@react-three/fiber';
import { OrbitControls, Html } from '@react-three/drei';
import * as THREE from 'three';
import {
  CPUModel, GPUModel, RAMModel, SSDModel, PSUModel, MainboardModel,
} from './ComponentPreview3D';

const MODEL_POSITIONS = {
  MAINBOARD: { pos: [0, 0, 0], scale: 1 },
  CPU: { pos: [0, 0.18, 0.30], scale: 1 },
  COOLER: { pos: [0, 0.55, 0.30], scale: 0.8 },
  RAM_LEFT: { pos: [-0.75, 0.12, 0.50], scale: 1 },
  RAM_RIGHT: { pos: [0.75, 0.12, 0.50], scale: 1 },
  GPU: { pos: [0, 0.12, -0.40], scale: 1 },
  PSU: { pos: [1.50, -0.15, 1.00], scale: 1 },
  SSD: { pos: [-0.20, 0.05, -0.70], scale: 1 },
};

const HOTSPOTS = {
  MAINBOARD: [
        { id: 'cpu-socket', label: 'CPU Socket', pos: [0, 0.04, 0.30], desc:
        { id: 'ram-slot-l', label: 'RAM Slot A', pos: [-0.75, 0.04, 0.50], d
        { id: 'ram-slot-r', label: 'RAM Slot B', pos: [0.75, 0.04, 0.50], de
        { id: 'pcie-slot', label: 'PCIe x16', pos: [0, 0.04, -0.40], desc: '
        { id: 'm2-slot', label: 'M.2 Slot', pos: [-0.20, 0.04, -0.70], desc:
        { id: 'sata-ports', label: 'SATA Port', pos: [1.25, 0.04, 0.60], des
        { id: 'io-ports', label: 'I/O Ports', pos: [1.55, 0.04, 0.20], desc:
  ],
  CPU: [
        { id: 'cpu-ihs', label: 'IHS', pos: [0, 0.25, 0.30], desc: 'Heat Spr
        { id: 'cpu-pins', label: 'Chân CPU', pos: [0, 0.10, 0.30], desc: 'LG
  ],
  GPU: [
        { id: 'gpu-pcie', label: 'PCIe Connector', pos: [0.50, 0.10, -0.40],
        { id: 'gpu-power', label: 'Power Connector', pos: [1.25, 0.10, -0.40
        { id: 'gpu-fan', label: 'Fan GPU', pos: [0, 0.22, -0.40], desc: 'Qui
        { id: 'gpu-vram', label: 'VRAM', pos: [0.80, 0.08, -0.40], desc: 'BU
  ],
  RAM: [
        { id: 'ram-heatspreader', label: 'Heatspreader', pos: [-0.75, 0.30,
        { id: 'ram-pins', label: 'Gold Pins', pos: [-0.75, 0.02, 0.50], desc
  ],
  PSU: [
        { id: 'psu-24pin', label: '24-pin ATX', pos: [1.90, -0.10, 1.30], de
        { id: 'psu-cpu8', label: 'CPU 8-pin EPS', pos: [1.90, 0.05, 1.20], d
        { id: 'psu-pcie', label: 'PCIe 6+2 pin', pos: [1.90, 0.15, 1.10], de
        { id: 'psu-sata', label: 'SATA Power', pos: [1.90, 0.25, 1.00], desc
  ],
  SSD: [
        { id: 'ssd-nand', label: 'NAND Flash', pos: [-0.20, 0.06, -0.65], de
        { id: 'ssd-controller', label: 'Controller', pos: [-0.40, 0.06, -0.7
        { id: 'ssd-m2', label: 'M.2 Connector', pos: [0.85, 0.04, -0.70], de
  ],
};

const CONNECTION_RULES = [
        { from: 'CPU', fromPort: 'CPU Socket', to: 'Mainboard', toPort: 'CPU S
        { from: 'CPU', fromPort: 'IHS', to: 'Cooler', toPort: 'Base', cable: n
        { from: 'RAM', fromPort: 'Gold Pins', to: 'Mainboard', toPort: 'RAM Sl
        { from: 'GPU', fromPort: 'PCIe Connector', to: 'Mainboard', toPort: 'P
  { from: 'GPU', fromPort: 'Power Connector', to: 'PSU', toPort: 'PCIe 6+2 pin', cable: 'PCIe Power', desc: 'C...
  { from: 'Mainboard', fromPort: '24-pin ATX', to: 'PSU', toPort: '24-pin ATX', cable: '24-pin ATX', desc: 'Cá...
        { from: 'CPU', fromPort: 'Chân CPU', to: 'PSU', toPort: 'CPU 8-pin EPS
  { from: 'SSD', fromPort: 'M.2 Connector', to: 'Mainboard', toPort: 'M.2 Slot', cable: null, desc: 'SSD M.2 c...
        { from: 'SSD', fromPort: 'NAND Flash', to: 'PSU', toPort: 'SATA Power'
];

function ConnectionLine({ from, to, color = '#d4a030', dashed = false }) {
  const points = [
    new THREE.Vector3(...from),
    new THREE.Vector3((from[0] + to[0]) / 2 + 0.2, (from[1] + to[1]) / 2 + 0.3, (from[2] + to[2]) / 2),
    new THREE.Vector3(...to),
  ];
  const curve = new THREE.CatmullRomCurve3(points);
  const curvePoints = curve.getPoints(20);
  return (
    <mesh>
      <tubeGeometry args={[new THREE.CatmullRomCurve3(curvePoints), 20, 0.02, 8, false]} />
      <meshBasicMaterial color={color} transparent opacity={0.25} />
    </mesh>
  );
}

function GlowRing({ position, color }) {
  const meshRef = useRef();
  useFrame(({ clock }) => {
    if (meshRef.current) {
      meshRef.current.scale.setScalar(1 + Math.sin(clock.getElapsedTime() * 3) * 0.15);
    }
  });
  return (
    <mesh ref={meshRef} position={position}>
      <ringGeometry args={[0.08, 0.13, 16]} />
      <meshBasicMaterial color={color} transparent opacity={0.4} side={THREE.DoubleSide} />
    </mesh>
  );
}

function HotspotDot({ hotspot, isActive, isHovered, onClick, onHover }) {
  const dotRef = useRef();
  const color = hotspot.color;
  return (
    <group position={hotspot.pos}>
      <mesh ref={dotRef}
        onClick={onClick}
        onPointerEnter={() => onHover(true)}
        onPointerLeave={() => onHover(false)}
        onPointerOver={e => { document.body.style.cursor = 'pointer'; e.stopPropagation(); }}
        onPointerOut={e => { document.body.style.cursor = 'default'; }}>
        <sphereGeometry args={[0.07, 12, 12]} />
        <meshBasicMaterial color={color} transparent opacity={isActive ? 1 : isHovered ? 0.9 : 0.6} />
      </mesh>
      {isActive && <GlowRing position={[0, 0, 0]} color={color} />}
      {isHovered && (
        <mesh>
          <ringGeometry args={[0.08, 0.12, 16]} />
          <meshBasicMaterial color={color} transparent opacity={0.25} side={THREE.DoubleSide} />
        </mesh>
      )}
    </group>
```

```
  );
}

function InfoTooltip({ hotspot, onClose }) {
  return (
    <Html position={[hotspot.pos[0] + 0.3, hotspot.pos[1] + 0.1, hotspot.pos[2]]}
      center style={{ pointerEvents: 'none', zIndex: 100 }}>
      <div style={{
        background: 'rgba(8,8,18,0.95)', backdropFilter: 'blur(10px)',
        border: `1px solid ${hotspot.color}44`, borderRadius: 10,
        padding: '10px 14px', maxWidth: 240,
        boxShadow: '0 8px 32px rgba(0,0,0,0.6)',
        animation: 'fadeIn 0.12s', pointerEvents: 'auto',
      }}>
        <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: 6 }}>
          <span style={{ color: hotspot.color, fontWeight: 700, fontSize: 12 }}>{hotspot.label}</span>
          <button onClick={onClose}
            style={{ background: 'none', border: 'none', color: '#555', cursor: 'pointer', fontSize: 13, paddi...
        </div>
        <div style={{ color: 'rgba(255,255,255,0.5)', fontSize: 10, lineHeight: 1.6, marginBottom: 6 }}>{hotsp...
        {hotspot.related && (
          <div style={{ fontSize: 9, color: 'rgba(255,255,255,0.3)', marginBottom: 4 }}>
            {hotspot.related.join(' · ')}
          </div>
        )}
        {hotspot.brands && hotspot.brands !== '—' && (
          <div style={{ fontSize: 9, color: 'rgba(255,255,255,0.3)' }}>
            {hotspot.brands}
          </div>
        )}
      </div>
    </Html>
  );
}

function EmptySlot({ label, position, color = '#333', hotspots }) {
  const [showInfo, setShowInfo] = useState(false);
  return (
    <group position={position}>
      <mesh>
        <boxGeometry args={[0.6, 0.02, 0.6]} />
        <meshStandardMaterial color={color} transparent opacity={0.12} wireframe />
      </mesh>
      <Html position={[0, 0.25, 0]} center>
        <div onClick={() => setShowInfo(p => !p)}
          style={{
            color, fontSize: 9, fontWeight: 700, fontFamily: 'monospace',
            background: 'rgba(0,0,0,0.5)', padding: '3px 8px', borderRadius: 4,
            border: `1px dashed ${color}44`, cursor: 'pointer',
            textTransform: 'uppercase', letterSpacing: '0.5px',
          }}>
        '&   { l a b e l }
        </div>
      </Html>
      {showInfo && hotspots && (
        <Html position={[0, -0.35, 0]} center>
          <div style={{
            background: 'rgba(8,8,18,0.95)', backdropFilter: 'blur(8px)',
            border: `1px solid ${color}33`, borderRadius: 8, padding: 8, maxWidth: 200,
            boxShadow: '0 4px 16px rgba(0,0,0,0.6)',
          }}>
            <div style={{ color: color, fontSize: 10, fontWeight: 700, marginBottom: 4 }}>{label}</div>
            {hotspots.map(h => (
              <div key={h.id} style={{ color: 'rgba(255,255,255,0.5)', fontSize: 9, padding: '1px 0' }}>
                • {h.label}
              </div>
            ))}
            <button onClick={() => setShowInfo(false)}
              style={{ background: 'none', border: 'none', color: '#555', cursor: 'pointer', fontSize: 9, marg...
          </div>
        </Html>
      )}
    </group>
  );
}

function CameraAnimator({ target }) {
  const controlsRef = useRef();
  useFrame(() => {
    if (!controlsRef.current || !target) return;
    controlsRef.current.target.lerp(target, 0.05);
  });
  return <orbitControls ref={controlsRef} />;
}

export default function AssembledPCView({ parts }) {
  const controlsRef = useRef();
  const [activeHotspot, setActiveHotspot] = useState(null);
  const [hoveredId, setHoveredId] = useState(null);
  const [eduMode, setEduMode] = useState(true);
  const [showConnections, setShowConnections] = useState(false);

  const hasCpu = !!parts.cpu;
  const hasGpu = !!parts.gpu;
  const hasRam = (parts.ram?.length || 0) > 0;
  const hasPsu = !!parts.psu;
  const hasSsd = (parts.ssd?.length || 0) > 0;
  const hasCooler = !!parts.cooler;

  const handleHotspotClick = useCallback((h) => {
    if (activeHotspot?.id === h.id) {
      setActiveHotspot(null);
    } else {
      setActiveHotspot(h);
    }
    setHoveredId(null);
  }, [activeHotspot]);

  const renderHotspots = (hotspots, visible) => {
    if (!visible) return null;
    return hotspots.map(h => {
      const isActive = activeHotspot?.id === h.id;
      const isHov = hoveredId === h.id;
      return (
        <group key={h.id}>
          <HotspotDot hotspot={h} isActive={isActive} isHovered={isHov}
            onClick={() => handleHotspotClick(h)}
            onHover={(v) => setHoveredId(v ? h.id : null)} />
          {eduMode && !isActive && !isHov && (
            <Html position={[h.pos[0], h.pos[1] + 0.18, h.pos[2]]} center>
              <div style={{
                color: h.color, fontSize: 7, fontWeight: 600, fontFamily: 'monospace',
```

```
248|                 background: 'rgba(0,0,0,0.5)', padding: '1px 5px', borderRadius: 3,
249|                 border: `1px solid ${h.color}22`, pointerEvents: 'none',
250|                 opacity: 0.6, whiteSpace: 'nowrap',
251|               }}>{h.label}</div>
252|             </Html>
253|           )}
254|           {(isActive || isHov) && (
255|             <InfoTooltip hotspot={h} onClose={() => setActiveHotspot(null)} />
256|           )}
257|         </group>
258|       );
259|     });
260|   };
261|
262|   return (
263|     <div style={{
264|       width: '100%', height: '100%', position: 'relative',
265|       background: 'radial-gradient(ellipse at center, #0f172a 0%, #020617 100%)',
266|       borderRadius: 12, overflow: 'hidden', border: '1px solid var(--border-default)',
267|     }}>
268|       <Canvas camera={{ position: [3.5, 2.5, 4], fov: 35 }}
269|         dpr={[1, 2]} gl={{ antialias: true }}
270|         style={{ width: '100%', height: '100%' }}
271|         onPointerMissed={() => { setActiveHotspot(null); setHoveredId(null); }}>
272|         <ambientLight intensity={0.4} />
273|         <directionalLight position={[5, 8, 5]} intensity={1.2} />
274|         <directionalLight position={[-3, 4, -3]} intensity={0.3} />
275|         <pointLight position={[0, 3, 0]} intensity={0.2} />
276|         <pointLight position={[0, -2, 2]} intensity={0.1} color="#4488ff" />
277|         <OrbitControls ref={controlsRef}
278|           enablePan={true} enableZoom={true} enableRotate={true}
279|           autoRotate={!activeHotspot} autoRotateSpeed={1.2}
280|           minDistance={1.5} maxDistance={8}
281|           target={activeHotspot ? [activeHotspot.pos[0], activeHotspot.pos[1], activeHotspot.pos[2]] : [0.3, 0...
282|         />
283|         <gridHelper args={[5, 10, '#1e293b', '#0f172a']} position={[0.3, -0.25, 0.1]} />
284|
285|         {/* Mainboard */}
286|         <MainboardModel isHovered={false} />
287|         {renderHotspots(HOTSPOTS.MAINBOARD, true)}
288|
289|         {/* CPU */}
290|         {hasCpu ? (
291|           <group position={MODEL_POSITIONS.CPU.pos} scale={MODEL_POSITIONS.CPU.scale}>
292|             <CPUModel brand={parts.cpu.brand} socket={parts.cpu.cpu_socket} isHovered={false} />
293|           </group>
294|         ) : (
295|           <EmptySlot label="CPU" position={MODEL_POSITIONS.CPU.pos} color="#00d4aa" hotspots={HOTSPOTS.CPU} />
296|         )}
297|         {renderHotspots(HOTSPOTS.CPU, hasCpu)}
298|
299|         {/* Cooler */}
300|         {hasCooler ? (
301|           <group position={MODEL_POSITIONS.COOLER.pos} scale={MODEL_POSITIONS.COOLER.scale}>
302|             <mesh><boxGeometry args={[0.9, 0.7, 0.9]} /><meshStandardMaterial color="#1a1a1a" /></mesh>
303|             <mesh position={[0, 0.45, 0]}><cylinderGeometry args={[0.35, 0.35, 0.05, 24]} /><meshStandardMater...
304|             <mesh position={[0, 0.10, 0]}><cylinderGeometry args={[0.38, 0.38, 0.02, 16]} /><meshStandardMater...
305|           </group>
306|         ) : null}
307|
308|         {/* RAM */}
309|         {hasRam ? (
310|           <>
311|             <group position={MODEL_POSITIONS.RAM_LEFT.pos} scale={MODEL_POSITIONS.RAM_LEFT.scale}>
312|               <RAMModel brand={parts.ram[0]?.brand} isHovered={false} />
313|             </group>
314|             {(parts.ram.length > 1) && (
315|               <group position={MODEL_POSITIONS.RAM_RIGHT.pos} scale={MODEL_POSITIONS.RAM_RIGHT.scale}>
316|                 <RAMModel brand={parts.ram[1]?.brand} isHovered={false} />
317|               </group>
318|             )}
319|           </>
320|         ) : (
321|           <>
322|             <EmptySlot label="RAM A" position={MODEL_POSITIONS.RAM_LEFT.pos} color="#22c55e" hotspots={HOTSPOT...
323|             <EmptySlot label="RAM B" position={MODEL_POSITIONS.RAM_RIGHT.pos} color="#22c55e" />
324|           </>
325|         )}
326|         {renderHotspots(HOTSPOTS.RAM, hasRam)}
327|
328|         {/* GPU */}
329|         {hasGpu ? (
330|           <group position={MODEL_POSITIONS.GPU.pos} scale={MODEL_POSITIONS.GPU.scale}>
331|             <GPUModel isHovered={false} />
332|           </group>
333|         ) : (
334|           <EmptySlot label="GPU" position={MODEL_POSITIONS.GPU.pos} color="#ef4444" hotspots={HOTSPOTS.GPU} />
335|         )}
336|         {renderHotspots(HOTSPOTS.GPU, hasGpu)}
337|
338|         {/* PSU */}
339|         {hasPsu ? (
340|           <group position={MODEL_POSITIONS.PSU.pos} scale={MODEL_POSITIONS.PSU.scale}>
341|             <PSUModel isHovered={false} />
342|           </group>
343|         ) : (
344|           <EmptySlot label="PSU" position={MODEL_POSITIONS.PSU.pos} color="#f59e0b" hotspots={HOTSPOTS.PSU} />
345|         )}
346|         {renderHotspots(HOTSPOTS.PSU, hasPsu)}
347|
348|         {/* SSD */}
349|         {hasSsd ? (
350|           <group position={MODEL_POSITIONS.SSD.pos} scale={MODEL_POSITIONS.SSD.scale}>
351|             <SSDModel isHovered={false} />
352|           </group>
353|         ) : null}
354|         {renderHotspots(HOTSPOTS.SSD, hasSsd)}
355|
356|         {/* Connection lines */}
357|         {showConnections && hasPsu && hasCpu && (
358|           <ConnectionLine from={[1.90, -0.10, 1.30]} to={[1.30, 0.04, 0.20]} color="#d4a030" />
359|         )}
360|         {showConnections && hasPsu && hasCpu && (
361|           <ConnectionLine from={[1.90, 0.05, 1.20]} to={[0.10, 0.10, 0.30]} color="#94a3b8" />
362|         )}
363|         {showConnections && hasPsu && hasGpu && (
364|           <ConnectionLine from={[1.90, 0.15, 1.10]} to={[1.25, 0.10, -0.40]} color="#ef4444" />
365|         )}
366|       </Canvas>
367|
368|       {/* Overlay Controls */}
369|       <div style={{
370|         position: 'absolute', top: 10, left: 10, display: 'flex', gap: 6,
371|       }}>
```

```
  372|         <button onClick={() => setEduMode(p => !p)}
  373|           style={{
  374|             padding: '4px 10px', borderRadius: 6, border: '1px solid rgba(255,255,255,0.1)',
  375|             background: eduMode ? 'rgba(0,212,170,0.15)' : 'rgba(255,255,255,0.05)',
  376|             color: eduMode ? '#00d4aa' : 'rgba(255,255,255,0.4)',
  377|             cursor: 'pointer', fontSize: 9, fontWeight: 600, fontFamily: 'monospace',
  378|           }}>
    3 7 9 |                       { e d u M o d e   ?   'Ø=ÜÖ   E d u   O N '   :   'Ø=ÜÖ   E d u   O F F ' }
  380|         </button>
  381|         <button onClick={() => setShowConnections(p => !p)}
  382|           style={{
  383|             padding: '4px 10px', borderRadius: 6, border: '1px solid rgba(255,255,255,0.1)',
  384|             background: showConnections ? 'rgba(99,102,241,0.15)' : 'rgba(255,255,255,0.05)',
  385|             color: showConnections ? '#818cf8' : 'rgba(255,255,255,0.4)',
  386|             cursor: 'pointer', fontSize: 9, fontWeight: 600, fontFamily: 'monospace',
  387|           }}>
    3 8 8 |                       { s h o w C o n n e c t i o n s   ?   'Ø=Ý   C a b l e   O N '   :   'Ø=Ý   C a b l e   O F F ' }
  389|         </button>
  390|       </div>
  391|
  392|       {/* Bottom hint */}
  393|       <div style={{
  394|         position: 'absolute', bottom: 8, left: '50%', transform: 'translateX(-50%)',
  395|         color: 'rgba(255,255,255,0.15)', fontSize: 8, fontFamily: 'monospace',
  396|         pointerEvents: 'none', textAlign: 'center',
  397|       }}>
    3 9 8 |                 C l i c k   c h ¥ m   t r ò n   Ã   x e m   t h ô n g   t i n   ·   K é o   x o a y   ·   S c r o l l   z o o m
  399|       </div>
  400|
  401|       {/* Active detail panel */}
  402|       {activeHotspot && (
  403|         <div style={{
  404|           position: 'absolute', bottom: 32, left: '50%', transform: 'translateX(-50%)',
  405|           background: 'rgba(8,8,18,0.92)', backdropFilter: 'blur(10px)',
  406|           border: `1px solid ${activeHotspot.color}33`, borderRadius: 10,
  407|           padding: '10px 16px', maxWidth: 450, width: '90%',
  408|           boxShadow: '0 4px 24px rgba(0,0,0,0.6)',
  409|           animation: 'fadeIn 0.15s',
  410|         }}>
  411|           <div style={{ display: 'flex', alignItems: 'center', gap: 8, marginBottom: 6 }}>
  412|             <span style={{ width: 8, height: 8, borderRadius: '50%', background: activeHotspot.color, flexShri...
  413|             <span style={{ color: activeHotspot.color, fontWeight: 700, fontSize: 13 }}>{activeHotspot.label}<...
  414|             <span style={{ color: 'rgba(255,255,255,0.15)', fontSize: 8, fontFamily: 'monospace', marginLeft: ...
  415|               {activeHotspot.id}
  416|             </span>
  417|           </div>
  418|           <div style={{ color: 'rgba(255,255,255,0.5)', fontSize: 11, lineHeight: 1.6 }}>{activeHotspot.desc}<...
  419|           {activeHotspot.related && (
  420|             <div style={{ marginTop: 6, display: 'flex', gap: 4, flexWrap: 'wrap' }}>
    4 2 1 |                         < s p a n   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 2 5 ) ' ,   f o n t S i z e :
  422|               {activeHotspot.related.map(r => (
  423|                 <span key={r} style={{
  424|                   background: 'rgba(255,255,255,0.06)', padding: '1px 6px', borderRadius: 3,
  425|                   fontSize: 9, color: 'rgba(255,255,255,0.4)',
  426|                 }}>{r}</span>
  427|               ))}
  428|             </div>
  429|           )}
  430|           {activeHotspot.brands && activeHotspot.brands !== '—' && (
  431|             <div style={{ marginTop: 4, display: 'flex', gap: 4, flexWrap: 'wrap' }}>
    4 3 2 |                         < s p a n   s t y l e = { {   c o l o r :   ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 2 5 ) ' ,   f o n t S i z e :
  433|               {activeHotspot.brands.split(', ').map(b => (
  434|                 <span key={b} style={{
  435|                   background: 'rgba(255,255,255,0.05)', padding: '1px 5px', borderRadius: 3,
  436|                   fontSize: 8, color: 'rgba(255,255,255,0.35)',
  437|                 }}>{b}</span>
  438|               ))}
  439|             </div>
  440|           )}
  441|         </div>
  442|       )}
  443|     </div>
  444|   );
  445| }
  446|
```

File: components/auth/LoginModal.tsx (195 lines, 7.6 KB)

```
    1| 'use client'
    2|
    3| import React, { useState, useEffect } from 'react'
    4| import { useRouter } from 'next/navigation'
    5| import Link from 'next/link'
    6| import { Loader2, Mail, Lock, Eye, EyeOff, X, ShieldCheck } from 'lucide-react'
    7| import { login } from '@/lib/auth-actions'
    8| import { createBrowserClient } from '@supabase/ssr'
    9| import { motion, AnimatePresence } from 'framer-motion'
   10|
   11| interface LoginModalProps {
   12|   isOpen: boolean
   13|   onClose: () => void
   14|   redirectTo?: string | null
   15| }
   16|
   17| export default function LoginModal({ isOpen, onClose, redirectTo }: LoginModalProps) {
   18|   const [error, setError] = useState<string | null>(null)
   19|   const [loading, setLoading] = useState(false)
   20|   const [showPassword, setShowPassword] = useState(false)
   21|   const router = useRouter()
   22|
   23|   useEffect(() => {
   24|     if (!isOpen) {
   25|       setError(null)
   26|       setShowPassword(false)
   27|       setLoading(false)
   28|     }
   29|   }, [isOpen])
   30|
   31|   async function handleGoogleLogin() {
   32|     setError(null)
   33|     const supabase = createBrowserClient(
   34|       process.env.NEXT_PUBLIC_SUPABASE_URL!,
   35|       process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   36|     )
   37|     const redirectTo = process.env.NEXT_PUBLIC_SITE_URL
   38|       ? `${process.env.NEXT_PUBLIC_SITE_URL}/auth/callback`
   39|       : `${window.location.origin}/auth/callback`
   40|     const { error: oauthError } = await supabase.auth.signInWithOAuth({
   41|       provider: 'google',
   42|       options: {
   43|         redirectTo,
   44|       },
   45|     })
```

```
46|     if (oauthError) {
   4 7 |               s e t E r r o r ( '     n g   n h - p   G o o g l e   t h ¥ t   b ¡ i :   '   +   o a u t h E r r o r . m e s s a g e )
48|     }
49|   }
50|
51|   async function handleSubmit(e: React.FormEvent<HTMLFormElement>) {
52|     e.preventDefault()
53|     setLoading(true)
54|     setError(null)
55|
56|     const formData = new FormData(e.currentTarget)
57|     const res = await login(formData)
58|
59|     if (res?.error) {
60|       setError(res.error)
61|       setLoading(false)
62|     } else if (res?.success && res.redirectUrl) {
63|       router.push(redirectTo || res.redirectUrl)
64|     } else {
65|       setLoading(false)
66|     }
67|   }
68|
69|   if (!isOpen) return null
70|
71|   return (
72|     <div className="fixed inset-0 z-[9999] flex items-center justify-center p-4">
73|       <div className="absolute inset-0 bg-black/70 backdrop-blur-sm" onClick={onClose} />
74|       <motion.div
75|         initial={{ opacity: 0, scale: 0.95 }}
76|         animate={{ opacity: 1, scale: 1 }}
77|         exit={{ opacity: 0, scale: 0.95 }}
78|         transition={{ duration: 0.2 }}
79|         className="login-modal-content relative w-full max-w-md bg-[#16213e] border border-[#1e293b] rounded-2...
80|       >
81|         <button
82|           onClick={onClose}
83|           className="absolute top-4 right-4 text-slate-400 hover:text-white transition-colors p-1 rounded-lg h...
84|         >
85|           <X size={20} />
86|         </button>
87|
88|         <div className="text-center mb-8">
   8 9 |                       < h 2   c l a s s N a m e = " t e x t - 2 x l   f o n t - b o l d   t e x t - w h i t e   m b - 2 " > C h à o   m ë n g   t
   9 0 |                       < p   c l a s s N a m e = " t e x t - s l a t e - 4 0 0   t e x t - s m " >     n g   n h - p    Ã   t i ¿ p   t ã c   h ã
91|         </div>
92|
93|         <div className="flex flex-col gap-3 mb-6">
94|           <button
95|             type="button"
96|             onClick={handleGoogleLogin}
97|             className="w-full flex items-center justify-center gap-3 bg-white text-black font-semibold py-2.5 ...
98|           >
99|             <svg viewBox="0 0 24 24" className="w-5 h-5">
100|               <path fill="#4285F4" d="M22.56 12.25c0-.78-.07-1.53-.2-2.25H12v4.26h5.92c-.26 1.37-1.04 2.53-2.2...
101|               <path fill="#34A853" d="M12 23c2.97 0 5.46-.98 7.28-2.66l-3.57-2.77c-.98.66-2.23 1.06-3.71 1.06-...
102|               <path fill="#FBBC05" d="M5.84 14.09c-.22-.66-.35-1.36-.35-2.09s.13-1.43.35-2.09V7.07H2.18C1.43 8...
103|               <path fill="#EA4335" d="M12 5.38c1.62 0 3.06.56 4.21 1.64l3.15-3.15C17.45 2.09 14.97 1 12 1 7.7 ...
104|             </svg>
   1 0 5 |                           T i ¿ p   t ã c   v Û i   G o o g l e
106|           </button>
107|         </div>
108|
109|         <div className="flex items-center gap-4 mb-6">
110|           <div className="h-[1px] flex-1 bg-[#1e293b]"></div>
   1 1 1 |                       < s p a n   c l a s s N a m e = " t e x t - x s   f o n t - s e m i b o l d   t e x t - s l a t e - 5 0 0   u p p e r c a s
112|           <div className="h-[1px] flex-1 bg-[#1e293b]"></div>
113|         </div>
114|
115|         <form onSubmit={handleSubmit} className="flex flex-col gap-4">
116|           <div className="relative">
117|             <Mail size={18} className="absolute left-4 top-1/2 -translate-y-1/2 text-slate-500" />
118|             <input
119|               type="email"
120|               name="email"
121|               required
122|               className="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-xl pl-11 pr-4 py-3 outline-none f...
   1 2 3 |                               p l a c e h o l d e r = "   Ë a   c h É   E m a i l "
124|             />
125|           </div>
126|
127|           <div className="relative">
128|             <Lock size={18} className="absolute left-4 top-1/2 -translate-y-1/2 text-slate-500" />
129|             <input
130|               type={showPassword ? "text" : "password"}
131|               name="password"
132|               required
133|               className="w-full bg-[#0f0f1a] border border-[#1e293b] rounded-xl pl-11 pr-12 py-3 outline-none ...
   1 3 4 |                               p l a c e h o l d e r = " M - t   k h © u "
135|             />
136|             <button
137|               type="button"
138|               onClick={() => setShowPassword(!showPassword)}
139|               className="absolute right-4 top-1/2 -translate-y-1/2 text-slate-500 hover:text-slate-300 p-1"
140|             >
141|               {showPassword ? <EyeOff size={18} /> : <Eye size={18} />}
142|             </button>
143|           </div>
144|
145|           <div className="flex items-center justify-between mt-1">
146|             <Link
147|               href="/forgot-password"
148|               className="text-sm font-medium text-[#00b4d8] hover:text-[#00d2a0] transition-colors"
149|               onClick={onClose}
150|             >
   1 5 1 |                               Q u ê n   m - t   k h © u ?
152|             </Link>
153|           </div>
154|
155|           <AnimatePresence>
156|             {error && (
157|               <motion.div
158|                 initial={{ opacity: 0, y: -10 }}
159|                 animate={{ opacity: 1, y: 0 }}
160|                 exit={{ opacity: 0 }}
161|                 className="bg-red-500/10 border border-red-500/20 text-red-400 px-4 py-3 rounded-lg text-sm fo...
162|               >
163|                 <ShieldCheck size={18} className="shrink-0" />
164|                 <span>{error}</span>
165|               </motion.div>
166|             )}
167|           </AnimatePresence>
168|
169|           <button
```

```
  170|            type="submit"
  171|            disabled={loading}
  172|            className="w-full bg-[#00d2a0] hover:bg-[#00e6af] text-black font-bold py-3 rounded-xl transition-...
  173|          >
  174|            {loading ? (
  175|              <>
  176|                <Loader2 className="animate-spin" size={20} />
     1 7 7 |                                < s p a n >   a n g   k ¿ t   n Ñ i . . . < / s p a n >
  178|              </>
  179|            ) : (
     1 8 0 |                          '     n g   N h - p '
  181|            )}
  182|          </button>
  183|        </form>
  184|
  185|        <p className="text-center text-sm text-slate-400 mt-6">
     1 8 6 |                      C h ° a   c ó   t à i   k h o £ n ? { '   ' }
  187|          <Link href="/register" onClick={onClose} className="text-[#00d2a0] font-medium hover:underline">
     1 8 8 |                              n g   k ý   n g a y
  189|          </Link>
  190|        </p>
  191|      </motion.div>
  192|    </div>
  193|  )
  194| }
  195|
```

File: components/auth/RoleSelector.tsx (96 lines, 3.1 KB)

```
    1| 'use client'
    2|
    3| import React from 'react'
    4| import { ShieldAlert, BookOpen, GraduationCap, Users } from 'lucide-react'
    5|
    6| export type RoleType = 'admin' | 'teacher' | 'student' | 'parent'
    7|
    8| interface RoleSelectorProps {
    9|   selectedRole: RoleType | null
   10|   onSelect: (role: RoleType) => void
   11| }
   12|
   13| const ROLES = [
   14|   {
   15|     id: 'student' as RoleType,
       1 6 |          t i t l e :   ' H Í c   s i n h ' ,
       1 7 |          d e s c r i p t i o n :   ' T h ñ c   h à n h   l ¯ p   r á p   P C   v à   l à m   b à i   k i Ã m   t r a . ' ,
   18|     icon: GraduationCap,
   19|     color: '#10B981', // Emerald
   20|     bg: 'rgba(16, 185, 129, 0.1)',
   21|   },
   22|   {
   23|     id: 'teacher' as RoleType,
   24|     title: 'Giáo viên',
       2 5 |          d e s c r i p t i o n :   ' T ¡ o   b à i   g i £ n g   v à   t h e o   d õ i   t i ¿ n    Ù   h Í c   s i n h . ' ,
   26|     icon: BookOpen,
   27|     color: '#06B6D4', // Cyan
   28|     bg: 'rgba(6, 182, 212, 0.1)',
   29|   },
   30|   {
   31|     id: 'parent' as RoleType,
       3 2 |          t i t l e :   ' P h å   h u y n h ' ,
       3 3 |          d e s c r i p t i o n :   ' X e m   k ¿ t   q u £   h Í c   t - p   c ç a   c o n   e m . ' ,
   34|     icon: Users,
   35|     color: '#F59E0B', // Amber
   36|     bg: 'rgba(245, 158, 11, 0.1)',
   37|   },
   38|   {
   39|     id: 'admin' as RoleType,
       4 0 |          t i t l e :   ' Q u £ n   t r Ë   v i ê n ' ,
       4 1 |          d e s c r i p t i o n :   ' Q u £ n   l ý   t o à n   b Ù   h Ç   t h Ñ n g   t r ° Ý n g   h Í c . ' ,
   42|     icon: ShieldAlert,
   43|     color: '#8B5CF6', // Violet
   44|     bg: 'rgba(139, 92, 246, 0.1)',
   45|   },
   46| ]
   47|
   48| export default function RoleSelector({ selectedRole, onSelect }: RoleSelectorProps) {
   49|   return (
   50|     <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '16px', marginBottom: '32px' }}>
   51|       {ROLES.map((role) => {
   52|         const isSelected = selectedRole === role.id;
   53|         const Icon = role.icon;
   54|
   55|         return (
   56|           <button
   57|             key={role.id}
   58|             type="button"
   59|             onClick={() => onSelect(role.id)}
   60|             style={{
   61|               display: 'flex',
   62|               flexDirection: 'column',
   63|               alignItems: 'center',
   64|               textAlign: 'center',
   65|               padding: '24px',
   66|               borderRadius: '16px',
   67|               border: `2px solid ${isSelected ? role.color : 'rgba(255,255,255,0.1)'}`,
   68|               background: isSelected ? role.bg : 'var(--bg-elevated)',
   69|               cursor: 'pointer',
   70|               transition: 'all 0.2s ease-in-out',
   71|               transform: isSelected ? 'scale(1.02)' : 'scale(1)',
   72|               boxShadow: isSelected ? `0 10px 20px ${role.bg}` : 'none'
   73|             }}
   74|           >
   75|             <div style={{
   76|               width: '56px', height: '56px', borderRadius: '50%',
   77|               background: isSelected ? role.color : 'rgba(255,255,255,0.05)',
   78|               display: 'flex', alignItems: 'center', justifyContent: 'center',
   79|               marginBottom: '16px',
   80|               transition: 'all 0.2s'
   81|             }}>
   82|               <Icon size={28} color={isSelected ? '#fff' : role.color} />
   83|             </div>
   84|             <h3 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', marginBottom: '8px' }}>
   85|               {role.title}
   86|             </h3>
   87|             <p style={{ fontSize: '13px', color: 'var(--text-secondary)', lineHeight: 1.5 }}>
   88|               {role.description}
   89|             </p>
   90|           </button>
   91|         )
   92|       })}
   93|     </div>
   94|   )
```

```
}

```

File: components/AuthButton.js (110 lines, 4.3 KB)

```
'use client';

import React, { useEffect, useState } from 'react';
import { supabase } from '@/lib/supabase';
import { useRouter } from 'next/navigation';
import { LogOut, User, LogIn } from 'lucide-react';
import Link from 'next/link';

const AuthButton = () => {
    const [user, setUser] = useState(null);
    const [profile, setProfile] = useState(null);
    const [loading, setLoading] = useState(true);
    const router = useRouter();

    useEffect(() => {
        const checkUser = async () => {
            const { data: { user: currentUser } } = await supabase.auth.getUser();
            setUser(currentUser);
            if (currentUser) {
                const { data: userProfile } = await supabase
                    .from('profiles')
                    .select('role, full_name')
                    .eq('id', currentUser.id)
                    .single();
                setProfile(userProfile);
            }
            setLoading(false);
        };

        checkUser();

        const { data: { subscription } } = supabase.auth.onAuthStateChange(async (_event, session) => {
            setUser(session?.user ?? null);
            if (session?.user) {
                const { data: userProfile } = await supabase
                    .from('profiles')
                    .select('role, full_name')
                    .eq('id', session.user.id)
                    .single();
                setProfile(userProfile);
            } else {
                setProfile(null);
            }
            setLoading(false);
        });

        return () => subscription.unsubscribe();
    }, []);

    const handleSignOut = async () => {
        await supabase.auth.signOut();
        window.location.href = '/';
    };

    if (loading) return <div style={{ width: '40px' }} />;

    if (user) {
        const role = profile?.role || user.user_metadata?.role || 'student';
        const fullName = profile?.full_name || user.user_metadata?.full_name || user.email.split('@')[0];

        let dashboardUrl = '/builder';
        if (role === 'teacher') dashboardUrl = '/teacher';
        else if (role === 'parent') dashboardUrl = '/parent';
        else if (role === 'admin') dashboardUrl = '/admin';

        return (
            <div style={{ display: 'flex', alignItems: 'center', gap: '16px' }}>
                <Link href={dashboardUrl} style={{ display: 'flex', alignItems: 'center', gap: '10px', textDec...
                    <div style={{
                        width: '32px', height: '32px', borderRadius: '50%',
                        background: 'rgba(0, 243, 255, 0.1)', border: '1px solid #00f3ff',
                        display: 'flex', alignItems: 'center', justifyContent: 'center', color: '#00f3ff'
                    }}>
                        <User size={18} />
                    </div>
                    <span style={{ fontSize: '14px', fontWeight: 600, color: '#e0e6ed' }}>
                        {fullName}
                    </span>
                </Link>
                <button
                    onClick={handleSignOut}
                    style={{
                        background: 'rgba(239, 68, 68, 0.1)', color: '#f87171', border: 'none',
                        padding: '8px 16px', borderRadius: '8px', cursor: 'pointer', fontSize: '13px',
                        display: 'flex', alignItems: 'center', gap: '6px', fontWeight: 600,
                        transition: 'all 0.2s'
                    }}
                >
                    <LogOut size={16} />  ng xuất
                </button>
            </div>
        );
    }

    return (
        <Link href="/login">
            <button style={{
                background: 'rgba(0, 243, 255, 0.1)', color: '#00f3ff', border: '1px solid #00f3ff',
                padding: '10px 20px', borderRadius: '8px', fontWeight: 700, cursor: 'pointer',
                transition: 'all 0.2s', display: 'flex', alignItems: 'center', gap: '8px', fontSize: '14px'
            }}>
                <LogIn size={18} />  ng nh-p
            </button>
        </Link>
    );
};

export default AuthButton;

```

File: components/BootSequence.js (61 lines, 1.8 KB)

```
'use client';

import { useEffect, useState } from 'react';
```

```
 4|
 5| const steps = [
 6|     { text: "BIOS CHECK...", delay: 1000 },
 7|     { text: "CPU FOUND: OK", delay: 800 },
 8|     { text: "RAM DETECTED: 32GB OK", delay: 800 },
 9|     { text: "GPU INITIALIZED: RTX 4090", delay: 1000 },
10|     { text: "LOADING OS...", delay: 2000 },
11|     { text: "SYSTEM READY", delay: 1000 }
12| ];
13|
14| const BootSequence = ({ onComplete, lang = 'en' }) => {
15|     const [step, setStep] = useState(0);
16|
17|     useEffect(() => {
18|         if (step < steps.length) {
19|             const timer = setTimeout(() => {
20|                 setStep(s => s + 1);
21|             }, steps[step].delay);
22|             return () => clearTimeout(timer);
23|         } else {
24|             if (onComplete) onComplete();
25|         }
26|     }, [step, onComplete]);
27|
28|     return (
29|         <div style={{
30|             position: 'absolute',
31|             inset: 0,
32|             backgroundColor: 'black',
33|             color: '#00ff00',
34|             fontFamily: 'Courier New, Courier, monospace',
35|             padding: '2rem',
36|             zIndex: 200,
37|             display: 'flex',
38|             flexDirection: 'column',
39|             justifyContent: 'center',
40|             alignItems: 'flex-start'
41|         }}>
42|             {steps.slice(0, step + 1).map((s, i) => (
43|                 <div key={i} style={{ marginBottom: '0.5rem' }}>
44|                     {`> ${s.text}`}
45|                 </div>
46|             ))}
47|             <div className="cursor-blink">_</div>
48|             <style jsx>{`
49|                 .cursor-blink {
50|                     animation: blink 1s step-end infinite;
51|                 }
52|                 @keyframes blink {
53|                     50% { opacity: 0; }
54|                 }
55|             `}</style>
56|         </div>
57|     );
58| };
59|
60| export default BootSequence;
61|
```

File: components/Breadcrumb.tsx (56 lines, 1.9 KB)

```
 1| 'use client'
 2|
 3| import { usePathname } from 'next/navigation'
 4| import Link from 'next/link'
 5| import { ChevronRight, Home } from 'lucide-react'
 6|
 7| const LABEL_MAP: Record<string, string> = {
 8|       ' t e a c h e r ' :   ' T r a n g   c h ç ' ,
 9|       ' l e s s o n s ' :   ' Q u £ n   l ý   b à i   g i £ n g ' ,
10|       ' c r e a t e ' :   ' T ¡ o   b à i   g i £ n g ' ,
11|       ' c l a s s e s ' :   ' Q u £ n   l ý   l Ũ p   h Í c ' ,
12|       ' n e w ' :   ' T ¡ o   m Ũ i ' ,
13|       ' q u i z ' :   ' Q u £ n   l ý   Á   t h i ' ,
14|       ' c e r t i f i c a t e s ' :   ' Q u £ n   l ý   C h é n g   c h Ế ' ,
15|       ' s t u d e n t ' :   ' H Í c   s i n h ' ,
16|       ' d a s h b o a r d ' :   ' B £ n g   i Á u   k h i Ã n ' ,
17|       ' h i s t o r y ' :   ' L Ị c h   s í   h Í c   t - p ' ,
18|       ' p r o f i l e ' :   ' H Ồ   s ¡ ' ,
19|       ' d i s c u s s i o n ' :   ' D i Ễ n   à n ' ,
20|
21| }
22|
23| export default function Breadcrumb() {
24|   const pathname = usePathname()
25|   const segments = pathname.split('/').filter(Boolean)
26|
27|   if (segments.length <= 1) return null
28|
29|   const crumbs = segments.map((seg, i) => {
30|     const href = '/' + segments.slice(0, i + 1).join('/')
31|     const label = LABEL_MAP[seg] || seg
32|     const isLast = i === segments.length - 1
33|     return { href, label, isLast }
34|   })
35|
36|   return (
37|     <nav style={{ display: 'flex', alignItems: 'center', gap: '6px', marginBottom: '24px', fontSize: '13px' }}>
38|       <Link href="/teacher" style={{ color: 'var(--text-muted)', display: 'flex', alignItems: 'center', textDe...
39|         <Home size={14} />
40|       </Link>
41|       {crumbs.map((crumb, i) => (
42|         <span key={crumb.href} style={{ display: 'flex', alignItems: 'center', gap: '6px' }}>
43|           <ChevronRight size={12} style={{ color: 'var(--text-muted)' }} />
44|           {crumb.isLast ? (
45|             <span style={{ color: 'var(--text-secondary)', fontWeight: 600 }}>{crumb.label}</span>
46|           ) : (
47|             <Link href={crumb.href} style={{ color: 'var(--text-muted)', textDecoration: 'none' }}>
48|               {crumb.label}
49|             </Link>
50|           )}
51|         </span>
52|       ))}
53|     </nav>
54|   )
55| }
56|
```

File: components/builder/BuilderLab.tsx (147 lines, 6.0 KB)

```
 1| 'use client';
```

```
  2|
  3| import { useState } from 'react';
  4| import { COMPONENT_SPECS, type ComponentRenderSpec } from '@/data/componentSpecs';
  5| import ComponentRenderer2D from './ComponentRenderer2D';
  6| import dynamic from 'next/dynamic';
  7|
  8| const ComponentViewer3D = dynamic(() => import('./ComponentViewer3D'), { ssr: false });
  9|
 10| type ViewMode = '2d' | '3d' | 'split';
 11|
 12| interface BuilderLabProps {
 13|   onSelectComponent?: (spec: ComponentRenderSpec) => void;
 14| }
 15|
 16| export default function BuilderLab({ onSelectComponent }: BuilderLabProps) {
 17|   const [viewMode, setViewMode] = useState<ViewMode>('2d');
 18|   const [selectedSpec, setSelectedSpec] = useState<ComponentRenderSpec | null>(null);
 19|   const [hoveredSpec, setHoveredSpec] = useState<string | null>(null);
 20|
 21|   const handleComponentClick = (spec: ComponentRenderSpec) => {
 22|     setSelectedSpec(spec);
 23|     onSelectComponent?.(spec);
 24|   };
 25|
 26|   const containerStyle: React.CSSProperties = {
 27|     display: 'flex', flexDirection: 'column', gap: 16, width: '100%',
 28|   };
 29|
 30|   const tabBarStyle: React.CSSProperties = {
 31|     display: 'flex', gap: 4, padding: 4,
 32|     background: 'rgba(255,255,255,0.05)', borderRadius: 10,
 33|     width: 'fit-content',
 34|   };
 35|
 36|   const tabButton = (mode: ViewMode, label: string, icon: string): React.CSSProperties => ({
 37|     padding: '6px 16px', borderRadius: 8, cursor: 'pointer',
 38|     background: viewMode === mode ? 'rgba(0,212,170,0.2)' : 'transparent',
 39|     color: viewMode === mode ? '#00d4aa' : '#94a3b8',
 40|     border: `1px solid ${viewMode === mode ? 'rgba(0,212,170,0.3)' : 'transparent'}`,
 41|     fontSize: 13, fontWeight: 600, fontFamily: 'inherit',
 42|     transition: 'all 0.2s',
 43|   });
 44|
 45|   const renderComponentList = (limit?: number) => (
 46|     <div style={{
 47|       display: 'grid',
 48|       gridTemplateColumns: `repeat(auto-fill, minmax(180px, 1fr))`,
 49|       gap: 12, padding: 8,
 50|     }}>
 51|       {(limit ? COMPONENT_SPECS.slice(0, limit) : COMPONENT_SPECS).map((spec) => (
 52|         <div key={spec.id}
 53|           onClick={() => handleComponentClick(spec)}
 54|           onMouseEnter={() => setHoveredSpec(spec.id)}
 55|           onMouseLeave={() => setHoveredSpec(null)}
 56|           style={{
 57|             background: 'rgba(255,255,255,0.03)', borderRadius: 12,
 58|             padding: 12, cursor: 'pointer',
 59|             border: `1px solid ${selectedSpec?.id === spec.id ? '#00d4aa' : 'rgba(255,255,255,0.08)'}`,
 60|             transition: 'all 0.2s',
 61|             transform: hoveredSpec === spec.id ? 'translateY(-2px)' : 'none',
 62|             boxShadow: hoveredSpec === spec.id ? '0 4px 20px rgba(0,0,0,0.3)' : 'none',
 63|           }}>
 64|           <ComponentRenderer2D
 65|             spec={spec}
 66|             scale={0.6}
 67|             viewMode="top"
 68|             isSelected={selectedSpec?.id === spec.id}
 69|             isHovered={hoveredSpec === spec.id}
 70|             showConnectors={false}
 71|           />
 72|           <div style={{ marginTop: 8, textAlign: 'center' }}>
 73|             <div style={{ fontSize: 12, fontWeight: 600, color: '#e2e8f0' }}>{spec.name}</div>
 74|             <div style={{ fontSize: 10, color: '#64748b' }}>{spec.type.toUpperCase()} · {spec.brand}</div>
 75|           </div>
 76|         </div>
 77|       ))}
 78|     </div>
 79|   );
 80|
 81|   if (viewMode === '2d') {
 82|     return (
 83|       <div style={containerStyle}>
 84|         <div style={tabBarStyle}>
    8 5 |                     < b u t t o n   s t y l e = { t a b B u t t o n ( ' 2 d ' ,   ' 2 D ' ,   'Ø=Ý2 ' ) }   o n C l i c k = { ( )   = >   s e t
    8 6 |                     < b u t t o n   s t y l e = { t a b B u t t o n ( ' 3 d ' ,   ' 3 D ' ,   'Ø=Üæ ' ) }   o n C l i c k = { ( )   = >   s e t
    8 7 |                     < b u t t o n   s t y l e = { t a b B u t t o n ( ' s p l i t ' ,   ' S p l i t ' ,   ')É ' ) }   o n C l i c k = { ( )   =
 88|         </div>
 89|         {renderComponentList()}
 90|       </div>
 91|     );
 92|   }
 93|
 94|   if (viewMode === '3d') {
 95|     return (
 96|       <div style={{ ...containerStyle, alignItems: 'center' }}>
 97|         <div style={tabBarStyle}>
    9 8 |                     < b u t t o n   s t y l e = { t a b B u t t o n ( ' 2 d ' ,   ' 2 D ' ,   'Ø=Ý2 ' ) }   o n C l i c k = { ( )   = >   s e t
    9 9 |                     < b u t t o n   s t y l e = { t a b B u t t o n ( ' 3 d ' ,   ' 3 D ' ,   'Ø=Üæ ' ) }   o n C l i c k = { ( )   = >   s e t
  1 0 0 |                     < b u t t o n   s t y l e = { t a b B u t t o n ( ' s p l i t ' ,   ' S p l i t ' ,   ')É ' ) }   o n C l i c k = { ( )   =
101|         </div>
102|         <div style={{
103|           display: 'flex', flexWrap: 'wrap', gap: 16, justifyContent: 'center', padding: 16,
104|         }}>
105|           {COMPONENT_SPECS.slice(0, 6).map((spec) => (
106|             <div key={spec.id} onClick={() => handleComponentClick(spec)}
107|               style={{
108|                 cursor: 'pointer', borderRadius: 12, overflow: 'hidden',
109|                 border: `2px solid ${selectedSpec?.id === spec.id ? '#00d4aa' : 'rgba(255,255,255,0.08)'}`,
110|               }}>
111|               <ComponentViewer3D spec={spec} width={280} height={200} />
112|               <div style={{ padding: 8, textAlign: 'center', background: 'rgba(0,0,0,0.5)' }}>
113|                 <div style={{ fontSize: 11, fontWeight: 600, color: '#e2e8f0' }}>{spec.name}</div>
114|               </div>
115|             </div>
116|           ))}
117|         </div>
118|       </div>
119|     );
120|   }
121|
122|   return (
123|     <div style={containerStyle}>
124|       <div style={tabBarStyle}>
  1 2 5 |                   < b u t t o n   s t y l e = { t a b B u t t o n ( ' 2 d ' ,   ' 2 D ' ,   'Ø=Ý2 ' ) }   o n C l i c k = { ( )   = >   s e t V i
```

```
    126 |                  < b u t t o n   s t y l e = { t a b B u t t o n ( ' 3 d ' ,   ' 3 D ' ,   'Ø=Üæ ' ) }   o n C l i c k = { ( )   = >   s e t V i
    127 |                  < b u t t o n   s t y l e = { t a b B u t t o n ( ' s p l i t ' ,   ' S p l i t ' ,   ')É ' ) }   o n C l i c k = { ( )   = >
  128|       </div>
  129|       <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: 16, height: '60vh' }}>
  130|         <div style={{ overflowY: 'auto', borderRight: '1px solid rgba(255,255,255,0.08)' }}>
  131|           {renderComponentList()}
  132|         </div>
  133|         <div style={{ display: 'flex', alignItems: 'center', justifyContent: 'center' }}>
  134|           {selectedSpec ? (
  135|             <ComponentViewer3D spec={selectedSpec} width={400} height={350} />
  136|           ) : (
  137|             <div style={{ color: '#64748b', fontSize: 14, textAlign: 'center' }}>
    138 |                             < d i v   s t y l e = { {   f o n t S i z e :   3 2 ,   m a r g i n B o t t o m :   8   } } >Ø=ÜF < / d i v >
    139 |                             C h Í n   l i n h   k i Ç n   b ê n   t r á i    Ã   x e m   3 D
  140|           </div>
  141|         )}
  142|         </div>
  143|       </div>
  144|     </div>
  145|   );
  146| }
  147|
```

File: components/builder/CollaborationStatus.tsx (89 lines, 2.7 KB)

```
    1| 'use client';
    2|
    3| import { useEffect, useState } from 'react';
    4| import { createClient } from '@/lib/supabase-client';
    5|
    6| interface PresenceState {
    7|   user_id: string;
    8|   role: string;
    9|   current_page: string;
   10|   full_name?: string;
   11| }
   12|
   13| export default function CollaborationStatus() {
   14|   const [creators, setCreators] = useState<PresenceState[]>([]);
   15|   const [builders, setBuilders] = useState<PresenceState[]>([]);
   16|   const [subscribed, setSubscribed] = useState(false);
   17|
   18|   useEffect(() => {
   19|     const supabase = createClient();
   20|     const channel = supabase.channel('online-users');
   21|
   22|     channel.on('presence', { event: 'sync' }, () => {
   23|       const state = channel.presenceState() as Record<string, PresenceState[]>;
   24|       const users = Object.values(state).flatMap((u) => u);
   25|       setCreators(users.filter((u) => u.role === 'component_creator' || u.role === 'admin'));
   26|       setBuilders(users.filter((u) => u.role !== 'component_creator' && u.role !== 'admin'));
   27|     });
   28|
   29|     channel.subscribe(async (status) => {
   30|       if (status === 'SUBSCRIBED') {
   31|         setSubscribed(true);
   32|         const { data: { user } } = await supabase.auth.getUser();
   33|         if (user) {
   34|           const { data: profile } = await supabase
   35|             .from('profiles')
   36|             .select('full_name, role')
   37|             .eq('id', user.id)
   38|             .single();
   39|           await channel.track({
   40|             user_id: user.id,
   41|             role: profile?.role || 'student',
   42|             full_name: profile?.full_name || 'Unknown',
   43|             current_page: window.location.pathname,
   44|           });
   45|         }
   46|       }
   47|     });
   48|
   49|     return () => {
   50|       supabase.removeChannel(channel);
   51|     };
   52|   }, []);
   53|
   54|   if (!subscribed && creators.length === 0 && builders.length === 0) return null;
   55|
   56|   const total = creators.length + builders.length;
   57|
   58|   return (
   59|     <div style={{
   60|       display: 'flex', alignItems: 'center', gap: 8,
   61|       padding: '6px 12px', borderRadius: 100,
   62|       background: 'rgba(255,255,255,0.05)',
   63|       border: '1px solid rgba(255,255,255,0.1)',
   64|       fontSize: 12,
   65|     }}>
   66|       <div style={{
   67|         width: 8, height: 8, borderRadius: '50%',
   68|         background: '#22c55e',
   69|         boxShadow: '0 0 8px rgba(34,197,94,0.5)',
   70|         animation: 'pulse 2s infinite',
   71|       }} />
   72|       <span style={{ color: '#94a3b8' }}>
      73 |                   { t o t a l }   n g ° Ý i     a n g   o n l i n e
   74|       </span>
   75|       {creators.length > 0 && (
   76|         <span style={{ color: '#a855f7', fontWeight: 600 }}>
   77|           · {creators.length} Creator
   78|         </span>
   79|       )}
   80|       {builders.length > 0 && (
   81|         <span style={{ color: '#00d4aa', fontWeight: 600 }}>
   82|           · {builders.length} Builder
   83|         </span>
   84|       )}
   85|       <style>{`@keyframes pulse { 0%,100%{opacity:1} 50%{opacity:0.5} }`}</style>
   86|     </div>
   87|   );
   88| }
   89|
```

File: components/builder/ComponentRenderer2D.tsx (260 lines, 9.5 KB)

```
    1| 'use client';
    2|
    3| import { useMemo } from 'react';
    4| import { type ComponentRenderSpec, MM_TO_PX } from '@/data/componentSpecs';
```

```
 5|
 6| interface ComponentRenderer2DProps {
 7|   spec: ComponentRenderSpec;
 8|   scale?: number;
 9|   isSelected?: boolean;
10|   isHovered?: boolean;
11|   showConnectors?: boolean;
12|   showDimensions?: boolean;
13|   viewMode: 'top' | 'front' | 'side';
14|   onConnectorClick?: (connectorId: string) => void;
15|   onComponentClick?: () => void;
16| }
17|
18| export default function ComponentRenderer2D({
19|   spec,
20|   scale = 1,
21|   isSelected = false,
22|   isHovered = false,
23|   showConnectors = false,
24|   showDimensions = false,
25|   viewMode = 'top',
26|   onConnectorClick,
27|   onComponentClick,
28| }: ComponentRenderer2DProps) {
29|   const s = scale * MM_TO_PX;
30|   const w = spec.dimensions.width_mm * s;
31|   const h = spec.dimensions.height_mm * s;
32|   const d = spec.dimensions.depth_mm * s;
33|
34|   const viewWidth = viewMode === 'top' || viewMode === 'side' ? w : d;
35|   const viewHeight = viewMode === 'top' ? h : viewMode === 'front' ? h : d;
36|   const padding = 20;
37|   const svgW = viewWidth + padding * 2;
38|   const svgH = viewHeight + padding * 2;
39|
40|   const connectorDots = useMemo(() => {
41|     if (!showConnectors) return null;
42|     return spec.connectors.map((conn) => {
43|       const cx = padding + (conn.position.x / 100) * viewWidth;
44|       const cy = padding + (conn.position.y / 100) * viewHeight;
45|       return (
46|         <g key={conn.id}>
47|           <circle
48|             cx={cx} cy={cy} r={6}
49|             fill={conn.color} opacity={0.3}
50|             stroke={conn.color} strokeWidth={2}
51|           />
52|           <circle
53|             cx={cx} cy={cy} r={3}
54|             fill={conn.color}
55|             style={{ cursor: 'pointer' }}
56|             onClick={(() => onConnectorClick?.(conn.id)}
57|           />
58|           <text
59|             x={cx + 10} y={cy + 4}
60|             fill={conn.color} fontSize={9} fontFamily="monospace"
61|           >
62|             {conn.label}
63|           </text>
64|         </g>
65|       );
66|     });
67|   }, [showConnectors, spec.connectors, viewWidth, viewHeight, padding, onConnectorClick]);
68|
69|   const renderCPU = () => {
70|     const bw = viewWidth;
71|     const bh = viewHeight;
72|     return (
73|       <g>
74|         <rect x={padding} y={padding} width={bw} height={bh} rx={4}
75|           fill={spec.colors.pcb} stroke={spec.colors.connector} strokeWidth={1.5} />
76|         <rect x={padding + bw * 0.1} y={padding + bh * 0.1}
77|           width={bw * 0.8} height={bh * 0.8} rx={3}
78|           fill={spec.colors.heatsink || '#a0a0a0'}
79|           stroke={spec.colors.accent || '#666'} strokeWidth={0.5} />
80|         <text x={padding + bw / 2} y={padding + bh * 0.45}
81|           textAnchor="middle" fill={spec.colors.accent || '#fff'}
82|           fontSize={Math.max(10, bw * 0.12)} fontWeight="bold" fontFamily="monospace">
83|           {spec.brand}
84|         </text>
85|         <text x={padding + bw / 2} y={padding + bh * 0.6}
86|           textAnchor="middle" fill="#999" fontSize={Math.max(8, bw * 0.08)} fontFamily="monospace">
87|           {spec.model}
88|         </text>
89|       </g>
90|     );
91|   };
92|
93|   const renderGPU = () => {
94|     const bw = viewWidth;
95|     const bh = viewHeight;
96|     const shroudH = bh * 0.8;
97|     const pcieW = bw * 0.15;
98|     return (
99|       <g>
100|         <rect x={padding} y={padding + (bh - shroudH) / 2}
101|           width={bw - pcieW} height={shroudH} rx={6}
102|           fill={spec.colors.shroud || spec.colors.pcb}
103|           stroke={spec.colors.accent || '#666'} strokeWidth={1.5} />
104|         <rect x={padding + bw - pcieW} y={padding + bh * 0.1}
105|           width={pcieW} height={bh * 0.8} rx={2}
106|           fill={spec.colors.connector} stroke={spec.colors.accent || '#ffcc00'} strokeWidth={1} />
107|         {[0, 1].map((fi) => (
108|           <circle key={fi}
109|             cx={padding + (bw - pcieW) * (0.25 + fi * 0.35)}
110|             cy={padding + bh / 2} r={bh * 0.15}
111|             fill="none" stroke={spec.colors.accent || '#666'} strokeWidth={1} opacity={0.5} />
112|         ))}
113|         <text x={padding + bw / 2 - pcieW / 2} y={padding + bh * 0.2}
114|           textAnchor="middle" fill={spec.colors.accent || '#fff'}
115|           fontSize={Math.max(8, bw * 0.06)} fontWeight="bold" fontFamily="monospace">
116|           {spec.brand}
117|         </text>
118|       </g>
119|     );
120|   };
121|
122|   const renderMotherboard = () => {
123|     const bw = viewWidth;
124|     const bh = viewHeight;
125|     return (
126|       <g>
127|         <rect x={padding} y={padding} width={bw} height={bh} rx={6}
128|           fill={spec.colors.pcb} stroke={spec.colors.accent || '#ffd700'} strokeWidth={1.5} />
```

```
129|         {spec.connectors.map((conn) => {
130|           const cx = padding + (conn.position.x / 100) * bw;
131|           const cy = padding + (conn.position.y / 100) * bh;
132|           const cw = conn.type.includes('cpu_socket') ? bw * 0.2 : conn.type.includes('ram') ? bw * 0.035 : bw...
133|           const ch = conn.type.includes('cpu_socket') ? bh * 0.25 : conn.type.includes('ram') ? bh * 0.12 : bh...
134|           return (
135|             <rect key={conn.id} x={cx - cw / 2} y={cy - ch / 2}
136|               width={cw} height={ch} rx={2}
137|               fill={conn.color} opacity={0.4} stroke={conn.color} strokeWidth={0.5} />
138|           );
139|         })}
140|         <text x={padding + bw / 2} y={padding + bh * 0.08}
141|           textAnchor="middle" fill={spec.colors.accent || '#ffd700'}
142|           fontSize={Math.max(10, bw * 0.05)} fontWeight="bold" fontFamily="monospace">
143|           {spec.brand} {spec.model}
144|         </text>
145|       </g>
146|     );
147|   };
148|
149|   const renderRAM = () => {
150|     const bw = viewWidth;
151|     const bh = viewHeight;
152|     return (
153|       <g>
154|         <rect x={padding} y={padding} width={bw} height={bh} rx={4}
155|           fill={spec.colors.pcb} stroke={spec.colors.accent || '#ff6600'} strokeWidth={1.5} />
156|         <rect x={padding + bw * 0.08} y={padding + bh * 0.15}
157|           width={bw * 0.84} height={bh * 0.55} rx={2}
158|           fill={spec.colors.heatsink || '#2c2c2c'}
159|           stroke={spec.colors.accent || '#ff6600'} strokeWidth={0.5} opacity={0.8} />
160|         <rect x={padding + bw * 0.05} y={padding + bh * 0.82}
161|           width={bw * 0.9} height={bh * 0.12} rx={1}
162|           fill={spec.colors.connector} opacity={0.8} />
163|         <text x={padding + bw / 2} y={padding + bh * 0.5}
164|           textAnchor="middle" fill={spec.colors.accent || '#ff6600'}
165|           fontSize={Math.max(9, bw * 0.08)} fontWeight="bold" fontFamily="monospace">
166|           {spec.techSpecs.capacity_gb}GB {spec.techSpecs.speed_mhz}MHz
167|         </text>
168|       </g>
169|     );
170|   };
171|
172|   const renderPSU = () => {
173|     const bw = viewWidth;
174|     const bh = viewHeight;
175|     return (
176|       <g>
177|         <rect x={padding} y={padding} width={bw} height={bh} rx={6}
178|           fill={spec.colors.heatsink || '#000'} stroke={spec.colors.accent || '#ffff00'} strokeWidth={1.5} />
179|         <circle cx={padding + bw * 0.3} cy={padding + bh / 2} r={bh * 0.2}
180|           fill="none" stroke={spec.colors.accent || '#ffff00'} strokeWidth={1} opacity={0.6} />
181|         <text x={padding + bw * 0.3} y={padding + bh / 2 + 3}
182|           textAnchor="middle" fill={spec.colors.accent || '#ffff00'}
183|           fontSize={Math.max(8, bw * 0.05)} fontWeight="bold" fontFamily="monospace">
184|           FAN
185|         </text>
186|         <rect x={padding + bw * 0.7} y={padding + bh * 0.2}
187|           width={bw * 0.2} height={bh * 0.6} rx={3}
188|           fill={spec.colors.connector} opacity={0.5} />
189|         <text x={padding + bw / 2} y={padding + bh * 0.92}
190|           textAnchor="middle" fill="#999" fontSize={Math.max(8, bw * 0.06)} fontFamily="monospace">
191|           {spec.techSpecs.wattage}W {spec.techSpecs.efficiency}
192|         </text>
193|       </g>
194|     );
195|   };
196|
197|   const renderSSD = () => {
198|     const bw = viewWidth;
199|     const bh = viewHeight;
200|     return (
201|       <g>
202|         <rect x={padding} y={padding} width={bw} height={bh} rx={4}
203|           fill={spec.colors.pcb} stroke={spec.colors.accent || '#1428a0'} strokeWidth={1.5} />
204|         <rect x={padding + bw * 0.05} y={padding + bh * 0.15}
205|           width={bw * 0.65} height={bh * 0.7} rx={2}
206|           fill={spec.colors.heatsink || '#c0c0c0'} opacity={0.5} />
207|         <rect x={padding + bw * 0.82} y={padding + bh * 0.3}
208|           width={bw * 0.12} height={bh * 0.4} rx={1}
209|           fill={spec.colors.connector} opacity={0.7} />
210|         <text x={padding + bw * 0.35} y={padding + bh * 0.55}
211|           textAnchor="middle" fill={spec.colors.accent || '#1428a0'}
212|           fontSize={Math.max(8, bw * 0.08)} fontWeight="bold" fontFamily="monospace">
213|           {spec.brand}
214|         </text>
215|       </g>
216|     );
217|   };
218|
219|   const renderByType = () => {
220|     switch (spec.type) {
221|       case 'cpu': return renderCPU();
222|       case 'gpu': return renderGPU();
223|       case 'motherboard': return renderMotherboard();
224|       case 'ram': return renderRAM();
225|       case 'psu': return renderPSU();
226|       case 'ssd': case 'hdd': return renderSSD();
227|       default: return (
228|         <rect x={padding} y={padding} width={viewWidth} height={viewHeight} rx={4}
229|           fill={spec.colors.pcb} stroke={spec.colors.accent || '#666'} strokeWidth={1.5} />
230|       );
231|     }
232|   };
233|
234|   return (
235|     <svg
236|       viewBox={`0 0 ${svgW} ${svgH}`}
237|       width={svgW}
238|       height={svgH}
239|       style={{
240|         cursor: 'pointer',
241|         outline: isSelected ? `2px solid ${spec.colors.accent || '#00d4aa'}` : 'none',
242|         outlineOffset: 2,
243|         borderRadius: 8,
244|         filter: isHovered ? 'brightness(1.15)' : 'none',
245|         transition: 'all 0.2s',
246|       }}
247|       onClick={onComponentClick}
248|     >
249|       {renderByType()}
250|       {connectorDots}
251|       {showDimensions && (
252|         <text x={padding + viewWidth / 2} y={padding + viewHeight + 16}
```

```
  253|           textAnchor="middle" fill="#666" fontSize={10} fontFamily="monospace">
  254|           {spec.dimensions.width_mm}mm × {spec.dimensions.height_mm}mm × {spec.dimensions.depth_mm}mm
  255|         </text>
  256|       )}
  257|     </svg>
  258|   );
  259| }
  260|
```

File: components/builder/ComponentViewer3D.tsx (205 lines, 6.4 KB)

```
    1| 'use client';
    2|
    3| import { useState, useRef, useCallback, Suspense } from 'react';
    4| import { Canvas } from '@react-three/fiber';
    5| import { OrbitControls, Text } from '@react-three/drei';
    6| import { type ComponentRenderSpec, MM_TO_3D } from '@/data/componentSpecs';
    7|
    8| interface ComponentViewer3DProps {
    9|   spec: ComponentRenderSpec;
   10|   width?: number;
   11|   height?: number;
   12| }
   13|
   14| function CPU3D({ spec }: { spec: ComponentRenderSpec }) {
   15|   const s = MM_TO_3D;
   16|   const w = spec.dimensions.width_mm * s;
   17|   const d = spec.dimensions.depth_mm * s;
   18|   const h = spec.dimensions.height_mm * s;
   19|   return (
   20|     <group>
   21|       <mesh position={[0, -h / 2, 0]}>
   22|         <boxGeometry args={[w, h, d]} />
   23|         <meshStandardMaterial color={spec.colors.pcb} roughness={0.5} />
   24|       </mesh>
   25|       <mesh position={[0, h / 2 + 0.01, 0]}>
   26|         <boxGeometry args={[w * 0.8, 0.02, d * 0.8]} />
   27|         <meshStandardMaterial color={spec.colors.heatsink || '#c0c0c0'} metalness={0.7} roughness={0.2} />
   28|       </mesh>
   29|       <Text position={[0, h / 2 + 0.03, 0]} fontSize={0.04} color={spec.colors.accent || '#fff'}
   30|         anchorX="center" anchorY="middle">
   31|         {spec.brand}
   32|       </Text>
   33|     </group>
   34|   );
   35| }
   36|
   37| function GPU3D({ spec }: { spec: ComponentRenderSpec }) {
   38|   const s = MM_TO_3D;
   39|   const w = spec.dimensions.width_mm * s;
   40|   const h = spec.dimensions.height_mm * s;
   41|   const d = spec.dimensions.depth_mm * s;
   42|   return (
   43|     <group>
   44|       <mesh position={[0, 0, 0]}>
   45|         <boxGeometry args={[w, d, h]} />
   46|         <meshStandardMaterial color={spec.colors.pcb} roughness={0.7} />
   47|       </mesh>
   48|       <mesh position={[0, d / 2 + 0.01, 0]}>
   49|         <boxGeometry args={[w * 0.85, 0.02, h * 0.85]} />
   50|         <meshStandardMaterial color={spec.colors.shroud || spec.colors.heatsink || '#333'} roughness={0.6} />
   51|       </mesh>
   52|       {[0, 1].map((i) => (
   53|         <mesh key={i} position={[w * (0.15 + i * 0.25), d / 2 + 0.02, 0]}>
   54|           <cylinderGeometry args={[h * 0.12, h * 0.12, 0.01, 24]} />
   55|           <meshStandardMaterial color="#444" />
   56|         </mesh>
   57|       ))}
   58|     </group>
   59|   );
   60| }
   61|
   62| function Motherboard3D({ spec }: { spec: ComponentRenderSpec }) {
   63|   const s = MM_TO_3D;
   64|   const w = spec.dimensions.width_mm * s;
   65|   const h = spec.dimensions.height_mm * s;
   66|   const d = spec.dimensions.depth_mm * s;
   67|   return (
   68|     <group>
   69|       <mesh position={[0, 0, 0]}>
   70|         <boxGeometry args={[w, d, h]} />
   71|         <meshStandardMaterial color={spec.colors.pcb} roughness={0.8} />
   72|       </mesh>
   73|       {spec.connectors.slice(0, 4).map((conn, i) => {
   74|         const cx = (conn.position.x / 100 - 0.5) * w;
   75|         const cz = (conn.position.y / 100 - 0.5) * h;
   76|         return (
   77|           <mesh key={conn.id} position={[cx, d / 2 + 0.005, cz]}>
   78|             <boxGeometry args={[0.06, 0.01, 0.12]} />
   79|             <meshStandardMaterial color={conn.color} />
   80|           </mesh>
   81|         );
   82|       })}
   83|     </group>
   84|   );
   85| }
   86|
   87| function RAM3D({ spec }: { spec: ComponentRenderSpec }) {
   88|   const s = MM_TO_3D;
   89|   const w = spec.dimensions.width_mm * s;
   90|   const h = spec.dimensions.height_mm * s;
   91|   const d = spec.dimensions.depth_mm * s;
   92|   return (
   93|     <group>
   94|       <mesh position={[0, 0, 0]}>
   95|         <boxGeometry args={[w, d, h]} />
   96|         <meshStandardMaterial color={spec.colors.pcb} roughness={0.6} />
   97|       </mesh>
   98|       <mesh position={[0, d / 2 + 0.01, 0]}>
   99|         <boxGeometry args={[w * 0.85, 0.02, h * 0.85]} />
  100|         <meshStandardMaterial color={spec.colors.heatsink || '#2c2c2c'} metalness={0.4} roughness={0.4} />
  101|       </mesh>
  102|     </group>
  103|   );
  104| }
  105|
  106| function PSU3D({ spec }: { spec: ComponentRenderSpec }) {
  107|   const s = MM_TO_3D;
  108|   const w = spec.dimensions.width_mm * s;
  109|   const h = spec.dimensions.height_mm * s;
  110|   const d = spec.dimensions.depth_mm * s;
  111|   return (
  112|     <group>
```

```
113|       <mesh position={[0, 0, 0]}>
114|         <boxGeometry args={[w, d, h]} />
115|         <meshStandardMaterial color={spec.colors.heatsink || '#222'} metalness={0.3} roughness={0.6} />
116|       </mesh>
117|       <mesh position={[0, d / 2 + 0.01, 0]}>
118|         <cylinderGeometry args={[h * 0.2, h * 0.2, 0.01, 24]} />
119|         <meshStandardMaterial color="#333" />
120|       </mesh>
121|     </group>
122|   );
123| }
124|
125| function SSD3D({ spec }: { spec: ComponentRenderSpec }) {
126|   const s = MM_TO_3D;
127|   const w = spec.dimensions.width_mm * s;
128|   const h = spec.dimensions.height_mm * s;
129|   const d = spec.dimensions.depth_mm * s;
130|   return (
131|     <group>
132|       <mesh position={[0, 0, 0]}>
133|         <boxGeometry args={[w, d, h]} />
134|         <meshStandardMaterial color={spec.colors.pcb} roughness={0.7} />
135|       </mesh>
136|       <mesh position={[w * 0.02, d / 2 + 0.005, 0]}>
137|         <boxGeometry args={[w * 0.6, 0.01, h * 0.7]} />
138|         <meshStandardMaterial color={spec.colors.heatsink || '#c0c0c0'} metalness={0.3} roughness={0.5} opacit...
139|       </mesh>
140|     </group>
141|   );
142| }
143|
144| function Model3D({ spec }: { spec: ComponentRenderSpec }) {
145|   switch (spec.type) {
146|     case 'cpu': return <CPU3D spec={spec} />;
147|     case 'gpu': return <GPU3D spec={spec} />;
148|     case 'motherboard': return <Motherboard3D spec={spec} />;
149|     case 'ram': return <RAM3D spec={spec} />;
150|     case 'psu': return <PSU3D spec={spec} />;
151|     case 'ssd': case 'hdd': return <SSD3D spec={spec} />;
152|     default:
153|       return (
154|         <mesh>
155|           <boxGeometry args={[0.5, 0.1, 0.5]} />
156|           <meshStandardMaterial color={spec.colors.pcb} />
157|         </mesh>
158|       );
159|   }
160| }
161|
162| function Scene({ spec }: { spec: ComponentRenderSpec }) {
163|   const [interacted, setInteracted] = useState(false);
164|   return (
165|     <>
166|       <ambientLight intensity={0.6} />
167|       <directionalLight position={[5, 5, 5]} intensity={0.8} />
168|       <directionalLight position={[-3, 2, -3]} intensity={0.3} />
169|       <OrbitControls
170|         enablePan={false}
171|         enableZoom={true}
172|         autoRotate={!interacted}
173|         autoRotateSpeed={0.3}
174|         minDistance={0.3}
175|         maxDistance={3}
176|         onStart={() => setInteracted(true)}
177|       />
178|       <Suspense fallback={null}>
179|         <Model3D spec={spec} />
180|       </Suspense>
181|     </>
182|   );
183| }
184|
185| export default function ComponentViewer3D({ spec, width = 400, height = 300 }: ComponentViewer3DProps) {
186|   return (
187|     <div style={{
188|       width, height,
189|       background: '#f8fafc',
190|       borderRadius: 12,
191|       overflow: 'hidden',
192|       position: 'relative',
193|     }}>
194|       <Canvas
195|         camera={{ position: [2, 1.5, 2], fov: 45 }}
196|         dpr={[1, 2]}
197|         gl={{ antialias: true }}
198|         style={{ width: '100%', height: '100%' }}
199|       >
200|         <Scene spec={spec} />
201|       </Canvas>
202|     </div>
203|   );
204| }
205|
```

File: components/builder/ErrorPanel.tsx (267 lines, 11.7 KB)

```
    1| 'use client';
    2|
    3| import { useState } from 'react';
    4| import { type AssemblyError, ASSEMBLY_ERRORS } from '@/data/assemblyErrors';
    5|
    6| interface ErrorPanelProps {
    7|   errors: AssemblyError[];
    8|   onClose?: () => void;
    9| }
   10|
   11| function YouTubeClip({ videoId, startSeconds, endSeconds, title, channelName, description }: {
   12|   videoId: string;
   13|   startSeconds: number;
   14|   endSeconds?: number;
   15|   title: string;
   16|   channelName: string;
   17|   description: string;
   18| }) {
   19|   const [showPlayer, setShowPlayer] = useState(false);
   20|   const embedUrl = `https://www.youtube.com/embed/${videoId}?start=${startSeconds}${endSeconds ? `&end=${endSe...
   21|
   22|   return (
   23|     <div style={{ marginBottom: 12 }}>
   24|       <div style={{ position: 'relative', aspectRatio: '16/9', borderRadius: 8, overflow: 'hidden', background...
   25|         {!showPlayer ? (
   26|           <>
   27|             <img
```

```
28|              src={`https://img.youtube.com/vi/${videoId}/maxresdefault.jpg`}
29|              alt={title}
30|              style={{ width: '100%', height: '100%', objectFit: 'cover', cursor: 'pointer' }}
31|              onClick={() => setShowPlayer(true)}
32|              loading="lazy"
33|            />
34|            <div
35|              onClick={() => setShowPlayer(true)}
36|              style={{
37|                position: 'absolute', inset: 0, display: 'flex', alignItems: 'center', justifyContent: 'center...
38|              }}
39|            >
40|              <div style={{
41|                width: 56, height: 56, borderRadius: '50%', background: 'rgba(0,0,0,0.7)',
42|                display: 'flex', alignItems: 'center', justifyContent: 'center',
43|                border: '3px solid rgba(255,255,255,0.3)',
44|              }}>
45|                <svg width="24" height="24" viewBox="0 0 24 24" fill="white"><polygon points="8,5 19,12 8,19" ...
46|              </div>
47|            </div>
48|          </>
49|        ) : (
50|          <iframe
51|            src={embedUrl}
52|            title={title}
53|            width="100%"
54|            height="100%"
55|            allow="accelerometer; autoplay; clipboard-write; encrypted-media; gyroscope; picture-in-picture"
56|            allowFullScreen
57|            style={{ border: 'none', position: 'absolute', inset: 0 }}
58|          />
59|        )}
60|      </div>
61|      <div style={{ marginTop: 8 }}>
62|        <div style={{ fontSize: 13, fontWeight: 600, color: '#e2e8f0' }}>{title}</div>
63|        <div style={{ fontSize: 11, color: '#94a3b8' }}>{channelName}</div>
64|        <div style={{ fontSize: 11, color: '#64748b', marginTop: 4 }}>{description}</div>
65|        <div style={{ fontSize: 10, color: '#00d4aa', marginTop: 4 }}>
   66|                    B ̆ t    § u   t ë   g i â y   { s t a r t S e c o n d s } { e n d S e c o n d s   ?   `   –    ¿ n   g i â y   $ { e n d
67|        </div>
68|      </div>
69|    </div>
70|  );
71| }
72|
73| export default function ErrorPanel({ errors, onClose }: ErrorPanelProps) {
74|   const [expandedId, setExpandedId] = useState<string | null>(null);
75|   const [languageTab, setLanguageTab] = useState<'all' | 'vi' | 'en'>('all');
76|   const [selectedError, setSelectedError] = useState<AssemblyError | null>(errors[0] || null);
77|
78|   if (errors.length === 0) return null;
79|
80|   const toggleExpand = (id: string) => {
81|     setExpandedId(expandedId === id ? null : id);
82|   };
83|
84|   const severityConfig = {
   85|          c r i t i c a l :   {   i c o n :   ''L ' ,   c o l o r :   ' # e f 4 4 4 4 ' ,   b g :   ' r g b a ( 2 3 9 , 6 8 , 6 8 , 0 . 1 ) '   }
   86|          w a r n i n g :   {   i c o n :   '& þ   ' ,   c o l o r :   ' # f 5 9 e 0 b ' ,   b g :   ' r g b a ( 2 4 5 , 1 5 8 , 1 1 , 0 . 1 ) '
   87|          i n f o :   {   i c o n :   '!9þ   ' ,   c o l o r :   ' # 3 b 8 2 f 6 ' ,   b g :   ' r g b a ( 5 9 , 1 3 0 , 2 4 6 , 0 . 1 ) '   } ,
88|   };
89|
90|   return (
91|     <div style={{
92|       position: 'fixed', bottom: 0, left: 0, right: 0, zIndex: 1000,
93|       background: '#0f0f1a', borderTop: '1px solid rgba(255,255,255,0.1)',
94|       maxHeight: '50vh', overflow: 'hidden', display: 'flex', flexDirection: 'column',
95|       boxShadow: '0 -8px 32px rgba(0,0,0,0.5)',
96|     }}>
97|       <div style={{
98|         display: 'flex', alignItems: 'center', justifyContent: 'space-between',
99|         padding: '12px 24px', borderBottom: '1px solid rgba(255,255,255,0.08)',
100|       }}>
101|         <div style={{ display: 'flex', alignItems: 'center', gap: 12 }}>
   102|                    < s p a n   s t y l e = { {   f o n t S i z e :   1 8   } } >& þ   < / s p a n >
103|           <span style={{ fontSize: 16, fontWeight: 700, color: '#e2e8f0' }}>
   104|                        { e r r o r s . l e n g t h }   l × i   p h á t   h i Ç n
105|           </span>
106|         </div>
107|         <button onClick={onClose} style={{
108|           background: 'none', border: 'none', color: '#94a3b8', cursor: 'pointer', fontSize: 20,
   109|                    } } >'   < / b u t t o n >
110|       </div>
111|
112|       <div style={{ display: 'flex', flex: 1, overflow: 'hidden' }}>
113|         <div style={{
114|           width: 320, overflowY: 'auto', borderRight: '1px solid rgba(255,255,255,0.08)',
115|           padding: 12,
116|         }}>
117|           {errors.map((err) => {
118|             const conf = severityConfig[err.severity];
119|             return (
120|               <div key={err.id} onClick={() => setSelectedError(err)}
121|                 style={{
122|                   padding: '10px 12px', borderRadius: 8, marginBottom: 6, cursor: 'pointer',
123|                   background: selectedError?.id === err.id ? conf.bg : 'transparent',
124|                   border: `1px solid ${selectedError?.id === err.id ? conf.color : 'transparent'}`,
125|                 }}>
126|                 <div style={{ display: 'flex', alignItems: 'center', gap: 8 }}>
127|                   <span>{conf.icon}</span>
128|                   <span style={{ fontSize: 13, fontWeight: 600, color: '#e2e8f0', flex: 1 }}>{err.title}</span>
129|                 </div>
130|                 <div style={{ fontSize: 11, color: conf.color, marginTop: 4 }}>
131|                   {err.code}
132|                 </div>
133|               </div>
134|             );
135|           })}
136|         </div>
137|
138|         <div style={{ flex: 1, overflowY: 'auto', padding: '16px 24px' }}>
139|           {selectedError && (
140|             <>
141|               <div style={{ display: 'flex', alignItems: 'center', gap: 8, marginBottom: 12 }}>
142|                 <span style={{ fontSize: 20 }}>{severityConfig[selectedError.severity].icon}</span>
143|                 <div style={{ fontSize: 18, fontWeight: 700, color: '#e2e8f0' }}>{selectedError.title}</div>
144|               </div>
145|               <div style={{ fontSize: 14, color: '#94a3b8', lineHeight: 1.6, marginBottom: 16 }}>
146|                 {selectedError.description}
147|               </div>
148|
149|               <div style={{ marginBottom: 16 }}>
150|                 <div onClick={() => toggleExpand(selectedError.id)}
151|                   style={{ cursor: 'pointer', display: 'flex', alignItems: 'center', gap: 8, fontSize: 14, fon...
```

```
  1 5 2 |                                   < s p a n > { e x p a n d e d I d   = = =   s e l e c t e d E r r o r . i d   ?   '%¼ '   :   '%¶ ' } < / s
  1 5 3 |                                   C á c h   s í a
  154|                </div>
  155|                {expandedId === selectedError.id && (
  156|                  <div style={{ marginTop: 8, padding: 12, background: 'rgba(0,212,170,0.08)', borderRadius: 8...
  157|                    {selectedError.howToFix}
  158|                  </div>
  159|                )}
  160|              </div>
  161|
  162|              <div style={{ marginBottom: 12 }}>
  163|                <div style={{ fontSize: 14, fontWeight: 600, color: '#e2e8f0', marginBottom: 8 }}>
  1 6 4 |                                   V i d e o   h ° Ú n g   d « n   s í a   l × i
  165|                </div>
  166|                <div style={{ display: 'flex', gap: 8, marginBottom: 12 }}>
  167|                  {['all', 'vi', 'en'].map((tab) => (
  168|                    <button key={tab} onClick={() => setLanguageTab(tab as any)}
  169|                      style={{
  170|                        padding: '4px 12px', borderRadius: 6, fontSize: 12, fontWeight: 600, cursor: 'pointer',
  171|                        background: languageTab === tab ? 'rgba(0,212,170,0.2)' : 'rgba(255,255,255,0.05)',
  172|                        color: languageTab === tab ? '#00d4aa' : '#94a3b8',
  173|                        border: `1px solid ${languageTab === tab ? '#00d4aa' : 'transparent'}`,
  174|                      }}>
  1 7 5 |                                           { t a b   = = =   ' a l l '   ?   ' T ¥ t   c £ '   :   t a b   = = =   ' v i '   ?   ' T i ¿ n g
  176|                    </button>
  177|                  ))}
  178|                </div>
  179|                {selectedError.youtubeVideo
  180|                  .filter((v) => languageTab === 'all' || v.language === languageTab)
  181|                  .map((video) => (
  182|                    <YouTubeClip key={video.videoId} {...video} />
  183|                  ))}
  184|              </div>
  185|
  186|              {selectedError.suggestedFix && (
  187|                <div style={{ padding: 12, background: 'rgba(245,158,11,0.1)', borderRadius: 8, border: '1px s...
  1 8 8 |                                   < d i v   s t y l e = { {   f o n t S i z e :   1 2 ,   f o n t W e i g h t :   6 0 0 ,   c o l o r :   ' #
  189|                  <div style={{ fontSize: 13, color: '#e2e8f0' }}>
  1 9 0 |                                       T h a y   { s e l e c t e d E r r o r . s u g g e s t e d F i x . r e p l a c e C o m p o n e n t }   b
  191|                  </div>
  192|                </div>
  193|              )}
  194|            </>
  195|          )}
  196|        </div>
  197|      </div>
  198|    </div>
  199|  );
  200| }
  201|
  202| export function ErrorAnimation({ error }: { error: AssemblyError }) {
  203|   const style: Record<string, string | number> = {
  204|     position: 'absolute', inset: 0, pointerEvents: 'none', zIndex: 100,
  205|   };
  206|
  207|   switch (error.animation.type) {
  208|     case 'shake':
  209|       return (
  210|         <div style={style}>
  211|           <style>{`@keyframes shake { 0%,100%{transform:translateX(0)} 25%{transform:translateX(-8px)} 50%{tra...
  212|           {error.animation.targetComponents.map((comp) => (
  213|             <div key={comp} data-error-component={comp}
  214|               style={{
  215|                 animation: `shake ${error.animation.durationMs}ms ease-in-out`,
  216|                 border: '2px solid #ef4444', borderRadius: 8,
  217|               }} />
  218|           ))}
  219|         </div>
  220|       );
  221|     case 'red-flash':
  222|       return (
  223|         <div style={{ ...style, background: 'rgba(239,68,68,0.2)', animation: `redFlash ${error.animation.dura...
  224|           <style>{`@keyframes redFlash { 0%{opacity:0} 15%{opacity:1} 30%{opacity:0} 45%{opacity:1} 60%{opacit...
  225|         </div>
  226|       );
  227|     case 'cross-mark':
  228|       return (
  229|         <div style={{ ...style, display: 'flex', alignItems: 'center', justifyContent: 'center' }}>
  230|           <style>{`@keyframes crossMark { 0%{transform:scale(0);opacity:0} 50%{transform:scale(1.2);opacity:1}...
  231|           <span style={{ fontSize: 64, color: '#ef4444', animation: `crossMark ${error.animation.durationMs}ms...
  232|         </div>
  233|       );
  234|     case 'arrow-wrong':
  235|       return (
  236|         <div style={{ ...style, display: 'flex', alignItems: 'center', justifyContent: 'center' }}>
  237|           <svg width="120" height="40" viewBox="0 0 120 40">
  238|             <line x1="10" y1="20" x2="100" y2="20" stroke="#ef4444" strokeWidth="3" strokeDasharray="8 4">
  239|               <animate attributeName="stroke-dashoffset" from="0" to="24" dur="1s" repeatCount="2" />
  240|             </line>
  241|             <polygon points="100,12 115,20 100,28" fill="#ef4444" />
  2 4 2 |                                   < t e x t   x = " 5 5 "   y = " 1 2 "   t e x t A n c h o r = " m i d d l e "   f i l l = " # e f 4 4 4 4 "   f o n t S
  243|           </svg>
  244|         </div>
  245|       );
  246|     case 'highlight-both':
  247|       return (
  248|         <div style={style}>
  249|           <style>{`@keyframes pulseGlow { 0%,100%{opacity:1} 50%{opacity:0.5} }`}</style>
  250|           {error.animation.targetComponents.map((comp) => (
  251|             <div key={comp} data-error-component={comp}
  252|               style={{
  253|                 outline: '3px solid #ef4444', outlineOffset: 2, borderRadius: 8,
  254|                 boxShadow: '0 0 20px rgba(239,68,68,0.5)',
  255|                 animation: `pulseGlow ${error.animation.durationMs}ms ease-in-out`,
  256|               }} />
  257|           ))}
  258|         </div>
  259|       );
  260|     default:
  261|       return null;
  262|   }
  263| }
  264|
  265| export { ASSEMBLY_ERRORS };
  266| export type { AssemblyVideo } from '@/data/assemblyErrors';
  267|
```

File: components/BurgerMenu.js (556 lines, 29.9 KB)

```
    1| 'use client';
    2|
    3| import React, { useState, useEffect } from 'react';
    4| import { motion } from 'framer-motion';
```

```
 5| import Link from 'next/link';
 6| import {
 7|   BookOpen, Cpu, ShoppingCart, Users, BrainCircuit, Award, Globe, Sparkles,
 8|   Menu, Webcam, X, Sun, Moon, FileText, Bell, MessageSquare, User, Monitor,
 9|   BarChart3, Zap, Settings, GraduationCap, BookMarked
10| } from 'lucide-react';
11| import JoinClassModal from './JoinClassModal';
12| import ComponentPreview from './ComponentPreview';
13|
14| const BurgerMenu = ({
15|   lang,
16|   toggleLang,
17|   onStartQuiz,
18|   appMode,
19|   setAppMode,
20|   webcamMouseEnabled = false,
21|   setWebcamMouseEnabled,
22|   trackingSensitivity = 1.0,
23|   setTrackingSensitivity,
24|   onToggleAI,
25|   isAIOpen,
26|   theme,
27|   setTheme
28| }) => {
29|     const [isMobileOpen, setIsMobileOpen] = useState(false);
30|     const [hoveredBtn, setHoveredBtn] = useState(null);
31|     const [showCredits, setShowCredits] = useState(false);
32|     const [showJoinClass, setShowJoinClass] = useState(false);
33|     const [showComponents, setShowComponents] = useState(false);
34|     const [hasClass, setHasClass] = useState(false);
35|     const unreadCount = 0;
36|
37|     // Check if user has a class
38|     useEffect(() => {
39|         const checkClass = async () => {
40|             try {
41|                 const { createBrowserClient } = require('@supabase/ssr');
42|                 const supabase = createBrowserClient(
43|                     process.env.NEXT_PUBLIC_SUPABASE_URL,
44|                     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY
45|                 );
46|                 const { data: { user } } = await supabase.auth.getUser();
47|                 if (user) {
48|                     const { data: profile } = await supabase
49|                       .from('profiles')
50|                       .select('class_id, school_id')
51|                       .eq('id', user.id)
52|                       .single();
53|
54|                     if (profile?.class_id || profile?.school_id) {
55|                         setHasClass(true);
56|                     }
57|                 }
58|             } catch (e) {
59|                 console.error(e);
60|             }
61|         };
62|         checkClass();
63|     }, []);
64|
65|     // Close mobile menu when mode changes
66|     useEffect(() => {
67|         setIsMobileOpen(false);
68|     }, [appMode]);
69|
70|     const navItemStyle = (id, isActive) => ({
71|         padding: '8px 12px',
72|         borderRadius: '8px',
73|         display: 'flex',
74|         alignItems: 'center',
75|         gap: '8px',
76|         cursor: 'pointer',
77|         background: isActive ? 'var(--brand-subtle)' : hoveredBtn === id ? 'var(--bg-hover)' : 'transparent',
78|         border: 'none',
79|         borderLeft: isActive ? '2px solid var(--brand-primary)' : '2px solid transparent',
80|         marginLeft: isActive ? '-2px' : '0',
81|         transition: 'all 150ms ease',
82|         width: '100%',
83|         color: isActive ? 'var(--brand-light)' : hoveredBtn === id ? 'var(--text-primary)' : 'var(--text-secon...
84|         fontWeight: isActive ? 600 : 500,
85|         fontSize: 'var(--text-sm)',
86|         textAlign: 'left'
87|     });
88|
89|     const iconStyle = (id, isActive) => ({
90|         color: isActive ? 'var(--brand-light)' : hoveredBtn === id ? 'var(--text-primary)' : 'var(--text-muted)',
91|         width: '16px',
92|         height: '16px',
93|         transition: 'all 150ms ease'
94|     });
95|
96|     const percent = ((trackingSensitivity - 0.5) / 2.5) * 100;
97|
98|     return (
99|         <>
100|             {/* Mobile Hamburger Button */}
101|             <button
102|                 className="mobile-hamburger"
103|                 onClick={() => setIsMobileOpen(true)}
104|                 style={{
105|                     position: 'fixed',
106|                     top: '16px',
107|                     left: '16px',
108|                     width: '40px',
109|                     height: '40px',
110|                     background: 'var(--bg-elevated)',
111|                     border: '1px solid var(--border-default)',
112|                     borderRadius: '8px',
113|                     zIndex: 100,
114|                     display: 'flex',
115|                     alignItems: 'center',
116|                     justifyContent: 'center',
117|                     color: 'var(--text-primary)',
118|                     cursor: 'pointer'
119|                 }}
120|             >
121|                 <Menu size={20} />
122|             </button>
123|
124|             {/* Mobile Backdrop */}
125|             <div
126|                 className="mobile-backdrop"
127|                 style={{
128|                     position: 'fixed', top: 0, left: 0, width: '100vw', height: '100vh',
```

```
129|                    background: 'rgba(0,0,0,0.6)',
130|                    zIndex: 180, opacity: isMobileOpen ? 1 : 0, pointerEvents: isMobileOpen ? 'auto' : 'none',
131|                    transition: 'opacity 250ms ease-out'
132|                }}
133|                onClick={() => setIsMobileOpen(false)}
134|            />
135|
136|            {/* Sidebar */}
137|            <div className={`sidebar-container ${isMobileOpen ? 'open' : ''}`}>
138|
139|                <div style={{ height: '60px', padding: '0 16px', display: 'flex', alignItems: 'center', flexSh...
140|                    <Link href="/" style={{ textDecoration: 'none', display: 'flex', alignItems: 'center', gap...
141|                        <img src="/logo.png" alt="" style={{ width: '30px', height: '30px', objectFit: 'contai...
142|                        <span style={{ fontWeight: 700, fontSize: '16px', color: 'var(--text-primary)' }}>
143|                            PC Master <span style={{ color: 'var(--brand-primary)' }}>Builder</span>
144|                        </span>
145|                    </Link>
146|                </div>
147|
148|                {/* [2] DIVIDER */}
149|                <div style={{ borderBottom: '1px solid var(--border-subtle)', margin: '0 16px', flexShrink: 0 ...
150|
151|                <div style={{ flex: 1, display: 'flex', flexDirection: 'column' }}>
152|                    {/* [3] NAV GROUPS - KHÁM PHÁ */}
153|                    <div style={{ padding: '12px 0', display: 'flex', flexDirection: 'column', gap: '4px', mar...
154|                        <div style={{
155|                            fontSize: '11px', fontWeight: 600, letterSpacing: '0.08em', textTransform: 'upperc...
156|                            color: 'var(--text-muted)', padding: '12px 0 6px 0'
157|                        }}>
158|                            {lang === 'en' ? 'Explore' : 'Khám phá'}
159|                        </div>
160|
161|                        <button
162|                            onMouseEnter={() => setHoveredBtn('course')} onMouseLeave={() => setHoveredBtn(null)}
163|                            onClick={() => setAppMode('course')}
164|                            style={navItemStyle('course', appMode === 'course')}
165|                        >
166|
   1 6 7 |                                                    { l a n g   = = =   ' e n '   ?   ' L e c t u r e   C o u r s e '   :   ' B à i   G i á
168|                        </button>
169|
170|
171|                        <button
172|                            onMouseEnter={() => setHoveredBtn('learning')} onMouseLeave={() => setHoveredBtn(n...
173|                            onClick={() => setAppMode('learning')}
174|                            style={navItemStyle('learning', appMode === 'learning')}
175|                        >
176|
   1 7 7 |                                                    { l a n g   = = =   ' e n '   ?   ' P r a c t i c e   M o d e '   :   ' L u y Ç n   T
178|                        </button>
179|
180|                        <button
181|                            onMouseEnter={() => setHoveredBtn('market')} onMouseLeave={() => setHoveredBtn(null)}
182|                            onClick={() => setAppMode('market')}
183|                            style={navItemStyle('market', appMode === 'market')}
184|                        >
185|
   1 8 6 |                                                    { l a n g   = = =   ' e n '   ?   ' M a r k e t p l a c e '   :   ' C h ã   M á y   T
187|                        </button>
188|
189|                        <button
190|                            onMouseEnter={() => setHoveredBtn('components')} onMouseLeave={() => setHoveredBtn...
191|                            onClick={() => setShowComponents(true)}
192|                            style={navItemStyle('components', false)}
193|                        >
194|
   1 9 5 |                                                    { l a n g   = = =   ' e n '   ?   ' C o m p o n e n t   L i b r a r y '   :   ' T ç   L
196|                        </button>
197|
198|                        <button
199|                            onMouseEnter={() => setHoveredBtn('multiplayer')} onMouseLeave={() => setHoveredBt...
200|                            onClick={() => setAppMode('multiplayer')}
201|                            style={navItemStyle('multiplayer', appMode === 'multiplayer')}
202|                        >
203|
   2 0 4 |                                                    { l a n g   = = =   ' e n '   ?   ' 2 - P l a y e r   V e r s u s '   :   ' 2   N g ° Y
205|                        </button>
206|                    </div>
207|
   2 0 8 |                                        { / *   N H Ó M     Á N H   G I Á   * / }
209|                    <div style={{ padding: '12px 0', display: 'flex', flexDirection: 'column', gap: '4px', mar...
210|                        <div style={{
211|                            fontSize: '11px', fontWeight: 600, letterSpacing: '0.08em', textTransform: 'upperc...
212|                            color: 'var(--text-muted)', padding: '12px 0 6px 0'
213|                        }}>
   2 1 4 |                                                    { l a n g   = = =   ' e n '   ?   ' A s s e s s m e n t '   :   '   á n h   g i á ' }
215|                        </div>
216|
217|                        <Link
218|                            href="/daily-quiz"
219|                            style={{ ...navItemStyle('quiz_bank', false), textDecoration: 'none' }}
220|                            onMouseEnter={() => setHoveredBtn('quiz_bank')}
221|                            onMouseLeave={() => setHoveredBtn(null)}
222|                        >
223|
   2 2 4 |                                                    { l a n g   = = =   ' e n '   ?   ' Q u e s t i o n   B a n k '   :   ' N g â n   H à n
225|                        </Link>
226|
227|                        <Link
228|                            href="/exams"
229|                            style={{ ...navItemStyle('exams', false), textDecoration: 'none' }}
230|                            onMouseEnter={() => setHoveredBtn('exams')}
231|                            onMouseLeave={() => setHoveredBtn(null)}
232|                        >
233|
   2 3 4 |                                                    { l a n g   = = =   ' e n '   ?   ' E x a m s '   :   ' K ó   T h i ' }
235|                        </Link>
236|
237|                        <Link
238|                            href="/quiz"
239|                            style={{ ...navItemStyle('mcq', false), textDecoration: 'none' }}
240|                            onMouseEnter={() => setHoveredBtn('mcq')}
241|                            onMouseLeave={() => setHoveredBtn(null)}
242|                        >
243|
   2 4 4 |                                                    { l a n g   = = =   ' e n '   ?   ' M C Q '   :   ' T r ¯ c   N g h i Ç m ' }
245|                        </Link>
246|
247|                        <Link
248|                            href="/leaderboard"
249|                            style={{ ...navItemStyle('leaderboard', false), textDecoration: 'none' }}
250|                            onMouseEnter={() => setHoveredBtn('leaderboard')}
251|                            onMouseLeave={() => setHoveredBtn(null)}
252|                        >
```

```
253|                                <BarChart3 style={iconStyle('leaderboard', false)} />
  2 5 4 |                                                    { l a n g   = = =   ' e n '   ?   ' L e a d e r b o a r d '   :   ' X ¿ p   H ¡ n g ' }
255|                            </Link>
256|                        </div>
257|
258|                        {typeof setWebcamMouseEnabled !== 'undefined' && typeof setTrackingSensitivity !== 'undefi...
259|                        <div style={{ padding: '12px 16px', display: 'flex', flexDirection: 'column' }}>
260|                            <div style={{
261|                                fontSize: '11px', fontWeight: 600, letterSpacing: '0.08em', textTransform: 'upperc...
262|                                color: 'var(--text-muted)', padding: '12px 0 6px 0'
263|                            }}>
  2 6 4 |                                                    { l a n g   = = =   ' e n '   ?   ' C o n t r o l s '   :   '   i Á u   k h i Ã n ' }
265|                            </div>
266|
267|                            <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', ...
268|                                <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
269|                                    <Webcam size={16} color="var(--text-muted)" />
270|                                    <span style={{ fontSize: '13px', color: 'var(--text-secondary)', fontWeight: 5...
271|                                        {lang === 'en' ? 'Hand Tracking' : 'Theo dõi tay'}
272|                                    </span>
273|                                </div>
274|                                <div
275|                                    className={`toggle-switch ${webcamMouseEnabled ? 'on' : 'off'}`}
276|                                    onClick={() => { if (setWebcamMouseEnabled) setWebcamMouseEnabled(!webcamMouse...
277|                                >
278|                                    <div className="toggle-thumb"></div>
279|                                </div>
280|                            </div>
281|
282|                            <div style={{ marginTop: '8px' }}>
283|                                <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'cente...
284|                                    <span style={{ fontSize: '12px', color: 'var(--text-muted)' }}>
  2 8 5 |                                                                { l a n g   = = =   ' e n '   ?   ' S e n s i t i v i t y '   :   '   Ù
286|                                    </span>
287|                                    <span style={{ fontSize: '12px', color: 'var(--brand-light)' }}>
288|                                        {trackingSensitivity.toFixed(1)}x
289|                                    </span>
290|                                </div>
291|                                <input
292|                                    type="range"
293|                                    min="0.5" max="3" step="0.1"
294|                                    value={trackingSensitivity}
295|                                    onChange={(e) => { if (setTrackingSensitivity) setTrackingSensitivity(parseFlo...
296|                                    className="custom-slider"
297|                                    style={{
298|                                        background: `linear-gradient(to right, var(--brand-primary) ${percent}%, v...
299|                                    }}
300|                                />
301|                            </div>
302|                        </div>
303|                        )}
304|
  3 0 5 |                                                { / *   T Í N H   N   N G   K H Á C   * / }
306|                        <div style={{ padding: '12px 0', display: 'flex', flexDirection: 'column', gap: '4px', mar...
307|                            <div style={{
308|                                fontSize: '11px', fontWeight: 600, letterSpacing: '0.08em', textTransform: 'upperc...
309|                                color: 'var(--text-muted)', padding: '12px 0 6px 0'
310|                            }}>
  3 1 1 |                                                    { l a n g   = = =   ' e n '   ?   ' E x t r a s '   :   ' T í n h   n   n g   k h á c '
312|                            </div>
313|
314|                            {!hasClass ? (
315|                                <button
316|                                    onMouseEnter={() => setHoveredBtn('join_class')} onMouseLeave={() => setHovere...
317|                                    onClick={() => setShowJoinClass(true)}
318|                                    style={navItemStyle('join_class', false)}
319|                                >
320|                                    <Users style={iconStyle('join_class', false)} />
  3 2 1 |                                                        { l a n g   = = =   ' e n '   ?   ' J o i n   C l a s s '   :   ' T h a m   g i
322|                                </button>
323|                            ) : (
324|                                <Link
325|                                    href="/student/classes"
326|                                    style={{ ...navItemStyle('my_class', false), textDecoration: 'none' }}
327|                                    onMouseEnter={() => setHoveredBtn('my_class')}
328|                                    onMouseLeave={() => setHoveredBtn(null)}
329|                                >
330|                                    <Users style={iconStyle('my_class', false)} />
  3 3 1 |                                                        { l a n g   = = =   ' e n '   ?   ' M y   C l a s s '   :   ' L Û p   H Í c   C
332|                                </Link>
333|                            )}
334|
335|
336|                            <Link
337|                                href="/student/discussion"
338|                                style={{ ...navItemStyle('discussion', false), textDecoration: 'none' }}
339|                                onMouseEnter={() => setHoveredBtn('discussion')}
340|                                onMouseLeave={() => setHoveredBtn(null)}
341|                            >
342|                                <MessageSquare style={iconStyle('discussion', false)} />
  3 4 3 |                                                    { l a n g   = = =   ' e n '   ?   ' D i s c u s s i o n '   :   ' T h £ o   L u - n ' }
344|                            </Link>
345|
346|                            <Link
347|                                href="/student/level"
348|                                style={{ ...navItemStyle('level', false), textDecoration: 'none' }}
349|                                onMouseEnter={() => setHoveredBtn('level')}
350|                                onMouseLeave={() => setHoveredBtn(null)}
351|                            >
352|                                <Zap style={iconStyle('level', false)} />
  3 5 3 |                                                    { l a n g   = = =   ' e n '   ?   ' L e v e l   &   M i s s i o n s '   :   ' C ¥ p
354|                            </Link>
355|
356|                            <Link
357|                                href="/profile"
358|                                style={{ ...navItemStyle('profile', false), textDecoration: 'none' }}
359|                                onMouseEnter={() => setHoveredBtn('profile')}
360|                                onMouseLeave={() => setHoveredBtn(null)}
361|                            >
362|                                <User style={iconStyle('profile', false)} />
  3 6 3 |                                                    { l a n g   = = =   ' e n '   ?   ' P r o f i l e '   :   ' H Ó   S ¡ ' }
364|                            </Link>
365|
366|                            <Link
367|                                href="/profile?tab=settings"
368|                                style={{ ...navItemStyle('settings', false), textDecoration: 'none' }}
369|                                onMouseEnter={() => setHoveredBtn('settings')}
370|                                onMouseLeave={() => setHoveredBtn(null)}
371|                            >
372|                                <Settings style={iconStyle('settings', false)} />
  3 7 3 |                                                    { l a n g   = = =   ' e n '   ?   ' S e t t i n g s '   :   ' C à i   · t ' }
374|                            </Link>
375|
376|                            <Link href="/about" style={{ textDecoration: 'none' }}>
```

```
377|                            <button
378|                                onMouseEnter={() => setHoveredBtn('about')} onMouseLeave={() => setHoveredBtn(...
379|                                style={navItemStyle('about', false)}
380|                            >
381|                                <Users style={iconStyle('about', false)} />
   3 8 2 |                                                    { l a n g   = = =   ' e n '   ?   ' A b o u t   U s '   :   ' V Á   c h ú n g
383|                            </button>
384|                        </Link>
385|
386|                        <button
387|                            onMouseEnter={() => setHoveredBtn('quiz')} onMouseLeave={() => setHoveredBtn(null)}
388|                            onClick={() => onStartQuiz()}
389|                            style={navItemStyle('quiz', false)}
390|                        >
391|                            <BrainCircuit style={iconStyle('quiz', false)} />
   3 9 2 |                                                    { l a n g   = = =   ' e n '   ?   ' A I   Q u i z '   :   ' A I   T r ¯ c   N g h i Ç m
393|                        </button>
394|
395|                        <button
396|                            onMouseEnter={() => setHoveredBtn('credits')} onMouseLeave={() => setHoveredBtn(nu...
397|                            onClick={() => setShowCredits(true)}
398|                            style={navItemStyle('credits', false)}
399|                        >
400|                            <Award style={iconStyle('credits', false)} />
   4 0 1 |                                                    { l a n g   = = =   ' e n '   ?   ' C r e d i t s '   :   ' T á c   G i £   &   B á o
402|                        </button>
403|                    </div>
404|                </div>
405|
406|                {/* [5] FOOTER SIDEBAR */}
407|                <div style={{ marginTop: 'auto', padding: '12px 16px', borderTop: '1px solid var(--border-subt...
408|                    <div
409|                        onClick={toggleLang}
410|                        style={{
411|                            display: 'flex', alignItems: 'center', gap: '6px', background: 'var(--bg-elevated)',
412|                            padding: '4px 8px', borderRadius: '14px', cursor: 'pointer', height: '28px'
413|                        }}
414|                    >
415|                        <Globe size={14} color="var(--text-muted)" />
416|                        <span style={{
417|                            fontSize: '11px',
418|                            fontWeight: lang === 'vn' ? 600 : 400,
419|                            color: lang === 'vn' ? 'var(--brand-primary)' : 'var(--text-secondary)'
420|                        }}>VN</span>
421|                        <div style={{ width: '1px', height: '10px', background: 'var(--border-strong)' }}></div>
422|                        <span style={{
423|                            fontSize: '11px',
424|                            fontWeight: lang === 'en' ? 600 : 400,
425|                            color: lang === 'en' ? 'var(--brand-primary)' : 'var(--text-secondary)'
426|                        }}>EN</span>
427|                    </div>
428|
429|                    <button
430|                        onClick={() => setTheme(theme === 'dark' ? 'editorial-light' : 'dark')}
431|                        style={{
432|                            background: 'transparent',
433|                            border: 'none',
434|                            color: 'var(--text-muted)',
435|                            padding: '6px',
436|                            borderRadius: '6px',
437|                            cursor: 'pointer',
438|                            display: 'flex',
439|                            alignItems: 'center',
440|                            justifyContent: 'center',
441|                            transition: 'background 0.2s'
442|                        }}
443|                        onMouseEnter={(e) => { e.currentTarget.style.background = 'var(--bg-hover)'; e.current...
444|                        onMouseLeave={(e) => { e.currentTarget.style.background = 'transparent'; e.currentTarg...
   4 4 5 |                                                t i t l e = { l a n g   = = =   ' e n '   ?   ' T o g g l e   T h e m e '   :   '   Õ i   g i a
446|                    >
447|                        {theme === 'dark' ? <Sun size={16} /> : <Moon size={16} />}
448|                    </button>
449|
450|                    <button style={{
451|                        background: 'transparent',
452|                        border: 'none',
453|                        color: 'var(--text-muted)',
454|                        padding: '6px',
455|                        borderRadius: '6px',
456|                        cursor: 'pointer',
457|                        display: 'flex',
458|                        alignItems: 'center',
459|                        justifyContent: 'center',
460|                        transition: 'background 0.2s'
461|                    }}
462|                    onMouseEnter={(e) => { e.currentTarget.style.background = 'var(--bg-hover)'; e.currentTarg...
463|                    onMouseLeave={(e) => { e.currentTarget.style.background = 'transparent'; e.currentTarget.s...
   4 6 4 |                                            t i t l e = { l a n g   = = =   ' e n '   ?   ' T o g g l e   E f f e c t s '   :   ' B - t / T ¯ t   h
465|                    >
466|                        <Sparkles size={16} />
467|                    </button>
468|                </div>
469|            </div>
470|
471|            {/* Credits Modal (same mostly, updated colors) */}
472|            {showCredits && (
473|                <div style={{
474|                    position: 'fixed', top: 0, left: 0, width: '100vw', height: '100vh',
475|                    background: 'rgba(12, 15, 20, 0.85)', backdropFilter: 'blur(8px)',
476|                    zIndex: 9999, display: 'flex', justifyContent: 'center', alignItems: 'center', padding: '2...
477|                }}>
478|                    <div style={{
479|                        background: 'var(--bg-surface)', border: '1px solid var(--border-strong)', borderRadiu...
480|                        padding: '24px', maxWidth: '500px', width: '100%', color: 'var(--text-primary)',
481|                        position: 'relative'
482|                    }}>
483|                        <button
484|                            onClick={() => setShowCredits(false)}
485|                            style={{ position: 'absolute', top: '16px', right: '16px', background: 'transparen...
486|                        ><X size={20} /></button>
487|
488|                        <h2 style={{ marginTop: 0, fontSize: '24px', textAlign: 'center', marginBottom: '24px'...
   4 8 9 |                                                    { l a n g   = = =   ' e n '   ?   ' C R E D I T S '   :   ' T Á C   G I ¢ ' }
490|                        </h2>
491|
492|                        <div style={{ display: 'flex', flexDirection: 'column', gap: '16px', fontSize: '14px',...
   4 9 3 |                                                    < p   s t y l e = { {   m a r g i n :   0   } } > < s t r o n g > { l a n g   = = =
494|                            <p style={{ margin: 0 }}><strong>{lang === 'en' ? 'Developer:' : 'Developer:'}</st...
495|                            <p style={{ margin: 0 }}><strong>{lang === 'en' ? 'Members:' : 'Thành viên:'}</str...
496|                            <ul style={{ margin: 0, paddingLeft: '24px', display: 'flex', flexDirection: 'colu...
   4 9 7 |                                                    < l i >   · n g   Q u Ñ c   A n < / l i >
   4 9 8 |                                                    < l i > N g u y Ã n   P h ¡ m   G i a   K h i ê m < / l i >
499|                                <li>Ngô Minh Khang</li>
500|                            </ul>
```

```
501|                            <p style={{ margin: 0 }}><strong>{lang === 'en' ? 'Advisor:' : 'Giáo viên HD:'}</s...
502|                            <p style={{ margin: 0 }}><strong>{lang === 'en' ? 'Co-Advisor:' : 'GVHD:'}</strong...
503|                            <div style={{ height: '1px', background: 'var(--border-subtle)', margin: '8px 0' }...
504|                            <p style={{ margin: 0, fontStyle: 'italic', textAlign: 'center', fontSize: '13px' }}>
505|                                {lang === 'en'
506|                                    ? "Thank you for using PC Master Builder! We hope this app makes PC buildi...
   5 0 7 |                                                                                    :   " C £ m   ¡ n   b ¡ n    ã   t r £ i   n g h i Ç m   P C   M a s t
508|                                }
509|                            </p>
510|                        </div>
511|                    </div>
512|                </div>
513|            )}
514|            {/* Component Library Modal */}
515|            {showComponents && (
516|                <div style={{
517|                    position: 'fixed', top: 0, left: 0, width: '100vw', height: '100vh',
518|                    background: 'rgba(12, 15, 20, 0.85)', backdropFilter: 'blur(8px)',
519|                    zIndex: 9999, display: 'flex', justifyContent: 'center', alignItems: 'center', padding: '2...
520|                }}>
521|                    <div style={{
522|                        background: 'var(--bg-surface)', border: '1px solid var(--border-strong)', borderRadiu...
523|                        padding: '24px', maxWidth: '900px', width: '100%', color: 'var(--text-primary)',
524|                        position: 'relative', maxHeight: '90vh', overflowY: 'auto'
525|                    }}>
526|                        <button onClick={() => setShowComponents(false)}
527|                            style={{ position: 'absolute', top: '16px', right: '16px', background: 'transparen...
528|                        ><X size={20} /></button>
529|                        <h2 style={{ marginTop: 0, fontSize: '22px', fontWeight: 800, marginBottom: '8px' }}>
   5 3 0 |                                                                                    { l a n g   = = =   ' e n '   ?   ' C o m p o n e n t   L i b r a r y '   :   ' T ç   L
531|                        </h2>
532|                        <p style={{ color: 'var(--text-muted)', fontSize: '14px', marginBottom: '24px' }}>
   5 3 3 |                                                                                    { l a n g   = = =   ' e n '   ?   ' B r o w s e   a l l   c o m p o n e n t s ,   s p e
534|                        </p>
535|                        <div style={{ display: 'flex', gap: '24px', flexWrap: 'wrap', justifyContent: 'center'...
536|                            {['CPU', 'GPU', 'RAM', 'SSD', 'PSU', 'COOLER'].map(type => (
537|                                <div key={type} style={{ flex: '1 1 220px', minWidth: '180px', maxWidth: '280p...
538|                                    <ComponentPreview type={type} model={null} size="large" />
539|                                </div>
540|                            ))}
541|                        </div>
542|                    </div>
543|                </div>
544|            )}
545|
546|            <JoinClassModal
547|                isOpen={showJoinClass}
548|                onClose={() => setShowJoinClass(false)}
549|                lang={lang}
550|            />
551|        </>
552|    );
553| };
554|
555| export default BurgerMenu;
556|
```

File: components/BurgerMenu.tsx (490 lines, 30.8 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import React, { useState, useEffect } from 'react';
    4| import Link from 'next/link';
    5| import { BookOpen, Cpu, ShoppingCart, Users, BrainCircuit, Award, Globe, Sparkles, Menu, Webcam, X, Sun, Moon,...
    6| import JoinClassModal from './JoinClassModal';
    7| import { useRealtime } from '@/lib/realtime-provider';
    8|
    9| interface NavItem {
   10|   id: string; labelEn: string; labelVn: string; icon: React.ElementType;
   11|   href?: string; mode?: string; onClick?: () => void; badge?: number;
   12| }
   13|
   14| interface BurgerMenuProps {
   15|   lang: 'en' | 'vn'; toggleLang: () => void; onStartQuiz: () => void;
   16|   appMode: string; setAppMode: (mode: string) => void;
   17|   webcamMouseEnabled?: boolean; setWebcamMouseEnabled?: (enabled: boolean) => void;
   18|   trackingSensitivity?: number; setTrackingSensitivity?: (s: number) => void;
   19|   onToggleAI: () => void; isAIOpen: boolean; theme: string; setTheme: (t: string) => void;
   20|   userName?: string; userAvatar?: string; onShowDashboard?: () => void;
   21| }
   22|
   23| const BurgerMenu: React.FC<BurgerMenuProps> = ({ lang, toggleLang, onStartQuiz, appMode, setAppMode, webcamMou...
   24|   const [isMobileOpen, setIsMobileOpen] = useState(false);
   25|   const [hoveredBtn, setHoveredBtn] = useState<string | null>(null);
   26|   const [showCredits, setShowCredits] = useState(false);
   27|   const [showJoinClass, setShowJoinClass] = useState(false);
   28|   const [hasClass, setHasClass] = useState(false);
   29|   const unreadCount = 0;
   30|
   31|   useEffect(() => {
   32|     const checkClass = async () => {
   33|       try {
   34|         const { createBrowserClient } = require('@supabase/ssr');
   35|         const supabase = createBrowserClient(process.env.NEXT_PUBLIC_SUPABASE_URL!, process.env.NEXT_PUBLIC_SU...
   36|         const { data: { user } } = await supabase.auth.getUser();
   37|         if (user) {
   38|           const { data: profile } = await supabase.from('profiles').select('class_id, school_id').eq('id', use...
   39|           if (profile?.class_id || profile?.school_id) setHasClass(true);
   40|         }
   41|       } catch (e) { console.error(e); }
   42|     };
   43|     checkClass();
   44|   }, []);
   45|
   46|   useEffect(() => { setIsMobileOpen(false); }, [appMode]);
   47|
   48|   const navItemStyle = (id: string, isActive: boolean): React.CSSProperties => ({
   49|     padding: '10px 12px', borderRadius: '8px', display: 'flex', alignItems: 'center', gap: '10px',
   50|     cursor: 'pointer',
   51|     background: isActive ? 'rgba(8,158,96,0.15)' : hoveredBtn === id ? 'rgba(255,255,255,0.06)' : 'transparent',
   52|     border: 'none', borderLeft: isActive ? '3px solid var(--brand-primary)' : '3px solid transparent',
   53|     transition: 'all 150ms ease', width: '100%',
   54|     color: isActive ? '#fff' : hoveredBtn === id ? 'rgba(255,255,255,0.9)' : 'rgba(255,255,255,0.55)',
   55|     fontWeight: isActive ? 700 : 500, fontSize: '13px', textAlign: 'left', fontFamily: 'inherit'
   56|   });
   57|
   58|   const iconStyle = (id: string, isActive: boolean): React.CSSProperties => ({
   59|     color: isActive ? 'var(--brand-primary)' : hoveredBtn === id ? 'rgba(255,255,255,0.9)' : 'rgba(255,255,255...
   60|     width: '18px', height: '18px', transition: 'all 150ms ease', flexShrink: 0
   61|   });
   62|
   63|   const percent = ((trackingSensitivity - 0.5) / 2.5) * 100;
   64|
```

```
  return (
    <>
      <button className="mobile-hamburger" onClick={() => setIsMobileOpen(true)}
        style={{ position: 'fixed', top: '16px', left: '16px', width: '40px', height: '40px',
          background: 'rgba(255,255,255,0.08)', backdropFilter: 'blur(8px)', border: '1px solid rgba(255,255,2...
          borderRadius: '10px', zIndex: 100, display: 'flex', alignItems: 'center', justifyContent: 'center',
          color: '#fff', cursor: 'pointer' }}>
        <Menu size={20} />
      </button>

      <div className="mobile-backdrop"
        style={{ position: 'fixed', top: 0, left: 0, width: '100vw', height: '100vh',
          background: 'rgba(0,0,0,0.5)', zIndex: 180, opacity: isMobileOpen ? 1 : 0,
          pointerEvents: isMobileOpen ? 'auto' : 'none', transition: 'opacity 250ms ease-out' }}
        onClick={() => setIsMobileOpen(false)} />

      <div className={`sidebar-container ${isMobileOpen ? 'open' : ''}`}>
        <div style={{ height: '60px', padding: '0 16px', display: 'flex', alignItems: 'center', flexShrink: 0,...
          <Link href="/" style={{ textDecoration: 'none', display: 'flex', alignItems: 'center', gap: '10px' }}>
            <img src="/logo.png" alt="" style={{ width: '30px', height: '30px', objectFit: 'contain' }} />
            <span style={{ fontWeight: 700, fontSize: '16px', color: '#fff' }}>
              PC Master <span style={{ color: 'var(--brand-primary)' }}>Builder</span>
            </span>
          </Link>
          <div style={{ fontSize: '10px', background: 'rgba(8,158,96,0.15)', color: 'var(--brand-primary)', bo...
        </div>

        <div style={{ padding: '10px 16px', display: 'flex', alignItems: 'center', gap: '10px', borderBottom: ...
          <div style={{ width: '32px', height: '32px', borderRadius: '50%', background: 'linear-gradient(135de...
            {userAvatar ? (
              <img src={userAvatar} alt="" style={{ width: '100%', height: '100%', objectFit: 'cover' }} />
            ) : (
              <User size={14} color="#fff" />
            )}
          </div>
          <div style={{ flex: 1, minWidth: 0 }}>
            <div style={{ fontSize: '13px', fontWeight: 600, color: '#fff', overflow: 'hidden', textOverflow: ...
            <div style={{ fontSize: '10px', color: 'var(--brand-primary)', fontWeight: 500 }}>{lang === 'en' ?...
          </div>
          <ArrowRight size={14} style={{ color: 'rgba(255,255,255,0.3)', flexShrink: 0 }} />
        </div>

        <div style={{ height: '1px', background: 'rgba(255,255,255,0.06)', margin: '0 16px', flexShrink: 0 }} />

        <div style={{ flex: 1, display: 'flex', flexDirection: 'column', paddingBottom: '12px' }}>
          <div style={{ padding: '12px 16px 4px', display: 'flex', flexDirection: 'column', gap: '2px' }}>
            <div style={{ fontSize: '10px', fontWeight: 700, letterSpacing: '1.5px', textTransform: 'uppercase...
              {lang === 'en' ? 'Explore' : 'Khám phá'}
            </div>
            {[
                              { id: 'course', icon: BookOpen, label: lang === 'en' ? 'Le

                              { id: 'history', icon: History, label: lang === 'en' ? 'Le
                              { id: 'learning', icon: Cpu, label: lang === 'en' ? 'Pract
                              { id: 'market', icon: ShoppingCart, label: lang === 'en' ?
                              { id: 'exams', icon: Award, label: lang === 'en' ? 'Exams
                              { id: 'multiplayer', icon: Users, label: lang === 'en' ? '
            ].map(item => {
              const active = item.onClick ? appMode === item.id : false;
              const content = (
                <button onMouseEnter={() => setHoveredBtn(item.id)} onMouseLeave={() => setHoveredBtn(null)}
                  onClick={item.onClick} style={navItemStyle(item.id, active)}>
                  <item.icon style={iconStyle(item.id, active)} />
                  {item.label}
                </button>
              );
              return item.href ? <Link key={item.id} href={item.href} style={{ textDecoration: 'none' }}>{cont...
            })}

            {/* Quest Widget */}
            <QuestWidgetSection lang={lang} />
          </div>

          <div style={{ padding: '8px 16px 4px', display: 'flex', flexDirection: 'column', gap: '2px' }}>
            <div style={{ fontSize: '10px', fontWeight: 700, letterSpacing: '1.5px', textTransform: 'uppercase...
              { lang = = = 'en' ? 'Assessment' : 'ánh giá' }
            </div>
            {[
                              { id: 'quiz_bank', icon: FileText, label: lang === 'en' ?

                              { id: 'certificates', icon: Award, label: lang === 'en' ?
            ].map(item => (
              <Link key={item.id} href={item.href} style={{ textDecoration: 'none' }}
                onMouseEnter={() => setHoveredBtn(item.id)} onMouseLeave={() => setHoveredBtn(null)}>
                <div style={navItemStyle(item.id, false)}>
                  <item.icon style={iconStyle(item.id, false)} />
                  {item.label}
                </div>
              </Link>
            ))}
          </div>

          {typeof setWebcamMouseEnabled !== 'undefined' && typeof setTrackingSensitivity !== 'undefined' && (
          <div style={{ padding: '12px 16px' }}>
            <div style={{ fontSize: '10px', fontWeight: 700, letterSpacing: '1.5px', textTransform: 'uppercase...
              { lang = = = 'en' ? 'Controls' : 'iÁu khiÃn' }
            </div>
            <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', padding: '6p...
              <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
                <Webcam size={16} style={{ color: 'rgba(255,255,255,0.4)' }} />
                <span style={{ fontSize: '13px', color: 'rgba(255,255,255,0.55)', fontWeight: 500 }}>
                  {lang === 'en' ? 'Hand Tracking' : 'Theo dõi tay'}
                </span>
              </div>
              <div className={`toggle-switch ${webcamMouseEnabled ? 'on' : 'off'}`}
                onClick={() => setWebcamMouseEnabled?.(!webcamMouseEnabled)}>
                <div class="toggle-thumb"></div>
              </div>
            </div>
            <div style={{ marginTop: '8px' }}>
              <div style={{ display: 'flex', justifyContent: 'space-between', marginBottom: '4px' }}>
                <span style={{ fontSize: '12px', color: 'rgba(255,255,255,0.35)' }}>
                                        { lang = = = 'en' ? 'Sensitivity' : 'Ùnh¡y' }
                </span>
                <span style={{ fontSize: '12px', color: 'var(--brand-primary)' }}>{trackingSensitivity.toFixed...
              </div>
              <input type="range" min="0.5" max="3" step="0.1" value={trackingSensitivity}
                onChange={e => setTrackingSensitivity?.(parseFloat(e.target.value))}
                className="custom-slider"
                style={{ background: `linear-gradient(to right, var(--brand-primary) ${percent}%, rgba(255,255...
            </div>
          </div>
          )}

```

```
189|          <div style={{ padding: '8px 16px 4px', display: 'flex', flexDirection: 'column', gap: '2px' }}>
190|            <div style={{ fontSize: '10px', fontWeight: 700, letterSpacing: '1.5px', textTransform: 'uppercase...
  1 9 1 |                              { l a n g   = = =   ' e n '   ?   ' E x t r a s '   :   ' T í n h   n   n g   k h á c ' }
192|            </div>
193|            {!hasClass ? (
194|              <button onMouseEnter={() => setHoveredBtn('join_class')} onMouseLeave={() => setHoveredBtn(null)}
195|                onClick={() => setShowJoinClass(true)} style={navItemStyle('join_class', false)}>
196|                <Users style={iconStyle('join_class', false)} />
  1 9 7 |                                 { l a n g   = = =   ' e n '   ?   ' J o i n   C l a s s '   :   ' T h a m   g i a   l Û p   h Í c ' }
198|              </button>
199|            ) : (
200|              <Link href="/student/classes" style={{ textDecoration: 'none' }}
201|                onMouseEnter={() => setHoveredBtn('my_class')} onMouseLeave={() => setHoveredBtn(null)}>
202|                <div style={navItemStyle('my_class', false)}>
203|                  <Users style={iconStyle('my_class', false)} />
  2 0 4 |                                    { l a n g   = = =   ' e n '   ?   ' M y   C l a s s '   :   ' L Û p   H Í c   C ç a   T ô i ' }
205|                </div>
206|              </Link>
207|            )}
208|            {[
  2 0 9 |                              {   i d :   ' d i s c u s s i o n ' ,   i c o n :   M e s s a g e S q u a r e ,   l a b e l :   l a n g   = = =
  2 1 0 |                              {   i d :   ' p r o f i l e ' ,   i c o n :   U s e r ,   l a b e l :   l a n g   = = =   ' e n '   ?   ' P r o f i
  2 1 1 |                              {   i d :   ' a b o u t ' ,   i c o n :   U s e r s ,   l a b e l :   l a n g   = = =   ' e n '   ?   ' A b o u t
212|            ].map(item => (
213|              <Link key={item.id} href={item.href} style={{ textDecoration: 'none' }}
214|                onMouseEnter={() => setHoveredBtn(item.id)} onMouseLeave={() => setHoveredBtn(null)}>
215|                <div style={navItemStyle(item.id, false)}>
216|                  <item.icon style={iconStyle(item.id, false)} />
217|                  {item.label}
218|                </div>
219|              </Link>
220|            ))}
221|            <button onMouseEnter={() => setHoveredBtn('quiz')} onMouseLeave={() => setHoveredBtn(null)}
222|              onClick={() => onStartQuiz()} style={navItemStyle('quiz', false)}>
223|              <BrainCircuit style={iconStyle('quiz', false)} />
  2 2 4 |                              { l a n g   = = =   ' e n '   ?   ' A I   Q u i z '   :   ' A I   T r ¯ c   N g h i Ç m ' }
225|            </button>
226|            <button onMouseEnter={() => setHoveredBtn('credits')} onMouseLeave={() => setHoveredBtn(null)}
227|              onClick={() => setShowCredits(true)} style={navItemStyle('credits', false)}>
228|              <Award style={iconStyle('credits', false)} />
  2 2 9 |                              { l a n g   = = =   ' e n '   ?   ' C r e d i t s '   :   ' T á c   G i £   &   B á o   C á o ' }
230|            </button>
231|          </div>
232|        </div>
233|
234|        <div style={{ padding: '12px 16px', borderTop: '1px solid rgba(255,255,255,0.06)', display: 'flex', ju...
235|          <div onClick={toggleLang} style={{ display: 'flex', alignItems: 'center', gap: '6px', background: 'r...
236|            <Globe size={14} style={{ color: 'rgba(255,255,255,0.4)' }} />
237|            <span style={{ fontSize: '11px', fontWeight: lang === 'vn' ? 700 : 400, color: lang === 'vn' ? 'va...
238|            <div style={{ width: '1px', height: '10px', background: 'rgba(255,255,255,0.15)' }} />
239|            <span style={{ fontSize: '11px', fontWeight: lang === 'en' ? 700 : 400, color: lang === 'en' ? 'va...
240|          </div>
241|          <div style={{ display: 'flex', gap: '4px' }}>
242|            <button onClick={() => { const next = theme === 'dark' ? 'light' : 'dark'; setTheme(next); try { l...
243|              style={{ background: 'transparent', border: 'none', color: 'rgba(255,255,255,0.4)', padding: '6p...
  2 4 4 |                                t i t l e = { l a n g   = = =   ' e n '   ?   ' T o g g l e   T h e m e '   :   '   Õ i   g i a o   d i Ç n ' } >
245|              {theme === 'dark' ? <Sun size={16} /> : <Moon size={16} />}
246|            </button>
247|            <button style={{ background: 'transparent', border: 'none', color: 'rgba(255,255,255,0.4)', paddin...
  2 4 8 |                              t i t l e = { l a n g   = = =   ' e n '   ?   ' T o g g l e   E f f e c t s '   :   ' B - t / T ¯ t   h i Ç u   é n
249|              <Sparkles size={16} />
250|            </button>
251|          </div>
252|        </div>
253|      </div>
254|
255|      {showCredits && (
256|        <div style={{ position: 'fixed', top: 0, left: 0, width: '100vw', height: '100vh',
257|          background: 'rgba(0,0,0,0.7)', backdropFilter: 'blur(12px)', zIndex: 9999,
258|          display: 'flex', justifyContent: 'center', alignItems: 'center', padding: '1rem',
259|          animation: 'creditsFadeIn 0.3s ease' }}>
260|          <div style={{
261|            background: 'linear-gradient(145deg, #0f1729 0%, #1a2a4a 50%, #0d1f3c 100%)',
262|            borderRadius: '24px', padding: '36px', maxWidth: '520px', width: '100%',
263|            color: '#fff', position: 'relative',
264|            border: '1px solid rgba(0,212,170,0.15)',
265|            boxShadow: '0 0 60px rgba(0,212,170,0.08), 0 20px 60px rgba(0,0,0,0.4)',
266|            overflow: 'hidden',
267|          }}>
268|            <div style={{ position: 'absolute', top: '-60px', right: '-60px', width: '180px', height: '180px',
269|              borderRadius: '50%', background: 'radial-gradient(circle, rgba(0,212,170,0.06) 0%, transparent 7...
270|              pointerEvents: 'none' }} />
271|            <div style={{ position: 'absolute', bottom: '-40px', left: '-40px', width: '140px', height: '140px',
272|              borderRadius: '50%', background: 'radial-gradient(circle, rgba(0,243,255,0.04) 0%, transparent 7...
273|              pointerEvents: 'none' }} />
274|
275|            <button onClick={() => setShowCredits(false)}
276|              style={{ position: 'absolute', top: '16px', right: '16px', background: 'rgba(255,255,255,0.06)',
277|                border: '1px solid rgba(255,255,255,0.08)', color: 'rgba(255,255,255,0.5)', cursor: 'pointer',
278|                width: '32px', height: '32px', borderRadius: '10px', display: 'flex', alignItems: 'center',
279|                justifyContent: 'center', transition: 'all 0.2s', zIndex: 1 }}
280|              onMouseEnter={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.1)'; e.currentTarget...
281|              onMouseLeave={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.06)'; e.currentTarge...
282|              <X size={16} />
283|            </button>
284|
285|            <div style={{ textAlign: 'center', marginBottom: '28px', position: 'relative', zIndex: 1 }}>
286|              <div style={{ width: '56px', height: '56px', borderRadius: '16px',
287|                background: 'linear-gradient(135deg, #00d4aa, #00f3ff)',
288|                margin: '0 auto 12px', display: 'flex', alignItems: 'center', justifyContent: 'center',
289|                fontSize: '24px', boxShadow: '0 0 30px rgba(0,212,170,0.2)' }}>
  2 9 0 |                                Ø<ßÆ
291|              </div>
292|              <h2 style={{ margin: '0 0 4px', fontSize: '20px', fontWeight: 800, letterSpacing: '0.5px' }}>
  2 9 3 |                                 { l a n g   = = =   ' e n '   ?   ' C R E D I T S '   :   ' T Á C   G I ¢   &   B Á O   C Á O ' }
294|              </h2>
295|              <div style={{ width: '40px', height: '2px', background: 'linear-gradient(90deg, #00d4aa, #00f3ff...
296|              <p style={{ margin: 0, fontSize: '11px', color: 'rgba(255,255,255,0.35)', letterSpacing: '0.5px'...
297|                PC Master Builder - v1.0.0
298|              </p>
299|            </div>
300|
301|            <div style={{ display: 'flex', flexDirection: 'column', gap: '6px', position: 'relative', zIndex: ...
302|              <div style={{ padding: '12px 16px', borderRadius: '14px',
303|                background: 'rgba(255,255,255,0.03)', border: '1px solid rgba(255,255,255,0.06)' }}>
304|                <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1...
305|                  color: 'var(--brand-primary)', marginBottom: '8px' }}>
  3 0 6 |                                    { l a n g   = = =   ' e n '   ?   ' P r o j e c t   I n f o '   :   ' T h ô n g   t i n   d ñ   á n ' }
307|                </div>
308|                <div style={{ display: 'flex', flexDirection: 'column', gap: '6px', fontSize: '13px' }}>
309|                  {[
  3 1 0 |                                        {   i c o n :   'Ø=Üæ ' ,   l a b e l :   l a n g   = = =   ' e n '   ?   ' P r o j e c t '   :   ' D ñ
  3 1 1 |                                        {   i c o n :   'Ø=Üh  Ø=Ü» ' ,   l a b e l :   l a n g   = = =   ' e n '   ?   ' D e v e l o p e r '
  3 1 2 |                                        {   i c o n :   'Ø=Þà þ  ' ,   l a b e l :   l a n g   = = =   ' e n '   ?   ' V e r s i o n '   :   ' P
```

```
313|                  ].map((item, i) => (
314|                    <div key={i} style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
315|                      <span style={{ fontSize: '14px' }}>{item.icon}</span>
316|                      <span style={{ color: 'rgba(255,255,255,0.4)', minWidth: '80px', fontSize: '11px' }}>{it...
317|                      <span style={{ color: '#fff', fontWeight: 600, fontSize: '12px' }}>{item.value}</span>
318|                    </div>
319|                  ))}
320|                </div>
321|              </div>
322|
323|              <div style={{ padding: '12px 16px', borderRadius: '14px',
324|                background: 'rgba(0,212,170,0.04)', border: '1px solid rgba(0,212,170,0.1)' }}>
325|                <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1...
326|                  color: '#00d4aa', marginBottom: '8px' }}>
   3 2 7 |                                  { l a n g   = = =   ' e n '   ?   ' S u p e r v i s o r s '   :   ' G i á o   v i ê n   h ° Û n g   d « n '
328|                </div>
329|                <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
330|                  {[
   3 3 1 |                                          {   n a m e :   ' T r § n   M i n h   P h å n g ' ,   r o l e :   l a n g   = = =   ' e n '   ?   ' L e
   3 3 2 |                                          {   n a m e :   '   o à n   T h å y   K i m   P h ° ã n g ' ,   r o l e :   l a n g   = = =   ' e n '
333|                  ].map((gv, i) => (
334|                    <div key={i} style={{ display: 'flex', alignItems: 'center', gap: '10px', padding: '6px 10...
335|                      borderRadius: '10px', background: 'rgba(255,255,255,0.03)' }}>
336|                      <div style={{ width: '32px', height: '32px', borderRadius: '10px',
337|                        background: `linear-gradient(135deg, ${gv.color}22, ${gv.color}11)`,
338|                        border: `1px solid ${gv.color}33`,
339|                        display: 'flex', alignItems: 'center', justifyContent: 'center', fontSize: '14px', fle...
   3 4 0 |                                          Ø=Üi  Ø<ßë
341|                      </div>
342|                      <div>
343|                        <div style={{ fontSize: '13px', fontWeight: 700, color: '#fff' }}>{gv.name}</div>
344|                        <div style={{ fontSize: '10px', color: gv.color, fontWeight: 600, letterSpacing: '0.5p...
345|                      </div>
346|                    </div>
347|                  ))}
348|                </div>
349|              </div>
350|
351|              <div style={{ padding: '12px 16px', borderRadius: '14px',
352|                background: 'rgba(99,102,241,0.04)', border: '1px solid rgba(99,102,241,0.1)' }}>
353|                <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1...
354|                  color: '#818cf8', marginBottom: '8px' }}>
355|                  {lang === 'en' ? 'Team Members' : 'Thành viên'}
356|                </div>
357|                <div style={{ display: 'flex', gap: '8px', flexWrap: 'wrap' }}>
358|                  {[
   3 5 9 |                                          {   n a m e :   '   · n g   Q u Ñ c   A n ' ,   r o l e :   ' F r o n t e n d ' ,   c o l o r :   ' # 8
   3 6 0 |                                          {   n a m e :   ' N g u y Å n   P h ¡ m   G i a   K h i ê m ' ,   r o l e :   ' B a c k e n d ' ,   c o
361|                    { name: 'Ngô Minh Khang', role: 'UI/UX', color: '#10b981' },
362|                  ].map((m, i) => (
363|                    <div key={i} style={{ flex: '1 1 auto', minWidth: '120px', padding: '8px 12px', borderRadi...
364|                      background: 'rgba(255,255,255,0.03)', border: '1px solid rgba(255,255,255,0.05)',
365|                      textAlign: 'center' }}>
366|                      <div style={{ fontSize: '12px', fontWeight: 700, color: '#fff' }}>{m.name}</div>
367|                      <div style={{ fontSize: '9px', color: m.color, fontWeight: 600, letterSpacing: '0.5px' }...
368|                    </div>
369|                  ))}
370|                </div>
371|              </div>
372|
373|              <div style={{ padding: '12px 16px', borderRadius: '14px',
374|                background: 'rgba(16,185,129,0.04)', border: '1px solid rgba(16,185,129,0.1)' }}>
375|                <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1...
376|                  color: '#10b981', marginBottom: '8px' }}>
   3 7 7 |                                  { l a n g   = = =   ' e n '   ?   ' F e a t u r e s '   :   ' T í n h   n   n g ' }
378|                </div>
379|                <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '4px', fontSize: '11px' }}>
380|                  {[
   3 8 1 |                                          'Ø<ß®   L ¯ p   r á p   P C   2 D ' ,   'Ø>Ý   A I   H ° Û n g   d « n ' ,   'Ø=ÜÚ   B à i   g i £ n g
   3 8 2 |                                          ''   T h e o   d õ i   t a y ' ,   'Ø<ßê   C h ã   l i n h   k i Ç n ' ,   'Ø=Üe   2   N g ° Ý i   c h
   3 8 3 |                                          'Ø<ßÆ   H Ç   t h Ñ n g   X P ' ,   'Ø=ÜÊ   B £ n g   x ¿ p   h ¡ n g ' ,   'Ø=ÜÜ   C h é n g   c h É '
   3 8 4 |                                          'Ø=Üñ   R e s p o n s i v e ' ,   'Ø<ß   a   n g ô n   n g ï ' ,
385|                  ].map((feat, i) => (
386|                    <div key={i} style={{ padding: '4px 6px', borderRadius: '6px',
387|                      background: 'rgba(255,255,255,0.02)', display: 'flex', alignItems: 'center', gap: '4px' }}>
388|                      <span style={{ fontSize: '10px', lineHeight: '1' }}>{feat}</span>
389|                    </div>
390|                  ))}
391|                </div>
392|              </div>
393|
394|              <div style={{ padding: '12px 16px', borderRadius: '14px',
395|                background: 'rgba(245,158,11,0.04)', border: '1px solid rgba(245,158,11,0.1)' }}>
396|                <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1...
397|                  color: '#f59e0b', marginBottom: '8px' }}>
398|                  Tech Stack
399|                </div>
400|                <div style={{ display: 'flex', flexWrap: 'wrap', gap: '4px' }}>
401|                  {['Next.js 16', 'React 19', 'TypeScript', 'Supabase', 'Three.js', 'Framer Motion', 'Tailwind...
402|                    <span key={i} style={{ padding: '3px 8px', borderRadius: '6px', fontSize: '9px', fontWeigh...
403|                      background: 'rgba(255,255,255,0.05)', border: '1px solid rgba(255,255,255,0.08)',
404|                      color: 'rgba(255,255,255,0.6)' }}>
405|                      {tech}
406|                    </span>
407|                  ))}
408|                </div>
409|              </div>
410|            </div>
411|
412|            <div style={{ marginTop: '20px', textAlign: 'center', position: 'relative', zIndex: 1 }}>
413|              <div style={{ padding: '12px', borderRadius: '12px',
414|                background: 'linear-gradient(135deg, rgba(0,212,170,0.06), rgba(0,243,255,0.06))',
415|                border: '1px solid rgba(0,212,170,0.12)' }}>
416|                <p style={{ margin: '0 0 4px', fontSize: '11px', color: 'rgba(255,255,255,0.4)' }}>
   4 1 7 |                                  ©   { n e w   D a t e ( ) . g e t F u l l Y e a r ( ) }   -   T H P T   N g u y Å n   C ô n g   T r é
418|                </p>
419|                <p style={{ margin: 0, fontSize: '10px', color: 'rgba(255,255,255,0.25)', fontStyle: 'italic' }}>
   4 2 0 |                                  { l a n g   = = =   ' e n '   ?   ' " D a r e   t o   T h i n k ,   D a r e   t o   D o " '   :   ' " D á m
421|                </p>
422|              </div>
423|            </div>
424|          </div>
425|        </div>
426|      )}
427|      <JoinClassModal isOpen={showJoinClass} onClose={() => setShowJoinClass(false)} lang={lang} />
428|    </>
429|  );
430| };
431|
432| function QuestWidgetSection({ lang }: { lang: 'en' | 'vn' }) {
433|   const { state: realtimeState } = useRealtime()
434|   const quests = realtimeState.allQuests.slice(0, 3)
435|   const userQuests = realtimeState.quests
436|
```

```
  437|   return (
  438|     <div style={{ padding: '4px 16px 8px', borderBottom: '1px solid rgba(255,255,255,0.06)' }}>
  439|       <div style={{ display: 'flex', alignItems: 'center', gap: '6px', marginBottom: '8px', marginTop: '4px' }}>
  440|         <Trophy size={12} style={{ color: '#f59e0b' }} />
  441|         <span style={{ fontSize: '10px', fontWeight: 700, letterSpacing: '1px', textTransform: 'uppercase', co...
    4 4 2 |                    { l a n g   = = =   ' e n '   ?   ' D a i l y   Q u e s t s '   :   ' N h i Ç m   V å   H ô m   N a y ' }
  443|         </span>
  444|         <div style={{ marginLeft: 'auto', fontSize: '9px', color: 'var(--brand-primary)', fontWeight: 600 }}>
  445|           Lv.{realtimeState.level}
  446|         </div>
  447|       </div>
  448|       {quests.map((quest, i) => {
  449|         const userQuest = userQuests.find(q => q.quest_id === quest.id)
  450|         const isCompleted = userQuest?.is_completed
  451|         const progress = userQuest?.progress || 0
  452|         return (
  453|           <div key={quest.id} style={{
  454|             display: 'flex', alignItems: 'center', gap: '8px',
  455|             padding: '6px 8px', borderRadius: '8px',
  456|             background: isCompleted ? 'rgba(16,185,129,0.08)' : 'rgba(255,255,255,0.03)',
  457|             marginBottom: '4px', opacity: isCompleted ? 0.6 : 1
  458|           }}>
    4 5 9 |                      < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 4 p x '   } } > { q u e s t . i c o n   | |   'Ø=ÜÌ ' } < / s p a
  460|             <div style={{ flex: 1, minWidth: 0 }}>
  461|               <div style={{ fontSize: '11px', fontWeight: 600, color: isCompleted ? '#10b981' : 'rgba(255,255,...
  462|                 {quest.title}
  463|               </div>
  464|               <div style={{ display: 'flex', alignItems: 'center', gap: '6px' }}>
  465|                 <span style={{ fontSize: '9px', color: 'var(--brand-primary)', fontWeight: 600 }}>+{quest.xp_r...
  466|                 {!isCompleted && quest.requirement_value > 0 && (
  467|                   <div style={{ flex: 1, height: '2px', borderRadius: '99px', background: 'rgba(255,255,255,0....
  468|                     <div style={{ height: '100%', borderRadius: '99px', background: 'var(--brand-primary)', wi...
  469|                   </div>
  470|                 )}
  471|                 {isCompleted && <CheckCircle2 size={10} style={{ color: '#10b981' }} />}
  472|               </div>
  473|             </div>
  474|           </div>
  475|         )
  476|       })}
  477|       <Link href="/student/dashboard" style={{
  478|         display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '4px',
  479|         padding: '6px', borderRadius: '6px', fontSize: '9px', fontWeight: 600,
  480|         color: 'var(--brand-primary)', textDecoration: 'none', marginTop: '4px',
  481|         background: 'rgba(8,158,96,0.08)'
  482|       }}>
    4 8 3 |                 < Z a p   s i z e = { 1 0 }   / >   { l a n g   = = =   ' e n '   ?   ' V i e w   A l l   T a s k s '   :   ' X e m   t ¥ t   c
  484|       </Link>
  485|     </div>
  486|   )
  487| }
  488|
  489| export default BurgerMenu;
  490|
```

File: components/CareerRecommendation.tsx (274 lines, 14.4 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState, useEffect, useMemo } from 'react'
    4| import { motion } from 'framer-motion'
    5| import { createBrowserClient } from '@supabase/ssr'
    6| import { QUIZ_BANK } from '@/data/quiz-bank'
    7| import { Compass, ExternalLink, Youtube, Sparkles, Cpu, Monitor, Server, Wrench, Gamepad2, BarChart3 } from 'l...
    8|
    9| const CAREERS = [
   10|   {
   11|     id: 'software-engineer',
    1 2 |          t i t l e :   ' K ù   s °   p h § n   m Á m ' ,
   13|     title_en: 'Software Engineer',
   14|     icon: Monitor,
   15|     color: '#6366f1',
    1 6 |          a v g S a l a r y :   ' 3 0 - 8 0   t r i Ç u / t h á n g ' ,
    1 7 |          d e s c r i p t i o n :   ' P h á t   t r i Ã n   é n g   d å n g ,   w e b s i t e ,   A I   v à   c á c   g i £ i   p h á p   c ô n g
    1 8 |          r e l a t e d T o p i c s :   [ ' K i ¿ n   T r ú c   C P U   &   T - p   L Ç n h ' ,   ' A I   &   C ô n g   N g h Ç   M Û i ' ,   ' N
   19|     matchTopics: ['quiz-cpu-arch', 'quiz-ai-tech', 'quiz-network', 'quiz-bios', 'quiz-benchmark'],
   20|     youtubeLinks: [
    2 1 |              {   t i t l e :   ' C á c h   t r ß   t h à n h   S o f t w a r e   E n g i n e e r ' ,   u r l :   ' h t t p s : / / w w w . y o u
    2 2 |              {   t i t l e :   ' L Ù   t r ì n h   h Í c   l - p   t r ì n h ' ,   u r l :   ' h t t p s : / / w w w . y o u t u b e . c o m / r
   23|     ]
   24|   },
   25|   {
   26|     id: 'hardware-engineer',
    2 7 |          t i t l e :   ' K ù   s °   p h § n   c é n g ' ,
   28|     title_en: 'Hardware Engineer',
   29|     icon: Cpu,
   30|     color: '#00d4aa',
    3 1 |          a v g S a l a r y :   ' 2 5 - 6 0   t r i Ç u / t h á n g ' ,
    3 2 |          d e s c r i p t i o n :   ' T h i ¿ t   k ¿ ,   l ¯ p   r á p   v à   t Ñ i   ° u   h Ç   t h Ñ n g   m á y   t í n h ,   v i   x í   l
    3 3 |          r e l a t e d T o p i c s :   [ ' Q u y   T r ì n h   L ¯ p   R á p   P C ' ,   ' É p   X u n g   &   T u n i n g ' ,   ' H Ç   T h Ñ n
   34|     matchTopics: ['quiz-assembly', 'quiz-overclocking', 'quiz-cooling-advanced', 'quiz-troubleshoot', 'quiz-ps...
   35|     youtubeLinks: [
   36|       { title: 'PC Building Guide 2025', url: 'https://www.youtube.com/results?search_query=pc+building+guide+...
    3 7 |              {   t i t l e :   ' H ° Û n g   d « n   l ¯ p   r á p   P C ' ,   u r l :   ' h t t p s : / / w w w . y o u t u b e . c o m / r e s
   38|     ]
   39|   },
   40|   {
   41|     id: 'system-engineer',
    4 2 |          t i t l e :   ' K ù   s °   h Ç   t h Ñ n g ' ,
   43|     title_en: 'System Engineer',
   44|     icon: Server,
   45|     color: '#289cf9',
    4 6 |          a v g S a l a r y :   ' 3 5 - 7 0   t r i Ç u / t h á n g ' ,
    4 7 |          d e s c r i p t i o n :   ' Q u £ n   t r Ë   v à   v - n   h à n h   h Ç   t h Ñ n g   m á y   c h ç ,   m ¡ n g   v à   c ¡   s ß   h
    4 8 |          r e l a t e d T o p i c s :   [ ' M á y   C h ç   &   W o r k s t a t i o n ' ,   ' B I O S   &   U E F I ' ,   ' M ¡ n g   M á y   T i
   49|     matchTopics: ['quiz-server', 'quiz-bios', 'quiz-network', 'quiz-troubleshoot'],
   50|     youtubeLinks: [
    5 1 |              {   t i t l e :   ' H Í c   q u £ n   t r Ë   h Ç   t h Ñ n g ' ,   u r l :   ' h t t p s : / / w w w . y o u t u b e . c o m / r e
   52|       { title: 'System Engineer Career', url: 'https://www.youtube.com/results?search_query=system+engineer+ca...
   53|     ]
   54|   },
   55|   {
   56|     id: 'game-developer',
    5 7 |          t i t l e :   ' N h à   p h á t   t r i Ã n   g a m e ' ,
   58|     title_en: 'Game Developer',
   59|     icon: Gamepad2,
   60|     color: '#ef4444',
    6 1 |          a v g S a l a r y :   ' 2 5 - 7 0   t r i Ç u / t h á n g ' ,
    6 2 |          d e s c r i p t i o n :   ' T h i ¿ t   k ¿   v à   l - p   t r ì n h   g a m e ,   t Ñ i   ° u   Ó   h Í a   v à   h i Ç u   n   n g
    6 3 |          r e l a t e d T o p i c s :   [ ' C a r d   Ó   H Í a   &   X í   L ý   Ó   H Í a ' ,   ' C ¥ u   H ì n h   P C   G a m i n g ' ,
   64|     matchTopics: ['quiz-gpu-advanced', 'quiz-pc-gaming', 'quiz-vr-ar', 'quiz-monitor', 'quiz-benchmark'],
   65|     youtubeLinks: [
    6 6 |              {   t i t l e :   ' H Í c   l à m   g a m e   t ë   A - Z ' ,   u r l :   ' h t t p s : / / w w w . y o u t u b e . c o m / r e s u
```

```
67|       { title: 'Game Developer Roadmap', url: 'https://www.youtube.com/results?search_query=game+developer+roa...
68|     ]
69|   },
70|   {
71|     id: 'tech-support',
72|     title: 'Chuyên viên kù thu-t',
73|     title_en: 'Technical Support Specialist',
74|     icon: Wrench,
75|     color: '#f59e0b',
76|     avgSalary: '15-35 tri Çu/tháng',
77|     description: 'Hx trã kù thu-t, sía chïa và b£o trì hÇ thÑng máy tính
78|     relatedTopics: ['XÍ LÝ SÑ CÑ & Ch©n oán', 'Thi¿t BË Ngo¡i Vi', 'Cáp
79|     matchTopics: ['quiz-troubleshoot', 'quiz-peripheral', 'quiz-cable', 'quiz-laptop', 'quiz-bios'],
80|     youtubeLinks: [
81|       { title: 'Kùn ng sía máy tính', url: 'https://www.youtube.com/results?search_query=it+support+specialist+gu...
82|     ]
83|   },
84| ]
85|
86| export default function CareerRecommendation({ lang = 'vn' }) {
87|   const [scores, setScores] = useState<Record<string, number>>({})
88|   const [loading, setLoading] = useState(true)
89|   const [realtimeKey, setRealtimeKey] = useState(0)
90|   const supabase = createBrowserClient(
91|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
92|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
93|   )
94|
95|   useEffect(() => {
96|     fetchScores()
97|   }, [realtimeKey])
98|
99|   useEffect(() => {
100|     const channel = supabase
101|       .channel('career_realtime')
102|       .on('postgres_changes', { event: 'INSERT', schema: 'public', table: 'quiz_attempts' }, async (payload) => {
103|         const { data: { user } } = await supabase.auth.getUser()
104|         if (user && (payload.new as any).user_id === user.id) {
105|           setRealtimeKey(k => k + 1)
106|         }
107|       })
108|       .subscribe()
109|     return () => { supabase.removeChannel(channel) }
110|   }, [])
111|
112|   async function fetchScores() {
113|     try {
114|       const { data: { user } } = await supabase.auth.getUser()
115|       if (!user) { setLoading(false); return }
116|
117|       const { data: attempts } = await supabase
118|         .from('quiz_attempts')
119|         .select('quiz_id, score, total_questions')
120|         .eq('user_id', user.id)
121|
122|       const scoreMap: Record<string, number> = {}
123|       attempts?.forEach(a => {
124|         if (a.total_questions > 0) {
125|           const pct = Math.round((a.score / (a.total_questions * 10)) * 100)
126|           scoreMap[a.quiz_id] = Math.max(pct, scoreMap[a.quiz_id] || 0)
127|         } else if (a.score > 0) {
128|           scoreMap[a.quiz_id] = Math.min(a.score, 100)
129|         }
130|       })
131|       setScores(scoreMap)
132|     } catch (err) {
133|       console.error('Error fetching quiz scores:', err)
134|     } finally {
135|       setLoading(false)
136|     }
137|   }
138|
139|   const rankings = useMemo(() => {
140|     return CAREERS.map(career => {
141|       const topicScores = career.matchTopics.map(topicId => scores[topicId] || 0)
142|       const completed = topicScores.filter(s => s > 0).length
143|       const avgScore = topicScores.length > 0
144|         ? Math.round(topicScores.reduce((a, b) => a + b, 0) / topicScores.length)
145|         : 0
146|       const matchPercent = completed > 0
147|         ? Math.round((completed / career.matchTopics.length) * 100)
148|         : 0
149|       return { ...career, avgScore, matchPercent, completed }
150|     }).sort((a, b) => b.avgScore - a.avgScore || b.matchPercent - a.matchPercent)
151|   }, [scores])
152|
153|   const topCareer = rankings[0]
154|
155|   if (loading) return null
156|
157|   return (
158|     <motion.div initial={{ opacity: 0, y: 24 }} animate={{ opacity: 1, y: 0 }}
159|       className="lms-card" style={{ padding: '28px', borderRadius: '16px', marginTop: '24px' }}>
160|       <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '20px' }}>
161|         <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: 'rgba(99,102,241,0.1)',...
162|           <Compass size={20} color="#6366f1" />
163|         </div>
164|         <div>
165|           <h2 style={{ fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)', margin: 0 }}>
166|                                 {lang === 'vn' ? 'Ënh h°Ûng nghÁ nghiÇp' : 'Career Path'}
167|           </h2>
168|           <p style={{ fontSize: '13px', color: 'var(--text-muted)', margin: '2px 0 0' }}>
169|                                 {lang === 'vn' ? 'Dña trên k¿t qu£ bài quiz cça b¡n' : 'Base
170|           </p>
171|         </div>
172|       </div>
173|
174|       {topCareer && topCareer.avgScore > 0 ? (
175|         <>
176|           <motion.div initial={{ scale: 0.95 }} animate={{ scale: 1 }}
177|             style={{ background: `linear-gradient(135deg, ${topCareer.color}15, ${topCareer.color}05)`, border...
178|             <div style={{ display: 'flex', alignItems: 'flex-start', gap: '16px' }}>
179|               <div style={{ width: '52px', height: '52px', borderRadius: '14px', background: `${topCareer.colo...
180|                 <topCareer.icon size={28} color={topCareer.color} />
181|               </div>
182|               <div style={{ flex: 1 }}>
183|                 <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', flexWrap...
184|                   <h3 style={{ fontSize: '18px', fontWeight: 800, color: 'var(--text-primary)', margin: 0 }}>
185|                     {lang === 'vn' ? topCareer.title : topCareer.title_en}
186|                   </h3>
187|                   <span style={{ fontSize: '12px', padding: '4px 12px', borderRadius: '100px', background: `${...
188|                                         {topCareer.avgScore} % phù hãp
189|                   </span>
190|
```

```
191|                </div>
192|                <p style={{ fontSize: '13px', color: 'var(--text-muted)', margin: '8px 0', lineHeight: 1.5 }}>
193|                  {topCareer.description}
194|                </p>
195|                <div style={{ fontSize: '12px', color: 'var(--text-secondary)' }}>
  1 9 6 |                                < s p a n   s t y l e = { {   f o n t W e i g h t :   6 0 0   } } > M é c   l °  ¡ n g : < / s p a n >   { t
197|                </div>
198|              </div>
199|            </div>
200|
201|            <div style={{ marginTop: '16px' }}>
202|              <div style={{ fontSize: '12px', fontWeight: 600, color: 'var(--text-secondary)', marginBottom: '...
  2 0 3 |                                { l a n g   = = =   ' v n '   ?   'Ø=ÜÚ   K i ¿ n   t h é c   l i ê n   q u a n : '   :   'Ø=ÜÚ   R e l a t e d
204|              </div>
205|              <div style={{ display: 'flex', flexWrap: 'wrap', gap: '6px' }}>
206|                {topCareer.relatedTopics.map(topic => (
207|                  <span key={topic} style={{ fontSize: '11px', padding: '4px 10px', borderRadius: '6px', backg...
208|                    {topic}
209|                  </span>
210|                ))}
211|              </div>
212|            </div>
213|
214|            <div style={{ marginTop: '16px', paddingTop: '16px', borderTop: '1px solid var(--border-subtle)' }}>
215|              <div style={{ fontSize: '12px', fontWeight: 600, color: 'var(--text-secondary)', marginBottom: '...
216|                <Youtube size={14} color="#ff0000" />
  2 1 7 |                                { l a n g   = = =   ' v n '   ?   ' V i d e o   g ã i   ý : '   :   ' S u g g e s t e d   v i d e o s : ' }
218|              </div>
219|              <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
220|                {topCareer.youtubeLinks.map((link, i) => (
221|                  <a key={i} href={link.url} target="_blank" rel="noopener noreferrer"
222|                    style={{ display: 'flex', alignItems: 'center', gap: '8px', padding: '8px 12px', borderRad...
223|                    onMouseOver={e => { e.currentTarget.style.background = 'var(--bg-hover)'; e.currentTarget....
224|                    onMouseOut={e => { e.currentTarget.style.background = 'var(--bg-elevated)'; e.currentTarge...
225|                    <Youtube size={14} color="#ff0000" />
226|                    <span style={{ flex: 1 }}>{link.title}</span>
227|                    <ExternalLink size={12} style={{ opacity: 0.5 }} />
228|                  </a>
229|                ))}
230|              </div>
231|            </div>
232|          </motion.div>
233|
234|          <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
235|            <div style={{ fontSize: '12px', fontWeight: 600, color: 'var(--text-muted)', marginBottom: '4px' }}>
  2 3 6 |                              { l a n g   = = =   ' v n '   ?   ' C á c   n g h Á   n g h i Ç p   k h á c   p h ù   h ã p   v Û i   b ¡ n : '   :
237|            </div>
238|            {rankings.slice(1, 4).map((career, i) => (
239|              <motion.div key={career.id} initial={{ opacity: 0, x: -10 }} animate={{ opacity: 1, x: 0 }} tran...
240|                style={{ display: 'flex', alignItems: 'center', gap: '12px', padding: '12px', borderRadius: '1...
241|                <div style={{ width: '36px', height: '36px', borderRadius: '8px', background: `${career.color}...
242|                  <career.icon size={18} color={career.color} />
243|                </div>
244|                <div style={{ flex: 1 }}>
245|                  <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)' }}>
246|                    {lang === 'vn' ? career.title : career.title_en}
247|                  </div>
248|                  <div style={{ display: 'flex', gap: '8px', fontSize: '11px', color: 'var(--text-muted)', mar...
  2 4 9 |                                  < s p a n > { c a r e e r . a v g S c o r e } %   p h ù   h ã p < / s p a n >
250|                    <span>·</span>
251|                    <span>{career.avgSalary}</span>
252|                  </div>
253|                </div>
254|                <div style={{ width: '40px', height: '4px', borderRadius: '4px', background: 'var(--border-sub...
255|                  <div style={{ width: `${career.avgScore}%`, height: '100%', background: career.color, border...
256|                </div>
257|              </motion.div>
258|            ))}
259|          </div>
260|        </>
261|      ) : (
262|        <div style={{ textAlign: 'center', padding: '32px', border: '1px dashed var(--border-default)', border...
263|          <BarChart3 size={40} style={{ color: 'var(--text-muted)', marginBottom: '12px', opacity: 0.5 }} />
264|          <p style={{ color: 'var(--text-muted)', fontSize: '13px', margin: 0 }}>
265|            {lang === 'vn'
  2 6 6 |                          ?   ' H o à n   t h à n h   c á c   b à i   q u i z     Ã   n h - n     Ë n h   h ° Û n g   n g h Á   n g h i Ç p
267|              : 'Complete quizzes to get your personalized career recommendation!'}
268|          </p>
269|        </div>
270|      )}
271|    </motion.div>
272|  )
273| }
274|
```

File: components/ChatbaseScript.tsx (33 lines, 0.9 KB)

```
    1| 'use client';
    2| import { useEffect } from 'react';
    3|
    4| declare global {
    5|   interface Window {
    6|     chatbase?: any;
    7|   }
    8| }
    9|
   10| export default function ChatbaseScript() {
   11|   useEffect(() => {
   12|     if (window.chatbase && window.chatbase('getState') === 'initialized') return;
   13|     window.chatbase = (...args: any[]) => {
   14|       if (!window.chatbase.q) window.chatbase.q = [];
   15|       window.chatbase.q.push(args);
   16|     };
   17|     window.chatbase = new Proxy(window.chatbase, {
   18|       get(target: any, prop: string) {
   19|         if (prop === 'q') return target.q;
   20|         return (...args: any[]) => target(prop, ...args);
   21|       }
   22|     });
   23|     const script = document.createElement('script');
   24|     script.src = 'https://www.chatbase.co/embed.min.js';
   25|     script.id = 'Xk6BgUmtM4fmXWOQfSsm_';
   26|     script.setAttribute('domain', 'www.chatbase.co');
   27|     script.defer = true;
   28|     document.body.appendChild(script);
   29|   }, []);
   30|
   31|   return null;
   32| }
   33|
```

File: components/classes/AssignmentCard.tsx (147 lines, 6.2 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import React from 'react';
    4| import Link from 'next/link';
    5| import { Calendar, Cpu, Battery, Wallet, HardDrive, ChevronRight, Clock } from 'lucide-react';
    6| import { format, differenceInDays } from 'date-fns';
    7| import { vi } from 'date-fns/locale';
    8|
    9| interface AssignmentRequirements {
   10|   budget_max?: number;
   11|   tdp_max?: number;
   12|   min_ram_gb?: number;
   13|   required_components?: string[];
   14|   performance_min?: number;
   15| }
   16|
   17| interface AssignmentCardProps {
   18|   id: string;
   19|   classId: string;
   20|   title: string;
   21|   type: string;
   22|   deadline?: string | Date;
   23|   requirements: AssignmentRequirements;
   24|   submittedCount?: number;
   25|   totalMembers?: number;
   26|   role: 'teacher' | 'student';
   27|   hasSubmitted?: boolean;
   28| }
   29|
   30| export default function AssignmentCard({ id, classId, title, type, deadline, requirements, submittedCount, tot...
   31|   const linkHref = `/${role}/classes/${classId}/assignments/${id}`;
   32|
   33|   let daysLeft = null;
   34|   let isOverdue = false;
   35|   if (deadline) {
   36|     const dlDate = new Date(deadline);
   37|     daysLeft = differenceInDays(dlDate, new Date());
   38|     isOverdue = daysLeft < 0;
   39|   }
   40|
   41|   const getTypeLabel = () => {
   42|     switch(type) {
     4 3 |              c a s e   ' b u i l d _ c o n f i g ' :   r e t u r n   ' [ B U I L D ]   L ¯ p   r á p   c ¡   b £ n ' ;
     4 4 |              c a s e   ' o p t i m i z e _ b u d g e t ' :   r e t u r n   ' [ T Ð I   ¯ U ]   T i ¿ t   k i Ç m   n g â n   s á c h ' ;
     4 5 |              c a s e   ' m i n i m i z e _ t d p ' :   r e t u r n   ' [ G R E E N ]   T i ¿ t   k i Ç m   i Ç n ' ;
     4 6 |              c a s e   ' m a x i m i z e _ p e r f ' :   r e t u r n   ' [ P E R F ]   T Ñ i   a   h i Ç u   n   n g ' ;
     4 7 |              d e f a u l t :   r e t u r n   ' [ N H I Æ M   V ä ] ' ;
   48|     }
   49|   };
   50|
   51|   const formatCurrency = (val?: number) => {
     5 2 |          i f   ( ! v a l )   r e t u r n   ' K h ô n g   g i Û i   h ¡ n ' ;
   53|     return new Intl.NumberFormat('vi-VN', { style: 'currency', currency: 'VND' }).format(val);
   54|   };
   55|
   56|   return (
   57|     <div style={{
   58|       background: 'rgba(12, 20, 36, 0.8)',
   59|       borderRadius: '20px',
   60|       border: isOverdue ? '1px solid rgba(239, 68, 68, 0.3)' : '1px solid rgba(255,255,255,0.05)',
   61|       overflow: 'hidden',
   62|       display: 'flex',
   63|       flexDirection: 'column'
   64|     }}>
   65|       {/* Header */}
   66|       <div style={{ padding: '20px', borderBottom: '1px solid rgba(255,255,255,0.05)' }}>
   67|         <div style={{ fontSize: '11px', fontWeight: 700, color: '#00f3ff', letterSpacing: '1px', textTransform...
   68|           {getTypeLabel()}
   69|         </div>
   70|         <h3 style={{ margin: '0 0 12px 0', fontSize: '18px', fontWeight: 700, color: '#fff', lineHeight: 1.4 }...
   71|
   72|         {deadline && (
   73|           <div style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '13px', color: isOverdue ...
   74|             <Calendar size={14} />
     7 5 |                H ¡ n   c h ó t :   { f o r m a t ( n e w   D a t e ( d e a d l i n e ) ,   ' d d / M M / y y y y   H H : m m ' ,   {
   76|             <span style={{ margin: '0 4px' }}>•</span>
     7 7 |                { i s O v e r d u e   ?   '   ã   q u á   h ¡ n '   :   `  C ò n   $ { d a y s L e f t }   n g à y `  }
   78|           </div>
   79|         )}
   80|       </div>
   81|
   82|       {/* Requirements */}
   83|       <div style={{ padding: '20px', flex: 1 }}>
   84|         <p style={{ margin: '0 0 12px 0', fontSize: '12px', fontWeight: 700, color: '#8899a6', textTransform: ...
   85|         <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '12px' }}>
   86|           {requirements.budget_max !== undefined && (
   87|             <div style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '13px', color: '#e0e6ed...
   88|               <Wallet size={16} color="#10b981" />
   89|               <span>&le; {formatCurrency(requirements.budget_max)}</span>
   90|             </div>
   91|           )}
   92|           {requirements.tdp_max !== undefined && (
   93|             <div style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '13px', color: '#e0e6ed...
   94|               <Battery size={16} color="#f59e0b" />
   95|               <span>&le; {requirements.tdp_max}W</span>
   96|             </div>
   97|           )}
   98|           {requirements.min_ram_gb !== undefined && (
   99|             <div style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '13px', color: '#e0e6ed...
  100|               <HardDrive size={16} color="#3b82f6" />
  101|               <span>&ge; {requirements.min_ram_gb}GB RAM</span>
  102|             </div>
  103|           )}
  104|           {requirements.required_components && requirements.required_components.length > 0 && (
  105|             <div style={{ display: 'flex', alignItems: 'center', gap: '8px', fontSize: '13px', color: '#e0e6ed...
  106|               <Cpu size={16} color="#8b5cf6" />
     1 0 7 |                < s p a n > B ¯ t   b u Ù c   c ó :   { r e q u i r e m e n t s . r e q u i r e d _ c o m p o n e n t s . j o i n (
  108|             </div>
  109|           )}
  110|         </div>
  111|       </div>
  112|
  113|       {/* Footer / Action */}
  114|       <div style={{ padding: '20px', background: 'rgba(0,0,0,0.2)', borderTop: '1px solid rgba(255,255,255,0.0...
  115|         {role === 'teacher' ? (
  116|           <div style={{ fontSize: '14px', color: '#8899a6', fontWeight: 600 }}>
     1 1 7 |                < s p a n   s t y l e = { {   c o l o r :   ' # f f f '   } } > { s u b m i t t e d C o u n t   | |   0 } < / s p a n >
  118|           </div>
  119|         ) : (
  120|           <div style={{ fontSize: '14px', fontWeight: 600, color: hasSubmitted ? '#10b981' : '#8899a6', displa...
     1 2 1 |                { h a s S u b m i t t e d   ?   ''   ã   n Ù p   b à i '   :   '#ó   C h ° a   n Ù p ' }
  122|           </div>
```

```
123|         )}
124|
125|         <Link href={linkHref} style={{ textDecoration: 'none' }}>
126|           <button style={{
127|             padding: '8px 16px',
128|             borderRadius: '8px',
129|             background: hasSubmitted ? 'rgba(255,255,255,0.1)' : 'var(--brand-primary)',
130|             color: hasSubmitted ? '#fff' : '#000',
131|             border: 'none',
132|             fontSize: '13px',
133|             fontWeight: 700,
134|             cursor: 'pointer',
135|             display: 'flex',
136|             alignItems: 'center',
137|             gap: '6px',
138|             transition: 'all 0.2s'
139|           }}>
140|                         { r o l e   = = =   ' t e a c h e r '   ?   ' Q u £ n   l ý '   :   ( h a s S u b m i t t e d   ?   ' X e m    i Ã m '
141|           </button>
142|         </Link>
143|       </div>
144|     </div>
145|   );
146| }
147|
```

File: components/classes/ClassCard.tsx (94 lines, 4.5 KB)

```
1| 'use client';
2|
3| import React from 'react';
4| import Link from 'next/link';
5| import { Users, Monitor, ChevronRight, Trash2 } from 'lucide-react';
6| import { supabase } from '@/lib/supabase';
7|
8| interface ClassCardProps {
9|   id: string;
10|   name: string;
11|   code: string;
12|   teacherName?: string;
13|   memberCount: number;
14|   maxStudents: number;
15|   activeAssignmentsCount: number;
16|   role: 'teacher' | 'student';
17|   onDelete?: () => void;
18| }
19|
20| export default function ClassCard({ id, name, code, teacherName, memberCount, maxStudents, activeAssignmentsCo...
21|   const linkHref = `/${role}/classes/${id}`;
22|
23|   const deleteClass = async (e: React.MouseEvent) => {
24|     e.preventDefault();
25|     e.stopPropagation();
26|           i f   ( ! c o n f i r m ( ' X ó a   l Û p   h Í c   n à y ? ' ) )   r e t u r n ;
27|     const { data: { user } } = await supabase.auth.getUser();
28|     if (!user) return;
29|     const { error } = await supabase.from('classes').delete().eq('id', id).eq('teacher_id', user.id);
30|           i f   ( e r r o r )   {   a l e r t ( ' L × i :   '   +   e r r o r . m e s s a g e ) ;   r e t u r n ;   }
31|     if (onDelete) onDelete();
32|   };
33|
34|   return (
35|     <div className="lms-card" style={{ overflow: 'hidden', display: 'flex', flexDirection: 'column' }}>
36|       <div style={{ padding: '20px', background: 'rgba(var(--brand-primary-rgb),0.05)', borderBottom: '1px sol...
37|         <div style={{ width: '40px', height: '40px', borderRadius: '12px', background: 'rgba(var(--brand-prima...
38|           <Monitor size={20} />
39|         </div>
40|         <div style={{ flex: 1 }}>
41|           <h3 style={{ margin: '0 0 4px 0', fontSize: '18px', fontWeight: 700, color: 'var(--text-primary)' }}...
42|           <p style={{ margin: 0, fontSize: '13px', color: 'var(--text-muted)', display: 'flex', alignItems: 'c...
43|             <span>Mã: <strong style={{ color: 'var(--brand-primary)', letterSpacing: '1px' }}>{code}</strong><...
44|             <span>•</span>
45|             <span style={{ display: 'flex', alignItems: 'center', gap: '4px' }}><Users size={12} /> {memberCou...
46|           </p>
47|           {teacherName && (
48|             <p style={{ margin: '4px 0 0 0', fontSize: '12px', color: 'var(--text-muted)' }}>GV: {teacherName}...
49|           )}
50|         </div>
51|         {role === 'teacher' && (
52|           <button onClick={deleteClass} style={{ padding: '6px', borderRadius: '8px', background: 'rgba(244,67...
53|             <Trash2 size={16} />
54|           </button>
55|         )}
56|       </div>
57|
58|       <div style={{ padding: '20px', flex: 1, display: 'flex', flexDirection: 'column', justifyContent: 'space...
59|         <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
60|           <div style={{ width: '8px', height: '8px', borderRadius: '50%', background: activeAssignmentsCount >...
61|           <span style={{ fontSize: '14px', color: 'var(--text-primary)', fontWeight: 600 }}>
62|                         { a c t i v e A s s i g n m e n t s C o u n t   >   0   ?   ` $ { a c t i v e A s s i g n m e n t s C o u n t }   n h i
63|           </span>
64|         </div>
65|
66|         <Link href={linkHref} style={{ textDecoration: 'none' }}>
67|           <button style={{
68|             width: '100%',
69|             padding: '12px',
70|             borderRadius: '10px',
71|             background: 'var(--bg-elevated)',
72|             border: '1px solid var(--border-default)',
73|             color: 'var(--text-primary)',
74|             fontSize: '14px',
75|             fontWeight: 700,
76|             cursor: 'pointer',
77|             display: 'flex',
78|             alignItems: 'center',
79|             justifyContent: 'center',
80|             gap: '8px',
81|             transition: 'all 0.2s',
82|             fontFamily: 'inherit'
83|           }}
84|           onMouseOver={e => { e.currentTarget.style.background = 'rgba(var(--brand-primary-rgb),0.1)'; e.curre...
85|           onMouseOut={e => { e.currentTarget.style.background = 'var(--bg-elevated)'; e.currentTarget.style.co...
86|           >
87|                         V à o   l Û p   < C h e v r o n R i g h t   s i z e = { 1 6 }   / >
88|           </button>
89|         </Link>
90|       </div>
91|     </div>
92|   );
93| }
94|
```

File: components/classes/GradeTable.tsx (195 lines, 8.3 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import React, { useState } from 'react';
    4| import {
    5|   useReactTable,
    6|   getCoreRowModel,
    7|   getSortedRowModel,
    8|   getFilteredRowModel,
    9|   flexRender,
   10|   createColumnHelper,
   11|   SortingState
   12| } from '@tanstack/react-table';
   13| import { format } from 'date-fns';
   14| import { vi } from 'date-fns/locale';
   15| import { ArrowUpDown, Download, CheckCircle, AlertCircle, Clock } from 'lucide-react';
   16| import Link from 'next/link';
   17|
   18| interface SubmissionData {
   19|   id: string;
   20|   student_name: string;
   21|   student_id: string;
   22|   submitted_at: string;
   23|   is_late: boolean;
   24|   auto_score: number | null;
   25|   teacher_score: number | null;
   26|   total_score: number | null;
   27|   status: 'graded' | 'submitted' | 'missing';
   28| }
   29|
   30| interface GradeTableProps {
   31|   data: SubmissionData[];
   32|   assignmentId: string;
   33|   classId: string;
   34| }
   35|
   36| const columnHelper = createColumnHelper<SubmissionData>();
   37|
   38| export default function GradeTable({ data, assignmentId, classId }: GradeTableProps) {
   39|   const [sorting, setSorting] = useState<SortingState>([]);
   40|   const [globalFilter, setGlobalFilter] = useState('');
   41|
   42|   const columns = [
   43|     columnHelper.accessor('student_name', {
     4 4 |              h e a d e r :   ' H Í c   s i n h ' ,
   45|       cell: info => <span style={{ fontWeight: 600, color: '#fff' }}>{info.getValue()}</span>,
   46|     }),
   47|     columnHelper.accessor('status', {
     4 8 |              h e a d e r :   ' T r ¡ n g   t h á i ' ,
   49|       cell: info => {
   50|         const status = info.getValue();
   51|         const isLate = info.row.original.is_late;
   52|         if (status === 'missing') return <span style={{ color: '#ef4444', display: 'flex', alignItems: 'center...
   53|         if (status === 'graded') return <span style={{ color: '#10b981', display: 'flex', alignItems: 'center'...
   54|         return <span style={{ color: '#3b82f6', display: 'flex', alignItems: 'center', gap: '4px', fontSize: '...
   55|       }
   56|     }),
   57|     columnHelper.accessor('submitted_at', {
     5 8 |              h e a d e r :   ' T h Ý i   g i a n   n Ù p ' ,
   59|       cell: info => info.getValue() ? format(new Date(info.getValue()), 'dd/MM/yyyy HH:mm', { locale: vi }) : ...
   60|     }),
   61|     columnHelper.accessor('auto_score', {
     6 2 |              h e a d e r :   '   i Ã m   h Ç   t h Ñ n g ' ,
   63|       cell: info => info.getValue() !== null ? <span style={{ color: '#8899a6' }}>{info.getValue()}</span> : '-',
   64|     }),
   65|     columnHelper.accessor('teacher_score', {
     6 6 |              h e a d e r :   '   i Ã m   c Ù n g / t r ë ' ,
   67|       cell: info => {
   68|         const val = info.getValue();
   69|         if (val === null) return '-';
   70|         return <span style={{ color: val > 0 ? '#10b981' : (val < 0 ? '#ef4444' : '#8899a6') }}>{val > 0 ? `+$...
   71|       }
   72|     }),
   73|     columnHelper.accessor('total_score', {
     7 4 |              h e a d e r :   ' T Ô n g   i Ã m ' ,
   75|       cell: info => info.getValue() !== null ? <strong style={{ color: '#00f3ff', fontSize: '16px' }}>{info.ge...
   76|     }),
   77|     columnHelper.display({
   78|       id: 'actions',
   79|       cell: info => {
   80|         if (info.row.original.status === 'missing') return null;
   81|         return (
   82|           <Link href={`/teacher/classes/${classId}/assignments/${assignmentId}/grade/${info.row.original.id}`}>
   83|             <button style={{
   84|               background: 'rgba(255,255,255,0.05)', border: '1px solid rgba(255,255,255,0.1)',
   85|               color: '#fff', padding: '6px 12px', borderRadius: '6px', fontSize: '12px',
   86|               cursor: 'pointer', fontWeight: 600, transition: 'all 0.2s'
   87|             }}>
     8 8 |                          { i n f o . r o w . o r i g i n a l . s t a t u s   = = =   ' g r a d e d '   ?   ' S í a   i Ã m '   :   ' C h ¥
   89|             </button>
   90|           </Link>
   91|         )
   92|       }
   93|     })
   94|   ];
   95|
   96|   const table = useReactTable({
   97|     data,
   98|     columns,
   99|     state: { sorting, globalFilter },
  100|     onSortingChange: setSorting,
  101|     onGlobalFilterChange: setGlobalFilter,
  102|     getCoreRowModel: getCoreRowModel(),
  103|     getSortedRowModel: getSortedRowModel(),
  104|     getFilteredRowModel: getFilteredRowModel(),
  105|   });
  106|
  107|   const handleExportCSV = () => {
     1 0 8 |          c o n s t   h e a d e r s   =   [ ' H Í c   s i n h ' ,   ' T r ¡ n g   t h á i ' ,   ' T h Ý i   g i a n   n Ù p ' ,   '   i Ã m   h (
  109|     const csvData = data.map(row => [
  110|       row.student_name,
     1 1 1 |              r o w . s t a t u s   = = =   ' m i s s i n g '   ?   ' C h ° a   n Ù p '   :   ( r o w . s t a t u s   = = =   ' g r a d e d '   ?
  112|       row.submitted_at ? format(new Date(row.submitted_at), 'dd/MM/yyyy HH:mm') : '',
  113|       row.auto_score ?? '',
  114|       row.teacher_score ?? '',
  115|       row.total_score ?? ''
  116|     ]);
  117|
  118|     const csvContent = [
  119|       headers.join(','),
  120|       ...csvData.map(e => e.join(','))
  121|     ].join('\n');
```

```
    const blob = new Blob(["\ufeff"+csvContent], { type: 'text/csv;charset=utf-8;' });
    const url = URL.createObjectURL(blob);
    const link = document.createElement('a');
    link.href = url;
    link.setAttribute('download', `bang_diem_${assignmentId}.csv`);
    document.body.appendChild(link);
    link.click();
    document.body.removeChild(link);
  };

  return (
    <div style={{ background: '#0a0f1a', borderRadius: '16px', border: '1px solid rgba(255,255,255,0.05)', ove...
      {/* Table Header Controls */}
      <div style={{ padding: '20px', borderBottom: '1px solid rgba(255,255,255,0.05)', display: 'flex', justif...
        <input
          value={globalFilter ?? ''}
          onChange={e => setGlobalFilter(e.target.value)}
          placeholder="Tìm kiếm học sinh..."
          style={{
            background: '#050a14', border: '1px solid rgba(255,255,255,0.1)', borderRadius: '8px',
            padding: '10px 16px', color: '#fff', fontSize: '14px', width: '300px', outline: 'none'
          }}
        />
        <button onClick={handleExportCSV} style={{
          background: 'rgba(0, 243, 255, 0.1)', color: '#00f3ff', border: '1px solid rgba(0, 243, 255, 0.2)',
          padding: '10px 16px', borderRadius: '8px', fontSize: '14px', fontWeight: 600, cursor: 'pointer',
          display: 'flex', alignItems: 'center', gap: '8px'
        }}>
          <Download size={16} />  Xuất CSV
        </button>
      </div>

      {/* Table */}
      <div style={{ overflowX: 'auto' }}>
        <table style={{ width: '100%', borderCollapse: 'collapse', textAlign: 'left' }}>
          <thead>
            {table.getHeaderGroups().map(headerGroup => (
              <tr key={headerGroup.id} style={{ background: 'rgba(255,255,255,0.02)' }}>
                {headerGroup.headers.map(header => (
                  <th key={header.id} style={{ padding: '16px 20px', color: '#8899a6', fontSize: '12px', textT...
                    <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
                      {flexRender(header.column.columnDef.header, header.getContext())}
                      {header.column.getCanSort() && <ArrowUpDown size={12} color="rgba(255,255,255,0.2)" />}
                    </div>
                  </th>
                ))}
              </tr>
            ))}
          </thead>
          <tbody>
            {table.getRowModel().rows.map(row => (
              <tr key={row.id} style={{ borderBottom: '1px solid rgba(255,255,255,0.05)', transition: 'backgro...
                {row.getVisibleCells().map(cell => (
                  <td key={cell.id} style={{ padding: '16px 20px', color: '#e0e6ed', fontSize: '14px' }}>
                    {flexRender(cell.column.columnDef.cell, cell.getContext())}
                  </td>
                ))}
              </tr>
            ))}
            {data.length === 0 && (
              <tr>
                <td colSpan={columns.length} style={{ padding: '40px', textAlign: 'center', color: '#8899a6' }}>
                  Chưa có dữ liệu bài nộp.
                </td>
              </tr>
            )}
          </tbody>
        </table>
      </div>
    </div>
  );
}

```

File: components/classes/JoinClassModal.tsx (172 lines, 7.7 KB)

```
'use client';

import React, { useState } from 'react';
import { supabase } from '@/lib/supabase';
import { X, KeySquare, Loader2, CheckCircle, AlertCircle, User } from 'lucide-react';
import { useRouter } from 'next/navigation';

export default function JoinClassModal({ isOpen, onClose }: { isOpen: boolean, onClose: () => void }) {
  const [code, setCode] = useState('');
  const [loading, setLoading] = useState(false);
  const [error, setError] = useState<string | null>(null);
  const [success, setSuccess] = useState(false);
  const [classInfo, setClassInfo] = useState<{ id: string; name: string; teacherName?: string } | null>(null);
  const router = useRouter();

  if (!isOpen) return null;

  const lookUpClass = async () => {
    if (code.length !== 6) {
      setError('Mã lớp phải có đúng 6 ký tự.');
      return;
    }

    setLoading(true);
    setError(null);
    setClassInfo(null);

    try {
      const { data: userData } = await supabase.auth.getUser();
      if (!userData.user) throw new Error('Vui lòng đăng nhập.');

      const { data: classData, error: classError } = await supabase
        .from('classes')
        .select('id, name, teacher_id')
        .eq('code', code.toUpperCase())
        .single();

      if (classError || !classData) {
        throw new Error('Không tìm thấy lớp học với mã này.');
      }

      let teacherName = 'Giáo viên';
      if (classData.teacher_id) {
        const { data: teacherProfile } = await supabase
          .from('profiles')
          .select('full_name')
```

```
47|          .eq('id', classData.teacher_id)
48|          .single();
49|        if (teacherProfile?.full_name) {
50|          teacherName = teacherProfile.full_name;
51|        }
52|      }
53|
54|      setClassInfo({ ...classData, teacherName });
55|
56|      const { error: joinError } = await supabase
57|        .from('class_members')
58|        .insert({
59|          class_id: classData.id,
60|          student_id: userData.user.id,
61|          status: 'active'
62|        });
63|
64|      if (joinError) {
65|                if (joinError.code === '23505') throw new Error('Bạn đã tham gia
66|                throw new Error('Không thể tham gia lớp: ' + joinError.message);
67|      }
68|
69|      setSuccess(true);
70|      setTimeout(() => {
71|        onClose();
72|        router.push(`/student/classes/${classData.id}`);
73|      }, 1500);
74|
75|    } catch (err: any) {
76|      setError(err.message);
77|    } finally {
78|      setLoading(false);
79|    }
80|  };
81|
82|  return (
83|    <div style={{
84|      position: 'fixed', top: 0, left: 0, right: 0, bottom: 0,
85|      background: 'color-mix(in srgb, var(--bg-base) 85%, transparent)', backdropFilter: 'blur(8px)',
86|      display: 'flex', alignItems: 'center', justifyContent: 'center',
87|      zIndex: 9999, padding: '20px'
88|    }}>
89|      <div style={{
90|        background: 'var(--bg-surface)', borderRadius: '24px', width: '100%', maxWidth: '440px',
91|        border: '1px solid var(--border-strong)', boxShadow: '0 25px 50px -12px rgba(0,0,0,0.5)',
92|        position: 'relative', overflow: 'hidden'
93|      }}>
94|        <button onClick={onClose} style={{ position: 'absolute', top: '16px', right: '16px', background: 'tran...
95|          <X size={20} />
96|        </button>
97|
98|        <div style={{ padding: '32px' }}>
99|          <div style={{ width: '56px', height: '56px', borderRadius: '16px', background: 'var(--brand-subtle)'...
100|            <KeySquare size={28} />
101|          </div>
102|          <h2 style={{ margin: '0 0 8px 0', fontSize: '24px', fontWeight: 800, color: 'var(--text-primary)' }}...
103|          <p style={{ margin: '0 0 24px 0', color: 'var(--text-muted)', fontSize: '14px', lineHeight: 1.5 }}>
104|                        Nhập mã lớp gồm 6 ký tự do giáo viên cung cấp để tham gia
105|          </p>
106|
107|          {success ? (
108|            <div style={{ background: 'var(--brand-subtle)', border: '1px solid color-mix(in srgb, var(--brand...
109|              <CheckCircle size={24} />
110|                            <span style={{ fontWeight: 600 }}>Tham gia thành công! Ar
111|            </div>
112|          ) : (
113|            <form onSubmit={(e) => { e.preventDefault(); lookUpClass(); }} style={{ display: 'flex', flexDirec...
114|              <div>
115|                <input
116|                  type="text"
117|                  placeholder="VD: TIN001"
118|                  value={code}
119|                  onChange={(e) => {
120|                    setCode(e.target.value.toUpperCase().slice(0, 6));
121|                    setClassInfo(null);
122|                    setError(null);
123|                  }}
124|                  style={{
125|                    width: '100%', padding: '16px', background: 'var(--bg-base)', border: '2px solid var(--bor...
126|                    borderRadius: '12px', color: 'var(--text-primary)', fontSize: '24px', fontWeight: 800, tex...
127|                    letterSpacing: '4px', textTransform: 'uppercase', outline: 'none', transition: 'border-col...
128|                  }}
129|                  onFocus={e => e.target.style.borderColor = 'var(--brand-primary)'}
130|                  onBlur={e => e.target.style.borderColor = 'var(--border-default)'}
131|                />
132|              </div>
133|
134|              {classInfo && !error && !success && (
135|                <div style={{ background: 'var(--bg-base)', border: '1px solid var(--border-default)', borderR...
136|                  <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: 'var(--brand-...
137|                    <User size={20} />
138|                  </div>
139|                  <div style={{ flex: 1, minWidth: 0 }}>
140|                    <p style={{ fontSize: '14px', fontWeight: 600, color: 'var(--text-primary)', margin: 0, ov...
141|                    <p style={{ fontSize: '12px', color: 'var(--text-muted)', margin: '2px 0 0 0' }}>Giáo viên...
142|                  </div>
143|                </div>
144|              )}
145|
146|              {error && (
147|                <div style={{ background: 'color-mix(in srgb, #ef4444 10%, transparent)', color: '#ef4444', pa...
148|                  <AlertCircle size={16} style={{ flexShrink: 0, marginTop: '2px' }} />
149|                  <span>{error}</span>
150|                </div>
151|              )}
152|
153|              <button
154|                type="submit"
155|                disabled={loading || code.length !== 6}
156|                style={{
157|                  width: '100%', padding: '16px', borderRadius: '12px', background: 'var(--brand-primary)',
158|                  color: 'var(--bg-base)', fontSize: '16px', fontWeight: 700, border: 'none',
159|                  cursor: (loading || code.length !== 6) ? 'not-allowed' : 'pointer',
160|                  opacity: (loading || code.length !== 6) ? 0.5 : 1, display: 'flex', alignItems: 'center', ju...
161|                }}
162|              >
163|                            {loading ? <Loader2 size={20} className="animate-spin" />
164|              </button>
165|            </form>
166|          )}
167|        </div>
168|      </div>
169|    </div>
170|  );
```

```
171| }
172|
```

File: components/CommonMistakes.js (255 lines, 16.1 KB)

```
1| 'use client';
2|
3| import { useState } from 'react';
4|
5| const MISTAKES = [
6|   {
7|     id: 'ram', title: 'Máy không nhớ RAM', videoId: 'SYCCvVFClXo',
8|     level: 'Cơ bản', time: '2-5 phút',
9|     summary: 'RAM chỉ được cắm đúng cách hoặc không tương thích với mai
10|     reasons: ['RAM chỉ được ¥n mạnh xuống hết — ngàm nhựa hai §u chỉa
11|     fixes: ['Tháo ra và cắm lại, ¥n mạnh ¿n khi nghe "tách"', 'Cắm vào
12|     Icon: 'Ø>Ýà', color: '#6366f1',
13|   },
14|   {
15|     id: 'display', title: 'Màn hình không lên', videoId: 'rfmgTuR7Hls',
16|     level: 'Cơ bản', time: '3-10 phút',
17|     summary: 'Máy khßi Ùng (quạt quay, èn sáng) nhưng màn hình en —
18|     reasons: ['Cắm dây màn hình vào cổng HDMI/VGA trên mainboard thay vì
19|     fixes: ['Cắm dây vào GPU (card rÝi) — KHÔNG cắm vào mainboard ¿u cổ
20|     Icon: 'Ø=Ý¥þ', color: '#f59e0b',
21|   },
22|   {
23|     id: 'assembly', title: 'Sai kù thu-t lắp ráp', videoId: 'CrIxH6El3TC
24|     level: 'Trung bình', time: '5-15 phút',
25|     summary: 'Các lỗi phổ biến khi lắp ráp: không gắn IO shield, cắm RAM
26|     reasons: ['Quên gắn IO shield trước khi bắt vít mainboard', 'Cắm RAM
27|     fixes: ['Luôn gắn IO shield TRƯỚC khi bắt mainboard vào case', 'Cắm
28|     Icon: 'Ø=Ý', color: '#ef4444',
29|   },
30|   {
31|     id: 'psu', title: 'Lỗi nguồn và hiÃn thË', videoId: 'Q8LHfWZwChE',
32|     level: 'Trung bình', time: '10-30 phút',
33|     summary: 'Lỗi liên quan ¿n PSU, VGA, RAM, CPU, BIOS — máy không khởi
34|     reasons: ['PSU không ç cổng su¥t cho hÇ thÑng', 'Dây nguồn cắm chưa
35|     fixes: ['Tính toán TDP tổng và chÍn PSU dư 20-30% công su¥t', 'Cắm
36|     Icon: '&¡', color: '#f97316',
37|   },
38|   {
39|     id: 'compatibility', title: 'Linh kiÇn không tương thích', videoId:
40|     level: 'Nâng cao', time: '30-60 phút',
41|     summary: 'CPU không tương thích socket/chipset, RAM không úng chuẩn
42|     reasons: ['CPU không tương thích socket — Intel LGA1700 "` AMD AM5',
43|     fixes: ['KiÃm tra socket mainboard trước khi mua CPU: LGA1700 cho Ir
44|     Icon: 'Ø=Ý', color: '#8b5cf6',
45|   },
46|   {
47|     id: 'ssd', title: 'Máy không phát hiÇn SSD', videoId: 'XXSof_YH85s',
48|     level: 'Cơ bản', time: '5-15 phút',
49|     summary: 'SSD không xu¥t hiÇn trong BIOS hoặc Windows — do chưa form
50|     reasons: ['SSD M.2 chưa cắm chặt hoặc cắm sai khe (dùng chung lane v
51|     fixes: ['Vào Disk Management ’ chuÙt ph£i ’ Initialize Disk', 'Vào B
52|     Icon: 'Ø=Ü¾', color: '#06b6d4',
53|   },
54|   {
55|     id: 'wrongbuild', title: 'Lắp ráp sai cách', videoId: '0L7SBpZXnsE',
56|     level: 'Trung bình', time: '10-30 phút',
57|     summary: 'Quy trình lắp ráp không úng thé tñ_d«n ¿n hÏng linh kiÇn
58|     reasons: ['Lắp mainboard vào case trước khi gắn CPU + RAM + cooler -
59|     fixes: ['Lắp CPU ’ RAM ’ Cooler ’ SSD ’ KiÃm tra ngoài case TRƯỚC',
60|     Icon: 'Ø<ßxþ', color: '#14b8a6',
61|   },
62|   {
63|     id: 'wiring', title: 'Cách cắm dây úng khi build PC', videoId: 'xT3
64|     level: 'Trung bình', time: '15-45 phút',
65|     summary: 'Cắm dây sai thé tñ/sai vË trí d«n ¿n không khßi Ùng hoặc
66|     reasons: ['Cắm dây nguồn CPU 8-pin vào GPU PCIe — có thÃ gây cháy',
67|     fixes: ['Dây CPU 8-pin có ghi "CPU" — dây PCIe có ghi "PCIe" hoặc "V
68|     Icon: 'Ø=Ý', color: '#22c55e',
69|   },
70| ];
71|
72| const LEVEL_COLORS = {
73|     'Cơ bản': '#6366f1',
74|   'Trung bình': '#f59e0b',
75|   'Nâng cao': '#ef4444',
76| };
77|
78| function MistakeCard({ mistake }) {
79|   const [showVideo, setShowVideo] = useState(false);
80|   const [showDetail, setShowDetail] = useState(false);
81|
82|   return (
83|     <div
84|       onMouseEnter={() => setShowDetail(true)}
85|       onMouseLeave={() => setShowDetail(false)}
86|       style={{
87|         background: 'var(--bg-surface)',
88|         border: `1px solid ${showDetail ? mistake.color + '44' : 'var(--border-default)'}`,
89|         borderRadius: '14px', overflow: 'hidden',
90|         transition: 'all 0.3s ease', cursor: 'default',
91|         position: 'relative',
92|       }}>
93|       {/* Header row */}
94|       <div style={{ display: 'flex', gap: '14px', padding: '16px 18px', alignItems: 'center' }}>
95|         <div style={{
96|           width: '42px', height: '42px', borderRadius: '12px',
97|           background: `${mistake.color}15`, display: 'flex',
98|           alignItems: 'center', justifyContent: 'center', fontSize: '22px', flexShrink: 0,
99|           transition: 'transform 0.3s', transform: showDetail ? 'scale(1.1)' : 'scale(1)',
100|         }}>
101|           {mistake.Icon}
102|         </div>
103|         <div style={{ flex: 1, minWidth: 0 }}>
104|           <div style={{ display: 'flex', alignItems: 'center', gap: '8px', flexWrap: 'wrap' }}>
105|             <span style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)' }}>{mistake.title}<...
106|             <span style={{
107|               fontSize: '9px', fontWeight: 700, padding: '2px 10px', borderRadius: '99px',
108|               background: `${LEVEL_COLORS[mistake.level]}15`, color: LEVEL_COLORS[mistake.level],
109|             }}>{mistake.level}</span>
110|                         <span style={{ fontSize: '10px', color: 'var(--text-muted)'
111|           </div>
112|           <p style={{ fontSize: '12px', color: 'var(--text-secondary)', margin: '4px 0 0', lineHeight: '1.5' }}>
113|             {mistake.summary}
114|           </p>
115|         </div>
116|         <div style={{
117|           width: '160px', flexShrink: 0, borderRadius: '8px', overflow: 'hidden',
118|           position: 'relative',
```

```
119|         }}>
120|           {showVideo ? (
121|             <div style={{ position: 'relative', width: '100%', aspectRatio: '16/9', background: '#000' }}>
122|               <iframe
123|                 src={`https://www.youtube.com/embed/${mistake.videoId}?autoplay=1&rel=0`}
124|                 style={{ position: 'absolute', inset: 0, width: '100%', height: '100%', border: 'none' }}
125|                 allow="autoplay; encrypted-media" allowFullScreen
126|               />
127|             </div>
128|           ) : (
129|             <div onClick={() => setShowVideo(true)} style={{
130|               position: 'relative', width: '100%', aspectRatio: '16/9', cursor: 'pointer',
131|               background: 'linear-gradient(135deg, #1a1a2e, #16213e)', borderRadius: '8px', overflow: 'hidden',
132|             }}>
133|               <img src={`https://img.youtube.com/vi/${mistake.videoId}/hqdefault.jpg`}
134|                 alt={mistake.title} style={{ position: 'absolute', inset: 0, width: '100%', height: '100%', ob...
135|                 onError={(e) => { e.target.style.display = 'none'; }}
136|               />
137|               <div style={{
138|                 position: 'absolute', inset: 0, display: 'flex', alignItems: 'center', justifyContent: 'center',
139|                 background: 'rgba(0,0,0,0.25)',
140|               }}>
141|                 <div style={{ width: '36px', height: '36px', borderRadius: '50%', background: 'rgba(255,0,0,0....
   1 4 2 |                                        %¶
143|                 </div>
144|               </div>
145|             </div>
146|           )}
147|         </div>
148|       </div>
149|
150|       {/* Detail expand */}
151|       <div style={{
152|         maxHeight: showDetail ? '300px' : '0', opacity: showDetail ? 1 : 0,
153|         transition: 'all 0.35s ease', overflow: 'hidden', borderTop: showDetail ? '1px solid var(--border-subt...
154|       }}>
155|         <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '14px', padding: '14px 18px' }}>
156|           <div>
157|             <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1px',...
   1 5 8 |                                < s p a n >'L < / s p a n >   N g u y ê n   n h â n
159|             </div>
160|             <ul style={{ margin: 0, padding: '0 0 0 16px', display: 'flex', flexDirection: 'column', gap: '3px...
161|               {mistake.reasons.map((r, i) => (
162|                 <li key={i} style={{ fontSize: '11px', color: 'var(--text-secondary)', lineHeight: '1.5' }}>{r...
163|               ))}
164|             </ul>
165|           </div>
166|           <div>
167|             <div style={{ fontSize: '10px', fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1px',...
   1 6 8 |                                < s p a n >'  < / s p a n >   C á c h   k h ¯ c   p h ắ c
169|             </div>
170|             <ul style={{ margin: 0, padding: '0 0 0 16px', display: 'flex', flexDirection: 'column', gap: '3px...
171|               {mistake.fixes.map((f, i) => (
172|                 <li key={i} style={{ fontSize: '11px', color: '#22c55e', lineHeight: '1.5' }}>{f}</li>
173|               ))}
174|             </ul>
175|           </div>
176|         </div>
177|       </div>
178|     </div>
179|   );
180| }
181|
182| export default function CommonMistakes({ lang = 'vn', onExit }) {
183|   const [search, setSearch] = useState('');
184|
185|   const filtered = MISTAKES.filter(m =>
186|     !search || m.title.toLowerCase().includes(search.toLowerCase()) ||
187|     m.summary.toLowerCase().includes(search.toLowerCase()) ||
188|     m.level.toLowerCase().includes(search.toLowerCase())
189|   );
190|
191|   return (
192|     <div style={{
193|       position: 'fixed', inset: 0, zIndex: 9999,
194|       background: 'var(--bg-base)', display: 'flex', flexDirection: 'column',
195|       fontFamily: 'system-ui, sans-serif',
196|     }}>
197|       {/* Header */}
198|       <div style={{
199|         padding: '16px 24px', borderBottom: '1px solid var(--border-default)',
200|         background: 'var(--bg-surface)', flexShrink: 0,
201|       }}>
202|         <div style={{ maxWidth: '960px', margin: '0 auto', display: 'flex', alignItems: 'center', justifyConte...
203|           <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
204|             <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: 'rgba(239,68,68,0.1...
   2 0 5 |                                & þ
206|             </div>
207|             <div>
   2 0 8 |                                < d i v   s t y l e = { {   f o n t S i z e :   ' 1 7 p x ' ,   f o n t W e i g h t :   8 0 0 ,   c o l o r :   ' v
   2 0 9 |                                < d i v   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '
210|             </div>
211|           </div>
212|           <div style={{ display: 'flex', gap: '10px', alignItems: 'center' }}>
213|             <input
   2 1 4 |                                p l a c e h o l d e r = " T ì m   l × i . . . "
215|               value={search}
216|               onChange={e => setSearch(e.target.value)}
217|               style={{
218|                 padding: '8px 14px', borderRadius: '8px', border: '1px solid var(--border-default)',
219|                 background: 'var(--bg-elevated)', color: 'var(--text-primary)', fontSize: '13px',
220|                 fontFamily: 'inherit', outline: 'none', width: '200px',
221|               }}
222|             />
223|             <button onClick={onExit} style={{
224|               padding: '8px 14px', borderRadius: '8px', border: '1px solid var(--border-default)',
225|               background: 'transparent', color: 'var(--text-muted)', fontSize: '14px', cursor: 'pointer',
226|               fontFamily: 'inherit',
   2 2 7 |                            } } >'  < / b u t t o n >
228|           </div>
229|         </div>
230|       </div>
231|
232|       {/* Content */}
233|       <div style={{ flex: 1, overflow: 'auto', padding: '16px 24px' }}>
234|         <div style={{ maxWidth: '960px', margin: '0 auto', display: 'flex', flexDirection: 'column', gap: '8px...
235|           {filtered.length === 0 ? (
236|             <div style={{ textAlign: 'center', padding: '40px', color: 'var(--text-muted)', fontSize: '14px' }}>
   2 3 7 |                                K h ô n g   t ì m   t h ¥ y   l × i   n à o   p h ù   h ã p   v Ù i   " { s e a r c h } "
238|             </div>
239|           ) : (
240|             filtered.map((m, i) => (
241|               <div key={m.id} style={{ animation: `fadeUp 0.3s ease-out ${i * 0.05}s both` }}>
242|                 <MistakeCard mistake={m} />
```

```
243|             </div>
244|           ))
245|         )}
246|       </div>
247|     </div>
248|
249|     <style>{`
250|       @keyframes fadeUp { from { opacity: 0; transform: translateY(8px); } to { opacity: 1; transform: trans...
251|     `}</style>
252|   </div>
253| );
254| }
255|
```

File: components/CompatibilityPanel.js (107 lines, 4.8 KB)

```
1| 'use client';
2|
3| import { useBuildStore } from '@/lib/build-store';
4|
5| const SEVERITY_CONFIG = {
6|       e r r o r :   {   b g :   ' r g b a ( 2 3 9 , 6 8 , 6 8 , 0 . 1 ) ' ,   b o r d e r :   ' # e f 4 4 4 4 ' ,   t e x t :   ' # e f 4 4 4 4 '
7|       w a r n i n g :   {   b g :   ' r g b a ( 2 4 5 , 1 5 8 , 1 1 , 0 . 1 ) ' ,   b o r d e r :   ' # f 5 9 e 0 b ' ,   t e x t :   ' # f 5 9 e
8|       i n f o :   {   b g :   ' r g b a ( 5 9 , 1 3 0 , 2 4 6 , 0 . 1 ) ' ,   b o r d e r :   ' # 3 b 8 2 f 6 ' ,   t e x t :   ' # 3 b 8 2 f 6 '
9| };
10|
11| export default function CompatibilityPanel({ lang = 'vn' }) {
12|   const issues = useBuildStore(s => s.issues);
13|   const score = useBuildStore(s => s.score);
14|
15|   const errors = issues.filter(i => i.severity === 'error');
16|   const warnings = issues.filter(i => i.severity === 'warning');
17|   const infos = issues.filter(i => i.severity === 'info');
18|
19|   const scoreColor = score >= 80 ? 'var(--success)' : score >= 50 ? 'var(--warning)' : 'var(--danger)';
20|       c o n s t   s c o r e L a b e l   =   s c o r e   > =   9 0   ?   ' H o à n   h £ o '   :   s c o r e   > =   7 0   ?   ' T Ñ t '   :   s c
21|
22|   return (
23|     <div style={{
24|       background: 'var(--bg-surface)', borderRadius: '12px',
25|       border: '1px solid var(--border-default)', overflow: 'hidden',
26|       marginBottom: '16px',
27|     }}>
28|       {/* Score Header */}
29|       <div style={{
30|         display: 'flex', alignItems: 'center', gap: '16px',
31|         padding: '16px 20px',
32|         borderBottom: '1px solid var(--border-subtle)',
33|         background: 'var(--bg-elevated)',
34|       }}>
35|         {/* Circular score */}
36|         <div style={{
37|           position: 'relative', width: '56px', height: '56px', flexShrink: 0,
38|         }}>
39|           <svg width="56" height="56" viewBox="0 0 36 36" style={{ transform: 'rotate(-90deg)' }}>
40|             <circle cx="18" cy="18" r="15.5" fill="none" stroke="var(--border-subtle)" strokeWidth="2.5"/>
41|             <circle cx="18" cy="18" r="15.5" fill="none" stroke={scoreColor} strokeWidth="2.5"
42|               strokeDasharray={`${score * 0.97} 100`}
43|               strokeLinecap="round"/>
44|           </svg>
45|           <div style={{
46|             position: 'absolute', inset: 0, display: 'flex', alignItems: 'center', justifyContent: 'center',
47|             fontSize: '14px', fontWeight: 800, color: scoreColor,
48|           }}>
49|             {score}
50|           </div>
51|         </div>
52|         <div style={{ flex: 1 }}>
53|           <div style={{ fontWeight: 700, fontSize: '15px', color: 'var(--text-primary)' }}>
54|                         { l a n g   = = =   ' e n '   ?   ' C o m p a t i b i l i t y   C h e c k '   :   ' K i Ã m   t r a   t ° ¡ n g   t h i
55|           </div>
56|           <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginTop: '2px' }}>
57|             {issues.length === 0
58|                               ?   ( l a n g   = = =   ' e n '   ?   ' N o   i s s u e s   f o u n d   —   p e r f e c t   b u i l d ! '   :   ' K
59|                               :   ` $ { i s s u e s . l e n g t h }   $ { l a n g   = = =   ' e n '   ?   ' i s s u e ( s )   f o u n d '   :   '
60|           </div>
61|         </div>
62|       </div>
63|
64|       {/* Issues list */}
65|       <div style={{ padding: '12px 20px', display: 'flex', flexDirection: 'column', gap: '8px', maxHeight: '40...
66|         {issues.length === 0 && (
67|           <div style={{
68|             textAlign: 'center', padding: '20px',
69|             color: 'var(--success)', fontSize: '13px', fontWeight: 600,
70|           }}>
71|                         { l a n g   = = =   ' e n '   ?   ''   A l l   c o m p o n e n t s   c o m p a t i b l e ! '   :   ''   T ¥ t   c £
72|           </div>
73|         )}
74|         {[...errors, ...warnings, ...infos].map((issue, i) => {
75|           const cfg = SEVERITY_CONFIG[issue.severity];
76|           return (
77|             <div key={i} style={{
78|               display: 'flex', gap: '10px', padding: '10px 12px',
79|               background: cfg.bg, borderRadius: '8px',
80|               borderLeft: `3px solid ${cfg.border}`,
81|             }}>
82|               <span style={{ fontSize: '14px', color: cfg.text, flexShrink: 0, marginTop: '2px' }}>{cfg.icon}<...
83|               <div style={{ flex: 1, minWidth: 0 }}>
84|                 <div style={{
85|                   fontSize: '12px', fontWeight: 700, color: cfg.text,
86|                   marginBottom: '2px', textTransform: 'uppercase', letterSpacing: '0.3px',
87|                 }}>
88|                   {cfg.label}
89|                 </div>
90|                 <div style={{ fontSize: '12px', color: 'var(--text-primary)', lineHeight: 1.4, marginBottom: '...
91|                   {lang === 'en' ? issue.message : issue.message}
92|                 </div>
93|                 <div style={{
94|                   fontSize: '11px', color: 'var(--text-muted)', fontStyle: 'italic',
95|                   padding: '4px 8px', background: 'rgba(0,0,0,0.1)', borderRadius: '4px',
96|                 }}>
97|                               { l a n g   = = =   ' e n '   ?   ' F i x '   :   ' K h ¯ c   p h å c ' } :   { i s s u e . f i x }
98|                 </div>
99|               </div>
100|             </div>
101|           );
102|         })}
103|       </div>
104|     </div>
105|   );
106| }
107|
```

File: components/ComponentInfo.js (64 lines, 2.8 KB)

```
'use client';

import { COMPONENT_DATA } from '../utils/i18nData';

const ComponentInfo = ({ type, lang = 'en', onOpenLesson }) => {
    if (!type || !COMPONENT_DATA[lang][type]) return null;

    const info = COMPONENT_DATA[lang][type];

    return (
        <div className="glass-panel" style={{
            position: 'absolute',
            top: '2rem',
            left: '2rem',
            width: '300px',
            padding: '1.5rem',
            borderLeft: '4px solid var(--primary-neon)',
            background: 'var(--bg-surface)',
            boxShadow: '0 4px 6px -1px rgba(0, 0, 0, 0.1)',
            animation: 'fadeIn 0.3s ease-out'
        }}>
            <h3 className="neon-text-blue" style={{ marginBottom: '0.5rem', fontSize: '1.2rem' }}>{info.title}...
            <p style={{ color: 'var(--text-primary)', marginBottom: '1rem', lineHeight: '1.5', fontSize: '0.95...
            <div style={{ backgroundColor: '#f8fafc', padding: '0.75rem', borderRadius: '6px', border: '1px so...
                <strong style={{ color: 'var(--brand-primary)', fontSize: '0.85rem', textTransform: 'uppercase...
                <p style={{ color: 'var(--text-muted)', fontSize: '0.9rem', fontStyle: 'italic', marginTop: '0...
            </div>

            <button
                onClick={() => onOpenLesson && onOpenLesson(type)}
                style={{
                    width: '100%',
                    padding: '0.75rem',
                    backgroundColor: 'var(--primary-neon)',
                    color: '#ffffff',
                    border: 'none',
                    borderRadius: '8px',
                    fontWeight: '600',
                    cursor: 'pointer',
                    display: 'flex',
                    alignItems: 'center',
                    justifyContent: 'center',
                    gap: '0.5rem',
                    transition: 'all 0.2s',
                    boxShadow: '0 2px 4px rgba(2, 132, 199, 0.2)'
                }}
                onMouseOver={(e) => { e.currentTarget.style.backgroundColor = '#0369a1'; }}
                onMouseOut={(e) => { e.currentTarget.style.backgroundColor = 'var(--primary-neon)'; }}
            >
                < s p a n >Ø=ÜØ < / s p a n >
                { l a n g  = = =  ' e n '  ?  ' D e e p  D i v e  L e s s o n '  :  ' X e m  C h i  T i ¿ t  B à i
            </button>

            <style jsx>{`
                @keyframes fadeIn {
                    from { opacity: 0; transform: translateY(-10px); }
                    to { opacity: 1; transform: translateY(0); }
                }
            `}</style>
        </div>
    );
};

export default ComponentInfo;
```

File: components/ComponentPreview.js (190 lines, 9.8 KB)

```
'use client';

const PART_COLORS = {
  CPU: '#00d4aa', GPU: '#ef4444', RAM: '#6366f1',
  SSD: '#22c55e', PSU: '#f59e0b', COOLER: '#06b6d4', Mainboard: '#8b5cf6'
};

function CPUPreview({ model }) {
  return (
    <svg viewBox="0 0 200 200" width="100%" height="100%" style={{ maxWidth: 180 }}>
      <rect x="25" y="25" width="150" height="150" rx="6" fill="#1a1a2e" stroke="#333" strokeWidth="2" />
      <rect x="35" y="35" width="130" height="130" rx="4" fill="#2d2d44" stroke="#444" strokeWidth="1" />
      <rect x="50" y="50" width="100" height="100" rx="3" fill="#3a3a5c" />
      <text x="100" y="95" textAnchor="middle" fill="#00d4aa" fontSize="11" fontWeight="bold" fontFamily="mono...
      <text x="100" y="112" textAnchor="middle" fill="#888" fontSize="8" fontFamily="monospace">{model?.socket...
      <rect x="45" y="155" width="110" height="4" rx="2" fill="#d4a017" opacity="0.7" />
      {[0,1,2,3].map(i => (
        <circle key={i} cx={60+i*28} cy={20} r="3" fill="#d4a017" opacity="0.5" />
      ))}
      {[0,1,2,3].map(i => (
        <circle key={i+4} cx={60+i*28} cy={180} r="3" fill="#d4a017" opacity="0.5" />
      ))}
      <text x="100" y="175" textAnchor="middle" fill="#666" fontSize="7" fontFamily="monospace">{model?.power ...
    </svg>
  );
}

function GPUPreview({ model }) {
  return (
    <svg viewBox="0 0 280 160" width="100%" height="100%" style={{ maxWidth: 260 }}>
      <rect x="10" y="30" width="260" height="100" rx="8" fill="#2d1b1b" stroke="#ef4444" strokeWidth="1.5" />
      <rect x="20" y="40" width="240" height="80" rx="6" fill="#1a0f0f" />
      <rect x="40" y="55" width="60" height="50" rx="4" fill="#2d1b1b" stroke="#ef4444" strokeWidth="1" />
      <rect x="110" y="55" width="60" height="50" rx="4" fill="#2d1b1b" stroke="#ef4444" strokeWidth="1" />
      <rect x="180" y="55" width="50" height="50" rx="4" fill="#2d1b1b" stroke="#ef4444" strokeWidth="1" />
      <text x="70" y="83" textAnchor="middle" fill="#ef4444" fontSize="9" fontWeight="bold" fontFamily="monosp...
      <text x="140" y="83" textAnchor="middle" fill="#ef4444" fontSize="9" fontWeight="bold" fontFamily="monos...
      <text x="205" y="83" textAnchor="middle" fill="#ef4444" fontSize="9" fontWeight="bold" fontFamily="monos...
      {[0,1,2,3,4,5].map(i => (
        <line key={i} x1={22+i*44} y1="130" x2={22+i*44} y2="145" stroke="#d4a017" strokeWidth="2" opacity="0....
      ))}
      <rect x="10" y="145" width="30" height="8" rx="2" fill="#d4a017" opacity="0.4" />
      <text x="140" y="155" textAnchor="middle" fill="#666" fontSize="7" fontFamily="monospace">{model?.power ...
    </svg>
  );
}

function RAMPreview({ model }) {
  return (
    <svg viewBox="0 0 160 220" width="100%" height="100%" style={{ maxWidth: 140 }}>
      <rect x="20" y="15" width="120" height="180" rx="4" fill="#1a1a3e" stroke="#6366f1" strokeWidth="1.5" />
```

```
      <rect x="30" y="25" width="100" height="160" rx="3" fill="#252550" />
      {[0,1,2,3].map(i => (
        <rect key={i} x={35+i*24} y="35" width="18" height="40" rx="2" fill="#2d2d60" stroke="#6366f1" strokeW...
      ))}
      <text x="80" y="100" textAnchor="middle" fill="#6366f1" fontSize="10" fontWeight="bold" fontFamily="mono...
      <text x="80" y="115" textAnchor="middle" fill="#888" fontSize="8" fontFamily="monospace">{model?.ramType...
      <rect x="30" y="185" width="100" height="12" rx="2" fill="#d4a017" opacity="0.6" />
      {[0,1,2,3,4].map(i => (
        <rect key={i} x={38+i*22} y="187" width="10" height="8" rx="1" fill="#b8860b" opacity="0.8" />
      ))}
      <text x="80" y="212" textAnchor="middle" fill="#666" fontSize="7" fontFamily="monospace">{model?.power |...
    </svg>
  );
}

function SSDPreview({ model }) {
  return (
    <svg viewBox="0 0 200 120" width="100%" height="100%" style={{ maxWidth: 180 }}>
      <rect x="15" y="20" width="170" height="80" rx="6" fill="#0d2818" stroke="#22c55e" strokeWidth="1.5" />
      <rect x="25" y="30" width="150" height="60" rx="4" fill="#143d22" />
      <rect x="35" y="40" width="60" height="40" rx="3" fill="#1a5c30" stroke="#22c55e" strokeWidth="0.5" opac...
      <rect x="105" y="40" width="50" height="40" rx="3" fill="#1a5c30" stroke="#22c55e" strokeWidth="0.5" opa...
      <text x="135" y="63" textAnchor="middle" fill="#22c55e" fontSize="9" fontWeight="bold" fontFamily="monos...
      <rect x="15" y="45" width="8" height="30" rx="2" fill="#d4a017" opacity="0.7" />
      <text x="100" y="110" textAnchor="middle" fill="#666" fontSize="7" fontFamily="monospace">M.2 NVMe</text>
    </svg>
  );
}

function PSUPreview({ model }) {
  return (
    <svg viewBox="0 0 220 180" width="100%" height="100%" style={{ maxWidth: 200 }}>
      <rect x="15" y="20" width="190" height="140" rx="6" fill="#1a1a1a" stroke="#f59e0b" strokeWidth="1.5" />
      <rect x="25" y="30" width="170" height="120" rx="4" fill="#2a2a2a" />
      <circle cx="110" cy="75" r="30" fill="#1a1a1a" stroke="#f59e0b" strokeWidth="1" />
      <circle cx="110" cy="75" r="20" fill="none" stroke="#f59e0b" strokeWidth="0.5" opacity="0.5" />
      <text x="110" y="79" textAnchor="middle" fill="#f59e0b" fontSize="8" fontWeight="bold" fontFamily="monos...
      {[0,1,2,3].map(i => (
        <line key={i} x1={30} y1={120+i*8} x2={38} y2={120+i*8} stroke="#f59e0b" strokeWidth="1.5" opacity="0....
      ))}
      {[0,1,2,3].map(i => (
        <line key={i} x1={182} y1={120+i*8} x2={190} y2={120+i*8} stroke="#f59e0b" strokeWidth="1.5" opacity="...
      ))}
      <text x="110" y="150" textAnchor="middle" fill="#666" fontSize="7" fontFamily="monospace">{model?.power ...
    </svg>
  );
}

function COOLERPreview({ model }) {
  return (
    <svg viewBox="0 0 200 200" width="100%" height="100%" style={{ maxWidth: 180 }}>
      <rect x="40" y="20" width="120" height="160" rx="6" fill="#1a2a3a" stroke="#06b6d4" strokeWidth="1.5" />
      <rect x="50" y="30" width="100" height="140" rx="4" fill="#1e3347" />
      {[0,1,2,3,4].map(i => (
        <rect key={i} x="55" y={35+i*26} width="90" height="16" rx="2" fill="#254458" stroke="#06b6d4" strokeW...
      ))}
      <rect x="65" y="70" width="70" height="60" rx="4" fill="#1a2a3a" stroke="#06b6d4" strokeWidth="1" />
      <text x="100" y="103" textAnchor="middle" fill="#06b6d4" fontSize="9" fontWeight="bold" fontFamily="mono...
      {[0,1,2].map(i => (
        <line key={i} x1={70+i*12} y1={55} x2={70+i*12} y2={65} stroke="#06b6d4" strokeWidth="0.5" opacity="0....
      ))}
      <text x="100" y="145" textAnchor="middle" fill="#666" fontSize="7" fontFamily="monospace">{model?.power ...
    </svg>
  );
}

function MainboardPreview({ model }) {
  return (
    <svg viewBox="0 0 260 240" width="100%" height="100%" style={{ maxWidth: 240 }}>
      <rect x="10" y="10" width="240" height="220" rx="8" fill="#1a2f4a" stroke="#8b5cf6" strokeWidth="1.5" />
      <rect x="20" y="20" width="220" height="200" rx="5" fill="#1e3a5f" />
      {/* CPU socket */}
      <rect x="80" y="60" width="100" height="80" rx="4" fill="#2a4a6f" stroke="#8b5cf6" strokeWidth="1" />
      <text x="130" y="105" textAnchor="middle" fill="#8b5cf6" fontSize="9" fontWeight="bold" fontFamily="mono...
      {/* RAM slots */}
      {[0,1].map(i => (
        <rect key={i} x={35+i*20} y="160" width="15" height="30" rx="2" fill="#2a4a6f" stroke="#8b5cf6" stroke...
      ))}
      {[0,1].map(i => (
        <rect key={i} x={210+i*20} y="160" width="15" height="30" rx="2" fill="#2a4a6f" stroke="#8b5cf6" strok...
      ))}
      {/* PCIe slots */}
      <rect x="60" y="150" width="60" height="6" rx="1" fill="#2a4a6f" opacity="0.5" />
      <rect x="60" y="165" width="60" height="6" rx="1" fill="#2a4a6f" opacity="0.5" />
      {/* I/O ports */}
      <rect x="20" y="15" width="60" height="12" rx="2" fill="#2a4a6f" opacity="0.4" />
      {[0,1,2,3].map(i => (
        <rect key={i} x={22+i*14} y="17" width="12" height="8" rx="1" fill="#4a6a8f" opacity="0.3" />
      ))}
      <text x="130" y="228" textAnchor="middle" fill="#666" fontSize="7" fontFamily="monospace">{model?.socket...
    </svg>
  );
}

const PREVIEWS = {
  CPU: CPUPreview,
  GPU: GPUPreview,
  RAM: RAMPreview,
  SSD: SSDPreview,
  PSU: PSUPreview,
  COOLER: COOLERPreview,
  Mainboard: MainboardPreview
};

export default function ComponentPreview({ type, model, size = 'normal' }) {
  const Preview = PREVIEWS[type];
  if (!Preview) return null;
  const color = PART_COLORS[type] || '#666';

  return (
    <div style={{
      background: 'var(--bg-elevated)',
      border: `1px solid ${color}30`,
      borderRadius: '12px',
      padding: size === 'large' ? '24px' : '12px',
      display: 'flex',
      flexDirection: 'column',
      alignItems: 'center',
      gap: '8px',
      transition: 'all 0.2s',
      width: size === 'large' ? '100%' : 'auto'
    }}>
      <div style={{ width: '100%', display: 'flex', justifyContent: 'center' }}>
        <Preview model={model} />
```

```
176|       </div>
177|       {model && (
178|         <div style={{ textAlign: 'center' }}>
179|           <div style={{ fontSize: '13px', fontWeight: 700, color: 'var(--text-primary)' }}>{model.name}</div>
180|           <div style={{ fontSize: '11px', color: color, fontWeight: 600 }}>{type} · {(model.price || 0).toLoca...
181|           {model.desc && <div style={{ fontSize: '10px', color: 'var(--text-muted)', marginTop: '4px', lineHei...
182|         </div>
183|       )}
184|       {!model && (
185|         <div style={{ fontSize: '12px', fontWeight: 600, color: color }}>{type}</div>
186|       )}
187|     </div>
188|   );
189| }
190|
```

File: components/ComponentPreview3D.js (836 lines, 27.4 KB)

```
  1| 'use client';
  2|
  3| import { useState, useRef, useCallback, Suspense, useEffect } from 'react';
  4| import dynamic from 'next/dynamic';
  5| import { Canvas } from '@react-three/fiber';
  6| import { OrbitControls, Text } from '@react-three/drei';
  7|
  8| const PART_COLORS = {
  9|   CPU: '#00d4aa',
 10|   GPU: '#ef4444',
 11|   RAM: '#6366f1',
 12|   SSD: '#22c55e',
 13|   PSU: '#f59e0b',
 14|   MAINBOARD: '#8b5cf6'
 15| };
 16|
 17| const BRAND_COLORS = {
 18|   kingston: '#0096d6',
 19|   corsair: '#ff4400',
 20|   gskill: '#00aa00',
 21|   teamgroup: '#00aaff',
 22|   crucial: '#0055aa'
 23| };
 24|
 25| function LoadingSpinner() {
 26|   return (
 27|     <div style={{
 28|       display: 'flex',
 29|       alignItems: 'center',
 30|       justifyContent: 'center',
 31|       width: '100%',
 32|       height: '100%',
 33|       minHeight: 200,
 34|       flexDirection: 'column',
 35|       gap: 12
 36|     }}>
 37|       <div style={{
 38|         width: 36,
 39|         height: 36,
 40|         border: '3px solid var(--border-default, #333)',
 41|         borderTopColor: 'var(--accent, #00d4aa)',
 42|         borderRadius: '50%',
 43|         animation: 'spin 0.8s linear infinite'
 44|       }} />
 45|       <style>{`@keyframes spin { to { transform: rotate(360deg); } }`}</style>
 46|       <span style={{ fontSize: 12, color: 'var(--text-muted, #888)' }}>Loading 3D preview...</span>
 47|     </div>
 48|   );
 49| }
 50|
 51| function ErrorFallback({ componentType, model }) {
 52|   const color = PART_COLORS[componentType] || '#666';
 53|   return (
 54|     <div style={{
 55|       display: 'flex',
 56|       alignItems: 'center',
 57|       justifyContent: 'center',
 58|       width: '100%',
 59|       height: '100%',
 60|       minHeight: 200,
 61|       flexDirection: 'column',
 62|       gap: 8,
 63|       background: 'var(--bg-elevated, #111)',
 64|       borderRadius: 12,
 65|       border: `1px solid ${color}30`,
 66|       padding: 16
 67|     }}>
 68|       <svg viewBox="0 0 200 200" width="140" height="140">
 69|         <rect x="25" y="25" width="150" height="150" rx="6" fill="#1a1a2e" stroke={color} strokeWidth="2" />
 70|         <rect x="35" y="35" width="130" height="130" rx="4" fill="#2d2d44" stroke={color} strokeWidth="1" opac...
 71|         <text x="100" y="100" textAnchor="middle" fill={color} fontSize="12" fontWeight="bold" fontFamily="mon...
 72|         <text x="100" y="120" textAnchor="middle" fill="#666" fontSize="8" fontFamily="monospace">{model?.name...
 73|       </svg>
 74|       <span style={{ fontSize: 11, color: 'var(--text-muted, #888)' }}>3D unavailable - showing 2D preview</span>
 75|     </div>
 76|   );
 77| }
 78|
 79| /* ---- CPU 3D Model ---- */
 80| function CPUModel({ brand, socket = 'LGA1700', isHovered }) {
 81|   const groupRef = useRef();
 82|   const socketLabel = brand === 'AMD' ? 'AM5' : 'LGA1700';
 83|   const pinPositions = [];
 84|   for (let x = -0.75; x <= 0.75; x += 0.25) {
 85|     for (let z = -0.75; z <= 0.75; z += 0.25) {
 86|       pinPositions.push([x, z]);
 87|     }
 88|   }
 89|   const capPositions = [];
 90|   for (let x = -0.82; x <= 0.82; x += 0.82) {
 91|     for (let z = -0.82; z <= 0.82; z += 0.82) {
 92|       if (x !== 0 || z !== 0) capPositions.push([x, z]);
 93|     }
 94|   }
 95|
 96|   return (
 97|     <group ref={groupRef} scale={isHovered ? 1.05 : 1}>
 98|       <mesh position={[0, 0.2, 0]}>
 99|         <boxGeometry args={[1.6, 0.08, 1.6]} />
100|         <meshStandardMaterial color="#c0c0c0" metalness={0.7} roughness={0.3} />
101|       </mesh>
102|       <mesh position={[0, 0.16, 0]}>
103|         <boxGeometry args={[1.7, 0.02, 1.7]} />
104|         <meshStandardMaterial color="#a0a0a0" metalness={0.5} roughness={0.4} />
105|       </mesh>
```

```
      <mesh position={[0, -0.05, 0]}>
        <boxGeometry args={[1.8, 0.1, 1.8]} />
        <meshStandardMaterial color="#2a1a0a" roughness={0.9} />
      </mesh>
      {pinPositions.map(([x, z]) => (
        <mesh key={`pin-${x}-${z}`} position={[x, -0.12, z]}>
          <cylinderGeometry args={[0.025, 0.035, 0.06, 6]} />
          <meshStandardMaterial color="#b8860b" metalness={0.6} roughness={0.4} />
        </mesh>
      ))}
      <mesh position={[-0.8, 0.25, 0.8]} rotation={[0, 0, Math.PI / 4]}>
        <boxGeometry args={[0.08, 0.01, 0.08]} />
        <meshStandardMaterial color="#ff4444" />
      </mesh>
      <Text
        position={[0, 0.3, 0]}
        fontSize={0.12}
        color="#333"
        anchorX="center"
        anchorY="middle"
      >
        {socketLabel}
      </Text>
      {capPositions.map(([x, z]) => (
        <mesh key={`cap-${x}-${z}`} position={[x, 0.22, z]}>
          <sphereGeometry args={[0.025, 8, 8]} />
          <meshStandardMaterial color="#888" metalness={0.3} roughness={0.5} />
        </mesh>
      ))}
    </group>
  );
}

/* ---- GPU 3D Model ---- */
function GPUModel({ isHovered }) {
  const fanRef1 = useRef();
  const fanRef2 = useRef();
  const fanRef3 = useRef();

  useEffect(() => {
    let running = true;
    function animate() {
      if (!running) return;
      if (fanRef1.current) fanRef1.current.rotation.y += 0.02;
      if (fanRef2.current) fanRef2.current.rotation.y += 0.02;
      if (fanRef3.current) fanRef3.current.rotation.y += 0.02;
      requestAnimationFrame(animate);
    }
    const raf = requestAnimationFrame(animate);
    return () => { running = false; cancelAnimationFrame(raf); };
  }, []);

  function FanGroup({ pos, radius, fanRef }) {
    const blades = [];
    for (let i = 0; i < 8; i++) {
      const angle = (i / 8) * Math.PI * 2;
      blades.push(
        <mesh
          key={i}
          position={[Math.sin(angle) * radius * 0.5, 0, Math.cos(angle) * radius * 0.5]}
          rotation={[0, -angle, Math.PI / 6]}
        >
          <boxGeometry args={[0.06, 0.01, 0.2]} />
          <meshStandardMaterial color="#555" transparent opacity={0.85} />
        </mesh>
      );
    }
    return (
      <group position={pos}>
        <mesh position={[0, 0, 0]}>
          <cylinderGeometry args={[0.1, 0.1, 0.03, 16]} />
          <meshStandardMaterial color="#333" />
        </mesh>
        <group ref={fanRef}>
          {blades}
        </group>
        <mesh position={[0, 0, 0]}>
          <torusGeometry args={[radius, 0.015, 8, 24]} />
          <meshStandardMaterial color="#444" transparent opacity={0.5} />
        </mesh>
      </group>
    );
  }

  const finPositions = [-0.6, -0.2, 0.2, 0.6];
  const pciePinPositions = [];
  for (let i = 0; i < 12; i++) pciePinPositions.push((i - 6) * 0.09);

  return (
    <group scale={isHovered ? 1.03 : 1}>
      <mesh position={[0, 0, 0]}>
        <boxGeometry args={[2.8, 0.06, 1.2]} />
        <meshStandardMaterial color="#2d2d2d" roughness={0.8} />
      </mesh>
      <mesh position={[0, 0.04, 0]}>
        <boxGeometry args={[2.7, 0.01, 1.1]} />
        <meshStandardMaterial color="#1a1a1a" roughness={0.9} />
      </mesh>
      {finPositions.map((x) => (
        <mesh key={`fin-${x}`} position={[x, 0.12, 0]}>
          <boxGeometry args={[0.04, 0.15, 0.9]} />
          <meshStandardMaterial color="#c0c0c0" metalness={0.6} roughness={0.3} />
        </mesh>
      ))}
      <mesh position={[0, 0.08, 0]}>
        <boxGeometry args={[2.0, 0.03, 0.8]} />
        <meshStandardMaterial color="#a0a0a0" metalness={0.5} roughness={0.4} />
      </mesh>
      <FanGroup pos={[-0.7, 0.18, 0]} radius={0.28} fanRef={fanRef1} />
      <FanGroup pos={[0, 0.18, 0]} radius={0.28} fanRef={fanRef2} />
      <FanGroup pos={[0.7, 0.18, 0]} radius={0.28} fanRef={fanRef3} />
      <mesh position={[0.5, -0.06, 0]}>
        <boxGeometry args={[1.2, 0.02, 0.08]} />
        <meshStandardMaterial color="#b8860b" metalness={0.5} roughness={0.4} />
      </mesh>
      {pciePinPositions.map((offset, i) => (
        <mesh key={`pciepin-${i}`} position={[0.5 + offset, -0.08, 0]}>
          <boxGeometry args={[0.07, 0.02, 0.06]} />
          <meshStandardMaterial color="#d4a017" metalness={0.7} roughness={0.3} />
        </mesh>
      ))}
      <mesh position={[1.25, 0.04, 0]}>
        <boxGeometry args={[0.12, 0.025, 0.14]} />
        <meshStandardMaterial color="#333" />
```

```
      </mesh>
      <mesh position={[0, 0.06, 0]}>
        <boxGeometry args={[0.3, 0.005, 0.3]} />
        <meshStandardMaterial color="#444" />
      </mesh>
    </group>
  );
}

/* ---- RAM 3D Model ---- */
function RAMModel({ brand, isHovered }) {
  const heatspreaderColor = BRAND_COLORS[brand?.toLowerCase()] || '#0096d6';
  const finPositions = [];
  for (let i = 0; i < 8; i++) finPositions.push(0.05 + i * 0.065);
  const goldPinPositions = [];
  for (let i = 0; i < 10; i++) goldPinPositions.push((i - 4.5) * 0.01);
  const chipPositions = [];
  for (let side = 0; side < 2; side++) {
    for (let i = 0; i < 4; i++) {
      chipPositions.push({ x: side === 0 ? -0.035 : 0.035, y: 0.32 + i * 0.07 });
    }
  }

  return (
    <group scale={isHovered ? 1.05 : 1}>
      <mesh position={[0, 0.15, 0]}>
        <boxGeometry args={[0.12, 0.6, 0.025]} />
        <meshStandardMaterial color="#2a2a2a" roughness={0.8} />
      </mesh>
      <mesh position={[-0.075, 0.15, 0]}>
        <boxGeometry args={[0.025, 0.55, 0.04]} />
        <meshStandardMaterial color={heatspreaderColor} metalness={0.4} roughness={0.4} />
      </mesh>
      <mesh position={[0.075, 0.15, 0]}>
        <boxGeometry args={[0.025, 0.55, 0.04]} />
        <meshStandardMaterial color={heatspreaderColor} metalness={0.4} roughness={0.4} />
      </mesh>
      {finPositions.map((y, i) => (
        <mesh key={`finl-${i}`} position={[-0.09, y, 0]}>
          <boxGeometry args={[0.012, 0.04, 0.045]} />
          <meshStandardMaterial color={heatspreaderColor} metalness={0.3} roughness={0.5} opacity={0.7} transp...
        </mesh>
      ))}
      {finPositions.map((y, i) => (
        <mesh key={`finr-${i}`} position={[0.09, y, 0]}>
          <boxGeometry args={[0.012, 0.04, 0.045]} />
          <meshStandardMaterial color={heatspreaderColor} metalness={0.3} roughness={0.5} opacity={0.7} transp...
        </mesh>
      ))}
      <mesh position={[0, -0.18, 0]}>
        <boxGeometry args={[0.11, 0.08, 0.018]} />
        <meshStandardMaterial color="#d4a017" metalness={0.8} roughness={0.2} />
      </mesh>
      {goldPinPositions.map((offset, i) => (
        <mesh key={`goldpin-${i}`} position={[offset, -0.2, 0]}>
          <boxGeometry args={[0.006, 0.06, 0.016]} />
          <meshStandardMaterial color="#b8860b" metalness={0.9} roughness={0.1} />
        </mesh>
      ))}
      {chipPositions.map((p, i) => (
        <mesh key={`chip-${i}`} position={[p.x, p.y, 0]}>
          <boxGeometry args={[0.025, 0.025, 0.02]} />
          <meshStandardMaterial color="#111" />
        </mesh>
      ))}
      <mesh position={[0, 0.35, 0.018]}>
        <boxGeometry args={[0.06, 0.06, 0.002]} />
        <meshStandardMaterial color="#f0f0f0" roughness={0.9} />
      </mesh>
    </group>
  );
}

/* ---- SSD 3D Model ---- */
function SSDModel({ isHovered }) {
  const nandPositions = [-0.5, 0.2, 0.55];
  const m2pinPositions = [];
  for (let i = 0; i < 8; i++) m2pinPositions.push((i - 3.5) * 0.028);

  return (
    <group rotation={[0, 0, 0]} scale={isHovered ? 1.05 : 1}>
      <mesh position={[0, 0, 0]}>
        <boxGeometry args={[1.6, 0.015, 0.25]} />
        <meshStandardMaterial color="#1a1a1a" roughness={0.85} />
      </mesh>
      <mesh position={[-0.15, 0.015, 0]}>
        <boxGeometry args={[0.2, 0.02, 0.15]} />
        <meshStandardMaterial color="#333" roughness={0.7} />
      </mesh>
      {nandPositions.map((x) => (
        <mesh key={`nand-${x}`} position={[x, 0.015, 0]}>
          <boxGeometry args={[0.18, 0.02, 0.16]} />
          <meshStandardMaterial color="#2a2a2a" roughness={0.7} />
        </mesh>
      ))}
      <mesh position={[-0.15, 0.025, 0]}>
        <boxGeometry args={[0.12, 0.005, 0.08]} />
        <meshStandardMaterial color="#444" />
      </mesh>
      <mesh position={[0.85, 0, 0]}>
        <boxGeometry args={[0.04, 0.012, 0.24]} />
        <meshStandardMaterial color="#d4a017" metalness={0.8} roughness={0.2} />
      </mesh>
      {m2pinPositions.map((offset, i) => (
        <mesh key={`m2pin-${i}`} position={[0.87, 0, offset]}>
          <boxGeometry args={[0.025, 0.01, 0.02]} />
          <meshStandardMaterial color="#b8860b" metalness={0.9} roughness={0.1} />
        </mesh>
      ))}
      <mesh position={[-0.75, 0, 0]}>
        <cylinderGeometry args={[0.03, 0.03, 0.02, 12]} />
        <meshStandardMaterial color="#666" metalness={0.3} roughness={0.5} />
      </mesh>
      <mesh position={[0.1, 0.018, 0.08]}>
        <boxGeometry args={[0.3, 0.003, 0.01]} />
        <meshStandardMaterial color="#555" />
      </mesh>
      <Text
        position={[0.1, 0.022, 0.11]}
        fontSize={0.04}
        color="#fff"
        anchorX="center"
        anchorY="middle"
      >
```

```
354|         M.2 NVMe
355|       </Text>
356|     </group>
357|   );
358| }
359|
360| /* ---- PSU 3D Model ---- */
361| function PSUModel({ isHovered }) {
362|   const fanBladesRef = useRef();
363|
364|   useEffect(() => {
365|     let running = true;
366|     function animate() {
367|       if (!running) return;
368|       if (fanBladesRef.current) fanBladesRef.current.rotation.y += 0.01;
369|       requestAnimationFrame(animate);
370|     }
371|     const raf = requestAnimationFrame(animate);
372|     return () => { running = false; cancelAnimationFrame(raf); };
373|   }, []);
374|
375|   const ventPositions = [];
376|   for (let i = 0; i < 8; i++) ventPositions.push(-0.8 + i * 0.22);
377|
378|   const screwPositions = [
379|     [-0.95, 0.25, 0.65],
380|     [-0.95, -0.25, 0.65],
381|     [-0.95, 0.25, -0.65],
382|     [-0.95, -0.25, -0.65]
383|   ];
384|
385|   const fanBladePositions = [];
386|   for (let i = 0; i < 7; i++) {
387|     const angle = (i / 7) * Math.PI * 2;
388|     fanBladePositions.push({
389|       x: Math.sin(angle) * 0.18,
390|       z: Math.cos(angle) * 0.18,
391|       angle
392|     });
393|   }
394|
395|   const connPinPositions = [];
396|   for (let i = 0; i < 6; i++) connPinPositions.push(-0.1 + i * 0.06);
397|
398|   return (
399|     <group scale={isHovered ? 1.03 : 1}>
400|       <mesh position={[0, 0, 0]}>
401|         <boxGeometry args={[2.2, 0.6, 1.4]} />
402|         <meshStandardMaterial color="#2a2a2a" metalness={0.3} roughness={0.6} />
403|       </mesh>
404|       <mesh position={[0, 0.32, 0]}>
405|         <boxGeometry args={[2.18, 0.02, 1.38]} />
406|         <meshStandardMaterial color="#333" metalness={0.2} roughness={0.7} />
407|       </mesh>
408|       <mesh position={[0, 0.2, 0.72]}>
409|         <boxGeometry args={[0.6, 0.15, 0.01]} />
410|         <meshStandardMaterial color="#1a1a1a" />
411|       </mesh>
412|       <Text
413|         position={[0, 0.2, 0.74]}
414|         fontSize={0.06}
415|         color="#f59e0b"
416|         anchorX="center"
417|         anchorY="middle"
418|       >
419|         PSU
420|       </Text>
421|       <mesh position={[0, 0.32, 0]}>
422|         <torusGeometry args={[0.35, 0.015, 8, 24]} />
423|         <meshStandardMaterial color="#111" metalness={0.2} />
424|       </mesh>
425|       {[0, 1].map((i) => (
426|         <mesh key={`grill-${i}`} position={[0, 0.33, 0]} rotation={[0, 0, (Math.PI / 2) * i]}>
427|           <boxGeometry args={[0.65, 0.008, 0.008]} />
428|           <meshStandardMaterial color="#111" />
429|         </mesh>
430|       ))}
431|       <group ref={fanBladesRef} position={[0, 0.32, 0]}>
432|         {fanBladePositions.map((p, i) => (
433|           <mesh key={i} position={[p.x, 0, p.z]} rotation={[0, -p.angle, 0.3]}>
434|             <boxGeometry args={[0.04, 0.005, 0.15]} />
435|             <meshStandardMaterial color="#444" transparent opacity={0.8} />
436|           </mesh>
437|         ))}
438|         <mesh position={[0, 0, 0]}>
439|           <cylinderGeometry args={[0.06, 0.06, 0.01, 12]} />
440|           <meshStandardMaterial color="#333" />
441|         </mesh>
442|       </group>
443|       <mesh position={[1.12, 0.1, 0]}>
444|         <boxGeometry args={[0.03, 0.2, 0.3]} />
445|         <meshStandardMaterial color="#111" />
446|       </mesh>
447|       {connPinPositions.map((y, i) => (
448|         <mesh key={`connpin-${i}`} position={[1.14, y, 0]}>
449|           <cylinderGeometry args={[0.015, 0.015, 0.04, 6]} />
450|           <meshStandardMaterial color="#555" />
451|         </mesh>
452|       ))}
453|       {ventPositions.map((x, i) => (
454|         <mesh key={`vent-${i}`} position={[x, 0, 0.72]}>
455|           <boxGeometry args={[0.12, 0.01, 0.01]} />
456|           <meshStandardMaterial color="#1a1a1a" />
457|         </mesh>
458|       ))}
459|       {screwPositions.map((pos, i) => (
460|         <mesh key={`screw-${i}`} position={pos}>
461|           <cylinderGeometry args={[0.02, 0.02, 0.02, 8]} />
462|           <meshStandardMaterial color="#666" metalness={0.5} />
463|         </mesh>
464|       ))}
465|       <mesh position={[1.12, 0.25, 0.12]}>
466|         <boxGeometry args={[0.02, 0.04, 0.025]} />
467|         <meshStandardMaterial color="#333" />
468|       </mesh>
469|     </group>
470|   );
471| }
472|
473| /* ---- Mainboard 3D Model ---- */
474| function MainboardModel({ isHovered }) {
475|   const socketHolePositions = [];
476|   for (let x = 0; x < 5; x++) {
477|     for (let z = 0; z < 5; z++) {
```

```
      socketHolePositions.push({ x: -0.25 + x * 0.125, z: 0.2 + z * 0.125 });
    }
  }

  const mountPositions = [
    [-1.4, -1.1],
    [-1.4, 1.1],
    [1.4, -1.1],
    [1.4, 1.1],
    [0, -1.1],
    [0, 1.1]
  ];

  const ioPortPositions = [];
  for (let i = 0; i < 4; i++) ioPortPositions.push(0.4 + i * 0.1);

  const sataPositions = [];
  for (let i = 0; i < 4; i++) sataPositions.push(-0.85 + i * 0.1);

  const capClusterPositions = [];
  for (let i = 0; i < 3; i++) capClusterPositions.push(-0.1 + i * 0.08);

  return (
    <group scale={isHovered ? 1.02 : 1}>
      <mesh position={[0, 0, 0]}>
        <boxGeometry args={[3.0, 0.02, 2.4]} />
        <meshStandardMaterial color="#1a3a1a" roughness={0.9} />
      </mesh>
      <mesh position={[0, 0.015, 0]}>
        <boxGeometry args={[2.9, 0.005, 2.3]} />
        <meshStandardMaterial color="#1e4a1e" roughness={0.95} />
      </mesh>
      <mesh position={[0, 0.03, 0.3]}>
        <boxGeometry args={[0.7, 0.015, 0.7]} />
        <meshStandardMaterial color="#c0c0c0" metalness={0.4} roughness={0.5} />
      </mesh>
      {socketHolePositions.map((p, i) => (
        <mesh key={`sockhole-${i}`} position={[p.x, 0.04, p.z]}>
          <cylinderGeometry args={[0.015, 0.015, 0.02, 6]} />
          <meshStandardMaterial color="#333" />
        </mesh>
      ))}
      <mesh position={[0.38, 0.04, 0.3]}>
        <boxGeometry args={[0.04, 0.005, 0.1]} />
        <meshStandardMaterial color="#888" metalness={0.5} />
      </mesh>
      <Text
        position={[0, 0.05, 0.75]}
        fontSize={0.08}
        color="#fff"
        anchorX="center"
        anchorY="middle"
      >
        CPU
      </Text>
      {[0, 1].map((i) => (
        <mesh key={`ramslot-l${i}`} position={[-0.75 - i * 0.07, 0.03, 0.5]}>
          <boxGeometry args={[0.05, 0.015, 0.35]} />
          <meshStandardMaterial color="#333" roughness={0.7} />
        </mesh>
      ))}
      {[0, 1].map((i) => (
        <mesh key={`ramslot-r${i}`} position={[0.75 + i * 0.07, 0.03, 0.5]}>
          <boxGeometry args={[0.05, 0.015, 0.35]} />
          <meshStandardMaterial color="#333" roughness={0.7} />
        </mesh>
      ))}
      <Text
        position={[-0.75, 0.05, 0.7]}
        fontSize={0.05}
        color="#fff"
        anchorX="center"
        anchorY="middle"
      >
        RAM1
      </Text>
      <Text
        position={[0.75, 0.05, 0.7]}
        fontSize={0.05}
        color="#fff"
        anchorX="center"
        anchorY="middle"
      >
        RAM2
      </Text>
      {[0, 1, 2].map((i) => (
        <mesh key={`pcie-${i}`} position={[0, 0.03, -0.4 - i * 0.25]}>
          <boxGeometry args={[1.2, 0.012, 0.06]} />
          <meshStandardMaterial color="#444" roughness={0.6} />
        </mesh>
      ))}
      <Text
        position={[0, 0.05, -0.4]}
        fontSize={0.05}
        color="#fff"
        anchorX="center"
        anchorY="middle"
      >
        PCIE
      </Text>
      <mesh position={[-0.2, 0.03, -0.7]}>
        <boxGeometry args={[0.25, 0.025, 0.25]} />
        <meshStandardMaterial color="#c0c0c0" metalness={0.5} roughness={0.4} />
      </mesh>
      <mesh position={[-0.2, 0.04, -0.7]}>
        <boxGeometry args={[0.15, 0.005, 0.15]} />
        <meshStandardMaterial color="#888" />
      </mesh>
      <mesh position={[1.52, 0.02, 0.6]}>
        <boxGeometry args={[0.02, 0.015, 0.5]} />
        <meshStandardMaterial color="#a0a0a0" metalness={0.4} roughness={0.5} />
      </mesh>
      {ioPortPositions.map((z, i) => (
        <mesh key={`ioport-${i}`} position={[1.55, 0.025, z]}>
          <boxGeometry args={[0.01, 0.01, 0.06]} />
          <meshStandardMaterial color="#555" />
        </mesh>
      ))}
      {sataPositions.map((z, i) => (
        <mesh key={`sata-${i}`} position={[1.3, 0.025, z]}>
          <boxGeometry args={[0.04, 0.015, 0.02]} />
          <meshStandardMaterial color="#444" />
        </mesh>
      ))}
```

```
602|       <mesh position={[-0.5, 0.025, -0.1]}>
603|         <boxGeometry args={[0.5, 0.008, 0.03]} />
604|         <meshStandardMaterial color="#555" />
605|       </mesh>
606|       {capClusterPositions.map((x, i) => (
607|         <mesh key={`capclust-${i}`} position={[x, 0.025, 0.3]}>
608|           <cylinderGeometry args={[0.025, 0.025, 0.015, 8]} />
609|           <meshStandardMaterial color="#666" />
610|         </mesh>
611|       ))}
612|       <mesh position={[1.4, 0.025, -0.1]}>
613|         <boxGeometry args={[0.02, 0.015, 0.2]} />
614|         <meshStandardMaterial color="#333" />
615|       </mesh>
616|       {mountPositions.map(([x, z], i) => (
617|         <mesh key={`mount-${i}`} position={[x, 0, z]}>
618|           <cylinderGeometry args={[0.03, 0.03, 0.01, 8]} />
619|           <meshStandardMaterial color="#888" metalness={0.4} />
620|         </mesh>
621|       ))}
622|       <mesh position={[-0.5, 0.035, 0.95]}>
623|         <boxGeometry args={[0.3, 0.025, 0.1]} />
624|         <meshStandardMaterial color="#999" metalness={0.5} roughness={0.4} />
625|       </mesh>
626|     </group>
627|   );
628| }
629|
630| /* ---- Model Selector ---- */
631| function ModelSelector({ componentType, brand, socket, isHovered }) {
632|   switch (componentType) {
633|     case 'CPU':
634|       return <CPUModel brand={brand} socket={socket} isHovered={isHovered} />;
635|     case 'GPU':
636|       return <GPUModel isHovered={isHovered} />;
637|     case 'RAM':
638|       return <RAMModel brand={brand} isHovered={isHovered} />;
639|     case 'SSD':
640|       return <SSDModel isHovered={isHovered} />;
641|     case 'PSU':
642|       return <PSUModel isHovered={isHovered} />;
643|     case 'MAINBOARD':
644|       return <MainboardModel isHovered={isHovered} />;
645|     default:
646|       return null;
647|   }
648| }
649|
650| /* ---- Scene ---- */
651| function Scene({ componentType, brand, socket, onReady, isHovered, setHovered }) {
652|   const controlsRef = useRef();
653|   const [interacted, setInteracted] = useState(false);
654|
655|   const handlePointerDown = useCallback(() => {
656|     setInteracted(true);
657|   }, []);
658|
659|   useEffect(() => {
660|     if (onReady) onReady();
661|   }, [onReady]);
662|
663|   return (
664|     <>
665|       <ambientLight intensity={0.5} />
666|       <directionalLight position={[5, 8, 5]} intensity={1.2} castShadow shadow-mapSize-width={512} shadow-mapS...
667|       <directionalLight position={[-3, 4, -3]} intensity={0.4} />
668|       <pointLight position={[0, 3, 0]} intensity={0.3} />
669|       <pointLight position={[0, -2, 2]} intensity={0.15} color="#4488ff" />
670|       <OrbitControls
671|         ref={controlsRef}
672|         enablePan={true}
673|         enableZoom={true}
674|         enableRotate={true}
675|         autoRotate={!interacted}
676|         autoRotateSpeed={2.0}
677|         minDistance={0.5}
678|         maxDistance={5.0}
679|         onPointerDown={handlePointerDown}
680|       />
681|       <gridHelper args={[6, 12, '#333', '#222']} position={[0, -0.5, 0]} opacity={0.3} transparent />
682|       <group
683|         position={[0, 0, 0]}
684|         onPointerEnter={() => setHovered(true)}
685|         onPointerLeave={() => setHovered(false)}
686|       >
687|         <Suspense fallback={null}>
688|           <ModelSelector componentType={componentType} brand={brand} socket={socket} isHovered={isHovered} />
689|         </Suspense>
690|       </group>
691|       {isHovered && (
692|         <mesh position={[0, 0, 0]}>
693|           <sphereGeometry args={[0.5, 16, 16]} />
694|           <meshStandardMaterial
695|             color={PART_COLORS[componentType] || '#00d4aa'}
696|             transparent
697|             opacity={0.08}
698|           />
699|         </mesh>
700|       )}
701|     </>
702|   );
703| }
704|
705| /* ---- Main 3D Canvas ---- */
706| function ComponentPreview3DCanvas({ componentType, brand, socket, onReady }) {
707|   const [isHovered, setHovered] = useState(false);
708|   const [clicked, setClicked] = useState(false);
709|   const containerRef = useRef(null);
710|   const [dimensions, setDimensions] = useState({ width: 300, height: 300 });
711|
712|   useEffect(() => {
713|     const el = containerRef.current;
714|     if (!el) return;
715|     const observer = new ResizeObserver((entries) => {
716|       for (const entry of entries) {
717|         const { width, height } = entry.contentRect;
718|         if (width > 0 && height > 0) {
719|           setDimensions({ width, height });
720|         }
721|       }
722|     });
723|     observer.observe(el);
724|     return () => observer.disconnect();
725|   }, []);
```

```
  726|
  727|   const handleClick = useCallback(() => {
  728|     setClicked((prev) => !prev);
  729|   }, []);
  730|
  731|   return (
  732|     <div
  733|       ref={containerRef}
  734|       style={{
  735|         width: '100%',
  736|         height: '100%',
  737|         position: 'relative',
  738|         borderRadius: 'inherit',
  739|         overflow: 'hidden'
  740|       }}
  741|     >
  742|       <Canvas
  743|         camera={{ position: [2, 1.5, 2.5], fov: 40 }}
  744|         dpr={[1, 2]}
  745|         gl={{ antialias: true, alpha: true }}
  746|         style={{ width: '100%', height: '100%' }}
  747|         onCreated={({ gl }) => { gl.setClearColor(0x000000, 0); }}
  748|       >
  749|         <Scene
  750|           componentType={componentType}
  751|           brand={brand}
  752|           socket={socket}
  753|           onReady={onReady}
  754|           isHovered={isHovered}
  755|           setHovered={setHovered}
  756|         />
  757|       </Canvas>
  758|       <div
  759|         onClick={handleClick}
  760|         style={{
  761|           position: 'absolute',
  762|           top: 0,
  763|           left: 0,
  764|           width: '100%',
  765|           height: '100%',
  766|           cursor: 'pointer'
  767|         }}
  768|       />
  769|       {clicked && (
  770|         <div style={{
  771|           position: 'absolute',
  772|           bottom: 12,
  773|           left: '50%',
  774|           transform: 'translateX(-50%)',
  775|           background: 'rgba(0,0,0,0.7)',
  776|           color: PART_COLORS[componentType] || '#fff',
  777|           padding: '4px 12px',
  778|           borderRadius: 6,
  779|           fontSize: 13,
  780|           fontWeight: 600,
  781|           fontFamily: 'monospace',
  782|           pointerEvents: 'none',
  783|           backdropFilter: 'blur(4px)'
  784|         }}>
  785|           {componentType} {brand ? `\u00b7 ${brand}` : ''}
  786|         </div>
  787|       )}
  788|     </div>
  789|   );
  790| }
  791|
  792| /* ---- Dynamic import wrapper for SSR ---- */
  793| const DynamicComponentPreview3D = dynamic(
  794|   () => Promise.resolve({ default: ComponentPreview3DCanvas }),
  795|   { ssr: false }
  796| );
  797|
  798| /* ---- Exported default wrapper ---- */
  799| export default function ComponentPreview3D({
  800|   componentType = 'CPU',
  801|   componentId,
  802|   brand,
  803|   model,
  804|   style,
  805|   onReady
  806| }) {
  807|   const color = PART_COLORS[componentType] || '#666';
  808|
  809|   return (
  810|     <div style={{
  811|       background: 'var(--bg-surface, #111)',
  812|       border: `1px solid ${color}30`,
  813|       borderRadius: 12,
  814|       overflow: 'hidden',
  815|       width: style?.width || 300,
  816|       height: style?.height || 300,
  817|       position: 'relative',
  818|       display: 'flex',
  819|       alignItems: 'center',
  820|       justifyContent: 'center',
  821|       ...style
  822|     }}>
  823|       <Suspense fallback={<LoadingSpinner />}>
  824|         <DynamicComponentPreview3D
  825|           componentType={componentType}
  826|           brand={brand || model?.brand}
  827|           socket={model?.socket}
  828|           onReady={onReady}
  829|         />
  830|       </Suspense>
  831|     </div>
  832|   );
  833| }
  834|
  835| export { PART_COLORS, ErrorFallback, LoadingSpinner, DynamicComponentPreview3D, CPUModel, GPUModel, RAMModel, ...
  836|
```

File: components/Components.tsx (640 lines, 22.0 KB)

```
    1| 'use client';
    2|
    3| import { useRef, useState, useCallback, useMemo, useEffect } from 'react';
    4| import { useFrame, useThree } from '@react-three/fiber';
    5| import { Html, Text, Float, Sparkles, RoundedBox } from '@react-three/drei';
    6| import * as THREE from 'three';
    7| import { useAssemblyStore, type ComponentType } from '@/lib/useStore';
    8|
    9| const COMPONENT_COLORS: Record<ComponentType, { base: string; emissive: string }> = {
```

```
  cpu: { base: '#c0c0c0', emissive: '#00d4aa' },
  cooler: { base: '#2a2a3a', emissive: '#00aaff' },
  ram: { base: '#1a1a2e', emissive: '#6366f1' },
  gpu: { base: '#2d2d2d', emissive: '#ef4444' },
  psu: { base: '#1a1a1a', emissive: '#f59e0b' },
  ssd: { base: '#1a1a2e', emissive: '#22c55e' },
  motherboard: { base: '#1a3a1a', emissive: '#8b5cf6' },
};

const SNAP_DISTANCE = 0.15;

const WORKBENCH_POSITIONS: Record<ComponentType, [number, number, number]> = {
  cpu: [-1.4, 0.12, 1.8],
  cooler: [-0.5, 0.12, 1.8],
  ram: [0.5, 0.12, 1.8],
  gpu: [1.4, 0.12, 1.8],
  psu: [-1.0, 0.12, -1.8],
  ssd: [1.0, 0.12, -1.8],
  motherboard: [0, -0.15, 0],
};

function GoldPins({ count = 20, width = 0.35 }) {
  const pins = useMemo(() => {
    const arr = [];
    for (let i = 0; i < count; i++) {
      arr.push((i / count - 0.5) * width);
    }
    return arr;
  }, [count, width]);
  return (
    <>
      {pins.map((x, i) => (
        <mesh key={i} position={[x, -0.02, 0]}>
          <boxGeometry args={[0.008, 0.015, 0.01]} />
          <meshStandardMaterial color="#d4a017" metalness={0.9} roughness={0.15} />
        </mesh>
      ))}
    </>
  );
}

function CpuModel({ hovered, position, installed }: { hovered: boolean; position: [number, number, number]; in...
  return (
    <group position={position}>
      <RoundedBox args={[0.55, 0.04, 0.55]} radius={0.01} smoothness={2}>
        <meshStandardMaterial
          color="#c0c0c0"
          metalness={0.75}
          roughness={0.25}
          emissive={hovered ? '#00d4aa' : '#000'}
          emissiveIntensity={hovered ? 0.4 : 0}
        />
      </RoundedBox>
      <mesh position={[0, 0.03, 0]}>
        <RoundedBox args={[0.48, 0.005, 0.48]} radius={0.008}>
          <meshStandardMaterial color="#e8e8e8" metalness={0.6} roughness={0.3} />
        </RoundedBox>
      </mesh>
      <mesh position={[0.24, 0.035, 0.24]} rotation={[0, 0, Math.PI / 4]}>
        <RoundedBox args={[0.025, 0.004, 0.025]} radius={0.003}>
          <meshStandardMaterial color="#ef4444" metalness={0.3} roughness={0.5} />
        </RoundedBox>
      </mesh>
      <mesh position={[0, -0.02, 0]}>
        <RoundedBox args={[0.56, 0.012, 0.56]} radius={0.005}>
          <meshStandardMaterial color="#2a1a0a" roughness={0.9} />
        </RoundedBox>
      </mesh>
      <mesh position={[0, -0.035, 0]}>
        <boxGeometry args={[0.4, 0.008, 0.4]} />
        <meshStandardMaterial color="#d4a017" metalness={0.7} roughness={0.3} />
      </mesh>
      <GoldPins count={16} width={0.28} />
      {installed && (
        <pointLight position={[0, 0.06, 0]} intensity={0.2} color="#00d4aa" distance={0.3} />
      )}
    </group>
  );
}

function CoolerModel({ hovered, position, installed, fanSpeed }: {
  hovered: boolean; position: [number, number, number];
  installed: boolean; fanSpeed: number;
}) {
  const fanRef = useRef<THREE.Group>(null);
  useFrame((_, delta) => {
    if (fanRef.current && fanSpeed > 0) {
      fanRef.current.rotation.y += delta * fanSpeed * 12;
    }
  });

  return (
    <group position={position}>
      <RoundedBox args={[0.7, 0.03, 0.7]} radius={0.02}>
        <meshStandardMaterial color="#1a1a1a" metalness={0.3} roughness={0.6} />
      </RoundedBox>
      <mesh position={[0, 0.03, 0]}>
        <cylinderGeometry args={[0.3, 0.3, 0.04, 32]} />
        <meshStandardMaterial
          color="#2a2a3a"
          metalness={0.4}
          roughness={0.5}
          emissive={hovered ? '#00aaff' : '#000'}
          emissiveIntensity={hovered ? 0.3 : 0}
        />
      </mesh>
      <group ref={fanRef} position={[0, 0.05, 0]}>
        {Array.from({ length: 9 }).map((_, i) => {
          const angle = (i / 9) * Math.PI * 2;
          return (
            <mesh
              key={i}
              position={[Math.sin(angle) * 0.2, 0, Math.cos(angle) * 0.2]}
              rotation={[0, -angle, 0.3]}
            >
              <boxGeometry args={[0.04, 0.004, 0.16]} />
              <meshStandardMaterial
                color={installed ? '#6b7280' : '#444'}
                metalness={0.3}
                roughness={0.5}
                transparent
                opacity={0.85}
              />
            </mesh>
```

```
134|           );
135|         })}
136|       </group>
137|       <mesh position={[0, 0.045, 0]}>
138|         <cylinderGeometry args={[0.06, 0.06, 0.008, 16]} />
139|         <meshStandardMaterial color="#333" metalness={0.5} roughness={0.3}>
140|           <meshStandardMaterial color="#333" metalness={0.5} roughness={0.3} />
141|         </meshStandardMaterial>
142|       </mesh>
143|       {installed && (
144|         <mesh position={[0, 0.07, 0]}>
145|           <torusGeometry args={[0.28, 0.006, 8, 32]} />
146|           <meshStandardMaterial
147|             color="#00aaff"
148|             emissive="#00aaff"
149|             emissiveIntensity={0.5}
150|             transparent
151|             opacity={0.7}
152|           />
153|         </mesh>
154|       )}
155|     </group>
156|   );
157| }
158|
159| function RamModel({ hovered, position, installed }: {
160|   hovered: boolean; position: [number, number, number]; installed: boolean;
161| }) {
162|   return (
163|     <group position={position}>
164|       <RoundedBox args={[0.07, 0.4, 0.018]} radius={0.005}>
165|         <meshStandardMaterial color="#0a0a12" roughness={0.85} />
166|       </RoundedBox>
167|       <mesh position={[-0.045, 0, 0]}>
168|         <RoundedBox args={[0.02, 0.32, 0.028]} radius={0.004}>
169|           <meshStandardMaterial
170|             color={hovered ? '#6366f1' : '#1a1a2e'}
171|             metalness={0.5}
172|             roughness={0.4}
173|             emissive={hovered ? '#6366f1' : '#000'}
174|             emissiveIntensity={hovered ? 0.5 : 0}
175|           />
176|         </RoundedBox>
177|       </mesh>
178|       <mesh position={[0.045, 0, 0]}>
179|         <RoundedBox args={[0.02, 0.32, 0.028]} radius={0.004}>
180|           <meshStandardMaterial
181|             color={hovered ? '#6366f1' : '#1a1a2e'}
182|             metalness={0.5}
183|             roughness={0.4}
184|             emissive={hovered ? '#6366f1' : '#000'}
185|             emissiveIntensity={hovered ? 0.5 : 0}
186|           />
187|         </RoundedBox>
188|       </mesh>
189|       <mesh position={[0, -0.19, 0]}>
190|         <boxGeometry args={[0.065, 0.05, 0.014]} />
191|         <meshStandardMaterial color="#d4a017" metalness={0.85} roughness={0.15} />
192|       </mesh>
193|       {installed && (
194|         <mesh position={[0, 0, 0.012]}>
195|           <planeGeometry args={[0.04, 0.2]} />
196|           <meshStandardMaterial
197|             color="#6366f1"
198|             emissive="#6366f1"
199|             emissiveIntensity={0.3}
200|             transparent
201|             opacity={0.4}
202|           />
203|         </mesh>
204|       )}
205|     </group>
206|   );
207| }
208|
209| function GpuModel({ hovered, position, installed, fanSpeed }: {
210|   hovered: boolean; position: [number, number, number];
211|   installed: boolean; fanSpeed: number;
212| }) {
213|   const fanRefs = useRef<(THREE.Group | null)[]>([null, null, null]);
214|   useFrame((_, delta) => {
215|     fanRefs.current.forEach((ref) => {
216|       if (ref && fanSpeed > 0) ref.rotation.y += delta * fanSpeed * 15;
217|     });
218|   });
219|
220|   return (
221|     <group position={position}>
222|       <RoundedBox args={[1.5, 0.06, 0.6]} radius={0.01}>
223|         <meshStandardMaterial
224|           color="#2d2d2d"
225|           roughness={0.85}
226|           emissive={hovered ? '#ef4444' : '#000'}
227|           emissiveIntensity={hovered ? 0.2 : 0}
228|         />
229|       </RoundedBox>
230|       <mesh position={[0, 0.04, 0]}>
231|         <RoundedBox args={[1.4, 0.008, 0.5]} radius={0.005}>
232|           <meshStandardMaterial color="#1a1a1a" roughness={0.9} />
233|         </RoundedBox>
234|       </mesh>
235|       {[-0.5, 0, 0.5].map((x, i) => (
236|         <group key={i} position={[x, 0.075, 0]}>
237|           <mesh>
238|             <torusGeometry args={[0.15, 0.012, 8, 24]} />
239|             <meshStandardMaterial
240|               color={installed ? '#ef4444' : hovered ? '#ef4444' : '#444'}
241|               emissive={installed ? '#ef4444' : '#000'}
242|               emissiveIntensity={installed ? 0.4 : 0}
243|               transparent
244|               opacity={0.7}
245|             />
246|           </mesh>
247|           <group ref={(el) => { fanRefs.current[i] = el; }}>
248|             {Array.from({ length: 9 }).map((_, j) => {
249|               const angle = (j / 9) * Math.PI * 2;
250|               return (
251|                 <mesh
252|                   key={j}
253|                   position={[Math.sin(angle) * 0.1, 0, Math.cos(angle) * 0.1]}
254|                   rotation={[0, -angle, 0.3]}
255|                 >
256|                   <boxGeometry args={[0.025, 0.003, 0.08]} />
257|                   <meshStandardMaterial color="#555" transparent opacity={0.7} />
```

```
                </mesh>
              );
            })}
          </group>
        </group>
      ))}
      <mesh position={[0, -0.035, 0]}>
        <RoundedBox args={[0.6, 0.012, 0.04]} radius={0.005}>
          <meshStandardMaterial color="#d4a017" metalness={0.8} roughness={0.2} />
        </RoundedBox>
      </mesh>
      <mesh position={[0.75, 0, 0]}>
        <RoundedBox args={[0.02, 0.1, 0.08]} radius={0.004}>
          <meshStandardMaterial color="#333" metalness={0.3} roughness={0.5} />
        </RoundedBox>
      </mesh>
    </group>
  );
}

function PsuModel({ hovered, position, installed }: {
  hovered: boolean; position: [number, number, number]; installed: boolean;
}) {
  return (
    <group position={position}>
      <RoundedBox args={[1.0, 0.3, 0.6]} radius={0.01}>
        <meshStandardMaterial
          color="#1a1a1a"
          metalness={0.4}
          roughness={0.5}
          emissive={hovered ? '#f59e0b' : '#000'}
          emissiveIntensity={hovered ? 0.25 : 0}
        />
      </RoundedBox>
      <mesh position={[0, 0.14, 0]}>
        <torusGeometry args={[0.25, 0.008, 8, 24]} />
        <meshStandardMaterial color={hovered ? '#f59e0b' : '#333'} />
      </mesh>
      <mesh position={[0.52, 0.06, 0]}>
        <RoundedBox args={[0.02, 0.12, 0.2]} radius={0.005}>
          <meshStandardMaterial color="#111" />
        </RoundedBox>
      </mesh>
      <mesh position={[0.54, 0.06, -0.08]}>
        <boxGeometry args={[0.015, 0.025, 0.02]} />
        <meshStandardMaterial color="#444" />
      </mesh>
      <mesh position={[0.54, 0.06, 0.08]}>
        <boxGeometry args={[0.015, 0.025, 0.02]} />
        <meshStandardMaterial color="#444" />
      </mesh>
      <mesh position={[-0.52, 0, 0]}>
        <RoundedBox args={[0.025, 0.08, 0.08]} radius={0.004}>
          <meshStandardMaterial color="#333" />
        </RoundedBox>
      </mesh>
      {installed && (
        <mesh position={[0, 0.16, 0]}>
          <pointLight intensity={0.15} color="#f59e0b" distance={0.4} />
        </mesh>
      )}
    </group>
  );
}

function SsdModel({ hovered, position, installed }: {
  hovered: boolean; position: [number, number, number]; installed: boolean;
}) {
  return (
    <group position={position}>
      <RoundedBox args={[0.7, 0.012, 0.2]} radius={0.005}>
        <meshStandardMaterial
          color="#0a0a12"
          roughness={0.85}
          emissive={hovered ? '#22c55e' : '#000'}
          emissiveIntensity={hovered ? 0.4 : 0}
        />
      </RoundedBox>
      <mesh position={[-0.1, 0.008, 0]}>
        <RoundedBox args={[0.15, 0.006, 0.1]} radius={0.003}>
          <meshStandardMaterial color="#333" roughness={0.7} />
        </RoundedBox>
      </mesh>
      <mesh position={[0.37, 0, 0]}>
        <RoundedBox args={[0.03, 0.006, 0.16]} radius={0.003}>
          <meshStandardMaterial color="#d4a017" metalness={0.85} roughness={0.15} />
        </RoundedBox>
      </mesh>
      <mesh position={[0.37, 0.004, 0]}>
        <boxGeometry args={[0.04, 0.003, 0.18]} />
        <meshStandardMaterial color="#b8860b" metalness={0.9} roughness={0.1} />
      </mesh>
    </group>
  );
}

function MotherboardModel({ hovered, position, installed }: {
  hovered: boolean; position: [number, number, number]; installed: boolean;
}) {
  return (
    <group position={position}>
      <RoundedBox args={[2.2, 0.015, 1.8]} radius={0.01}>
        <meshStandardMaterial
          color="#0d2818"
          roughness={0.9}
          emissive={hovered ? '#8b5cf6' : '#000'}
          emissiveIntensity={hovered ? 0.15 : 0}
        />
      </RoundedBox>
      <mesh position={[0.5, 0.01, 0.35]}>
        <RoundedBox args={[0.5, 0.006, 0.5]} radius={0.005}>
          <meshStandardMaterial color="#b0b0b0" metalness={0.4} roughness={0.5} />
        </RoundedBox>
      </mesh>
      <mesh position={[0.5, 0.014, 0.35]}>
        <RoundedBox args={[0.35, 0.003, 0.35]} radius={0.003}>
          <meshStandardMaterial color="#888" metalness={0.3} roughness={0.5} />
        </RoundedBox>
      </mesh>
      <mesh position={[-0.65, 0.01, 0.4]}>
        <RoundedBox args={[0.2, 0.006, 1.0]} radius={0.004}>
          <meshStandardMaterial color="#222" roughness={0.8} />
        </RoundedBox>
      </mesh>
```

```
      <mesh position={[0, 0.01, -0.4]}>
        <RoundedBox args={[1.2, 0.006, 0.06]} radius={0.003}>
          <meshStandardMaterial color="#444" roughness={0.6} />
        </RoundedBox>
      </mesh>
      <mesh position={[0.7, 0.01, -0.5]}>
        <RoundedBox args={[0.06, 0.006, 0.06]} radius={0.003}>
          <meshStandardMaterial color="#c0c0c0" metalness={0.5} roughness={0.4} />
        </RoundedBox>
      </mesh>
      <mesh position={[-0.2, 0.012, -0.6]}>
        <cylinderGeometry args={[0.1, 0.1, 0.006, 16]} />
        <meshStandardMaterial color="#c0c0c0" metalness={0.5} roughness={0.4} />
      </mesh>
      <mesh position={[0.3, 0.012, -0.6]}>
        <cylinderGeometry args={[0.1, 0.1, 0.006, 16]} />
        <meshStandardMaterial color="#c0c0c0" metalness={0.5} roughness={0.4} />
      </mesh>
    </group>
  );
}

function ModelRenderer({ type, hovered, installed, fanSpeed }: {
  type: ComponentType; hovered: boolean;
  installed: boolean; fanSpeed: number;
}) {
  const pos: [number, number, number] = [0, 0, 0];
  switch (type) {
    case 'cpu': return <CpuModel hovered={hovered} position={pos} installed={installed} />;
    case 'cooler': return <CoolerModel hovered={hovered} position={pos} installed={installed} fanSpeed={fanSpe...
    case 'ram': return <RamModel hovered={hovered} position={pos} installed={installed} />;
    case 'gpu': return <GpuModel hovered={hovered} position={pos} installed={installed} fanSpeed={fanSpeed} />;
    case 'psu': return <PsuModel hovered={hovered} position={pos} installed={installed} />;
    case 'ssd': return <SsdModel hovered={hovered} position={pos} installed={installed} />;
    case 'motherboard': return <MotherboardModel hovered={hovered} position={pos} installed={installed} />;
    default: return null;
  }
}

function DraggableComponent({
  type, slotId, initialPosition,
}: {
  type: ComponentType; slotId: string; initialPosition: [number, number, number];
}) {
  const groupRef = useRef<THREE.Group>(null);
  const [hovered, setHovered] = useState(false);
  const [dragging, setDragging] = useState(false);
  const dragPos = useRef(new THREE.Vector3(...initialPosition));
  const snapTarget = useRef<THREE.Vector3 | null>(null);
  const snapProgress = useRef(0);
  const isAnimating = useRef(false);

  const { camera, pointer, scene } = useThree();
  const store = useAssemblyStore();
  const installed = store.components.find((c) => c.slotId === slotId)?.installed ?? false;
  const slots = store.slots;
  const fanSpeed = store.fanSpeed;
  const slot = slots.find((s) => s.id === slotId);

  const colors = COMPONENT_COLORS[type];

  const trySnap = useCallback((pos: THREE.Vector3) => {
    let closest = null;
    let closestDist = SNAP_DISTANCE;

    for (const s of slots) {
      if (s.type !== type || s.locked) continue;
      const alreadyOccupied = store.components.some(
        (c) => c.slotId === s.id && c.installed
      );
      if (alreadyOccupied) continue;
      const slotPos = new THREE.Vector3(...s.position);
      const dist = pos.distanceTo(slotPos);
      if (dist < closestDist) {
        closestDist = dist;
        closest = s;
      }
    }
    return closest;
  }, [type, slots, store.components]);

  const playSnapSound = useCallback(() => {
    try {
      const audioCtx = new (window.AudioContext || (window as any).webkitAudioContext)();
      const osc = audioCtx.createOscillator();
      const gain = audioCtx.createGain();
      osc.connect(gain);
      gain.connect(audioCtx.destination);
      osc.type = 'sine';
      osc.frequency.setValueAtTime(1800, audioCtx.currentTime);
      osc.frequency.exponentialRampToValueAtTime(400, audioCtx.currentTime + 0.15);
      gain.gain.setValueAtTime(0.12, audioCtx.currentTime);
      gain.gain.exponentialRampToValueAtTime(0.001, audioCtx.currentTime + 0.18);
      osc.start(audioCtx.currentTime);
      osc.stop(audioCtx.currentTime + 0.18);
      setTimeout(() => audioCtx.close(), 500);
    } catch {}
  }, []);

  const onPointerDown = useCallback((e: any) => {
    e.stopPropagation();
    if (installed || isAnimating.current) return;
    setDragging(true);
    store.setDraggedComponent(slotId);
    (e.target as HTMLElement).setPointerCapture(e.pointerId);
  }, [installed, slotId, store]);

  const onPointerUp = useCallback(() => {
    if (!dragging || isAnimating.current) return;
    setDragging(false);
    store.setDraggedComponent(null);

    const pos = dragPos.current;
    const target = trySnap(pos);
    if (target) {
      snapTarget.current = new THREE.Vector3(...target.position);
      snapProgress.current = 0;
      isAnimating.current = true;
      playSnapSound();
    }
  }, [dragging, store, slotId, trySnap, playSnapSound]);

  useFrame((_, delta) => {
    if (isAnimating.current && snapTarget.current) {
```

```
506|       snapProgress.current = Math.min(snapProgress.current + delta * 4, 1);
507|       const eased = 1 - Math.pow(1 - snapProgress.current, 3);
508|       dragPos.current.lerp(snapTarget.current, eased);
509|       if (snapProgress.current >= 1) {
510|         isAnimating.current = false;
511|         store.installComponent(slotId, `comp_${slotId}`);
512|       }
513|       if (groupRef.current) {
514|         groupRef.current.position.copy(dragPos.current);
515|       }
516|       return;
517|     }
518|
519|     if (dragging && !installed) {
520|       const worldPos = new THREE.Vector3(pointer.x, pointer.y, 0.5).unproject(camera);
521|       const dir = worldPos.sub(camera.position).normalize();
522|       const dist = -camera.position.y / dir.y;
523|       const p = camera.position.clone().add(dir.multiplyScalar(dist));
524|       p.y = Math.max(0.02, p.y);
525|       p.x = Math.max(-2, Math.min(2, p.x));
526|       p.z = Math.max(-2, Math.min(2, p.z));
527|       dragPos.current.copy(p);
528|     }
529|
530|     if (groupRef.current) {
531|       if (!isAnimating.current) {
532|         groupRef.current.position.lerp(dragPos.current, 0.25);
533|       }
534|     }
535|   });
536|
537|   if (installed && slot) {
538|     dragPos.current.set(slot.position[0], slot.position[1], slot.position[2]);
539|     if (groupRef.current) {
540|       groupRef.current.position.copy(dragPos.current);
541|     }
542|   }
543|
544|   return (
545|     <group
546|       ref={groupRef}
547|       position={dragPos.current.toArray()}
548|       scale={dragging ? 1.15 : hovered && !installed ? 1.08 : 1}
549|     >
550|       <mesh
551|         visible={!installed}
552|         position={[0, 0.1, 0]}
553|         onPointerOver={(e) => { e.stopPropagation(); if (!installed) { setHovered(true); document.body.style.c...
554|         onPointerOut={() => { if (!installed) { setHovered(false); document.body.style.cursor = 'default'; }}}
555|         onPointerDown={onPointerDown}
556|         onPointerUp={onPointerUp}
557|       >
558|         <boxGeometry args={[0.8, 0.2, 0.8]} />
559|         <meshBasicMaterial transparent opacity={0} />
560|       </mesh>
561|
562|       <ModelRenderer type={type} hovered={hovered && !installed} installed={installed} fanSpeed={fanSpeed} />
563|
564|       {hovered && !installed && !dragging && (
565|         <Html position={[0, 0.35, 0]} center style={{ pointerEvents: 'none' }}>
566|           <div style={{
567|             background: 'rgba(0,0,0,0.85)', color: colors.emissive,
568|             padding: '4px 12px', borderRadius: 6, fontSize: 11, fontWeight: 700,
569|             border: `1px solid ${colors.emissive}55`,
570|             backdropFilter: 'blur(8px)',
571|             whiteSpace: 'nowrap',
572|             fontFamily: "'JetBrains Mono', monospace",
573|           }}>
574|             {slot?.label || type.toUpperCase()}
575|           </div>
576|         </Html>
577|       )}
578|
579|       {hovered && !installed && (
580|         <mesh position={[0, 0, 0]} rotation={[-Math.PI / 2, 0, 0]}>
581|           <ringGeometry args={[0.3, 0.38, 32]} />
582|           <meshBasicMaterial color={colors.emissive} transparent opacity={0.15} side={THREE.DoubleSide} depthW...
583|         </mesh>
584|       )}
585|
586|       {dragging && (
587|         <Sparkles count={10} scale={0.6} size={3} speed={0.3} color={colors.emissive} opacity={0.5} />
588|       )}
589|     </group>
590|   );
591| }
592|
593| function SlotIndicator({ position, type, occupied }: {
594|   position: [number, number, number]; type: ComponentType; occupied: boolean;
595| }) {
596|   const meshRef = useRef<THREE.Mesh>(null);
597|   const colors = COMPONENT_COLORS[type];
598|
599|   useFrame(({ clock }) => {
600|     if (meshRef.current && !occupied) {
601|       const p = (Math.sin(clock.getElapsedTime() * 2.5) + 1) / 2;
602|       (meshRef.current.material as THREE.MeshStandardMaterial).opacity = 0.1 + p * 0.25;
603|     }
604|   });
605|
606|   if (occupied) return null;
607|   return (
608|     <mesh ref={meshRef} position={[position[0], position[1] + 0.003, position[2]]} rotation={[-Math.PI / 2, 0,...
609|       <ringGeometry args={[0.22, 0.3, 48]} />
610|       <meshStandardMaterial color={colors.emissive} transparent opacity={0.2} side={THREE.DoubleSide} depthWri...
611|     </mesh>
612|   );
613| }
614|
615| export default function Components() {
616|   const slots = useAssemblyStore((s) => s.slots);
617|   const components = useAssemblyStore((s) => s.components);
618|
619|   const slotList = useMemo(() =>
620|     slots.map((slot) => ({
621|       ...slot,
622|       occupied: components.some((c) => c.slotId === slot.id && c.installed),
623|     })),
624|     [slots, components]
625|   );
626|
627|   return (
628|     <group>
629|       {slotList.map((slot) => (
```

```
        <group key={slot.id}>
          <SlotIndicator position={slot.position} type={slot.type} occupied={slot.occupied} />
          <DraggableComponent type={slot.type} slotId={slot.id} initialPosition={
            WORKBENCH_POSITIONS[slot.type] || [0, 0.1, 0]
          } />
        </group>
      ))}
    </group>
  );
}

```

File: components/dashboard/CertificateCard.tsx (66 lines, 3.2 KB)

```
'use client';

import React from 'react';
import { Award, Download, Share2, ShieldCheck, Calendar } from 'lucide-react';
import { motion } from 'framer-motion';

interface CertificateProps {
  courseName: string;
  issueDate: string;
  verificationCode: string;
  studentName: string;
}

export default function CertificateCard({ courseName, issueDate, verificationCode, studentName }: CertificateP...
  return (
    <motion.div
      initial={{ opacity: 0, scale: 0.9 }}
      animate={{ opacity: 1, scale: 1 }}
      className="glass-panel p-8 border-brand-primary/30 relative overflow-hidden group hover:border-brand-pri...
    >
      {/* Decorative elements */}
      <div className="absolute top-0 right-0 w-32 h-32 bg-brand-primary/5 rounded-full -mr-16 -mt-16 blur-2xl ...
      <div className="absolute bottom-0 left-0 w-24 h-24 bg-brand-primary/5 rounded-full -ml-12 -mb-12 blur-2x...

      <div className="relative z-10 flex flex-col gap-6">
        <div className="flex justify-between items-start">
          <div className="w-16 h-16 rounded-2xl bg-brand-primary/10 flex items-center justify-center text-bran...
            <Award size={32} />
          </div>
          <div className="text-right">
            <p className="text-xs font-mono text-text-muted">{verificationCode}</p>
          </div>
        </div>

        <div>
          <h3 className="text-2xl font-black text-white mb-2">{courseName}</h3>
          <p className="text-sm text-text-secondary leading-relaxed">
            Chéng nh-n <span className="text-white font-bold">{studentNa
          </p>
        </div>

        <div className="flex items-center gap-6 py-4 border-y border-white/5">
           <div className="flex items-center gap-2">
              <Calendar size={14} className="text-brand-primary" />
              <span className="text-xs text-text-muted">Ngày c¥p: <stron
           </div>
           <div className="flex items-center gap-2">
              <ShieldCheck size={14} className="text-green" />
              <span className="text-xs text-text-muted">Tr¡ng thái: <str
           </div>
        </div>

        <div className="flex gap-4">
          <button className="flex-1 py-3 bg-brand-primary text-black rounded-xl font-black text-xs uppercase t...
            <Download size={14} />  T£i PDF
          </button>
          <button className="px-4 py-3 bg-white/5 text-white rounded-xl hover:bg-white/10 transition-all flex ...
            <Share2 size={16} />
          </button>
        </div>
      </div>
    </motion.div>
  );
}

```

File: components/dashboard/ExportReportButton.tsx (80 lines, 3.4 KB)

```
'use client';

import React from 'react';
import { PDFDownloadLink, Document, Page, Text, View, StyleSheet } from '@react-pdf/renderer';
import { Download, FileText, Table as TableIcon } from 'lucide-react';

// PDF Styles
const styles = StyleSheet.create({
  page: { padding: 40, backgroundColor: '#ffffff' },
  header: { fontSize: 20, marginBottom: 20, textAlign: 'center' },
  table: { display: 'flex', width: 'auto', borderStyle: 'solid', borderWidth: 1, borderRightWidth: 0, borderBo...
  tableRow: { margin: 'auto', flexDirection: 'row' },
  tableCol: { width: '25%', borderStyle: 'solid', borderWidth: 1, borderLeftWidth: 0, borderTopWidth: 0 },
  tableCell: { margin: 'auto', marginTop: 5, fontSize: 10 }
});

// PDF Content
const MyDocument = ({ data }: { data: any[] }) => (
  <Document>
    <Page size="A4" style={styles.page}>
      <Text style={styles.header}>STUDENT PROGRESS REPORT - PC MASTER LMS</Text>
      <View style={styles.table}>
        <View style={styles.tableRow}>
          <View style={styles.tableCol}><Text style={styles.tableCell}>Student</Text></View>
          <View style={styles.tableCol}><Text style={styles.tableCell}>Progress (%)</Text></View>
          <View style={styles.tableCol}><Text style={styles.tableCell}>Avg Score</Text></View>
          <View style={styles.tableCol}><Text style={styles.tableCell}>Status</Text></View>
        </View>
        {data.map((row, i) => (
          <View key={i} style={styles.tableRow}>
            <View style={styles.tableCol}><Text style={styles.tableCell}>{row.name}</Text></View>
            <View style={styles.tableCol}><Text style={styles.tableCell}>{row.progress}%</Text></View>
            <View style={styles.tableCol}><Text style={styles.tableCell}>{row.avgScore}</Text></View>
            <View style={styles.tableCol}><Text style={styles.tableCell}>{row.status}</Text></View>
          </View>
        ))}
      </View>
    </Page>
```

```
  39|   </Document>
  40| );
  41|
  42| export default function ExportReportButton({ data, filename = 'report' }: { data: any[], filename?: string }) {
  43|   const [isMounted, setIsMounted] = React.useState(false);
  44|
  45|   React.useEffect(() => {
  46|     setIsMounted(true);
  47|   }, []);
  48|
  49|   const exportCSV = () => {
  50|     const headers = ['Student,Progress(%),AvgScore,Status\n'];
  51|     const rows = data.map(r => `${r.name},${r.progress},${r.avgScore},${r.status}\n`);
  52|     const blob = new Blob([headers.concat(rows).join('')], { type: 'text/csv;charset=utf-8;' });
  53|     const link = document.createElement('a');
  54|     link.href = URL.createObjectURL(blob);
  55|     link.download = `${filename}-${new Date().toISOString().split('T')[0]}.csv`;
  56|     link.click();
  57|   };
  58|
  59|   return (
  60|     <div className="flex gap-2">
  61|       <button
  62|         onClick={exportCSV}
  63|         className="flex items-center gap-2 px-4 py-2 bg-bg-elevated text-text-primary rounded-lg border border...
  64|       >
  65|         <TableIcon size={16} /> CSV
  66|       </button>
  67|
  68|       {isMounted && (
  69|         <PDFDownloadLink document={<MyDocument data={data} />} fileName={`${filename}.pdf`}>
  70|           {({ loading }) => (
  71|             <button className="flex items-center gap-2 px-4 py-2 bg-brand-primary text-black rounded-lg font-b...
  72|               <FileText size={16} /> {loading ? '...' : 'PDF'}
  73|             </button>
  74|           )}
  75|         </PDFDownloadLink>
  76|       )}
  77|     </div>
  78|   );
  79| }
  80|
```

File: components/DiagnosisMode_part1.js (365 lines, 18.8 KB)

```
==========================================================================================
   1 |  þÿ ' u s e   c l i e n t ' ;
   2|
   3| import React, { useState, useEffect, useRef, useCallback } from 'react';
   4|
   5| const TOOLS = [
   6 |      {  i d :  ' m u l t i m e t e r ' ,  i c o n :  '&¡ ' ,  l a b e l :  ' M u l t i m e t e r ' ,  l a b e l _ v n :  '  Ó n g  h
   7 |      {  i d :  ' s c r e w d r i v e r ' ,  i c o n :  'Ø=Ý' ' ,  l a b e l :  ' S c r e w d r i v e r ' ,  l a b e l _ v n :  ' T u a
   8 |      {  i d :  ' c o m p r e s s e d _ a i r ' ,  i c o n :  'Ø=Ü¨ ' ,  l a b e l :  ' C o m p r e s s e d  A i r ' ,  l a b e l _ v n
   9 |      {  i d :  ' s p a r e _ p s u ' ,  i c o n :  'Ø=Ý ' ,  l a b e l :  ' S p a r e  P S U ' ,  l a b e l _ v n :  ' N g u Ồ n  d
  1 0 |      {  i d :  ' b i o s _ s p e a k e r ' ,  i c o n :  'Ø=Ý ' ,  l a b e l :  ' B I O S  S p e a k e r ' ,  l a b e l _ v n :  ' L o
  11| ];
  12|
  13| const SCENARIOS = [
  14|   {
  15|     id: 'no_power',
  16|     title: 'No Power',
  1 7 |          t i t l e _ v n :  ' K h ô n g  L ê n  N g u Ồ n ' ,
  18|     description: 'PC doesn\'t turn on when pressing the power button.',
  1 9 |          d e s c r i p t i o n _ v n :  ' P C  k h ô n g  l ê n  k h i  b ¥ m  n ú t  n g u Ồ n . ' ,
  20|     symptoms: ['No fan spin', 'No LEDs', 'Power button does nothing'],
  2 1 |          s y m p t o m s _ v n :  [ ' Q u ¡ t  k h ô n g  q u a y ' ,  ' è n  k h ô n g  s á n g ' ,  ' N ú t  n g u Ồ n  k h ô n g
  22|     correct_answer: 'psu',
  23|     hints: ['Check PSU switch', 'Check power cable', 'Try different outlet', 'PSU may be dead'],
  2 4 |          h i n t s _ v n :  [ ' K i Ã m  t r a  c ô n g  t ¯ c  P S U ' ,  ' K i Ã m  t r a  d â y  n g u Ồ n ' ,  ' T h í  Õ  c ¯ m
  25|     difficulty: 'easy',
  2 6 |          i c o n :  'Ø=Ý ' ,
  27|     options: [
  2 8 |          {  i d :  ' p s u ' ,  l a b e l :  ' D e a d  P S U ' ,  l a b e l _ v n :  ' N g u Ồ n  c h ¿ t ' ,  c o r r e c t :  t
  29|       { id: 'cpu', label: 'CPU fried', label_vn: 'CPU cháy' },
  3 0 |          {  i d :  ' r a m ' ,  l a b e l :  ' L o o s e  R A M ' ,  l a b e l _ v n :  ' R A M  l Ỉ n g ' }, 
  3 1 |          {  i d :  ' c a s e ' ,  l a b e l :  ' C a s e  s h o r t  c i r c u i t ' ,  l a b e l _ v n :  ' C á s e  b Ë  c h - p
  32|     ],
  33|     tool_hints: {
  34|       multimeter: 'PSU voltage rails read 0V on all lines.',
  3 5 |          m u l t i m e t e r _ v n :  ' C á c  ° Ý n g  i Ç n  P S U  Á u  0 V . ' ,
  36|       screwdriver: 'All components seated. Power header fine.',
  3 7 |          s c r e w d r i v e r _ v n :  ' L i n h  k i Ç n  g ¯ n  c h · t .  § u  n Ñ i  n g u Ồ n  b ì n h  t h ° Ý n g . ' ,
  38|       compressed_air: 'No significant dust buildup.',
  3 9 |          c o m p r e s s e d _ a i r _ v n :  ' K h ô n g  c ó  b ã i  b © n  á n g  k Ã . ' ,
  40|       spare_psu: 'PC boots normally with known-good PSU.',
  4 1 |          s p a r e _ p s u _ v n :  ' P C  c h ¡ y  b ì n h  t h ° Ý n g  v Ỡ i  n g u Ồ n  k h á c . ' ,
  42|       bios_speaker: 'No beep at all - no power to board.',
  4 3 |          b i o s _ s p e a k e r _ v n :  ' K h ô n g  b e e p  -  b o a r d  k h ô n g  c ó  i Ç n . ' ,
  44|     },
  45|     beep_pattern: '... (silence)',
  46|     diagram: 'psu',
  47|     diagnosis_step: 1,
  48|   },
  49|   {
  50|     id: 'no_display',
  51|     title: 'No Display / Black Screen',
  5 2 |          t i t l e _ v n :  ' K h ô n g  C ó  H ì n h  ¢ n h ' ,
  53|     description: 'PC turns on but monitor shows no signal.',
  5 4 |          d e s c r i p t i o n _ v n :  ' P C  l ê n  n g u Ồ n  n h ° n g  m à n  h ì n h  k h ô n g  t í n  h i Ç u . ' ,
  55|     symptoms: ['Fans spinning', 'LEDs on', 'No display output', 'No BIOS beep'],
  5 6 |          s y m p t o m s _ v n :  [ ' Q u ¡ t  q u a y ' ,  ' è n  s á n g ' ,  ' K h ô n g  c ó  h ì n h ' ,  ' K h ô n g  t i ¿ n g
  57|     correct_answer: 'ram_reseat',
  58|     hints: ['Reseat RAM modules', 'Try one RAM stick', 'Check GPU seating', 'Clear CMOS'],
  5 9 |          h i n t s _ v n :  [ ' G ¯ n  l ¡ i  R A M ' ,  ' T h í  t ë n g  t h a n h  R A M ' ,  ' K i Ã m  t r a  G P U ' ,  ' C l e
  60|     difficulty: 'easy',
  6 1 |          i c o n :  'Ø=Ý¥þ ' ,
  62|     options: [
  6 3 |          {  i d :  ' r a m _ r e s e a t ' ,  l a b e l :  ' R e s e a t  R A M ' ,  l a b e l _ v n :  ' G ¯ n  l ¡ i  R A M ' ,
  64|       { id: 'replace_cpu', label: 'Replace CPU', label_vn: 'Thay CPU' },
  65|       { id: 'replace_monitor', label: 'Replace monitor', label_vn: 'Thay màn hình' },
  6 6 |          {  i d :  ' r e i n s t a l l _ o s ' ,  l a b e l :  ' R e i n s t a l l  W i n d o w s ' ,  l a b e l _ v n :  ' C à i  l
  67|     ],
  68|     tool_hints: {
  69|       multimeter: 'Voltages normal. PSU working correctly.',
  7 0 |          m u l t i m e t e r _ v n :  '  i Ç n  á p  b ì n h  t h ° Ý n g .  N g u Ồ n  t Ñ t . ' ,
  71|       screwdriver: 'Reseating RAM fixed it - one stick was loose.',
  7 2 |          s c r e w d r i v e r _ v n :  ' G ¯ n  l ¡ i  R A M  h ¿ t  l × i  -  m Ù t  t h a n h  b Ë  l Ỉ n g . ' ,
  73|       compressed_air: 'RAM slots cleaned. Minor dust.',
  7 4 |          c o m p r e s s e d _ a i r _ v n :  ' K h e  R A M  ã  v Ç  s i n h .  B ã i  n h ¹ . ' ,
  75|       spare_psu: 'Same issue with spare PSU.',
  7 6 |          s p a r e _ p s u _ v n :  ' V « n  l × i  v Ỡ i  n g u Ồ n  k h á c . ' ,
  77|       bios_speaker: 'Continuous long beep - RAM error.',
  7 8 |          b i o s _ s p e a k e r _ v n :  ' B e e p  d à i  l i ê n  t ã c  -  l × i  R A M . ' ,
```

```
    },
    beep_pattern: 'BEEP... BEEP... BEEP... (long repeating)',
    diagram: 'ram',
    diagnosis_step: 1,
  },
  {
    id: 'blue_screen',
    title: 'Blue Screen (CRITICAL_PROCESS_DIED)',
    title_vn: 'Màn Hình Xanh',
    description: 'PC blue-screens shortly after booting Windows.',
    description_vn: 'PC bË màn hình xanh sau khi vào Windows.',
    symptoms: ['BSOD on boot', 'CRITICAL_PROCESS_DIED', 'Boots to recovery', 'Safe mode crashes'],
    symptoms_vn: ['BSOD khi boot', 'L× i PROCESS_DIED', 'Vào recovery', '
    correct_answer: 'repair_os',
    hints: ['Try Startup Repair', 'Check recent drivers', 'Run SFC /scannow', 'Reinstall Windows'],
    hints_vn: ['Thí Startup Repair', 'KiÃm tra driver', 'Ch¡y SFC /scann
    difficulty: 'medium',
    icon: 'Ø=Ü€ ',
    options: [
      {id: 'repair_os', label: 'Corrupted system files', label_vn: 'Fil
      { id: 'replace_ram', label: 'Replace RAM', label_vn: 'Thay RAM' },
      { id: 'replace_gpu', label: 'Replace GPU', label_vn: 'Thay GPU' },
      { id: 'replace_cpu', label: 'Replace CPU', label_vn: 'Thay CPU' },
    ],
    tool_hints: {
      multimeter: 'All voltages within spec.',
      multimeter_vn: 'iÇn áp trong ng°áng.',
      screwdriver: 'Hardware seated correctly.',
      screwdriver_vn: 'Ph§n céng g¯n ch·t.',
      compressed_air: 'System clean, no overheating.',
      compressed_air_vn: 'HÇ thÑng s¡ch, không quá nhiÇt.',
      spare_psu: 'BSOD still occurs with spare PSU.',
      spare_psu_vn: 'BSOD v«n x£y ra vÛi nguÓn khác.',
      bios_speaker: 'Single short beep - POST OK, software issue.',
      bios_speaker_vn: 'MÙt beep ng¯n - POST OK, l×i ph§n mÁm.',
    },
    beep_pattern: 'BEEP (single short - POST OK)',
    diagram: 'motherboard',
    diagnosis_step: 1,
  },
  {
    id: 'overheating',
    title: 'Overheating / Random Shutdowns',
    title_vn: 'Quá NhiÇt / T¯t ÙtNgÙt',
    description: 'PC randomly shuts down under load. Case feels hot.',
    description_vn: 'PC t¯t ÙtngÙt khi ch¡y n·ng. VÏ máy nóng.',
    symptoms: ['Random shutdowns', 'Loud fan then silence', 'Hot case', 'Crashes under load'],
    symptoms_vn: ['T¯t ÙtngÙt', 'Qu¡t Ón rÓi im', 'VÏ nóng', 'Treo khi
    correct_answer: 'cooler_issue',
    hints: ['Check CPU cooler', 'Reapply thermal paste', 'Check fan curves', 'Clean dust'],
    hints_vn: ['KiÃm tra t£n nhiÇt', 'Bôi keo t£n nhiÇt', 'KiÃm tra fan
    difficulty: 'medium',
    icon: 'Ø<ß!þ ',
    options: [
      {id: 'cooler_issue', label: 'Cooler failure / dust clogged', labe
      {id: 'psu_overload', label: 'PSU overload', label_vn: 'PSU quá t£
      { id: 'virus', label: 'Virus / malware', label_vn: 'Virus' },
      {id: 'ram_error', label: 'RAM error', label_vn: 'RAM l×i' },
    ],
    tool_hints: {
      multimeter: 'PSU voltages fluctuate but in range.',
      multimeter_vn: 'iÇn áp PSU dao Ùng nh°ng trong ng°áng.',
      screwdriver: 'Cooler mounting screws loose. Heatsink not contacting.',
      screwdriver_vn: 'Đc t£n nhiÇt lÏng. Không ti¿p xúc ç.',
      compressed_air: 'Heatsink fins clogged with dust. Blocked airflow.',
      compressed_air_vn: 'Khe t£n nhiÇt bË båi bít. Không l°u thông khí.
      spare_psu: 'Same shutdowns with spare PSU.',
      spare_psu_vn: 'V«n t¯t vÛi nguÓn khác.',
      bios_speaker: 'Single short beep. BIOS overheat warning.',
      bios_speaker_vn: 'MÙt beep ng¯n. BIOS báo quá nhiÇt.',
    },
    beep_pattern: 'BEEP (short) + overheat LED',
    diagram: 'cpu_cooler',
    diagnosis_step: 2,
  },
  {
    id: 'gpu_artifacts',
    title: 'GPU Artifacts / Glitched Display',
    title_vn: 'L× i HiÃn ThË GPU',
    description: 'Screen shows colored squares, lines, flickering.',
    description_vn: 'Màn hình có ô màu l¡, °Ýng k», nh¥p nháy.',
    symptoms: ['Colored artifacts', 'Flickering', 'Lines across display', 'Driver crashes'],
    symptoms_vn: ['Ô màu l¡', 'Nh¥p nháy', '°Ýng k»', 'Driver crash'],
    correct_answer: 'gpu_dying',
    hints: ['Check GPU temps', 'Try underclocking', 'Test another monitor', 'Check GPU seating'],
    hints_vn: ['KiÃm tra nhiÇt GPU', 'Thí underclock', 'Dùng màn khác',
    difficulty: 'medium',
    icon: 'Ø<ß® ',
    options: [
      {id: 'gpu_dying', label: 'GPU failing / VRAM damaged', label_vn:
      {id: 'cable_loose', label: 'Loose display cable', label_vn: 'Dây
      {id: 'monitor_broken', label: 'Monitor broken', label_vn: 'Màn hi
      {id: 'driver_issue', label: 'Driver issue only', label_vn: 'L×i c
    ],
    tool_hints: {
      multimeter: 'GPU power lines stable.',
      multimeter_vn: '°Ýng iÇn GPU Õn Ënh.',
      screwdriver: 'GPU seated firmly. Reseating did not help.',
      screwdriver_vn: 'GPU g¯n ch·t. G¯n l¡i không h¿t.',
      compressed_air: 'GPU fans clean. No overheating.',
      compressed_air_vn: 'Qu¡t GPU s¡ch. Không quá nhiÇt.',
      spare_psu: 'Artifacts persist with spare PSU.',
      spare_psu_vn: 'L×i v«n còn vÛi nguÓn khác.',
      bios_speaker: 'One short beep. Artifacts in BIOS - hardware fail.',
      bios_speaker_vn: 'MÙt beep. L×i ngay trong BIOS - ph§n céng.',
    },
    beep_pattern: 'BEEP (short)',
    diagram: 'gpu',
    diagnosis_step: 2,
  },
  {
    id: 'slow_pc',
    title: 'Slow PC / 100% Disk Usage',
    title_vn: 'Máy Ch-m / Disk 100%',
    description: 'PC extremely slow. Task Manager shows 100% disk usage.',
    description_vn: 'Máy r¥t ch-m. Task Manager hiÃn thË disk 100%.',
    symptoms: ['100% disk usage', 'Slow boot', 'Apps freeze', 'Explorer hangs'],
    symptoms_vn: ['Disk 100%', 'KhßiÙng ch-m', 'èng dång éng', 'Explo
    correct_answer: 'hdd_failing',
    hints: ['Check Task Manager', 'Run CHKDSK', 'Check S.M.A.R.T.', 'Replace drive'],
    hints_vn: ['KiÃm tra Task Manager', 'Ch¡y CHKDSK', 'KiÃm tra S.M.A.R
    difficulty: 'medium',
    icon: 'Ø=Ü ',
    options: [
```

```
  2 0 3 |            {  i d :  ' h d d _ f a i l i n g ' ,  l a b e l :  ' H D D  f a i l i n g  /  S S D  f u l l ' ,  l a b e l _ v n :  ' H
  2 0 4 |            {  i d :  ' v i r u s ' ,  l a b e l :  ' V i r u s  i n f e c t i o n ' ,  l a b e l _ v n :  ' N h i Ã m  v i r u s '  }
  2 0 5 |            {  i d :  ' r a m _ l o w ' ,  l a b e l :  ' N o t  e n o u g h  R A M ' ,  l a b e l _ v n :  ' T h i ¿ u  R A M '  } ,
  2 0 6 |            {  i d :  ' c p u _ o l d ' ,  l a b e l :  ' C P U  t o o  o l d ' ,  l a b e l _ v n :  ' C P U  c i '  } ,
    ],
    tool_hints: {
      multimeter: 'Drive power normal.',
  2 1 0 |             m u l t i m e t e r _ v n :  ' N g u Ó n  Õ  c é n g  b ì n h  t h ° Ý n g . ' ,
      screwdriver: 'Cables secure. Drive mounted properly.',
  2 1 2 |             s c r e w d r i v e r _ v n :  ' C á p  c h · t .  Ô  g ¯ n  ú n g . ' ,
      compressed_air: 'Drive clean and cool.',
  2 1 4 |             c o m p r e s s e d _ a i r _ v n :  ' Ô  s ¡ c h  v à  m á t . ' ,
      spare_psu: 'Still slow with spare PSU.',
  2 1 6 |             s p a r e _ p s u _ v n :  ' V « n  c h - m  v Û i  n g u Ó n  k h á c . ' ,
      bios_speaker: 'Single beep. BIOS detects drive with high latency.',
  2 1 8 |             b i o s _ s p e a k e r _ v n :  ' M Ù t  b e e p .  B I O S  t h ¥ y  Õ  n h ° n g  Ù  t r Ã  c a o . ' ,
    },
    beep_pattern: 'BEEP (short)',
    diagram: 'storage',
    diagnosis_step: 2,
  },
  {
    id: 'no_boot_device',
    title: 'No Boot Device Found',
  2 2 7 |          t i t l e _ v n :  ' K h ô n g  T ì m  T h ¥ y  Ô  K h ß i  Ù n g ' ,
    description: 'Screen says "No boot device found" or "Reboot and Select proper Boot device".',
    description_vn: 'Màn hình báo "No boot device found".',
    symptoms: ['No boot device error', 'BIOS shows no drive', 'Was working yesterday'],
  2 3 1 |          s y m p t o m s _ v n :  [ ' L × i  k h ô n g  b o o t  d e v i c e ' ,  ' B I O S  k h ô n g  t h ¥ y  Õ ' ,  ' H ô m  q u a
    correct_answer: 'ssd_dead',
    hints: ['Check SATA/NVMe connections', 'Boot into BIOS', 'Try different SATA port', 'Check if drive appear...
  2 3 4 |          h i n t s _ v n :  [ ' K i Ã m  t r a  k ¿ t  n Ñ i  S A T A ' ,  ' V à o  B I O S ' ,  ' T h í  c Õ n g  S A T A  k h á c '
    difficulty: 'easy',
  2 3 6 |          i c o n :  'Ø=Ù¿ ' ,
    options: [
  2 3 8 |            {  i d :  ' s s d _ d e a d ' ,  l a b e l :  ' S S D  d i s c o n n e c t e d  o r  d e a d ' ,  l a b e l _ v n :  ' S S
  2 3 9 |            {  i d :  ' o s _ c o r r u p t ' ,  l a b e l :  ' W i n d o w s  c o r r u p t e d ' ,  l a b e l _ v n :  ' W i n d o w s
  2 4 0 |            {  i d :  ' b i o s _ b u g ' ,  l a b e l :  ' B I O S  s e t t i n g s  w r o n g ' ,  l a b e l _ v n :  ' C à i  · t
  2 4 1 |            {  i d :  ' c a b l e _ l o o s e ' ,  l a b e l :  ' L o o s e  S A T A  c a b l e ' ,  l a b e l _ v n :  ' C á p  S A T
    ],
    tool_hints: {
      multimeter: 'SATA power correct voltage.',
  2 4 5 |             m u l t i m e t e r _ v n :  ' C á p  n g u Ó n  S A T A  ú n g  i Ç n  á p . ' ,
      screwdriver: 'SSD not detected after reseating. Try known-working SSD.',
  2 4 7 |             s c r e w d r i v e r _ v n :  ' S S D  k h ô n g  t h ¥ y  d ù  ã  g ¯ n  l ¡ i . ' ,
      compressed_air: 'SATA ports cleaned.',
  2 4 9 |             c o m p r e s s e d _ a i r _ v n :  ' C Õ n g  S A T A  ã  v Ç  s i n h . ' ,
      spare_psu: 'Same with spare PSU.',
  2 5 1 |             s p a r e _ p s u _ v n :  ' V « n  l × i  v Û i  n g u Ó n  k h á c . ' ,
      bios_speaker: 'Beep codes - missing storage device.',
  2 5 3 |             b i o s _ s p e a k e r _ v n :  ' M ã  b e e p  b á o  t h i ¿ u  t h i ¿ t  b Ë  l ° u  t r ï . ' ,
    },
    beep_pattern: 'BEEP (short) + "No boot device"',
    diagram: 'storage',
    diagnosis_step: 1,
  },
  {
    id: 'boot_loop',
    title: 'Boot Loop / Continuous Restart',
  2 6 2 |          t i t l e _ v n :  ' B o o t  L o o p  /  K h ß i  Ù n g  L i ê n  T ắ c ' ,
    description: 'PC turns on, shows BIOS splash, then restarts repeatedly.',
  2 6 4 |          d e s c r i p t i o n _ v n :  ' P C  b - t ,  t h ¥ y  B I O S ,  r Ó i  r e s t a r t  l i ê n  t ắ c . ' ,
    symptoms: ['Continuous restart loop', 'Never reaches desktop', 'Started after BIOS change'],
  2 6 6 |          s y m p t o m s _ v n :  [ ' R e s t a r t  l i ê n  t ắ c ' ,  ' K h ô n g  v à o  d e s k t o p ' ,  ' S a u  k h i  t h a y
    correct_answer: 'bios_ram_instability',
    hints: ['Clear CMOS', 'Boot with one RAM stick', 'Check XMP stability', 'Update BIOS'],
  2 6 9 |          h i n t s _ v n :  [ ' C l e a r  C M O S ' ,  ' B o o t  1  t h a n h  R A M ' ,  ' K i Ã m  t r a  X M P ' ,  ' C - p  n h
    difficulty: 'hard',
  2 7 1 |          i c o n :  'Ø=Ý ' ,
    options: [
  2 7 3 |            {  i d :  ' b i o s _ r a m _ i n s t a b i l i t y ' ,  l a b e l :  ' B a d  B I O S  /  R A M  i n s t a b i l i t y ' ,
  2 7 4 |            {  i d :  ' p s u _ f a i l i n g ' ,  l a b e l :  ' P S U  f a i l i n g  u n d e r  l o a d ' ,  l a b e l _ v n :  ' N
  2 7 5 |            {  i d :  ' g p u _ d r i v e r ' ,  l a b e l :  ' G P U  d r i v e r  c r a s h  l o o p ' ,  l a b e l _ v n :  ' D r i
  2 7 6 |            {  i d :  ' w i n d o w s _ u p d a t e ' ,  l a b e l :  ' C o r r u p t e d  W i n d o w s  u p d a t e ' ,  l a b e l _ v
    ],
    tool_hints: {
      multimeter: 'PSU voltages fluctuate during boot.',
  2 8 0 |             m u l t i m e t e r _ v n :  '  i Ç n  á p  P S U  d a o  Ù n g  k h i  b o o t . ' ,
      screwdriver: 'Clearing CMOS resolved the boot loop.',
  2 8 2 |             s c r e w d r i v e r _ v n :  ' C l e a r  C M O S  ã  k h ¯ c  p h ắ c  b o o t  l o o p . ' ,
      compressed_air: 'System clean.',
  2 8 4 |             c o m p r e s s e d _ a i r _ v n :  ' H Ç  t h Ñ n g  s ¡ c h . ' ,
      spare_psu: 'Boot loop persists with spare PSU.',
  2 8 6 |             s p a r e _ p s u _ v n :  ' B o o t  l o o p  v « n  c ò n  v Û i  n g u Ó n  k h á c . ' ,
      bios_speaker: 'Repeating short beeps - memory/BIOS error.',
  2 8 8 |             b i o s _ s p e a k e r _ v n :  ' B e e p  n g ¯ n  l · p  l ¡ i  -  l × i  R A M / B I O S . ' ,
    },
    beep_pattern: 'BEEP BEEP BEEP BEEP (continuous short)',
    diagram: 'motherboard',
    diagnosis_step: 3,
  },
  {
    id: 'strange_noise',
    title: 'Strange Noise from PC',
  2 9 7 |          t i t l e _ v n :  ' Â m  T h a n h  L ¡  T ë  P C ' ,
    description: 'PC makes grinding or clicking noise. Performance normal.',
  2 9 9 |          d e s c r i p t i o n _ v n :  ' P C  p h á t  t i ¿ n g  l ¡ .  H i Ç u  n  n g  b ì n h  t h ° Ý n g . ' ,
    symptoms: ['Grinding noise', 'Buzzing from PSU area', 'Noise changes with load'],
  3 0 1 |          s y m p t o m s _ v n :  [ ' T i ¿ n g  l á c h  c á c h ' ,  ' Ù  t ë  n g u Ó n ' ,  ' Ò n  t h a y  Õ i  t h e o  t £ i
    correct_answer: 'fan_bearing',
    hints: ['Locate noise source', 'Stop fans one by one', 'Check HDD for clicks', 'Inspect fan blades'],
  3 0 4 |          h i n t s _ v n :  [ ' X á c  Ë n h  v Ë  t r í  Ô n ' ,  ' D ë n g  t ë n g  q u ¡ t ' ,  ' K i Ã m  t r a  H D D ' ,  '
    difficulty: 'easy',
  3 0 6 |          i c o n :  'Ø=Ý ' ,
    options: [
  3 0 8 |            {  i d :  ' f a n _ b e a r i n g ' ,  l a b e l :  ' F a n  b e a r i n g  w o r n  o u t ' ,  l a b e l _ v n :  ' B ¡ c
  3 0 9 |            {  i d :  ' h d d _ d a m a g e ' ,  l a b e l :  ' H D D  h e a d  c r a s h ' ,  l a b e l _ v n :  ' H D D  § u  1
  3 1 0 |            {  i d :  ' c o i l _ w h i n e ' ,  l a b e l :  ' G P U  c o i l  w h i n e ' ,  l a b e l _ v n :  ' C u Ù n  c £ m  C
  3 1 1 |            {  i d :  ' l o o s e _ s c r e w ' ,  l a b e l :  ' L o o s e  s c r e w  v i b r a t i n g ' ,  l a b e l _ v n :  ' Đ c
    ],
    tool_hints: {
      multimeter: 'No electrical issues.',
  3 1 5 |             m u l t i m e t e r _ v n :  ' K h ô n g  v ¥ n  Á  i Ç n . ' ,
      screwdriver: 'Stopping CPU fan stops noise - bearing worn.',
  3 1 7 |             s c r e w d r i v e r _ v n :  ' D ë n g  q u ¡ t  C P U  h ¿ t  Ó n  -  b ¡ c  m ò n . ' ,
      compressed_air: 'Dust blow did not help.',
  3 1 9 |             c o m p r e s s e d _ a i r _ v n :  ' X Ë t  b ß i  k h ô n g  h ¿ t . ' ,
      spare_psu: 'Noise persists.',
  3 2 1 |             s p a r e _ p s u _ v n :  ' Ò n  v « n  c ò n . ' ,
      bios_speaker: 'No beep errors. POST fine.',
  3 2 3 |             b i o s _ s p e a k e r _ v n :  ' K h ô n g  l × i  b e e p .  P O S T  b ì n h  t h ° Ý n g . ' ,
    },
    beep_pattern: 'BEEP (short - normal)',
    diagram: 'fan',
```

```
  327|     diagnosis_step: 1,
  328|   },
  329|   {
  330|     id: 'no_wifi',
  331|     title: 'Network Not Working / WiFi Missing',
    3 3 2 |          t i t l e _ v n :   ' M ¥ t   M ¡ n g   /   K h ô n g   C ó   W i F i ' ,
  333|     description: 'WiFi shows no networks. Ethernet works fine.',
    3 3 4 |          d e s c r i p t i o n _ v n :   ' W i F i   k h ô n g   t h ¥ y   m ¡ n g .   E t h e r n e t   v « n   d ù n g   ° ã c . ' ,
  335|     symptoms: ['No WiFi networks', 'Adapter missing in Device Manager', 'Driver error'],
    3 3 6 |          s y m p t o m s _ v n :   [ ' K h ô n g   t h ¥ y   W i F i ' ,   ' T h i ¿ u   a d a p t e r   t r o n g   D e v i c e   M a n a g e r
  337|     correct_answer: 'wifi_driver',
  338|     hints: ['Check WiFi enabled', 'Toggle Airplane mode', 'Check Device Manager', 'Reinstall driver'],
    3 3 9 |          h i n t s _ v n :   [ ' K i Ã m   t r a   W i F i   b - t ' ,   ' B - t / t ¯ t   m á y   b a y ' ,   ' K i Ã m   t r a   D e v i c e
  340|     difficulty: 'medium',
    3 4 1 |          i c o n :   'Ø=Üö ' ,
  342|     options: [
  343|       { id: 'wifi_driver', label: 'WiFi driver / antenna issue', label_vn: 'Driver WiFi / antenna', correct: t...
    3 4 4 |              {   i d :   ' r o u t e r _ d o w n ' ,   l a b e l :   ' R o u t e r   d o w n ' ,   l a b e l _ v n :   ' R o u t e r   h Ï n g '
    3 4 5 |              {   i d :   ' i s p _ o u t a g e ' ,   l a b e l :   ' I S P   o u t a g e ' ,   l a b e l _ v n :   ' M ¥ t   i n t e r n e t   I
    3 4 6 |              {   i d :   ' w i n d o w s _ b u g ' ,   l a b e l :   ' W i n d o w s   n e t w o r k   b u g ' ,   l a b e l _ v n :   ' L × i
  347|     ],
  348|     tool_hints: {
  349|       multimeter: 'WiFi card power correct.',
    3 5 0 |              m u l t i m e t e r _ v n :   ' N g u Ó n   c a r d   W i F i   ú n g . ' ,
  351|       screwdriver: 'WiFi card seated. Antenna cable loose.',
    3 5 2 |              s c r e w d r i v e r _ v n :   ' C a r d   g ¯ n   c h · t .   C á p   a n t e n n a   l Ï n g . ' ,
  353|       compressed_air: 'Card cleaned. No damage.',
    3 5 4 |              c o m p r e s s e d _ a i r _ v n :   '   ã   v Ç   s i n h .   K h ô n g   h ° . ' ,
  355|       spare_psu: 'WiFi still missing.',
    3 5 6 |              s p a r e _ p s u _ v n :   ' W i F i   v « n   m ¥ t . ' ,
  357|       bios_speaker: 'POST OK. No hardware errors.',
    3 5 8 |              b i o s _ s p e a k e r _ v n :   ' P O S T   O K .   K h ô n g   l × i   p h § n   c é n g . ' ,
  359|     },
  360|     beep_pattern: 'BEEP (short - normal)',
  361|     diagram: 'wifi',
  362|     diagnosis_step: 2,
  363|   },
  364| ];
  365|
```

File: components/DiagnosisMode.js (1456 lines, 70.5 KB)

```
==========================================================================================
        1 |  þÿ ' u s e   c l i e n t ' ;
    2|
    3| import React, { useState, useEffect, useRef, useCallback } from 'react';
    4|
    5| const TOOLS = [
        6 |       {   i d :   ' m u l t i m e t e r ' ,   i c o n :   '&¡ ' ,   l a b e l :   ' M u l t i m e t e r ' ,   l a b e l _ v n :   '   Ó n g   h
        7 |       {   i d :   ' s c r e w d r i v e r ' ,   i c o n :   'Ø=Ý' ' ,   l a b e l :   ' S c r e w d r i v e r ' ,   l a b e l _ v n :   ' T u a
        8 |       {   i d :   ' c o m p r e s s e d _ a i r ' ,   i c o n :   'Ø=Ü¨ ' ,   l a b e l :   ' C o m p r e s s e d   A i r ' ,   l a b e l _ v n
        9 |       {   i d :   ' s p a r e _ p s u ' ,   i c o n :   'Ø=Ý ' ,   l a b e l :   ' S p a r e   P S U ' ,   l a b e l _ v n :   ' N g u Ó n   d
      1 0 |       {   i d :   ' b i o s _ s p e a k e r ' ,   i c o n :   'Ø=Ý ' ,   l a b e l :   ' B I O S   S p e a k e r ' ,   l a b e l _ v n :   ' L
   11| ];
   12|
   13| const SCENARIOS = [
   14|   {
   15|     id: 'no_power',
   16|     title: 'No Power',
      1 7 |          t i t l e _ v n :   ' K h ô n g   L ê n   N g u Ó n ' ,
   18|     description: 'PC does not turn on when pressing the power button. Fans do not spin.',
      1 9 |          d e s c r i p t i o n _ v n :   ' P C   k h ô n g   l ê n   k h i   b ¥ m   n ú t   n g u Ó n .   Q u ¡ t   k h ô n g   q u a y . ' ,
   20|     symptoms: ['No fan spin', 'No LEDs', 'Power button does nothing'],
      2 1 |          s y m p t o m s _ v n :   [ ' Q u ¡ t   k h ô n g   q u a y ' ,   '   è n   k h ô n g   s á n g ' ,   ' N ú t   n g u Ó n   k h ô n g
   22|     correct_answer: 'psu',
   23|     hints: ['Check if the PSU switch is on', 'Check power cable connection', 'Try a different power outlet', '...
      2 4 |          h i n t s _ v n :   [ ' K i Ã m   t r a   c ô n g   t ¯ c   n g u Ó n   P S U ' ,   ' K i Ã m   t r a   d â y   n g u Ó n ' ,   ' T h i
   25|     difficulty: 'easy',
      2 6 |          i c o n :   'Ø=Ý ' ,
   27|     options: [
      2 8 |              {   i d :   ' p s u ' ,   l a b e l :   ' D e a d   P S U   ( N g u Ó n   c h ¿ t ) ' ,   l a b e l _ v n :   ' N g u Ó n   c h ¿ t
   29|       { id: 'cpu', label: 'CPU fried', label_vn: 'CPU cháy' },
      3 0 |              {   i d :   ' r a m ' ,   l a b e l :   ' L o o s e   R A M ' ,   l a b e l _ v n :   ' R A M   l Ï n g '   } ,
      3 1 |              {   i d :   ' c a s e ' ,   l a b e l :   ' S h o r t   c i r c u i t   i n   c a s e ' ,   l a b e l _ v n :   ' C a s e   b Ë   c
   32|     ],
   33|     tool_hints: {
   34|       multimeter: 'PSU voltage rails read 0V on all lines.',
      3 5 |              m u l t i m e t e r _ v n :   ' C á c   ° Ý n g   i Ç n   P S U   Á u   0 V . ' ,
   36|       screwdriver: 'All components appear seated. Power button header looks fine.',
      3 7 |              s c r e w d r i v e r _ v n :   ' C á c   l i n h   k i Ç n   g ¯ n   c h · t .   § u   n Ñ i   n ú t   n g u Ó n   b ì n h   t h
   38|       compressed_air: 'No significant dust buildup inside.',
      3 9 |              c o m p r e s s e d _ a i r _ v n :   ' K h ô n g   c ó   b ã i   b © n   á n g   k Ã   b ê n   t r o n g . ' ,
   40|       spare_psu: 'PC boots normally with a known-good PSU.',
      4 1 |              s p a r e _ p s u _ v n :   ' P C   h o ¡ t   Ù n g   b ì n h   t h ° Ý n g   v Û i   n g u Ó n   k h á c . ' ,
   42|       bios_speaker: 'No beep at all - no power reaching the board.',
      4 3 |              b i o s _ s p e a k e r _ v n :   ' K h ô n g   c ó   t i ¿ n g   b e e p   -   b o   m ¡ c h   k h ô n g   c ó   i Ç n . ' ,
   44|     },
   45|     beep_pattern: '... (silence)',
   46|     diagram: 'psu',
   47|     diagnosis_step: 1,
   48|   },
   49|   {
   50|     id: 'no_display',
   51|     title: 'No Display / Black Screen',
      5 2 |          t i t l e _ v n :   ' K h ô n g   C ó   H ì n h   ¢ n h ' ,
   53|     description: 'PC turns on (fans spin, LEDs on) but monitor shows no signal.',
      5 4 |          d e s c r i p t i o n _ v n :   ' P C   l ê n   n g u Ó n   ( q u ¡ t   q u a y ,   è n   s á n g )   n h ° n g   m à n   h ì n h   k
   55|     symptoms: ['Fans spinning', 'LEDs on', 'No display output', 'No BIOS beep'],
      5 6 |          s y m p t o m s _ v n :   [ ' Q u ¡ t   q u a y ' ,   '   è n   s á n g ' ,   ' K h ô n g   c ó   h ì n h ' ,   ' K h ô n g   c ó   t i
   57|     correct_answer: 'ram_reseat',
   58|     hints: ['Try reseating RAM modules', 'Try one RAM stick at a time', 'Check GPU is seated properly', 'Clear...
      5 9 |          h i n t s _ v n :   [ ' G ¯ n   l ¡ i   R A M ' ,   ' T h í   t ë n g   t h a n h   R A M   m Ù t ' ,   ' K i Ã m   t r a   G P U   g ¯
   60|     difficulty: 'easy',
      6 1 |          i c o n :   'Ø=Ý¥þ  ' ,
   62|     options: [
      6 3 |              {   i d :   ' r a m _ r e s e a t ' ,   l a b e l :   ' R e s e a t   R A M   m o d u l e s ' ,   l a b e l _ v n :   ' G ¯ n   l ¡
   64|       { id: 'replace_cpu', label: 'Replace CPU', label_vn: 'Thay CPU' },
   65|       { id: 'replace_monitor', label: 'Replace monitor', label_vn: 'Thay màn hình' },
      6 6 |              {   i d :   ' r e i n s t a l l _ o s ' ,   l a b e l :   ' R e i n s t a l l   W i n d o w s ' ,   l a b e l _ v n :   ' C à i   l
   67|     ],
   68|     tool_hints: {
   69|       multimeter: 'Voltages are normal. PSU functioning correctly.',
      7 0 |              m u l t i m e t e r _ v n :   '   i Ç n   á p   b ì n h   t h ° Ý n g .   N g u Ó n   h o ¡ t   Ù n g   t Ñ t . ' ,
   71|       screwdriver: 'Reseating RAM modules fixed the issue - one stick was loose.',
      7 2 |              s c r e w d r i v e r _ v n :   ' G ¯ n   l ¡ i   R A M   ã   k h ¯ c   p h ® c   -   m Ù t   t h a n h   b Ë   l Ï n g . ' ,
   73|       compressed_air: 'RAM slots cleaned. Minor dust present.',
      7 4 |              c o m p r e s s e d _ a i r _ v n :   ' K h e   R A M   ã   ° ã c   v Ç   s i n h .   C ó   b ã i   n h ¹ . ' ,
   75|       spare_psu: 'Same issue with spare PSU - problem is not the PSU.',
      7 6 |              s p a r e _ p s u _ v n :   ' V « n   l × i   v Û i   n g u Ó n   k h á c   -   k h ô n g   p h £ i   d o   n g u Ó n . ' ,
   77|       bios_speaker: 'Continuous long beep pattern - RAM error.',
      7 8 |              b i o s _ s p e a k e r _ v n :   ' T i ¿ n g   b e e p   d à i   l i ê n   t ã c   -   l × i   R A M . ' ,
   79|     },
   80|     beep_pattern: 'BEEP... BEEP... BEEP... (long repeating)',
   81|     diagram: 'ram',
```

```
    diagnosis_step: 1,
  },
  {
    id: 'blue_screen',
    title: 'Blue Screen (CRITICAL_PROCESS_DIED)',
    title_vn: 'Màn Hình Xanh (CRITICAL_PROCESS_DIED)',
    description: 'PC blue-screens with CRITICAL_PROCESS_DIED error shortly after booting Windows.',
    description_vn: 'PC bË màn hình xanh l×i CRITICAL_PROCESS_DIED sau k
    symptoms: ['BSOD on boot', 'CRITICAL_PROCESS_DIED error', 'Boots to recovery', 'Safe mode also crashes'],
    symptoms_vn: ['BSOD khi khßi Ùng', 'L×i CRITICAL_PROCESS_DIED', 'Vä
    correct_answer: 'repair_os',
    hints: ['Try Startup Repair', 'Check for recent driver updates', 'Run SFC /scannow', 'Reinstall Windows if...
    hints_vn: ['Thí Startup Repair', 'KiÃm tra driver mÛi càì', 'Ch¡y SF
    difficulty: 'medium',
    icon: 'Ø=Ü€ ',
    options: [
      {id: 'repair_os', label: 'Repair corrupted system files', label_v
      { id: 'replace_ram', label: 'Replace RAM', label_vn: 'Thay RAM' },
      { id: 'replace_gpu', label: 'Replace GPU', label_vn: 'Thay GPU' },
      { id: 'replace_cpu', label: 'Replace CPU', label_vn: 'Thay CPU' },
    ],
    tool_hints: {
      multimeter: 'All voltage readings are within spec.',
      multimeter_vn: ' iÇn áp Áu trong ng°áng cho phép.',
      screwdriver: 'Hardware appears correctly seated. Nothing loose.',
      screwdriver_vn: 'Ph§n céng g¯n ch·t. Không có gì lÏng.',
      compressed_air: 'System is clean, no overheating signs.',
      compressed_air_vn: 'HÇ thÑng s¡ch, không có d¥u hiÇu quá nhiÇt.',
      spare_psu: 'BSOD still occurs with spare PSU.',
      spare_psu_vn: 'BSOD v«n x£y ra vÛi nguÓn khác.',
      bios_speaker: 'Single short beep - POST OK, problem is software.',
      bios_speaker_vn: 'MÙt beep ng¯n - POST OK, l×i ph§n mÁm.',
    },
    beep_pattern: 'BEEP (single short - POST OK)',
    diagram: 'motherboard',
    diagnosis_step: 1,
  },
  {
    id: 'overheating',
    title: 'Overheating / Random Shutdowns',
    title_vn: 'Quá NhiÇt / T¯t ÙtNgÙt',
    description: 'PC randomly shuts down under load. Case feels hot. Fans run loud then stop.',
    description_vn: 'PC t¯t ÙtngÙt khi ch¡y n·ng. VÏ nóng. Qu¡t ch¡y t
    symptoms: ['Random shutdowns', 'Loud fan noise then silence', 'Hot case', 'Crashes under load'],
    symptoms_vn: ['T¯t ÙtngÙt', 'Qu¡t ÓnrÓi im', 'VÏ máy nóng', 'Trec
    correct_answer: 'cooler_issue',
    hints: ['Check CPU cooler is spinning', 'Reapply thermal paste', 'Check fan curves in BIOS', 'Clean dust f...
    hints_vn: ['KiÃm tra qu¡t CPU có quay không', 'Bôi l¡i keo t£n nhiÇt
    difficulty: 'medium',
    icon: 'Ø<ß!þ ',
    options: [
      {id: 'cooler_issue', label: 'CPU cooler failure / dust clogged',
      {id: 'psu_overload', label: 'PSU overload', label_vn: 'PSU quá t£
      { id: 'virus', label: 'Virus / malware', label_vn: 'Virus' },
      {id: 'ram_error', label: 'RAM error', label_vn: 'RAM l×i' },
    ],
    tool_hints: {
      multimeter: 'PSU voltages fluctuate but stay in range.',
      multimeter_vn: ' iÇn áp PSU dao Ùng nh°ng trong ng°áng.',
      screwdriver: 'CPU cooler mounting screws are loose. Heatsink not making full contact.',
      screwdriver_vn: 'Ðc t£n nhiÇt CPU lÏng. T£n nhiÇt không ti¿p xúc
      compressed_air: 'Heatsink fins completely clogged with dust. Airflow blocked.',
      compressed_air_vn: 'Khe t£n nhiÇt bË bßi bít hoàn toàn. Không khí
      spare_psu: 'Same shutdowns with spare PSU.',
      spare_psu_vn: 'V«n t¯t vÛi nguÓn khác.',
      bios_speaker: 'Single short beep. Overheat warning in BIOS.',
      bios_speaker_vn: 'MÙt beep ng¯n. BIOS báo quá nhiÇt.',
    },
    beep_pattern: 'BEEP (short) + overheat warning LED',
    diagram: 'cpu_cooler',
    diagnosis_step: 2,
  },
  {
    id: 'gpu_artifacts',
    title: 'GPU Artifacts / Glitched Display',
    title_vn: 'L×i HiÃn ThË GPU',
    description: 'Screen shows strange colored squares, lines, or flickering. Happens in games and desktop.',
    description_vn: 'Màn hình có ô màu l¡, °Ýng k», nh¥p nháy. X£y ra c
    symptoms: ['Colored artifacts on screen', 'Flickering', 'Lines across display', 'Driver crashes'],
    symptoms_vn: ['Ô màu l¡ trên màn', 'Nh¥p nháy', '°Ýng k» ngang dÍc'
    correct_answer: 'gpu_dying',
    hints: ['Check GPU temperatures', 'Try underclocking GPU', 'Test with another monitor', 'Check GPU seating'],
    hints_vn: ['KiÃm tra nhiÇt GPU', 'Thí underclock GPU', 'Dùng màn hìn
    difficulty: 'medium',
    icon: 'Ø<ß® ',
    options: [
      {id: 'gpu_dying', label: 'GPU is failing / VRAM damaged', label_v
      {id: 'cable_loose', label: 'Loose display cable', label_vn: 'Dây
      {id: 'monitor_broken', label: 'Monitor broken', label_vn: 'Màn hì
      {id: 'driver_issue', label: 'Driver issue only', label_vn: 'ChÉ l
    ],
    tool_hints: {
      multimeter: 'GPU power delivery lines are stable.',
      multimeter_vn: '°Ýng iÇn GPU Õn Ënh.',
      screwdriver: 'GPU is seated firmly. Reseating did not help.',
      screwdriver_vn: 'GPU g¯n ch·t. G¯n l¡i không h¿t l×i.',
      compressed_air: 'GPU fans are clean. Some dust but not overheating.',
      compressed_air_vn: 'Qu¡t GPU s¡ch. Có bßi nh°ng không quá nhiÇt.',
      spare_psu: 'Artifacts persist with spare PSU.',
      spare_psu_vn: 'L×i hiÃn thË v«n còn vÛi nguÓn khác.',
      bios_speaker: 'One short beep. Artifacts visible even in BIOS - hardware_failure.',
      bios_speaker_vn: 'MÙt beep ng¯n. L×i hiÃn thË ngay c£ trong BIOS -
    },
    beep_pattern: 'BEEP (short)',
    diagram: 'gpu',
    diagnosis_step: 2,
  },
  {
    id: 'slow_pc',
    title: 'Slow PC / 100% Disk Usage',
    title_vn: 'Máy Ch-m / Disk 100%',
    description: 'PC is extremely slow. Task Manager shows 100% disk usage constantly.',
    description_vn: 'Máy tính r¥t ch-m. Task Manager hiÃn thË disk 100%
    symptoms: ['100% disk usage', 'Slow boot times', 'Applications freeze', 'File explorer hangs'],
    symptoms_vn: ['Disk 100%', 'Khßi Ùng ch-m', 'èng dång éng', 'File
    correct_answer: 'hdd_failing',
    hints: ['Check Task Manager disk usage', 'Run CHKDSK', 'Check S.M.A.R.T. status', 'Consider replacing the ...
    hints_vn: ['KiÃm tra Task Manager', 'Ch¡y CHKDSK', 'KiÃm tra S.M.A.R
    difficulty: 'medium',
    icon: 'Ø=Ü ',
    options: [
      {id: 'hdd_failing', label: 'HDD failing / SSD full', label_vn: 'H
      {id: 'virus', label: 'Virus infection', label_vn: 'NhiÃm virus' }
      {id: 'ram_low', label: 'Not enough RAM', label_vn: 'Thi¿u RAM' },
```

```
  2 0 6 |            {  i d :  ' c p u _ o l d ' ,  l a b e l :  ' C P U  t o o  o l d ' ,  l a b e l _ v n :  ' C P U  q u á  c i '  } ,
207|     ],
208|     tool_hints: {
209|       multimeter: 'Drive power is normal.',
  2 1 0 |            m u l t i m e t e r _ v n :  ' N g u Ó n  Õ  c é n g  b ì n h  t h ° Ý n g . ' ,
211|     screwdriver: 'Cable connections are secure. Drive mounted properly.',
  2 1 2 |            s c r e w d r i v e r _ v n :  ' K ¿ t  n Ñ i  c á p  c h · t .  Ô  g ¯ n  ú n g  c á c h . ' ,
213|     compressed_air: 'Drive enclosure is clean and cool.',
  2 1 4 |            c o m p r e s s e d _ a i r _ v n :  ' V Ï  Õ  c é n g  s ¡ c h  v à  m á t . ' ,
215|     spare_psu: 'Still slow with spare PSU.',
  2 1 6 |            s p a r e _ p s u _ v n :  ' V « n  c h - m  v Û i  n g u Ó n  k h á c . ' ,
217|     bios_speaker: 'Single short beep. BIOS detects the drive but with high latency.',
  2 1 8 |            b i o s _ s p e a k e r _ v n :  ' M Ù t  b e e p  n g ¯ n .  B I O S  p h á t  h i Ç n  Õ  n h ° n g  Ù  t r Å  c a c
219|     },
220|     beep_pattern: 'BEEP (short)',
221|     diagram: 'storage',
222|     diagnosis_step: 2,
223|   },
224|   {
225|     id: 'no_boot_device',
226|     title: 'No Boot Device Found',
  2 2 7 |         t i t l e _ v n :  ' K h ô n g  T ì m  T h ¥ y  Ô  K h ß i  Ù n g ' ,
228|     description: 'Screen says "No boot device found" or "Reboot and Select proper Boot device".',
  2 2 9 |         d e s c r i p t i o n _ v n :  ' M à n  h ì n h  b á o  " N o  b o o t  d e v i c e  f o u n d "  h o · c  " R e b o o t  a n
230|     symptoms: ['No boot device error', 'BIOS shows no drive', 'Clicking sound from HDD', 'Was working yesterda...
  2 3 1 |         s y m p t o m s _ v n :  [ ' L × i  k h ô n g  c ó  b o o t  d e v i c e ' ,  ' B I O S  k h ô n g  t h ¥ y  Õ ' ,  ' Â m  t
232|     correct_answer: 'ssd_dead',
233|     hints: ['Check SATA/NVMe connections', 'Boot into BIOS setup', 'Try a different SATA port', 'Check if driv...
  2 3 4 |         h i n t s _ v n :  [ ' K i Ã m  t r a  k ¿ t  n Ñ i  S A T A / N V M e ' ,  ' V à o  B I O S  s e t u p ' ,  ' T h í  c Õ n g
235|     difficulty: 'easy',
  2 3 6 |         i c o n :  ' Ø=Ù¿ ' ,
237|     options: [
  2 3 8 |            {  i d :  ' s s d _ d e a d ' ,  l a b e l :  ' S S D  d i s c o n n e c t e d  o r  d e a d ' ,  l a b e l _ v n :  ' S S
  2 3 9 |            {  i d :  ' o s _ c o r r u p t ' ,  l a b e l :  ' W i n d o w s  c o r r u p t e d ' ,  l a b e l _ v n :  ' W i n d o w s
  2 4 0 |            {  i d :  ' b i o s _ b u g ' ,  l a b e l :  ' B I O S  s e t t i n g s  w r o n g ' ,  l a b e l _ v n :  ' C à i  · t
  2 4 1 |            {  i d :  ' c a b l e _ l o o s e ' ,  l a b e l :  ' L o o s e  S A T A  c a b l e ' ,  l a b e l _ v n :  ' C á p  S A T
242|     ],
243|     tool_hints: {
244|       multimeter: 'SATA power cable has correct voltage.',
  2 4 5 |            m u l t i m e t e r _ v n :  ' C á p  n g u Ó n  S A T A  c ó  i Ç n  á p  ú n g . ' ,
246|     screwdriver: 'SSD is not detected even after reseating. Try a known-working SSD.',
  2 4 7 |            s c r e w d r i v e r _ v n :  ' S S D  k h ô n g  ° ã c  p h á t  h i Ç n  d ù  ã  g ¯ n  l ¡ i .  T h í  S S D  k
248|     compressed_air: 'SATA ports cleaned. No visible damage.',
  2 4 9 |            c o m p r e s s e d _ a i r _ v n :  ' C Õ n g  S A T A  ã  v Ç  s i n h .  K h ô n g  h °  h Ï n g  t h ¥ y  ° ã c
250|     spare_psu: 'Same issue with spare PSU.',
  2 5 1 |            s p a r e _ p s u _ v n :  ' V « n  l × i  v Û i  n g u Ó n  k h á c . ' ,
252|     bios_speaker: 'Beep codes indicate missing storage device.',
  2 5 3 |            b i o s _ s p e a k e r _ v n :  ' M ã  b e e p  b á o  t h i ¿ u  t h i ¿ t  b Ë  l ° u  t r ï . ' ,
254|     },
255|     beep_pattern: 'BEEP (short) + "No boot device"',
256|     diagram: 'storage',
257|     diagnosis_step: 1,
258|   },
259|   {
260|     id: 'boot_loop',
261|     title: 'Boot Loop / Continuous Restart',
  2 6 2 |         t i t l e _ v n :  ' B o o t  L o o p  /  K h ß i  Ù n g  L i ê n  T å c ' ,
263|     description: 'PC turns on, shows BIOS splash, then restarts repeatedly before reaching Windows.',
  2 6 4 |         d e s c r i p t i o n _ v n :  ' P C  b - t  l ê n,  t h ¥ y  B I O S  s p l a s h,  r Ó i  k h ß i  Ù n g  l ¡ i  l i ê
265|     symptoms: ['Continuous restart loop', 'Never reaches desktop', 'Sometimes shows Windows repair', 'Started ...
  2 6 6 |         s y m p t o m s _ v n :  [ ' K h ß i  Ù n g  l ¡ i  l i ê n  t å c ' ,  ' K h ô n g  v à o  ° ã c  d e s k t o p ' ,  '
267|     correct_answer: 'bios_ram_instability',
268|     hints: ['Clear CMOS by removing the battery', 'Try booting with one RAM stick', 'Check if XMP/DOCP profile...
  2 6 9 |         h i n t s _ v n :  [ ' C l e a r  C M O S  b ± n g  c á c h  t h á o  p i n ' ,  ' T h í  b o o t  v Û i  1  t h a n h  R A
270|     difficulty: 'hard',
  2 7 1 |         i c o n :  ' Ø=Ý ' ,
272|     options: [
273|       { id: 'bios_ram_instability', label: 'Bad BIOS settings / RAM instability', label_vn: 'BIOS sai / RAM kh...
  2 7 4 |            {  i d :  ' p s u _ f a i l i n g ' ,  l a b e l :  ' P S U  f a i l i n g  u n d e r  l o a d ' ,  l a b e l _ v n :  ' N
  2 7 5 |            {  i d :  ' g p u _ d r i v e r ' ,  l a b e l :  ' G P U  d r i v e r  c r a s h  l o o p ' ,  l a b e l _ v n :  ' D r i
  2 7 6 |            {  i d :  ' w i n d o w s _ u p d a t e ' ,  l a b e l :  ' C o r r u p t e d  W i n d o w s  u p d a t e ' ,  l a b e l _ v
277|     ],
278|     tool_hints: {
279|       multimeter: 'PSU voltages fluctuate during boot attempt.',
  2 8 0 |            m u l t i m e t e r _ v n :  '  i Ç n  á p  P S U  d a o  Ù n g  k h i  k h ß i  Ù n g . ' ,
281|     screwdriver: 'Clearing CMOS by removing battery for 5 minutes resolved the boot loop.',
  2 8 2 |            s c r e w d r i v e r _ v n :  ' C l e a r  C M O S  b ± n g  c á c h  t h á o  p i n  5  p h ú t  ã  k h ¯ c  p h å c
283|     compressed_air: 'System is clean. No dust issues.',
  2 8 4 |            c o m p r e s s e d _ a i r _ v n :  ' H Ç  t h Ñ n g  s ¡ c h .  K h ô n g  c ó  v ¥ n  Á  b å i . ' ,
285|     spare_psu: 'Boot loop persists with spare PSU.',
  2 8 6 |            s p a r e _ p s u _ v n :  ' B o o t  l o o p  v « n  c ò n  v Û i  n g u Ó n  k h á c . ' ,
287|     bios_speaker: 'Repeating short beeps - memory or BIOS error.',
  2 8 8 |            b i o s _ s p e a k e r _ v n :  ' B e e p  n g ¯ n  l · p  l ¡ i  -  l × i  R A M  h o · c  B I O S . ' ,
289|     },
290|     beep_pattern: 'BEEP BEEP BEEP BEEP (continuous short)',
291|     diagram: 'motherboard',
292|     diagnosis_step: 3,
293|   },
294|   {
295|     id: 'strange_noise',
296|     title: 'Strange Noise from PC',
  2 9 7 |         t i t l e _ v n :  ' Â m  T h a n h  L ¡  T ë  P C ' ,
298|     description: 'PC makes grinding, clicking, or buzzing noise. Performance seems normal otherwise.',
  2 9 9 |         d e s c r i p t i o n _ v n :  ' P C  p h á t  r a  t i ¿ n g  l ¡ :  l á c h  c á c h,  ù  h o · c  r í t .  H i Ç u  n
300|     symptoms: ['Grinding noise', 'Clicking sound', 'Buzzing from PSU area', 'Noise changes with load'],
  3 0 1 |         s y m p t o m s _ v n :  [ ' T i ¿ n g  l á c h  c á c h ' ,  ' T i ¿ n g  l Ù p  c Ù p ' ,  ' Ù  t ë  v ù n g  n g u Ó n ' ,
302|     correct_answer: 'fan_bearing',
303|     hints: ['Locate where the noise is coming from', 'Stop fans one by one to identify', 'Check HDD for clicki...
  3 0 4 |         h i n t s _ v n :  [ ' X á c  Ë n h  v Ë  t r í  t i ¿ n g  Ó n ' ,  ' D ë n g  t ë n g  q u ¡ t  Ã  x á c  Ë n h ' ,
305|     difficulty: 'easy',
  3 0 6 |         i c o n :  ' Ø=Ý ' ,
307|     options: [
  3 0 8 |            {  i d :  ' f a n _ b e a r i n g ' ,  l a b e l :  ' F a n  b e a r i n g  w o r n  o u t ' ,  l a b e l _ v n :  ' B ¡ c
  3 0 9 |            {  i d :  ' h d d _ d a m a g e ' ,  l a b e l :  ' H D D  h e a d  c r a s h ' ,  l a b e l _ v n :  ' H D D  § u  I
  3 1 0 |            {  i d :  ' c o i l _ w h i n e ' ,  l a b e l :  ' G P U  c o i l  w h i n e  ( n o r m a l ) ' ,  l a b e l _ v n :  ' C
  3 1 1 |            {  i d :  ' l o o s e _ s c r e w ' ,  l a b e l :  ' L o o s e  s c r e w  v i b r a t i n g ' ,  l a b e l _ v n :  ' Đ c
312|     ],
313|     tool_hints: {
314|       multimeter: 'No electrical issues detected.',
  3 1 5 |            m u l t i m e t e r _ v n :  ' K h ô n g  p h á t  h i Ç n  v ¥ n  Á  i Ç n . ' ,
316|     screwdriver: 'Stopping the CPU fan temporarily stops the noise. Bearing is worn.',
  3 1 7 |            s c r e w d r i v e r _ v n :  ' D ë n g  q u ¡ t  C P U  t ¡ m  t h Ý i  h ¿ t  t i ¿ n g  Ó n .  B ¡ c  q u ¡ t  b Ë
318|     compressed_air: 'Blowing out dust from the fan did not help.',
  3 1 9 |            c o m p r e s s e d _ a i r _ v n :  ' X Ë t  b å i  q u ¡ t  k h ô n g  h ¿ t  t i ¿ n g  Ó n . ' ,
320|     spare_psu: 'Noise still present with spare PSU.',
  3 2 1 |            s p a r e _ p s u _ v n :  ' T i ¿ n g  Ó n  v « n  c ò n  v Û i  n g u Ó n  k h á c . ' ,
322|     bios_speaker: 'No beep errors. System POSTs fine.',
  3 2 3 |            b i o s _ s p e a k e r _ v n :  ' K h ô n g  l × i  b e e p .  S y s t e m  P O S T  b ì n h  t h ° Ý n g . ' ,
324|     },
325|     beep_pattern: 'BEEP (short - normal)',
326|     diagram: 'fan',
327|     diagnosis_step: 1,
328|   },
329|   {
```

```
    id: 'no_wifi',
    title: 'Network Not Working / WiFi Missing',
    description: 'WiFi icon shows no networks available. Ethernet works fine.',
    symptoms: ['WiFi networks not showing', 'WiFi adapter missing in Device Manager', 'Physical WiFi switch of...
    correct_answer: 'wifi_driver',
    hints: ['Check WiFi is enabled in Windows', 'Toggle Airplane mode', 'Check Device Manager for errors', 'Re...
    difficulty: 'medium',
    icon: 'Ø=Üö',
    options: [
      {id: 'wifi_driver', label: 'WiFi driver corrupted / antenna disco
      {id: 'router_down', label: 'Router is down', label_vn: 'Router hi
      {id: 'isp_outage', label: 'ISP internet outage', label_vn: 'Mất i
      {id: 'windows_bug', label: 'Windows network bug', label_vn: 'Lỗi
    ],
    tool_hints: {
      multimeter: 'WiFi card power pins are getting correct voltage.',
      multimeter_vn: 'Chân nguồn card WiFi có điện áp đúng.',
      screwdriver: 'WiFi card is seated. Antenna cables are connected but one seems loose.',
      screwdriver_vn: 'Card WiFi gắn chặt. Cáp antenna có vẻ lỏng mối bé
      compressed_air: 'WiFi card cleaned. No visible damage.',
      compressed_air_vn: 'Card WiFi đã vệ sinh. Không hỏng hóc gì đác
      spare_psu: 'WiFi still missing with spare PSU.',
      spare_psu_vn: 'WiFi vẫn mất với nguồn khác.',
      bios_speaker: 'POST OK. No hardware beep errors.',
      bios_speaker_vn: 'POST OK. Không lỗi beep phần cứng.',
    },
    beep_pattern: 'BEEP (short - normal)',
    diagram: 'wifi',
    diagnosis_step: 2,
  },
];

const DIFFICULTY_MAP = {
  easy: {label: 'Easy', label_vn: 'DÅ', color: '#28c76f'},
  medium: { label: 'Medium', label_vn: 'Trung bình', color: '#ffa300' },
  hard: { label: 'Hard', label_vn: 'Khó', color: '#e84855' },
};

function BeepAnimation({ pattern }) {
  const count = (pattern.match(/BEEP/g) || []).length;
  const isSilence = pattern.includes('silence');
  return (
    <div style={{ display: 'flex', alignItems: 'center', gap: '6px', height: '32px' }}>
      {isSilence ? (
        <span style={{ color: 'var(--text-muted)', fontSize: '12px', fontStyle: 'italic' }}>... (silence)</span>
      ) : (
        Array.from({ length: Math.min(count, 6) }).map((_, i) => (
          <div
            key={i}
            style={{
              width: '10px', height: '10px', borderRadius: '50%',
              background: 'var(--success)',
              animation: 'diagnosisBeepPulse 0.8s ease-in-out ' + (i * 0.15) + 's infinite',
            }}
          />
        ))
      )}
    </div>
  );
}

function ToolCard({ tool, selected, disabled, onClick, lang }) {
  return (
    <button
      onClick={onClick}
      disabled={disabled}
      style={{
        display: 'flex', flexDirection: 'column', alignItems: 'center', gap: '4px',
        padding: '12px 8px', borderRadius: '10px', cursor: disabled ? 'default' : 'pointer',
        background: selected ? 'rgba(0,212,170,0.15)' : 'var(--bg-elevated)',
        border: selected ? '2px solid var(--success)' : '2px solid transparent',
        opacity: disabled ? 0.4 : 1,
        transition: 'all 0.2s', minWidth: '80px', fontFamily: 'inherit',
        color: 'var(--text-primary)',
      }}
      type="button"
    >
      <span style={{ fontSize: '24px' }}>{tool.icon}</span>
      <span style={{ fontSize: '11px', fontWeight: 600, textAlign: 'center' }}>
        {lang === 'vn' ? tool.label_vn : tool.label}
      </span>
    </button>
  );
}

function SymptomPanel({ symptoms, symptomsVn, beepPattern, icon, title, titleVn, difficulty, description, desc...
  const diff = DIFFICULTY_MAP[difficulty] || DIFFICULTY_MAP.easy;
  return (
    <div
      style={{
        background: 'var(--bg-surface)', borderRadius: '12px',
        border: '1px solid var(--border-default)', overflow: 'hidden',
        animation: 'diagnosisFadeIn 0.3s ease-out',
      }}
    >
      <div
        style={{
          padding: '16px 20px', borderBottom: '1px solid var(--border-default)',
          display: 'flex', alignItems: 'center', gap: '12px',
        }}
      >
        <span style={{ fontSize: '32px' }}>{icon}</span>
        <div style={{ flex: 1 }}>
          <div style={{ fontSize: '16px', fontWeight: 700, color: 'var(--text-primary)' }}>
            {lang === 'vn' ? titleVn : title}
          </div>
          <div style={{ fontSize: '12px', color: 'var(--text-muted)', marginTop: '2px' }}>
            {lang === 'vn' ? descriptionVn : description}
          </div>
        </div>
        <div
          style={{
            padding: '4px 10px', borderRadius: '6px', fontSize: '11px',
            fontWeight: 700, background: diff.color + '22', color: diff.color,
          }}
        >
          {lang === 'vn' ? diff.label_vn : diff.label}
        </div>
      </div>

```

```
454|       <div style={{ padding: '16px 20px', display: 'flex', gap: '24px', flexWrap: 'wrap' }}>
455|         <div>
456|           <div style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', marginBottom: '8px', te...
  4 5 7 |                          { ( l a n g   = = =   ' v n ' )   ?   ' T r i Ç u   c h é n g '   :   ' S y m p t o m s ' }
458|           </div>
459|           <div style={{ display: 'flex', flexDirection: 'column', gap: '6px' }}>
460|             {(lang === 'vn' ? symptomsVn : symptoms).map((s, i) => (
461|               <div key={i} style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
462|                 <div
463|                   style={{
464|                     width: '6px', height: '6px', borderRadius: '50%',
465|                     background: 'var(--danger)', flexShrink: 0,
466|                     animation: 'diagnosisPulseWarning 1.5s ease-in-out infinite',
467|                   }}
468|                 />
469|                 <span style={{ fontSize: '13px', color: 'var(--text-secondary)' }}>{s}</span>
470|               </div>
471|             ))}
472|           </div>
473|         </div>
474|         <div>
475|           <div style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', marginBottom: '8px', te...
476|             {(lang === 'vn') ? 'Mã Beep' : 'Beep Pattern'}
477|           </div>
478|           <BeepAnimation pattern={beepPattern} />
479|           <div style={{ fontSize: '11px', color: 'var(--text-muted)', marginTop: '4px' }}>{beepPattern}</div>
480|         </div>
481|       </div>
482|     </div>
483|   );
484| }
485|
486| function ComponentDiagram({ type }) {
487|   const diagrams = {
  4 8 8 |           p s u :   {   l a b e l :   ' P S U ' ,   l a b e l _ v n :   ' N g u Ó n ' ,   c o l o r :   ' # e 8 4 8 5 5 ' ,   p a r t s :   [ ' P
489|     ram: { label: 'RAM Slots', label_vn: 'Khe RAM', color: '#ffa300', parts: ['RAM Slot 1', 'RAM Slot 2', 'CPU...
  4 9 0 |           m o t h e r b o a r d :   {   l a b e l :   ' M o t h e r b o a r d ' ,   l a b e l _ v n :   ' B o   m ¡ c h   c h ç ' ,   c o l o r :
  4 9 1 |           c p u _ c o o l e r :   {   l a b e l :   ' C P U   C o o l e r ' ,   l a b e l _ v n :   ' T £ n   n h i Ç t   C P U ' ,   c o l o r :
  4 9 2 |           g p u :   {   l a b e l :   ' G P U ' ,   l a b e l _ v n :   ' C a r d   Ó   h Í a ' ,   c o l o r :   ' # 2 8 c 7 6 f ' ,   p a r t
  4 9 3 |           s t o r a g e :   {   l a b e l :   ' S t o r a g e   D r i v e ' ,   l a b e l _ v n :   ' Ô   c é n g ' ,   c o l o r :   ' # f f a 3
  4 9 4 |           f a n :   {   l a b e l :   ' C a s e   F a n ' ,   l a b e l _ v n :   ' Q u ¡ t   c a s e ' ,   c o l o r :   ' # 4 a 9 0 e 2 ' ,   p
495|     wifi: { label: 'WiFi Card', label_vn: 'Card WiFi', color: '#28c76f', parts: ['Antenna', 'Chip', 'PCIe Slot...
496|   };
497|   const d = diagrams[type] || diagrams.psu;
498|   return (
499|     <div
500|       style={{
501|         background: 'var(--bg-elevated)', borderRadius: '10px', padding: '16px',
502|         border: '1px solid var(--border-default)',
503|       }}
504|     >
505|       <div style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', marginBottom: '10px', textT...
506|         {d.label}
507|       </div>
508|       <div
509|         style={{
510|           display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '8px',
511|           padding: '20px 12px', background: 'var(--bg-base)', borderRadius: '8px',
512|           border: '2px solid ' + d.color + '44',
513|         }}
514|       >
515|         <div style={{ fontSize: '36px', textAlign: 'center', color: d.color, opacity: 0.6 }}>
  5 1 6 |                       +!
517|         </div>
518|       </div>
519|       <div style={{ display: 'flex', flexDirection: 'column', gap: '4px', marginTop: '10px' }}>
520|         {d.parts.map((part, i) => (
521|           <div
522|             key={i}
523|             style={{
524|               display: 'flex', alignItems: 'center', gap: '8px', padding: '4px 8px',
525|               borderRadius: '6px', fontSize: '12px', color: 'var(--text-secondary)',
526|               background: i === 0 ? d.color + '15' : 'transparent',
527|             }}
528|           >
529|             <div style={{ width: '6px', height: '6px', borderRadius: '50%', background: i === 0 ? d.color : 'v...
530|             <span style={{ fontWeight: i === 0 ? 700 : 400 }}>{part}</span>
531|             {i === 0 && (
532|               <span style={{ fontSize: '10px', color: d.color, fontWeight: 700, marginLeft: 'auto' }}>
  5 3 3 |                                 { '!•   '   +   d . l a b e l }
534|               </span>
535|             )}
536|           </div>
537|         ))}
538|       </div>
539|     </div>
540|   );
541| }
542|
543| function Lives({ count }) {
544|   return (
545|     <div style={{ display: 'flex', gap: '4px', alignItems: 'center' }}>
546|       {Array.from({ length: 3 }).map((_, i) => (
547|         <span
548|           key={i}
549|           style={{
550|             fontSize: '20px', transition: 'all 0.3s',
551|             opacity: i < count ? 1 : 0.2,
552|             filter: i < count ? 'none' : 'grayscale(1)',
553|           }}
554|         >
  5 5 5 |                       'dþ
556|         </span>
557|       ))}
558|     </div>
559|   );
560| }
561|
562| function ProgressBar({ current, total, lang }) {
563|   const pct = Math.round(((current) / total) * 100);
564|   return (
565|     <div style={{ display: 'flex', alignItems: 'center', gap: '10px', flex: 1 }}>
566|       <div
567|         style={{
568|           flex: 1, height: '6px', background: 'var(--bg-elevated)',
569|           borderRadius: '3px', overflow: 'hidden',
570|         }}
571|       >
572|         <div
573|           style={{
574|             height: '100%', width: pct + '%',
575|             background: 'linear-gradient(90deg, var(--success), var(--accent-blue))',
576|             borderRadius: '3px', transition: 'width 0.4s ease-out',
577|           }}
```

```
578|         />
579|       </div>
580|       <span style={{ fontSize: '11px', color: 'var(--text-muted)', fontWeight: 600, whiteSpace: 'nowrap' }}>
581|         {lang === 'vn' ? (current + 1) + '/' + total : (current + 1) + '/' + total}
582|       </span>
583|     </div>
584|   );
585| }
586|
587| function getGrade(score) {
   5 8 8 |       i f   ( s c o r e   > =   4 5 0 )   r e t u r n   {   g r a d e :   ' S ' ,   l a b e l :   ' E x c e l l e n t ' ,   l a b e l _ v n :   '
   5 8 9 |       i f   ( s c o r e   > =   3 5 0 )   r e t u r n   {   g r a d e :   ' A ' ,   l a b e l :   ' G r e a t ' ,   l a b e l _ v n :   ' G i ỏ i
590|   if (score >= 250) return { grade: 'B', label: 'Good', label_vn: 'Khá', color: 'var(--accent-blue)' };
591|   if (score >= 150) return { grade: 'C', label: 'Average', label_vn: 'Trung bình', color: 'var(--warning)' };
   5 9 2 |       r e t u r n   {   g r a d e :   ' F ' ,   l a b e l :   ' F a i l ' ,   l a b e l _ v n :   ' T r ° ã t ' ,   c o l o r :   ' v a r ( - -
593| }
594|
595| function formatTime(seconds) {
596|   const m = Math.floor(seconds / 60);
597|   const s = seconds % 60;
598|   return m.toString().padStart(2, '0') + ':' + s.toString().padStart(2, '0');
599| }
600|
601| export default function DiagnosisMode({ lang = 'en', onComplete, onExit }) {
602|   const [phase, setPhase] = useState('intro');
603|   const [currentScenario, setCurrentScenario] = useState(0);
604|   const [lives, setLives] = useState(3);
605|   const [score, setScore] = useState(0);
606|   const [selectedTool, setSelectedTool] = useState(null);
607|   const [toolUsedThisStep, setToolUsedThisStep] = useState(false);
608|   const [showResult, setShowResult] = useState(null);
609|   const [feedback, setFeedback] = useState('');
610|   const [completedScenarios, setCompletedScenarios] = useState([]);
611|   const [elapsed, setElapsed] = useState(0);
612|   const [finalResults, setFinalResults] = useState(null);
613|   const [showExplanation, setShowExplanation] = useState(false);
614|   const [diagnosisTab, setDiagnosisTab] = useState('game');
615|   const [aiSymptoms, setAiSymptoms] = useState('');
616|   const [aiDiagnosing, setAiDiagnosing] = useState(false);
617|   const [aiResult, setAiResult] = useState(null);
618|   const [aiError, setAiError] = useState('');
619|   const timerRef = useRef(null);
620|
621|   const tr = useCallback((en, vn) => (lang === 'vn' ? vn : en), [lang]);
622|
623|   useEffect(() => {
624|     if (!document.getElementById('diagnosis-mode-styles')) {
625|       const style = document.createElement('style');
626|       style.id = 'diagnosis-mode-styles';
627|       style.textContent = [
628|         '@keyframes diagnosisFadeIn { from { opacity: 0; transform: translateY(10px); } to { opacity: 1; trans...
629|         '@keyframes diagnosisPulseWarning { 0%, 100% { opacity: 1; transform: scale(1); } 50% { opacity: 0.5; ...
630|         '@keyframes diagnosisBeepPulse { 0%, 100% { transform: scale(1); opacity: 0.4; } 50% { transform: scal...
631|         '@keyframes diagnosisGlow { 0%, 100% { box-shadow: 0 0 5px var(--success); } 50% { box-shadow: 0 0 20p...
632|         '@keyframes diagnosisSlideIn { from { opacity: 0; transform: translateX(20px); } to { opacity: 1; tran...
633|         '@keyframes diagnosisShake { 0%, 100% { transform: translateX(0); } 25% { transform: translateX(-8px);...
634|         '.diagnosis-terminal { background: #0a0e17; color: #00ff88; font-family: "Courier New", monospace; tex...
635|       ].join(' ');
636|       document.head.appendChild(style);
637|     }
638|   }, []);
639|
640|   useEffect(() => {
641|     if (phase === 'playing') {
642|       timerRef.current = setInterval(() => {
643|         setElapsed(function(e) { return e + 1; });
644|       }, 1000);
645|       return function() { clearInterval(timerRef.current); };
646|     }
647|   }, [phase]);
648|
649|   const handleStart = useCallback(function() {
650|     setPhase('playing');
651|     setCurrentScenario(0);
652|     setLives(3);
653|     setScore(0);
654|     setCompletedScenarios([]);
655|     setElapsed(0);
656|     setSelectedTool(null);
657|     setToolUsedThisStep(false);
658|     setShowResult(null);
659|     setShowExplanation(false);
660|   }, []);
661|
662|   const handleToolSelect = useCallback(function(toolId) {
663|     if (toolUsedThisStep) return;
664|     setSelectedTool(toolId);
665|     setToolUsedThisStep(true);
666|   }, [toolUsedThisStep]);
667|
668|   const finishGame = useCallback(function() {
669|     clearInterval(timerRef.current);
670|     var g = getGrade(score);
671|     setFinalResults({ score: score, scenariosCompleted: completedScenarios.length + 1, livesRemaining: lives, ...
672|     setPhase('results');
673|     if (onComplete) {
674|       onComplete({ score: score, scenariosCompleted: SCENARIOS.length, livesRemaining: lives, grade: g.grade });
675|     }
676|   }, [score, lives, completedScenarios, onComplete]);
677|
678|   const handleScenarioFail = useCallback(function() {
679|     setCompletedScenarios(function(c) { return c.concat([currentScenario]); });
680|     if (currentScenario >= SCENARIOS.length - 1) {
681|       finishGame();
682|     } else {
683|       setCurrentScenario(function(c) { return c + 1; });
684|       setSelectedTool(null);
685|       setToolUsedThisStep(false);
686|       setShowResult(null);
687|       setShowExplanation(false);
688|     }
689|   }, [currentScenario, finishGame]);
690|
691|   const handleNextScenario = useCallback(function() {
692|     setCompletedScenarios(function(c) { return c.concat([currentScenario]); });
693|     setShowResult(null);
694|     setShowExplanation(false);
695|     setSelectedTool(null);
696|     setToolUsedThisStep(false);
697|     if (currentScenario >= SCENARIOS.length - 1) {
698|       finishGame();
699|     } else {
700|       setCurrentScenario(function(c) { return c + 1; });
701|     }
```

```
702|   }, [currentScenario, finishGame]);
703|
704|   const handleAnswer = useCallback(function(optionId) {
705|     var scenario = SCENARIOS[currentScenario];
706|     var isCorrect = optionId === scenario.correct_answer;
707|     var selectedOption = scenario.options.find(function(o) { return o.id === optionId; });
708|
709|     if (isCorrect) {
710|       var timeBonus = Math.max(0, 60 - (elapsed % 60)) * 2;
711|       var livesBonus = lives * 25;
712|       var stepScore = 100 + timeBonus + livesBonus;
713|       setScore(function(s) { return s + stepScore; });
714|       setShowResult('correct');
715|       setFeedback(tr(
716|         'Correct! The issue was: ' + selectedOption.label + '. ' + scenario.hints[scenario.hints.length - 1],
 7 1 7 |                    '   ú n g !   V ¥ n     Á   l à :   '   +   s e l e c t e d O p t i o n . l a b e l _ v n   +   ' .   '   +   s c e n a r i o
718|       ));
719|       setShowExplanation(true);
720|     } else {
721|       var newLives = lives - 1;
722|       setLives(newLives);
723|       setShowResult('wrong');
724|       setFeedback(tr(
725|         'Wrong! ' + selectedOption.label + ' is not the issue.',
 7 2 6 |                    ' S a i !   '   +   s e l e c t e d O p t i o n . l a b e l _ v n   +   '   k h ô n g   p h £ i   v ¥ n     Á . '
727|       ));
728|       if (newLives <= 0) {
729|         setTimeout(function() { handleScenarioFail(); }, 1500);
730|         return;
731|       }
732|     }
733|   }, [currentScenario, lives, elapsed, handleScenarioFail, tr]);
734|
735|   var scenario = SCENARIOS[currentScenario];
736|
737|   if (phase === 'intro') {
738|     return (
739|       <div
740|         style={{
741|           position: 'fixed', inset: 0, zIndex: 9999,
742|           background: 'var(--bg-base)', display: 'flex', flexDirection: 'column',
743|           overflow: 'auto',
744|         }}
745|       >
746|         <div
747|           style={{
748|             flex: 1, display: 'flex', flexDirection: 'column', alignItems: 'center',
749|             justifyContent: 'center', padding: '32px', maxWidth: '640px',
750|             margin: '0 auto', textAlign: 'center', gap: '24px',
751|           }}
752|         >
 7 5 3 |                        < d i v   s t y l e = { {   f o n t S i z e :   ' 7 2 p x '   } } >Ø=Ý, < / d i v >
754|           <h1 style={{ fontSize: '32px', fontWeight: 900, color: 'var(--text-primary)', margin: 0, letterSpaci...
 7 5 5 |                            { t r ( ' P C   D i a g n o s i s   M o d e ' ,   ' C h ¿     Ù   C h © n     o á n   P C ' ) }
756|           </h1>
757|           <p style={{ fontSize: '14px', color: 'var(--text-secondary)', lineHeight: '1.6', margin: 0, maxWidth...
758|             {tr(
759|               'Become a PC technician! Diagnose 10 common PC problems by reading symptoms, using virtual tools...
 7 6 0 |                                ' T r ß   t h à n h   k ù   t h u - t   v i ê n   P C !   C h © n     o á n   1 0   l × i   P C   p h Õ   b i ¿ n
761|             )}
762|           </p>
763|
764|           <div
765|             style={{
766|               display: 'grid', gridTemplateColumns: 'repeat(3, 1fr)', gap: '12px',
767|               width: '100%', maxWidth: '420px',
768|             }}
769|           >
770|             <div style={{ background: 'var(--bg-elevated)', borderRadius: '10px', padding: '12px', textAlign: ...
 7 7 1 |                            < d i v   s t y l e = { {   f o n t S i z e :   ' 2 4 p x '   } } >Ø=ÙË < / d i v >
772|               <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)', marginTop: '4px' ...
773|               <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>
 7 7 4 |                                { t r ( ' S c e n a r i o s ' ,   ' K Ë c h   b £ n ' ) }
775|               </div>
776|             </div>
777|             <div style={{ background: 'var(--bg-elevated)', borderRadius: '10px', padding: '12px', textAlign: ...
 7 7 8 |                            < d i v   s t y l e = { {   f o n t S i z e :   ' 2 4 p x '   } } >'dþ  < / d i v >
779|               <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)', marginTop: '4px' ...
780|               <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>
 7 8 1 |                                { t r ( ' L i v e s ' ,   ' M ¡ n g ' ) }
782|               </div>
783|             </div>
784|             <div style={{ background: 'var(--bg-elevated)', borderRadius: '10px', padding: '12px', textAlign: ...
 7 8 5 |                            < d i v   s t y l e = { {   f o n t S i z e :   ' 2 4 p x '   } } >Ø=Þàþ  < / d i v >
786|               <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primary)', marginTop: '4px' ...
787|               <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>
 7 8 8 |                                { t r ( ' T o o l s ' ,   ' C ô n g   c å ' ) }
789|               </div>
790|             </div>
791|           </div>
792|
793|           <div style={{ display: 'flex', gap: '12px', marginTop: '8px' }}>
794|             <button
795|               onClick={handleStart}
796|               style={{
797|                 padding: '14px 40px', background: 'var(--brand-primary)', color: '#fff',
798|                 border: 'none', borderRadius: '10px', fontSize: '15px', fontWeight: 700,
799|                 cursor: 'pointer', fontFamily: 'inherit',
800|                 transition: 'all 0.2s',
801|               }}
802|               type="button"
803|             >
 8 0 4 |                            { t r ( ' S t a r t   D i a g n o s i s ' ,   ' B ¯ t     § u   C h © n     o á n ' ) }
805|             </button>
806|             {onExit && (
807|               <button
808|                 onClick={onExit}
809|                 style={{
810|                   padding: '14px 24px', background: 'transparent', color: 'var(--text-secondary)',
811|                   border: '1px solid var(--border-default)', borderRadius: '10px', fontSize: '15px',
812|                   fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
813|                   transition: 'all 0.2s',
814|                 }}
815|                 type="button"
816|               >
817|                 {tr('Exit', 'Thoát')}
818|               </button>
819|             )}
820|           </div>
821|         </div>
822|       </div>
823|     );
824|   }
825|
```

```
826|   if (phase === 'results') {
827|     var g = getGrade(finalResults ? finalResults.score : score);
828|     return (
829|       <div
830|         style={{
831|           position: 'fixed', inset: 0, zIndex: 9999,
832|           background: 'var(--bg-base)', display: 'flex', flexDirection: 'column',
833|           overflow: 'auto',
834|         }}
835|       >
836|         <div
837|           style={{
838|             flex: 1, display: 'flex', flexDirection: 'column', alignItems: 'center',
839|             justifyContent: 'center', padding: '32px', gap: '24px', maxWidth: '520px',
840|             margin: '0 auto', textAlign: 'center',
841|           }}
842|         >
   8 4 3 |                       < d i v   s t y l e = { {   f o n t S i z e :   ' 7 2 p x '   } } >Ø<ßÆ < / d i v >
844|           <h1 style={{ fontSize: '28px', fontWeight: 900, color: 'var(--text-primary)', margin: 0 }}>
   8 4 5 |                             { t r ( ' D i a g n o s i s   C o m p l e t e ! ' ,   ' C h © n    o á n   H o à n   T ¥ t ! ' ) }
846|           </h1>
847|
848|           <div
849|             style={{
850|               display: 'flex', alignItems: 'center', justifyContent: 'center',
851|               width: '120px', height: '120px', borderRadius: '50%',
852|               background: g.color + '22', border: '4px solid ' + g.color,
853|             }}
854|           >
855|             <span style={{ fontSize: '48px', fontWeight: 900, color: g.color }}>
856|               {g.grade}
857|             </span>
858|           </div>
859|
860|           <div
861|             style={{
862|               background: 'var(--bg-surface)', borderRadius: '12px', padding: '20px',
863|               border: '1px solid var(--border-default)', width: '100%',
864|               display: 'flex', flexDirection: 'column', gap: '12px',
865|             }}
866|           >
867|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
   8 6 8 |                             < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 3 p x
869|               <span style={{ color: 'var(--text-primary)', fontSize: '20px', fontWeight: 800 }}>
870|                 {(finalResults ? finalResults.score : score).toLocaleString()}
871|               </span>
872|             </div>
873|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
   8 7 4 |                             < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 3 p x
875|               <span style={{ color: 'var(--text-primary)', fontSize: '16px', fontWeight: 700 }}>
876|                 {SCENARIOS.length}/{SCENARIOS.length}
877|               </span>
878|             </div>
879|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
   8 8 0 |                             < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 3 p x
881|               <span style={{ display: 'flex', gap: '4px' }}>
882|                 {Array.from({ length: 3 }).map(function(_, i) {
883|                   return (
884|                     <span key={i} style={{ opacity: i < (finalResults ? finalResults.livesRemaining : lives) ?...
   8 8 5 |                                                 'dþ
886|                     </span>
887|                   );
888|                 })}
889|               </span>
890|             </div>
891|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
   8 9 2 |                             < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 3 p x
893|               <span style={{ color: 'var(--text-primary)', fontSize: '16px', fontWeight: 700, fontFamily: 'mon...
894|                 {formatTime(elapsed)}
895|               </span>
896|             </div>
897|             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
   8 9 8 |                             < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) ' ,   f o n t S i z e :   ' 1 3 p x
899|               <span style={{ color: g.color, fontSize: '16px', fontWeight: 800 }}>{g.grade} - {lang === 'vn' ?...
900|             </div>
901|           </div>
902|
903|           <div style={{ display: 'flex', gap: '12px' }}>
904|             <button
905|               onClick={handleStart}
906|               style={{
907|                 padding: '14px 32px', background: 'var(--brand-primary)', color: '#fff',
908|                 border: 'none', borderRadius: '10px', fontSize: '14px', fontWeight: 700,
909|                 cursor: 'pointer', fontFamily: 'inherit',
910|               }}
911|               type="button"
912|             >
   9 1 3 |                             { t r ( ' P l a y   A g a i n ' ,   ' C h ¡ i   L ¡ i ' ) }
914|             </button>
915|             {onExit && (
916|               <button
917|                 onClick={onExit}
918|                 style={{
919|                   padding: '14px 24px', background: 'transparent', color: 'var(--text-secondary)',
920|                   border: '1px solid var(--border-default)', borderRadius: '10px', fontSize: '14px',
921|                   fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
922|                 }}
923|                 type="button"
924|               >
925|                 {tr('Exit', 'Thoát')}
926|               </button>
927|             )}
928|           </div>
929|         </div>
930|       </div>
931|     );
932|   }
933|
934|   var toolHint = null;
935|   if (selectedTool && scenario.tool_hints) {
936|     toolHint = scenario.tool_hints[selectedTool + (lang === 'vn' ? '_vn' : '')] || scenario.tool_hints[selecte...
937|   }
938|
939|   var headerStyle = {
940|     display: 'flex', alignItems: 'center', gap: '12px',
941|     padding: '12px 20px', borderBottom: '1px solid var(--border-default)',
942|     background: 'var(--bg-surface)',
943|   };
944|
945|   return (
946|     <div
947|       style={{
948|         position: 'fixed', inset: 0, zIndex: 9999,
949|         background: 'var(--bg-base)', display: 'flex', flexDirection: 'column',
```

```
 950|         overflow: 'hidden',
 951|       }}
 952|     >
 953|       <div style={headerStyle}>
 954|         <button
 955|           onClick={onExit}
 956|           style={{
 957|             background: 'transparent', border: 'none', color: 'var(--text-muted)',
 958|             cursor: 'pointer', fontSize: '18px', padding: '4px', fontFamily: 'inherit',
 959|           }}
 960|           type="button"
 961|         >
   9 6 2 |                    '
 963|         </button>
 964|         <div style={{ display: 'flex', gap: '4px', background: 'var(--bg-elevated)', borderRadius: '8px', padd...
 965|           <button
 966|             onClick={() => setDiagnosisTab('game')}
 967|             style={{
 968|               padding: '6px 14px', borderRadius: '6px', border: 'none',
 969|               background: diagnosisTab === 'game' ? 'var(--brand-primary)' : 'transparent',
 970|               color: diagnosisTab === 'game' ? '#fff' : 'var(--text-muted)',
 971|               fontSize: '12px', fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
 972|               transition: 'all 0.15s',
 973|             }}
 974|             type="button"
 975|           >
   9 7 6 |                        Ø<ß®   { t r ( ' G a m e ' ,   ' G a m e ' ) }
 977|           </button>
 978|           <button
 979|             onClick={() => setDiagnosisTab('ai')}
 980|             style={{
 981|               padding: '6px 14px', borderRadius: '6px', border: 'none',
 982|               background: diagnosisTab === 'ai' ? 'var(--brand-primary)' : 'transparent',
 983|               color: diagnosisTab === 'ai' ? '#fff' : 'var(--text-muted)',
 984|               fontSize: '12px', fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
 985|               transition: 'all 0.15s',
 986|             }}
 987|             type="button"
 988|           >
   9 8 9 |                        Ø>Ý    { t r ( ' A I   D i a g n o s i s ' ,   ' C h © n    o á n   A I ' ) }
 990|           </button>
 991|         </div>
 992|         {diagnosisTab === 'game' && (
 993|           <>
 994|             <ProgressBar current={currentScenario} total={SCENARIOS.length} lang={lang} />
 995|             <Lives count={lives} />
 996|             <div style={{ fontSize: '14px', fontWeight: 700, color: 'var(--brand-primary)', fontFamily: 'monos...
 997|               {score.toLocaleString()}
 998|             </div>
 999|             <div style={{ fontSize: '11px', color: 'var(--text-muted)', fontFamily: 'monospace' }}>
1000|               {formatTime(elapsed)}
1001|             </div>
1002|           </>
1003|         )}
1004|       </div>
1005|
1006|       <div
1007|         style={{
1008|           flex: 1, overflow: 'auto', padding: '20px',
1009|           maxWidth: '900px', margin: '0 auto', width: '100%',
1010|           display: 'flex', flexDirection: 'column', gap: '16px',
1011|         }}
1012|       >
1013|         {diagnosisTab === 'ai' ? (
1014|           <div style={{ animation: 'diagnosisFadeIn 0.3s ease-out' }}>
1015|             <div style={{
1016|               background: 'var(--bg-surface)', borderRadius: '12px',
1017|               border: '1px solid var(--border-default)', overflow: 'hidden', marginBottom: '16px',
1018|             }}>
1019|               <div className="diagnosis-terminal" style={{
1020|                 padding: '16px 20px', borderBottom: '1px solid rgba(0,255,136,0.15)',
1021|               }}>
1022|                 <div style={{ fontSize: '11px', color: '#00ff88', opacity: 0.6, marginBottom: '4px' }}>
1023|                   {'>'} AI_DIAGNOSIS_TERMINAL v2.0
1024|                 </div>
1025|                 <div style={{ fontSize: '11px', color: '#00ff88', opacity: 0.4, marginBottom: '12px' }}>
  1 0 2 6 |                                  { ' > ' }   M ô   t £   l × i   P C   b ± n g   t i ¿ n g   V i Ç t    Ã   n h - n   c h © n    o á n . .
1027|                 </div>
1028|                 <div style={{ position: 'relative' }}>
1029|                   <textarea
1030|                     value={aiSymptoms}
1031|                     onChange={(e) => setAiSymptoms(e.target.value)}
1032|                     placeholder={tr(
1033|                       'Describe your PC issue... (e.g., "PC keeps beeping and wont turn on")',
  1 0 3 4 |                                                ' M ô   t £   l × i   P C   c ç a   b ¡ n . . .   ( V D :   " M á y   t í n h   k ê u   b í p   b i
1035|                     )}
1036|                     style={{
1037|                       width: '100%', minHeight: '100px', padding: '14px',
1038|                       background: '#0a0e17', color: '#00ff88', border: '1px solid rgba(0,255,136,0.2)',
1039|                       borderRadius: '8px', fontSize: '14px', fontFamily: '"Courier New", monospace',
1040|                       resize: 'vertical', outline: 'none', lineHeight: '1.6',
1041|                     }}
1042|                   />
1043|                   <div style={{
1044|                     position: 'absolute', bottom: '8px', right: '12px',
1045|                     fontSize: '10px', color: 'rgba(0,255,136,0.3)',
1046|                     fontFamily: '"Courier New", monospace',
1047|                   }}>
  1 0 4 8 |                                          { a i S y m p t o m s . l e n g t h }   k ý   t ñ
1049|                   </div>
1050|                 </div>
1051|               </div>
1052|               <div style={{ padding: '12px 20px', display: 'flex', gap: '8px', justifyContent: 'flex-end' }}>
1053|                 <button
1054|                   onClick={async () => {
1055|                     if (!aiSymptoms.trim()) return;
1056|                     setAiDiagnosing(true);
1057|                     setAiError('');
1058|                     setAiResult(null);
1059|                     try {
1060|                       const res = await fetch('/api/ai/diagnose-symptoms', {
1061|                         method: 'POST',
1062|                         headers: { 'Content-Type': 'application/json' },
1063|                         body: JSON.stringify({ symptoms: aiSymptoms }),
1064|                       });
1065|                       const data = await res.json();
1066|                       if (data.error) throw new Error(data.error);
1067|                       setAiResult(data);
1068|                     } catch (err) {
  1 0 6 9 |                                          s e t A i E r r o r ( e r r . m e s s a g e   | |   ' L × i   k ¿ t   n Ñ i   A I ' ) ;
1070|                     } finally {
1071|                       setAiDiagnosing(false);
1072|                     }
1073|                   }}
```

```
1074|                  disabled={aiDiagnosing || !aiSymptoms.trim()}
1075|                  style={{
1076|                    padding: '12px 28px', borderRadius: '8px', border: 'none',
1077|                    background: aiDiagnosing ? 'var(--bg-elevated)' : 'linear-gradient(135deg, #00d4aa, #00a3f...
1078|                    color: aiDiagnosing ? 'var(--text-muted)' : '#fff',
1079|                    fontSize: '14px', fontWeight: 700, cursor: aiDiagnosing ? 'default' : 'pointer',
1080|                    fontFamily: 'inherit', display: 'flex', alignItems: 'center', gap: '8px',
1081|                  }}
1082|                  type="button"
1083|                >
1084|                  {aiDiagnosing ? (
1085|                    <>
1086|                      <div style={{ width: '16px', height: '16px', borderRadius: '50%', border: '2px solid var...
  1 0 8 7 |                                          { t r ( ' A n a l y z i n g . . . ' ,   '   a n g   c h © n    o á n . . . ' ) }
1088|                    </>
1089|                  ) : (
1090|                    <>
  1 0 9 1 |                                        Ø>Ýà   { t r ( ' S e n d   t o   A I ' ,   ' G í i   A I   c h © n    o á n ' ) }
1092|                    </>
1093|                  )}
1094|                </button>
1095|              </div>
1096|            </div>
1097|
1098|            {aiDiagnosing && (
1099|              <div style={{
1100|                textAlign: 'center', padding: '32px',
1101|                background: 'var(--bg-surface)', borderRadius: '12px',
1102|                border: '1px solid var(--border-default)',
1103|              }}>
1104|                <div style={{
1105|                  width: '60px', height: '60px', borderRadius: '50%',
1106|                  border: '4px solid var(--border-default)', borderTopColor: '#00d4aa',
1107|                  margin: '0 auto 16px', animation: 'spin 1s linear infinite',
1108|                } />
1109|                <div className="diagnosis-terminal" style={{
1110|                  padding: '16px', borderRadius: '8px', fontSize: '13px',
1111|                  lineHeight: '1.8', display: 'inline-block',
1112|                }}>
1113|                  <div style={{ color: '#00ff88', opacity: 0.5, fontSize: '11px', marginBottom: '8px' }}>
  1 1 1 4 |                                  { ' > ' }   A I    a n g   p h â n   t í c h   t r i Ç u   c h é n g . . .
1115|                  </div>
1116|                  <div style={{
1117|                    display: 'flex', flexDirection: 'column', gap: '4px', textAlign: 'left',
1118|                    color: '#00ff88', opacity: 0.7,
1119|                  }}>
  1 1 2 0 |                                  < d i v > { ' > ' }    Í c   t r i Ç u   c h é n g . . . < / d i v >
1121|                    <div>{'>'} Phân tích nguyên nhân...</div>
  1 1 2 2 |                                  < d i v > { ' > ' }   T r a   c é u   c ¡   s ß   t r i   t h é c . . . < / d i v >
  1 1 2 3 |                                  < d i v   s t y l e = { {   o p a c i t y :   0 . 4   } } > { ' > ' }    ° a   r a   c h © n    o á n
1124|                  </div>
1125|                </div>
1126|              </div>
1127|            )}
1128|
1129|            {aiError && (
1130|              <div style={{
1131|                padding: '16px', borderRadius: '10px',
1132|                background: 'rgba(232,72,85,0.1)', border: '1px solid var(--danger)',
1133|                color: 'var(--danger)', fontSize: '13px', fontWeight: 600,
1134|              }}>
1135|                {aiError}
1136|              </div>
1137|            )}
1138|
1139|            {aiResult && (
1140|              <div style={{
1141|                background: 'var(--bg-surface)', borderRadius: '12px',
1142|                border: '1px solid var(--border-default)', overflow: 'hidden',
1143|                animation: 'diagnosisFadeIn 0.3s ease-out',
1144|              }}>
1145|                <div className="diagnosis-terminal" style={{
1146|                  padding: '14px 20px',
1147|                  borderBottom: '1px solid rgba(0,255,136,0.15)',
1148|                  display: 'flex', alignItems: 'center', gap: '12px',
1149|                }}>
  1 1 5 0 |                                < s p a n   s t y l e = { {   f o n t S i z e :   ' 2 4 p x '   } } >Ø=Ý, < / s p a n >
1151|                  <div>
1152|                    <div style={{ fontSize: '16px', fontWeight: 800, color: '#00ff88' }}>
1153|                      {aiResult.diagnosis}
1154|                    </div>
1155|                    <div style={{ fontSize: '11px', color: '#00ff88', opacity: 0.5 }}>
1156|                      {'>'} DIAGNOSIS_REPORT #AI-{Date.now().toString(36).toUpperCase()}
1157|                    </div>
1158|                  </div>
1159|                </div>
1160|
1161|                <div style={{ padding: '20px', display: 'flex', flexDirection: 'column', gap: '16px' }}>
1162|                  <div style={{ display: 'flex', gap: '16px', flexWrap: 'wrap' }}>
1163|                    <div style={{
1164|                      padding: '12px 20px', borderRadius: '10px',
1165|                      background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
1166|                      textAlign: 'center', flex: 1, minWidth: '140px',
1167|                    }}>
1168|                      <div style={{ fontSize: '11px', color: 'var(--text-muted)', textTransform: 'uppercase', ...
  1 1 6 9 |                                          { t r ( ' P r o b a b i l i t y ' ,   ' X á c   s u ¥ t ' ) }
1170|                      </div>
1171|                      <div style={{
1172|                        fontSize: '28px', fontWeight: 900,
1173|                        color: aiResult.probability > 80 ? '#ef4444' : aiResult.probability > 50 ? '#f59e0b' :...
1174|                      }}>
1175|                        {aiResult.probability}%
1176|                      </div>
1177|                    </div>
1178|                    <div style={{
1179|                      padding: '12px 20px', borderRadius: '10px',
1180|                      background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
1181|                      flex: 1, minWidth: '140px',
1182|                    }}>
1183|                      <div style={{ fontSize: '11px', color: 'var(--text-muted)', textTransform: 'uppercase', ...
  1 1 8 4 |                                          { t r ( ' S u s p e c t e d   C o m p o n e n t ' ,   ' L i n h   k i Ç n   n g h i   n g Ý '
1185|                      </div>
1186|                      <div style={{ fontSize: '16px', fontWeight: 800, color: 'var(--brand-primary)' }}>
1187|                        {aiResult.suspectedComponent}
1188|                      </div>
1189|                    </div>
1190|                  </div>
1191|
1192|                  <div style={{
1193|                    padding: '16px', borderRadius: '10px',
1194|                    background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
1195|                  }}>
1196|                    <div style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', textTransform...
1197|                      {tr('Reasoning', 'Phân tích nguyên nhân')}
```

```
1198|                    </div>
1199|                    <p style={{ fontSize: '13px', lineHeight: '1.7', color: 'var(--text-secondary)', margin: 0...
1200|                      {aiResult.reason}
1201|                    </p>
1202|                  </div>
1203|
1204|                  <div style={{
1205|                    padding: '16px', borderRadius: '10px',
1206|                    background: 'rgba(0,212,170,0.05)', border: '1px solid rgba(0,212,170,0.15)',
1207|                  }}>
1208|                    <div style={{ fontSize: '11px', fontWeight: 700, color: '#00d4aa', textTransform: 'upperca...
  1 2 0 9 |                                          { t r ( ' F i x   S t e p s ' ,   ' C á c   b ° Û c   k h ¯ c   p h å c ' ) }
1210|                    </div>
1211|                    <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
1212|                      {aiResult.steps && aiResult.steps.map((step, i) => (
1213|                        <div key={i} style={{
1214|                          display: 'flex', alignItems: 'flex-start', gap: '10px',
1215|                          padding: '10px 14px', borderRadius: '8px',
1216|                          background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
1217|                        }}>
1218|                          <div style={{
1219|                            width: '22px', height: '22px', borderRadius: '50%',
1220|                            background: '#00d4aa', color: '#fff', fontSize: '11px',
1221|                            fontWeight: 800, display: 'flex', alignItems: 'center',
1222|                            justifyContent: 'center', flexShrink: 0,
1223|                          }}>
1224|                            {i + 1}
1225|                          </div>
1226|                          <span style={{ fontSize: '13px', color: 'var(--text-secondary)', lineHeight: '1.5' }}>
1227|                            {step}
1228|                          </span>
1229|                        </div>
1230|                      ))}
1231|                    </div>
1232|                  </div>
1233|
1234|                  {aiResult.toolsNeeded && aiResult.toolsNeeded.length > 0 && (
1235|                    <div>
1236|                      <div style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', textTransfo...
  1 2 3 7 |                                          { t r ( ' T o o l s   N e e d e d ' ,   ' D å n g   c å   c § n   d ù n g ' ) }
1238|                      </div>
1239|                      <div style={{ display: 'flex', gap: '8px', flexWrap: 'wrap' }}>
1240|                        {aiResult.toolsNeeded.map((tool, i) => (
1241|                          <div key={i} style={{
1242|                            padding: '6px 14px', borderRadius: '100px',
1243|                            background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
1244|                            fontSize: '12px', color: 'var(--text-secondary)', fontWeight: 500,
1245|                          }}>
  1 2 4 6 |                                                    Ø=Ý'   { t o o l }
1247|                          </div>
1248|                        ))}
1249|                      </div>
1250|                    </div>
1251|                  )}
1252|
1253|                  <div style={{ display: 'flex', gap: '8px', justifyContent: 'flex-end', marginTop: '8px' }}>
1254|                    <button
1255|                      onClick={() => { setAiSymptoms(''); setAiResult(null); }}
1256|                      style={{
1257|                        padding: '10px 20px', borderRadius: '8px', border: '1px solid var(--border-default)',
1258|                        background: 'transparent', color: 'var(--text-secondary)',
1259|                        fontSize: '13px', fontWeight: 600, cursor: 'pointer', fontFamily: 'inherit',
1260|                      }}
1261|                      type="button"
1262|                    >
  1 2 6 3 |                                          { t r ( ' N e w   D i a g n o s i s ' ,   ' C h © n   o á n   m Û i ' ) }
1264|                    </button>
1265|                  </div>
1266|                </div>
1267|              </div>
1268|            )}
1269|          </div>
1270|        ) : (
1271|        <>
1272|        {scenario && (
1273|          <SymptomPanel
1274|            symptoms={scenario.symptoms}
1275|            symptomsVn={scenario.symptoms_vn}
1276|            beepPattern={scenario.beep_pattern}
1277|            icon={scenario.icon}
1278|            title={scenario.title}
1279|            titleVn={scenario.title_vn}
1280|            difficulty={scenario.difficulty}
1281|            description={scenario.description}
1282|            descriptionVn={scenario.description_vn}
1283|            lang={lang}
1284|          />
1285|        )}
1286|
1287|        <div
1288|          style={{
1289|            background: 'var(--bg-surface)', borderRadius: '12px',
1290|            border: '1px solid var(--border-default)', padding: '16px 20px',
1291|          }}
1292|        >
1293|          <div style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', marginBottom: '10px', t...
  1 2 9 4 |                                  { t r ( ' T o o l b o x ' ,   ' H Ù p   d å n g   c å ' ) }
1295|          </div>
1296|          <div style={{ display: 'flex', gap: '8px', flexWrap: 'wrap' }}>
1297|            {TOOLS.map(function(tool) {
1298|              return (
1299|                <ToolCard
1300|                  key={tool.id}
1301|                  tool={tool}
1302|                  selected={selectedTool === tool.id}
1303|                  disabled={toolUsedThisStep}
1304|                  onClick={function() { handleToolSelect(tool.id); }}
1305|                  lang={lang}
1306|                />
1307|              );
1308|            })}
1309|          </div>
1310|
1311|          {toolHint && (
1312|            <div
1313|              className="diagnosis-terminal"
1314|              style={{
1315|                marginTop: '12px', padding: '12px 16px', borderRadius: '8px',
1316|                fontSize: '13px', lineHeight: '1.5',
1317|                animation: 'diagnosisFadeIn 0.2s ease-out',
1318|              }}
1319|            >
1320|              <div style={{ color: '#00ff88', opacity: 0.5, fontSize: '11px', marginBottom: '4px' }}>
  1 3 2 1 |                                          { ' > ' }   { t r ( ' T o o l   R e s u l t : ' ,   ' K ¿ t   q u £   c ô n g   c å : ' ) }
```

```
1322|              </div>
1323|              <div>{toolHint}</div>
1324|            </div>
1325|          )}
1326|
1327|          {!toolUsedThisStep && selectedTool === null && (
1328|            <div style={{ color: 'var(--text-muted)', fontSize: '12px', marginTop: '10px', fontStyle: 'italic'...
  1 3 2 9 |                              { t r ( ' S e l e c t   a   t o o l   a b o v e   t o   i n s p e c t   t h e   s y s t e m . . . ' ,   ' C h Í n
1330|            </div>
1331|          )}
1332|        </div>
1333|
1334|        <div
1335|          style={{
1336|            background: 'var(--bg-surface)', borderRadius: '12px',
1337|            border: '1px solid var(--border-default)', padding: '16px 20px',
1338|          }}
1339|        >
1340|          <div style={{ fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)', marginBottom: '10px', t...
  1 3 4 1 |                          { t r ( ' W h a t   i s   t h e   p r o b l e m ? ' ,   ' V ¥ n    Á   l à   g ì ? ' ) }
1342|          </div>
1343|
1344|          {showExplanation ? (
1345|            <div
1346|              style={{
1347|                animation: 'diagnosisFadeIn 0.3s ease-out',
1348|                display: 'flex', flexDirection: 'column', gap: '16px',
1349|              }}
1350|            >
1351|              {showResult === 'correct' ? (
1352|                <div
1353|                  style={{
1354|                    padding: '16px', borderRadius: '10px',
1355|                    background: 'rgba(0,212,170,0.1)',
1356|                    border: '1px solid var(--success)',
1357|                    animation: 'diagnosisGlow 1.5s ease-in-out',
1358|                  }}
1359|                >
1360|                  <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '8px' }}>
  1 3 6 1 |                                  < s p a n   s t y l e = { {   f o n t S i z e :   ' 2 4 p x '   } } >'  < / s p a n >
1362|                    <span style={{ fontSize: '16px', fontWeight: 800, color: 'var(--success)' }}>
  1 3 6 3 |                                          { t r ( ' C o r r e c t   D i a g n o s i s ! ' ,   ' C h © n    o á n   C h í n h   X á c ! ' ) }
1364|                    </span>
1365|                  </div>
1366|                  <p style={{ color: 'var(--text-secondary)', fontSize: '13px', lineHeight: '1.5', margin: 0 }}>
1367|                    {feedback}
1368|                  </p>
1369|                </div>
1370|              ) : (
1371|                <div
1372|                  style={{
1373|                    padding: '16px', borderRadius: '10px',
1374|                    background: 'rgba(232,72,85,0.1)',
1375|                    border: '1px solid var(--danger)',
1376|                    animation: 'diagnosisShake 0.4s ease-in-out',
1377|                  }}
1378|                >
1379|                  <div style={{ display: 'flex', alignItems: 'center', gap: '8px', marginBottom: '8px' }}>
  1 3 8 0 |                                  < s p a n   s t y l e = { {   f o n t S i z e :   ' 2 4 p x '   } } >'L < / s p a n >
1381|                    <span style={{ fontSize: '16px', fontWeight: 800, color: 'var(--danger)' }}>
1382|                      {tr('Wrong!', 'Sai!')}
1383|                    </span>
1384|                  </div>
1385|                  <p style={{ color: 'var(--text-secondary)', fontSize: '13px', lineHeight: '1.5', margin: 0 }}>
1386|                    {feedback}
1387|                  </p>
1388|                </div>
1389|              )}
1390|
1391|              {showResult === 'correct' && (
1392|                <div style={{ display: 'flex', gap: '8px', justifyContent: 'flex-end' }}>
1393|                  <button
1394|                    onClick={handleNextScenario}
1395|                    style={{
1396|                      padding: '12px 28px', background: 'var(--brand-primary)', color: '#fff',
1397|                      border: 'none', borderRadius: '8px', fontSize: '14px', fontWeight: 700,
1398|                      cursor: 'pointer', fontFamily: 'inherit',
1399|                    }}
1400|                    type="button"
1401|                  >
1402|                    {currentScenario >= SCENARIOS.length - 1
  1 4 0 3 |                                          ?   t r ( ' V i e w   R e s u l t s ' ,   ' X e m   K ¿ t   Q u £ ' )
  1 4 0 4 |                                          :   t r ( ' N e x t   S c e n a r i o ' ,   ' K Ë c h   b £ n   t i ¿ p ' ) }
1405|                  </button>
1406|                </div>
1407|              )}
1408|            </div>
1409|          ) : (
1410|            <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
1411|              {scenario && scenario.options.map(function(option) {
1412|                var isSelected = false;
1413|                return (
1414|                  <button
1415|                    key={option.id}
1416|                    onClick={function() { handleAnswer(option.id); }}
1417|                    style={{
1418|                      display: 'flex', alignItems: 'center', gap: '10px',
1419|                      padding: '12px 16px', borderRadius: '10px',
1420|                      background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
1421|                      cursor: 'pointer', textAlign: 'left', fontFamily: 'inherit',
1422|                      color: 'var(--text-primary)', fontSize: '13px',
1423|                      transition: 'all 0.15s', width: '100%',
1424|                    }}
1425|                    type="button"
1426|                  >
1427|                    <div
1428|                      style={{
1429|                        width: '18px', height: '18px', borderRadius: '50%',
1430|                        border: '2px solid var(--text-muted)', flexShrink: 0,
1431|                        display: 'flex', alignItems: 'center', justifyContent: 'center',
1432|                      }}
1433|                    >
1434|                      {isSelected && <div style={{ width: '10px', height: '10px', borderRadius: '50%', backgro...
1435|                    </div>
1436|                    <span>{lang === 'vn' ? option.label_vn : option.label}</span>
1437|                  </button>
1438|                );
1439|              })}
1440|              <div style={{ color: 'var(--text-muted)', fontSize: '11px', textAlign: 'center', marginTop: '4px...
  1 4 4 1 |                                  { t r ( ' U s e   a   t o o l   f r o m   t h e   t o o l b o x   t o   g e t   h i n t s   b e f o r e   a n s
1442|              </div>
1443|            </div>
1444|          )}
1445|        </div>
```

```
 1446|
 1447|         {scenario && !showExplanation && (
 1448|           <ComponentDiagram type={scenario.diagram} />
 1449|         )}
 1450|         </>
 1451|       )}
 1452|       </div>
 1453|     </div>
 1454|   );
 1455| }
 1456|
```

File: components/discussion/discussion/DiscussionPanel.tsx (115 lines, 4.6 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState } from 'react'
    4| import { useDiscussion, Thread } from '@/hooks/useDiscussion'
    5| import { ThreadCard } from './ThreadCard'
    6| import { ThreadDetail } from './ThreadDetail'
    7| import { NewThreadModal } from './NewThreadModal'
    8| import { MessageSquare, Plus, RefreshCw } from 'lucide-react'
    9|
   10| interface DiscussionPanelProps {
   11|   lessonId: string
   12|   currentUserId: string
   13|   userRole: 'student' | 'teacher'
   14| }
   15|
   16| export default function DiscussionPanel({ lessonId, currentUserId, userRole }: DiscussionPanelProps) {
   17|   const [activeTab, setActiveTab] = useState<'all' | 'unanswered' | 'pinned'>('all')
   18|   const [selectedThread, setSelectedThread] = useState<Thread | null>(null)
   19|   const [showNewThread, setShowNewThread] = useState(false)
   20|   const { threads, isLoading, createThread } = useDiscussion(lessonId, activeTab)
   21|
   22|   const handleCreateThread = async (title: string, body: string, type: 'question' | 'discussion' | 'announceme...
   23|     await createThread(title, body, type, currentUserId)
   24|   }
   25|
   26|   if (selectedThread) {
   27|     return (
   28|       <div className="h-full">
   29|         <ThreadDetail
   30|           thread={selectedThread}
   31|           currentUserId={currentUserId}
   32|           onBack={() => setSelectedThread(null)}
   33|         />
   34|       </div>
   35|     )
   36|   }
   37|
   38|   return (
   39|     <div className="flex flex-col h-full rounded-2xl overflow-hidden" style={{ background: 'var(--bg-surface)'...
   40|       {/* Header */}
   41|       <div className="p-4 flex items-center justify-between flex-shrink-0" style={{ borderBottom: '1px solid v...
   42|         <h3 className="font-bold text-sm flex items-center gap-2" style={{ color: 'var(--text-primary)' }}>
   43|           <MessageSquare size={16} style={{ color: 'var(--brand-primary)' }} />
      4 4 |                       < s p a n > T h £ o   l u - n   ( { t h r e a d s . l e n g t h } ) < / s p a n >
   45|         </h3>
   46|         <button
   47|           onClick={() => setShowNewThread(true)}
   48|           className="flex items-center gap-1 text-xs px-2.5 py-1.5 rounded-lg transition-all font-semibold"
   49|           style={{ background: 'var(--brand-subtle)', border: '1px solid color-mix(in srgb, var(--brand-primar...
   50|         >
      5 1 |                       < P l u s   s i z e = { 1 4 }   / >   H Ĭ i     á p
   52|         </button>
   53|       </div>
   54|
   55|       {/* Tabs */}
   56|       <div className="flex px-4 py-2 gap-2 flex-shrink-0" style={{ borderBottom: '1px solid var(--border-subtl...
   57|         <button
   58|           onClick={() => setActiveTab('all')}
   59|           className="px-3 py-1 text-xs rounded-full font-medium transition-colors"
   60|           style={activeTab === 'all' ? { background: 'var(--brand-primary)', color: '#000' } : { color: 'var(-...
   61|         >
      6 2 |                       T ¥ t   c £
   63|         </button>
   64|         {userRole === 'teacher' && (
   65|           <button
   66|             onClick={() => setActiveTab('unanswered')}
   67|             className="px-3 py-1 text-xs rounded-full font-medium transition-colors"
   68|             style={activeTab === 'unanswered' ? { background: 'var(--brand-primary)', color: '#000' } : { colo...
   69|           >
      7 0 |                           C h ° a   t r £   l Ý i
   71|           </button>
   72|         )}
   73|         <button
   74|           onClick={() => setActiveTab('pinned')}
   75|           className="px-3 py-1 text-xs rounded-full font-medium transition-colors"
   76|           style={activeTab === 'pinned' ? { background: 'var(--brand-primary)', color: '#000' } : { color: 'va...
   77|         >
   78|           Ghim
   79|         </button>
   80|       </div>
   81|
   82|       {/* List Area */}
   83|       <div className="flex-1 overflow-y-auto p-4 space-y-3">
   84|         {isLoading ? (
   85|           <div className="flex flex-col items-center justify-center py-12 gap-2" style={{ color: 'var(--text-m...
   86|             <RefreshCw size={24} className="animate-spin" style={{ color: 'var(--brand-primary)' }} />
      8 7 |                           < s p a n   c l a s s N a m e = " t e x t - x s " >   a n g   t £ i   t h £ o   l u - n . . . < / s p a n >
   88|           </div>
   89|         ) : threads.length === 0 ? (
   90|           <div className="text-center py-12 text-xs" style={{ color: 'var(--text-muted)' }}>
      9 1 |                           K h ô n g   c ó   c â u   h Ĭ i   n à o .
   92|           </div>
   93|         ) : (
   94|           threads.map(thread => (
   95|             <ThreadCard
   96|               key={thread.id}
   97|               thread={thread}
   98|               onSelect={setSelectedThread}
   99|             />
  100|           ))
  101|         )}
  102|       </div>
  103|
  104|       {/* Modal */}
  105|       <NewThreadModal
  106|         isOpen={showNewThread}
  107|         onClose={() => setShowNewThread(false)}
  108|         onSubmit={handleCreateThread}
  109|         userRole={userRole}
```

```
  110|       />
  111|     </div>
  112|   )
  113| }
  114| export { DiscussionPanel }
  115|
```

File: components/discussion/discussion/NewThreadModal.tsx (127 lines, 5.2 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState } from 'react'
    4| import { X } from 'lucide-react'
    5|
    6| interface Props {
    7|   isOpen: boolean
    8|   onClose: () => void
    9|   onSubmit: (title: string, body: string, type: 'question' | 'discussion' | 'announcement') => Promise<void>
   10|   userRole: string
   11| }
   12|
   13| export function NewThreadModal({ isOpen, onClose, onSubmit, userRole }: Props) {
   14|   const [title, setTitle] = useState('')
   15|   const [body, setBody] = useState('')
   16|   const [type, setType] = useState<'question' | 'discussion' | 'announcement'>('question')
   17|   const [loading, setLoading] = useState(false)
   18|   const [error, setError] = useState('')
   19|
   20|   if (!isOpen) return null
   21|
   22|   const handleSubmit = async (e: React.FormEvent) => {
   23|     e.preventDefault()
   24|     if (!title.trim() || !body.trim()) return
   25|
   26|     setLoading(true)
   27|     setError('')
   28|     try {
   29|       await onSubmit(title, body, type)
   30|       setTitle('')
   31|       setBody('')
   32|       onClose()
   33|     } catch (err: any) {
     3 4 |               s e t E r r o r ( e r r . m e s s a g e   | |   ' L × i   k h i       n g   c h ç     Á . ' )
   35|     } finally {
   36|       setLoading(false)
   37|     }
   38|   }
   39|
   40|   return (
   41|     <div className="fixed inset-0 z-50 flex items-center justify-center p-4" style={{ background: 'rgba(0,0,0,...
   42|       <div className="rounded-2xl w-full max-w-lg overflow-hidden shadow-2xl animate-in fade-in zoom-in-95 dur...
   43|
   44|         {/* Header */}
   45|         <div className="flex items-center justify-between px-6 py-4" style={{ borderBottom: '1px solid var(--b...
     4 6 |                       < h 3   c l a s s N a m e = " f o n t - b o l d   t e x t - l g "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t -
   47|           <button
   48|             onClick={onClose}
   49|             className="p-1 rounded-lg transition-all"
   50|             style={{ color: 'var(--text-muted)' }}
   51|             onMouseOver={e => { e.currentTarget.style.color = 'var(--text-primary)'; e.currentTarget.style.bac...
   52|             onMouseOut={e => { e.currentTarget.style.color = 'var(--text-muted)'; e.currentTarget.style.backgr...
   53|           >
   54|             <X size={20} />
   55|           </button>
   56|         </div>
   57|
   58|         {/* Form */}
   59|         <form onSubmit={handleSubmit} className="p-6 space-y-4">
   60|           {error && (
   61|             <div className="p-3 text-sm rounded-lg" style={{ background: 'color-mix(in srgb, var(--danger) 10%...
   62|               {error}
   63|             </div>
   64|           )}
   65|
   66|           <div>
   67|             <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--te...
     6 8 |                               T i ê u     Á   t h £ o   l u - n
   69|             </label>
   70|             <input
   71|               type="text"
   72|               required
   73|               value={title}
   74|               onChange={(e) => setTitle(e.target.value)}
     7 5 |                               p l a c e h o l d e r = " V D :   L à m   t h ¿   n à o    Ã   t í n h   c ô n g   s u ¥ t   n g u Ó n   ( T D P )
   76|               className="w-full rounded-xl px-4 py-3 text-sm outline-none transition-colors"
   77|               style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var...
   78|             />
   79|           </div>
   80|
   81|           <div className="grid grid-cols-2 gap-4">
   82|             <div>
   83|               <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--...
     8 4 |                                   L o ¡ i   c h ç     Á
   85|               </label>
   86|               <select
   87|                 value={type}
   88|                 onChange={(e) => setType(e.target.value as any)}
   89|                 className="w-full rounded-xl px-4 py-3 text-sm outline-none transition-colors"
   90|                 style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'v...
   91|               >
     9 2 |                                   < o p t i o n   v a l u e = " q u e s t i o n " >'S   C â u   h Ï i < / o p t i o n >
     9 3 |                                   < o p t i o n   v a l u e = " d i s c u s s i o n " >Ø=Ü¬   T h £ o   l u - n < / o p t i o n >
     9 4 |                                   { u s e r R o l e   = = =   ' t e a c h e r '   & &   < o p t i o n   v a l u e = " a n n o u n c e m e n t " >
   95|               </select>
   96|             </div>
   97|           </div>
   98|
   99|           <div>
  100|             <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--te...
     1 0 1 |                               N Ù i   d u n g   c h i   t i ¿ t   ( h ×   t r ã   M a r k d o w n )
  102|             </label>
  103|             <textarea
  104|               required
  105|               rows={5}
  106|               value={body}
  107|               onChange={(e) => setBody(e.target.value)}
     1 0 8 |                               p l a c e h o l d e r = " M ô   t £   c h i   t i ¿ t   t h ¯ c   m ¯ c   c ç a   b ¡ n . . . "
  109|               className="w-full rounded-xl px-4 py-3 text-sm outline-none transition-colors resize-none"
  110|               style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var...
  111|             />
  112|           </div>
  113|
  114|           <button
```

```
115|            type="submit"
116|            disabled={loading}
117|            className="w-full font-bold py-3 rounded-xl transition-opacity disabled:opacity-50"
118|            style={{ background: 'var(--brand-primary)', color: '#000' }}
119|          >
120|                        { l o a d i n g   ?   '   a n g   g í i . . . '   :   '    n g   c h ç    Á ' }
121|          </button>
122|        </form>
123|      </div>
124|    </div>
125|  )
126| }
127|
```

File: components/discussion/discussion/ThreadCard.tsx (109 lines, 4.3 KB)

```
==========================================================================================
  1| 'use client'
  2|
  3| import React from 'react'
  4| import { Thread } from '@/hooks/useDiscussion'
  5| import { MessageSquare, ArrowUp, User, Clock } from 'lucide-react'
  6|
  7| interface Props {
  8|   thread: Thread
  9|   onSelect: (thread: Thread) => void
 10| }
 11|
 12| export function ThreadCard({ thread, onSelect }: Props) {
 13|   const getBadgeStyle = () => {
 14|     switch (thread.type) {
 15|       case 'announcement':
 16|         return {
 17|           background: 'color-mix(in srgb, var(--accent-amber) 15%, transparent)',
 18|           color: 'var(--accent-amber)',
 19|           border: '1px solid color-mix(in srgb, var(--accent-amber) 25%, transparent)'
 20|         }
 21|       case 'discussion':
 22|         return {
 23|           background: 'color-mix(in srgb, var(--brand-primary) 15%, transparent)',
 24|           color: 'var(--brand-primary)',
 25|           border: '1px solid color-mix(in srgb, var(--brand-primary) 25%, transparent)'
 26|         }
 27|       default:
 28|         return {
 29|           background: 'color-mix(in srgb, var(--accent-blue) 15%, transparent)',
 30|           color: 'var(--accent-blue)',
 31|           border: '1px solid color-mix(in srgb, var(--accent-blue) 25%, transparent)'
 32|         }
 33|     }
 34|   }
 35|
 36|   const getBadgeText = () => {
 37|     switch (thread.type) {
 38|       case 'announcement': return 'Thông báo'
 39|               c a s e   ' d i s c u s s i o n ' :   r e t u r n   ' T h £ o   l u - n '
 40|               d e f a u l t :   r e t u r n   ' C â u   h Ï i '
 41|     }
 42|   }
 43|
 44|   const timeAgo = (date: string) => {
 45|     const now = new Date()
 46|     const then = new Date(date)
 47|     const diffMs = now.getTime() - then.getTime()
 48|     const diffMins = Math.floor(diffMs / 60000)
 49|           i f   ( d i f f M i n s   <   1 )   r e t u r n   ' V ë a   x o n g '
 50|           i f   ( d i f f M i n s   <   6 0 )   r e t u r n   ` $ { d i f f M i n s } p   t r ° Û c `
 51|     const diffHours = Math.floor(diffMins / 60)
 52|           i f   ( d i f f H o u r s   <   2 4 )   r e t u r n   ` $ { d i f f H o u r s } h   t r ° Û c `
 53|     const diffDays = Math.floor(diffHours / 24)
 54|           i f   ( d i f f D a y s   <   7 )   r e t u r n   ` $ { d i f f D a y s }   n g à y   t r ° Û c `
 55|     return then.toLocaleDateString('vi-VN')
 56|   }
 57|
 58|   return (
 59|     <div
 60|       onClick={() => onSelect(thread)}
 61|       className="p-4 rounded-xl transition-all cursor-pointer"
 62|       style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-default)' }}
 63|       onMouseOver={e => { e.currentTarget.style.borderColor = 'var(--border-strong)'; e.currentTarget.style.ba...
 64|       onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e.currentTarget.style.ba...
 65|     >
 66|       <div className="flex items-start justify-between gap-3 mb-2">
 67|         <h4 className="font-semibold line-clamp-1 transition-colors" style={{ color: 'var(--text-primary)' }}>
 68|           {thread.title}
 69|         </h4>
 70|         <span className="px-2 py-0.5 text-[10px] font-bold uppercase tracking-wider rounded" style={getBadgeSt...
 71|           {getBadgeText()}
 72|         </span>
 73|       </div>
 74|
 75|       <p className="text-xs line-clamp-2 mb-3" style={{ color: 'var(--text-muted)' }}>
 76|         {thread.body}
 77|       </p>
 78|
 79|       <div className="flex items-center justify-between text-xs" style={{ color: 'var(--text-muted)' }}>
 80|         <div className="flex items-center gap-2">
 81|           {thread.author?.avatar_url ? (
 82|             <img src={thread.author.avatar_url} alt="Avatar" className="w-5 h-5 rounded-full object-cover" />
 83|           ) : (
 84|             <div className="w-5 h-5 rounded-full flex items-center justify-center" style={{ background: 'var(-...
 85|               <User size={10} style={{ color: 'var(--text-muted)' }} />
 86|             </div>
 87|           )}
 88|                       < s p a n   c l a s s N a m e = " t r u n c a t e   m a x - w - [ 1 0 0 p x ] " > { t h r e a d . a u t h o r ? . f u l l _
 89|           {thread.author?.role === 'teacher' && (
 90|             <span className="text-[9px] px-1 rounded uppercase font-bold" style={{ background: 'var(--brand-su...
 91|           )}
 92|         </div>
 93|
 94|         <div className="flex items-center gap-3">
 95|           <span className="flex items-center gap-1">
 96|             <Clock size={12} /> {timeAgo(thread.created_at)}
 97|           </span>
 98|           <span className="flex items-center gap-1">
 99|             <ArrowUp size={14} /> {thread.upvote_count}
100|           </span>
101|           <span className="flex items-center gap-1">
102|             <MessageSquare size={14} /> {thread.reply_count}
103|           </span>
104|         </div>
105|       </div>
106|     </div>
107|   )
```

```
}

```

File: components/discussion/discussion/ThreadDetail.tsx (164 lines, 7.7 KB)

```
'use client'

import React, { useState } from 'react'
import { Thread, useThreadReplies } from '@/hooks/useDiscussion'
import { ArrowLeft, Send, User } from 'lucide-react'
import ReactMarkdown from 'react-markdown'
import rehypeSanitize from 'rehype-sanitize'
import remarkGfm from 'remark-gfm'

interface Props {
  thread: Thread
  currentUserId: string
  onBack: () => void
}

export function ThreadDetail({ thread, currentUserId, onBack }: Props) {
  const { replies, addReply } = useThreadReplies(thread.id)
  const [commentBody, setCommentBody] = useState('')
  const [submitting, setSubmitting] = useState(false)
  const [error, setError] = useState('')

  const handleSend = async (e: React.FormEvent) => {
    e.preventDefault()
    if (!commentBody.trim()) return

    setSubmitting(true)
    setError('')
    try {
      await addReply(commentBody, currentUserId)
      setCommentBody('')
    } catch (err: any) {
      setError(err.message || 'Lỗi khi gửi bình luận.')
    } finally {
      setSubmitting(false)
    }
  }

  return (
    <div className="flex flex-col h-full rounded-2xl overflow-hidden" style={{ background: 'var(--bg-surface)'...
      {/* Header */}
      <div className="flex items-center gap-3 px-4 py-3 flex-shrink-0" style={{ borderBottom: '1px solid var(-...
        <button
          onClick={onBack}
          className="p-1 rounded-lg transition-all"
          style={{ color: 'var(--text-muted)' }}
          onMouseOver={e => { e.currentTarget.style.color = 'var(--text-primary)'; e.currentTarget.style.backg...
          onMouseOut={e => { e.currentTarget.style.color = 'var(--text-muted)'; e.currentTarget.style.backgrou...
        >
          <ArrowLeft size={18} />
        </button>
        <span className="text-xs font-medium" style={{ color: 'var(--te
      </div>

      {/* Content area */}
      <div className="flex-1 overflow-y-auto p-4 space-y-6">
        {/* Main OP Thread */}
        <div className="space-y-3 pb-6" style={{ borderBottom: '1px solid var(--border-default)' }}>
          <div class="flex items-center gap-3 text-xs" style={{ color: 'var(--text-muted)' }}>
            {thread.author?.avatar_url ? (
              <img src={thread.author.avatar_url} alt="Avatar" class="w-6 h-6 rounded-full object-cover" />
            ) : (
              <div class="w-6 h-6 rounded-full flex items-center justify-center" style={{ background: 'var...
                <User size={12} style={{ color: 'var(--text-muted)' }} />
              </div>
            )}
            <div>
              <p class="font-semibold flex items-center gap-1" style={{ color: 'var(--text-primary)' }}>
                {thread.author?.full_name || 'Ẩn danh'}
                {thread.author?.role === 'teacher' && (
                  <span class="text-[9px] px-1 rounded uppercase font-bold" style={{ background: 'var(--br...
                )}
              </p>
              <p class="text-[10px]" style={{ color: 'var(--text-muted)' }}>{new Date(thread.created_at).t...
            </div>
          </div>

          <h3 class="text-lg font-bold" style={{ color: 'var(--text-primary)' }}>{thread.title}</h3>

          <div class="prose prose-invert max-w-none text-sm" style={{ color: 'var(--text-secondary)' }}>
            <ReactMarkdown
              remarkPlugins={[remarkGfm]}
              rehypePlugins={[rehypeSanitize]}
            >
              {thread.body}
            </ReactMarkdown>
          </div>
        </div>

        {/* Replies List */}
        <div class="space-y-4">
          <h4 class="text-xs font-bold uppercase tracking-wider" style={{ color: 'var(--text-muted)' }}>Ph...

          {replies.length === 0 ? (
            <div class="text-center py-6 text-sm" style={{ color: 'var(--text-muted)' }}>
              Chưa có phản hồi nào. Hãy là người ý kiến tiên trước!
            </div>
          ) : (
            <div class="space-y-4 pl-2" style={{ borderLeft: '1px solid var(--border-default)' }}>
              {replies.map(reply => (
                <div key={reply.id} class="space-y-2 p-3 rounded-xl" style={{ background: 'var(--bg-elevat...
                  <div class="flex items-center justify-between text-xs">
                    <div class="flex items-center gap-2" style={{ color: 'var(--text-muted)' }}>
                      {reply.author?.avatar_url ? (
                        <img src={reply.author.avatar_url} alt="Avatar" class="w-4 h-4 rounded-full object...
                      ) : (
                        <div class="w-4 h-4 rounded-full flex items-center justify-center" style={{ backgr...
                          <User size={8} style={{ color: 'var(--text-muted)' }} />
                        </div>
                      )}
                      <span class="font-semibold" style={{ color: 'var(--text-secondary)' }}>{reply.author...
                      {reply.is_teacher_answer && (
                        <span class="text-[8px] px-1 rounded uppercase font-bold" style={{ background: 'va...
                      )}
                    </div>
                    <span class="text-[10px]" style={{ color: 'var(--text-muted)' }}>{new Date(reply.creat...
                  </div>

                  <div class="prose prose-invert max-w-none text-xs" style={{ color: 'var(--text-secondary...
```

```
119|                    <ReactMarkdown
120|                      remarkPlugins={[remarkGfm]}
121|                      rehypePlugins={[rehypeSanitize]}
122|                    >
123|                      {reply.body}
124|                    </ReactMarkdown>
125|                  </div>
126|                </div>
127|              ))}
128|            </div>
129|          )}
130|        </div>
131|      </div>
132|
133|      {/* Comment Form */}
134|      <form onSubmit={handleSend} className="p-4 flex-shrink-0" style={{ borderTop: '1px solid var(--border-de...
135|        {error && (
136|          <div className="p-2 mb-2 text-xs rounded-lg" style={{ background: 'color-mix(in srgb, var(--danger) ...
137|            {error}
138|          </div>
139|        )}
140|        <div className="flex gap-2">
141|          <input
142|            type="text"
143|            required
144|            disabled={submitting}
145|            value={commentBody}
146|            onChange={(e) => setCommentBody(e.target.value)}
    1 4 7 |                        p l a c e h o l d e r = " N h - p   n Ù i   d u n g   c â u   t r £   l Ý i . . . "
148|            className="flex-1 rounded-xl px-4 py-2.5 text-xs outline-none transition-colors"
149|            style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var(-...
150|          />
151|          <button
152|            type="submit"
153|            disabled={submitting}
154|            className="p-2.5 rounded-xl transition-opacity disabled:opacity-50 flex items-center justify-center"
155|            style={{ background: 'var(--brand-primary)', color: '#000' }}
156|          >
157|            <Send size={16} />
158|          </button>
159|        </div>
160|      </form>
161|    </div>
162|  )
163| }
164|
```

File: components/discussion/DiscussionPanel.tsx (115 lines, 4.6 KB)

```
==========================================================================================
  1| 'use client'
  2|
  3| import React, { useState } from 'react'
  4| import { useDiscussion, Thread } from '@/hooks/useDiscussion'
  5| import { ThreadCard } from './ThreadCard'
  6| import { ThreadDetail } from './ThreadDetail'
  7| import { NewThreadModal } from './NewThreadModal'
  8| import { MessageSquare, Plus, RefreshCw } from 'lucide-react'
  9|
 10| interface DiscussionPanelProps {
 11|   lessonId: string
 12|   currentUserId: string
 13|   userRole: 'student' | 'teacher'
 14| }
 15|
 16| export default function DiscussionPanel({ lessonId, currentUserId, userRole }: DiscussionPanelProps) {
 17|   const [activeTab, setActiveTab] = useState<'all' | 'unanswered' | 'pinned'>('all')
 18|   const [selectedThread, setSelectedThread] = useState<Thread | null>(null)
 19|   const [showNewThread, setShowNewThread] = useState(false)
 20|   const { threads, isLoading, createThread } = useDiscussion(lessonId, activeTab)
 21|
 22|   const handleCreateThread = async (title: string, body: string, type: 'question' | 'discussion' | 'announceme...
 23|     await createThread(title, body, type, currentUserId)
 24|   }
 25|
 26|   if (selectedThread) {
 27|     return (
 28|       <div className="h-full">
 29|         <ThreadDetail
 30|           thread={selectedThread}
 31|           currentUserId={currentUserId}
 32|           onBack={() => setSelectedThread(null)}
 33|         />
 34|       </div>
 35|     )
 36|   }
 37|
 38|   return (
 39|     <div className="flex flex-col h-full rounded-2xl overflow-hidden" style={{ background: 'var(--bg-surface)'...
 40|       {/* Header */}
 41|       <div className="p-4 flex items-center justify-between flex-shrink-0" style={{ borderBottom: '1px solid v...
 42|         <h3 className="font-bold text-sm flex items-center gap-2" style={{ color: 'var(--text-primary)' }}>
 43|           <MessageSquare size={16} style={{ color: 'var(--brand-primary)' }} />
    4 4 |                        < s p a n > T h £ o   l u - n   ( { t h r e a d s . l e n g t h } ) < / s p a n >
 45|         </h3>
 46|         <button
 47|           onClick={() => setShowNewThread(true)}
 48|           className="flex items-center gap-1 text-xs px-2.5 py-1.5 rounded-lg transition-all font-semibold"
 49|           style={{ background: 'var(--brand-subtle)', border: '1px solid color-mix(in srgb, var(--brand-primar...
 50|         >
    5 1 |                        < P l u s   s i z e = { 1 4 }   / >   H Ĭ i     á p
 52|         </button>
 53|       </div>
 54|
 55|       {/* Tabs */}
 56|       <div className="flex px-4 py-2 gap-2 flex-shrink-0" style={{ borderBottom: '1px solid var(--border-subtl...
 57|         <button
 58|           onClick={() => setActiveTab('all')}
 59|           className="px-3 py-1 text-xs rounded-full font-medium transition-colors"
 60|           style={activeTab === 'all' ? { background: 'var(--brand-primary)', color: '#000' } : { color: 'var(-...
 61|         >
    6 2 |                        T ¥ t   c £
 63|         </button>
 64|         {userRole === 'teacher' && (
 65|           <button
 66|             onClick={() => setActiveTab('unanswered')}
 67|             className="px-3 py-1 text-xs rounded-full font-medium transition-colors"
 68|             style={activeTab === 'unanswered' ? { background: 'var(--brand-primary)', color: '#000' } : { colo...
 69|           >
    7 0 |                          C h ° a   t r £   l Ý i
 71|           </button>
 72|         )}
 73|         <button
 74|           onClick={() => setActiveTab('pinned')}
```

```
 75|          className="px-3 py-1 text-xs rounded-full font-medium transition-colors"
 76|          style={activeTab === 'pinned' ? { background: 'var(--brand-primary)', color: '#000' } : { color: 'va...
 77|        >
 78|          Ghim
 79|        </button>
 80|      </div>
 81|
 82|      {/* List Area */}
 83|      <div className="flex-1 overflow-y-auto p-4 space-y-3">
 84|        {isLoading ? (
 85|          <div className="flex flex-col items-center justify-center py-12 gap-2" style={{ color: 'var(--text-m...
 86|            <RefreshCw size={24} className="animate-spin" style={{ color: 'var(--brand-primary)' }} />
    8 7 |                          < s p a n   c l a s s N a m e = " t e x t - x s " >   a n g   t £ i   t h £ o   l u - n . . . < / s p a n >
 88|          </div>
 89|        ) : threads.length === 0 ? (
 90|          <div className="text-center py-12 text-xs" style={{ color: 'var(--text-muted)' }}>
    9 1 |                          K h ô n g   c ó   c â u   h Ĭ i   n à o .
 92|          </div>
 93|        ) : (
 94|          threads.map(thread => (
 95|            <ThreadCard
 96|              key={thread.id}
 97|              thread={thread}
 98|              onSelect={setSelectedThread}
 99|            />
100|          ))
101|        )}
102|      </div>
103|
104|      {/* Modal */}
105|      <NewThreadModal
106|        isOpen={showNewThread}
107|        onClose={() => setShowNewThread(false)}
108|        onSubmit={handleCreateThread}
109|        userRole={userRole}
110|      />
111|    </div>
112|  )
113| }
114| export { DiscussionPanel }
115|
```

File: components/discussion/NewThreadModal.tsx (127 lines, 5.2 KB)

```
  1| 'use client'
  2|
  3| import React, { useState } from 'react'
  4| import { X } from 'lucide-react'
  5|
  6| interface Props {
  7|   isOpen: boolean
  8|   onClose: () => void
  9|   onSubmit: (title: string, body: string, type: 'question' | 'discussion' | 'announcement') => Promise<void>
 10|   userRole: string
 11| }
 12|
 13| export function NewThreadModal({ isOpen, onClose, onSubmit, userRole }: Props) {
 14|   const [title, setTitle] = useState('')
 15|   const [body, setBody] = useState('')
 16|   const [type, setType] = useState<'question' | 'discussion' | 'announcement'>('question')
 17|   const [loading, setLoading] = useState(false)
 18|   const [error, setError] = useState('')
 19|
 20|   if (!isOpen) return null
 21|
 22|   const handleSubmit = async (e: React.FormEvent) => {
 23|     e.preventDefault()
 24|     if (!title.trim() || !body.trim()) return
 25|
 26|     setLoading(true)
 27|     setError('')
 28|     try {
 29|       await onSubmit(title, body, type)
 30|       setTitle('')
 31|       setBody('')
 32|       onClose()
 33|     } catch (err: any) {
    3 4 |               s e t E r r o r ( e r r . m e s s a g e   | |   ' L × i   k h i       n g   c h ç     Á . ' )
 35|     } finally {
 36|       setLoading(false)
 37|     }
 38|   }
 39|
 40|   return (
 41|     <div className="fixed inset-0 z-50 flex items-center justify-center p-4" style={{ background: 'rgba(0,0,0,...
 42|       <div className="rounded-2xl w-full max-w-lg overflow-hidden shadow-2xl animate-in fade-in zoom-in-95 dur...
 43|
 44|         {/* Header */}
 45|         <div className="flex items-center justify-between px-6 py-4" style={{ borderBottom: '1px solid var(--b...
    4 6 |                       < h 3   c l a s s N a m e = " f o n t - b o l d   t e x t - l g "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t -
 47|           <button
 48|             onClick={onClose}
 49|             className="p-1 rounded-lg transition-all"
 50|             style={{ color: 'var(--text-muted)' }}
 51|             onMouseOver={e => { e.currentTarget.style.color = 'var(--text-primary)'; e.currentTarget.style.bac...
 52|             onMouseOut={e => { e.currentTarget.style.color = 'var(--text-muted)'; e.currentTarget.style.backgr...
 53|           >
 54|             <X size={20} />
 55|           </button>
 56|         </div>
 57|
 58|         {/* Form */}
 59|         <form onSubmit={handleSubmit} className="p-6 space-y-4">
 60|           {error && (
 61|             <div className="p-3 text-sm rounded-lg" style={{ background: 'color-mix(in srgb, var(--danger) 10%...
 62|               {error}
 63|             </div>
 64|           )}
 65|
 66|           <div>
 67|             <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--te...
    6 8 |                           T i ê u     Á   t h £ o   l u - n
 69|             </label>
 70|             <input
 71|               type="text"
 72|               required
 73|               value={title}
 74|               onChange={(e) => setTitle(e.target.value)}
    7 5 |                           p l a c e h o l d e r = " V D :   L à m   t h ¿   n à o    Ã   t í n h   c ô n g   s u ¥ t   n g u Ó n   ( T D P )
 76|               className="w-full rounded-xl px-4 py-3 text-sm outline-none transition-colors"
 77|               style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var...
 78|             />
 79|           </div>
```

```
 80|
 81|          <div className="grid grid-cols-2 gap-4">
 82|            <div>
 83|              <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--...
    8 4 |                                L o ¡ i   c h ç     Á
 85|              </label>
 86|              <select
 87|                value={type}
 88|                onChange={(e) => setType(e.target.value as any)}
 89|                className="w-full rounded-xl px-4 py-3 text-sm outline-none transition-colors"
 90|                style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'v...
 91|              >
    9 2 |                                < o p t i o n   v a l u e = " q u e s t i o n " >'S   C â u   h Ï i < / o p t i o n >
    9 3 |                                < o p t i o n   v a l u e = " d i s c u s s i o n " >Ø=Ú¬   T h £ o   l u - n < / o p t i o n >
    9 4 |                                { u s e r R o l e   = = =   ' t e a c h e r '   & &   < o p t i o n   v a l u e = " a n n o u n c e m e n t " >
 95|              </select>
 96|            </div>
 97|          </div>
 98|
 99|          <div>
100|            <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--te...
   1 0 1 |                            N Ù i   d u n g   c h i   t i ¿ t   ( h ×   t r ã   M a r k d o w n )
102|            </label>
103|            <textarea
104|              required
105|              rows={5}
106|              value={body}
107|              onChange={(e) => setBody(e.target.value)}
   1 0 8 |                            p l a c e h o l d e r = " M ô   t £   c h i   t i ¿ t   t h ¯ c   m ¯ c   c ç a   b ¡ n . . . "
109|              className="w-full rounded-xl px-4 py-3 text-sm outline-none transition-colors resize-none"
110|              style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var...
111|            />
112|          </div>
113|
114|          <button
115|            type="submit"
116|            disabled={loading}
117|            className="w-full font-bold py-3 rounded-xl transition-opacity disabled:opacity-50"
118|            style={{ background: 'var(--brand-primary)', color: '#000' }}
119|          >
   1 2 0 |                          { l o a d i n g   ?   '   a n g   g í i . . . '   :   '    n g   c h ç    Á ' }
121|          </button>
122|        </form>
123|      </div>
124|    </div>
125|  )
126| }
127|
```

File: components/discussion/ThreadCard.tsx (109 lines, 4.3 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React from 'react'
    4| import { Thread } from '@/hooks/useDiscussion'
    5| import { MessageSquare, ArrowUp, User, Clock } from 'lucide-react'
    6|
    7| interface Props {
    8|   thread: Thread
    9|   onSelect: (thread: Thread) => void
   10| }
   11|
   12| export function ThreadCard({ thread, onSelect }: Props) {
   13|   const getBadgeStyle = () => {
   14|     switch (thread.type) {
   15|       case 'announcement':
   16|         return {
   17|           background: 'color-mix(in srgb, var(--accent-amber) 15%, transparent)',
   18|           color: 'var(--accent-amber)',
   19|           border: '1px solid color-mix(in srgb, var(--accent-amber) 25%, transparent)'
   20|         }
   21|       case 'discussion':
   22|         return {
   23|           background: 'color-mix(in srgb, var(--brand-primary) 15%, transparent)',
   24|           color: 'var(--brand-primary)',
   25|           border: '1px solid color-mix(in srgb, var(--brand-primary) 25%, transparent)'
   26|         }
   27|       default:
   28|         return {
   29|           background: 'color-mix(in srgb, var(--accent-blue) 15%, transparent)',
   30|           color: 'var(--accent-blue)',
   31|           border: '1px solid color-mix(in srgb, var(--accent-blue) 25%, transparent)'
   32|         }
   33|     }
   34|   }
   35|
   36|   const getBadgeText = () => {
   37|     switch (thread.type) {
   38|       case 'announcement': return 'Thông báo'
    3 9 |             c a s e   ' d i s c u s s i o n ' :   r e t u r n   ' T h £ o   l u - n '
    4 0 |             d e f a u l t :   r e t u r n   ' C â u   h Ï i '
   41|     }
   42|   }
   43|
   44|   const timeAgo = (date: string) => {
   45|     const now = new Date()
   46|     const then = new Date(date)
   47|     const diffMs = now.getTime() - then.getTime()
   48|     const diffMins = Math.floor(diffMs / 60000)
    4 9 |          i f   ( d i f f M i n s   <   1 )   r e t u r n   ' V ë a   x o n g '
    5 0 |          i f   ( d i f f M i n s   <   6 0 )   r e t u r n   ` $ { d i f f M i n s } p   t r ° Û c `
   51|     const diffHours = Math.floor(diffMins / 60)
    5 2 |          i f   ( d i f f H o u r s   <   2 4 )   r e t u r n   ` $ { d i f f H o u r s } h   t r ° Û c `
   53|     const diffDays = Math.floor(diffHours / 24)
    5 4 |          i f   ( d i f f D a y s   <   7 )   r e t u r n   ` $ { d i f f D a y s }   n g à y   t r ° Û c `
   55|     return then.toLocaleDateString('vi-VN')
   56|   }
   57|
   58|   return (
   59|     <div
   60|       onClick={() => onSelect(thread)}
   61|       className="p-4 rounded-xl transition-all cursor-pointer"
   62|       style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-default)' }}
   63|       onMouseOver={e => { e.currentTarget.style.borderColor = 'var(--border-strong)'; e.currentTarget.style.ba...
   64|       onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e.currentTarget.style.ba...
   65|     >
   66|       <div className="flex items-start justify-between gap-3 mb-2">
   67|         <h4 className="font-semibold line-clamp-1 transition-colors" style={{ color: 'var(--text-primary)' }}>
   68|           {thread.title}
   69|         </h4>
   70|         <span className="px-2 py-0.5 text-[10px] font-bold uppercase tracking-wider rounded" style={getBadgeSt...
   71|           {getBadgeText()}
   72|         </span>
```

```
  73|       </div>
  74|
  75|       <p className="text-xs line-clamp-2 mb-3" style={{ color: 'var(--text-muted)' }}>
  76|         {thread.body}
  77|       </p>
  78|
  79|       <div className="flex items-center justify-between text-xs" style={{ color: 'var(--text-muted)' }}>
  80|         <div className="flex items-center gap-2">
  81|           {thread.author?.avatar_url ? (
  82|             <img src={thread.author.avatar_url} alt="Avatar" className="w-5 h-5 rounded-full object-cover" />
  83|           ) : (
  84|             <div className="w-5 h-5 rounded-full flex items-center justify-center" style={{ background: 'var(-...
  85|               <User size={10} style={{ color: 'var(--text-muted)' }} />
  86|             </div>
  87|           )}
    8 8 |                 < s p a n   c l a s s N a m e = " t r u n c a t e   m a x - w - [ 1 0 0 p x ] " > { t h r e a d . a u t h o r ? . f u l l _
  89|           {thread.author?.role === 'teacher' && (
  90|             <span className="text-[9px] px-1 rounded uppercase font-bold" style={{ background: 'var(--brand-su...
  91|           )}
  92|         </div>
  93|
  94|         <div className="flex items-center gap-3">
  95|           <span className="flex items-center gap-1">
  96|             <Clock size={12} /> {timeAgo(thread.created_at)}
  97|           </span>
  98|           <span className="flex items-center gap-1">
  99|             <ArrowUp size={14} /> {thread.upvote_count}
 100|           </span>
 101|           <span className="flex items-center gap-1">
 102|             <MessageSquare size={14} /> {thread.reply_count}
 103|           </span>
 104|         </div>
 105|       </div>
 106|     </div>
 107|   )
 108| }
 109|
```

File: components/discussion/ThreadDetail.tsx (164 lines, 7.7 KB)

```
   1| 'use client'
   2|
   3| import React, { useState } from 'react'
   4| import { Thread, useThreadReplies } from '@/hooks/useDiscussion'
   5| import { ArrowLeft, Send, User } from 'lucide-react'
   6| import ReactMarkdown from 'react-markdown'
   7| import rehypeSanitize from 'rehype-sanitize'
   8| import remarkGfm from 'remark-gfm'
   9|
  10| interface Props {
  11|   thread: Thread
  12|   currentUserId: string
  13|   onBack: () => void
  14| }
  15|
  16| export function ThreadDetail({ thread, currentUserId, onBack }: Props) {
  17|   const { replies, addReply } = useThreadReplies(thread.id)
  18|   const [commentBody, setCommentBody] = useState('')
  19|   const [submitting, setSubmitting] = useState(false)
  20|   const [error, setError] = useState('')
  21|
  22|   const handleSend = async (e: React.FormEvent) => {
  23|     e.preventDefault()
  24|     if (!commentBody.trim()) return
  25|
  26|     setSubmitting(true)
  27|     setError('')
  28|     try {
  29|       await addReply(commentBody, currentUserId)
  30|       setCommentBody('')
  31|     } catch (err: any) {
    3 2 |             s e t E r r o r ( e r r . m e s s a g e   | |   ' L × i   k h i   g í i   b ì n h   l u - n . ' )
  33|     } finally {
  34|       setSubmitting(false)
  35|     }
  36|   }
  37|
  38|   return (
  39|     <div class Name="flex flex-col h-full rounded-2xl overflow-hidden" style={{ background: 'var(--bg-surface)'...
  40|       {/* Header */}
  41|       <div class Name="flex items-center gap-3 px-4 py-3 flex-shrink-0" style={{ borderBottom: '1px solid var(-...
  42|         <button
  43|           onClick={onBack}
  44|           class Name="p-1 rounded-lg transition-all"
  45|           style={{ color: 'var(--text-muted)' }}
  46|           onMouseOver={e => { e.currentTarget.style.color = 'var(--text-primary)'; e.currentTarget.style.backg...
  47|           onMouseOut={e => { e.currentTarget.style.color = 'var(--text-muted)'; e.currentTarget.style.backgrou...
  48|         >
  49|           <ArrowLeft size={18} />
  50|         </button>
    5 1 |                 < s p a n   c l a s s N a m e = " t e x t - x s   f o n t - m e d i u m "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x
  52|       </div>
  53|
  54|       {/* Content area */}
  55|       <div class Name="flex-1 overflow-y-auto p-4 space-y-6">
  56|         {/* Main OP Thread */}
  57|         <div class Name="space-y-3 pb-6" style={{ borderBottom: '1px solid var(--border-default)' }}>
  58|           <div class Name="flex items-center gap-3 text-xs" style={{ color: 'var(--text-muted)' }}>
  59|             {thread.author?.avatar_url ? (
  60|               <img src={thread.author.avatar_url} alt="Avatar" class Name="w-6 h-6 rounded-full object-cover" />
  61|             ) : (
  62|               <div class Name="w-6 h-6 rounded-full flex items-center justify-center" style={{ background: 'var...
  63|                 <User size={12} style={{ color: 'var(--text-muted)' }} />
  64|               </div>
  65|             )}
  66|             <div>
  67|               <p class Name="font-semibold flex items-center gap-1" style={{ color: 'var(--text-primary)' }}>
    6 8 |                             { t h r e a d . a u t h o r ? . f u l l _ n a m e   | |   ' ¨ n   d a n h ' }
  69|                 {thread.author?.role === 'teacher' && (
  70|                   <span class Name="text-[9px] px-1 rounded uppercase font-bold" style={{ background: 'var(--br...
  71|                 )}
  72|               </p>
  73|               <p class Name="text-[10px]" style={{ color: 'var(--text-muted)' }}>{new Date(thread.created_at).t...
  74|             </div>
  75|           </div>
  76|
  77|           <h3 class Name="text-lg font-bold" style={{ color: 'var(--text-primary)' }}>{thread.title}</h3>
  78|
  79|           <div class Name="prose prose-invert max-w-none text-sm" style={{ color: 'var(--text-secondary)' }}>
  80|             <ReactMarkdown
  81|               remarkPlugins={[remarkGfm]}
  82|               rehypePlugins={[rehypeSanitize]}
  83|             >
```

```
  84|              {thread.body}
  85|            </ReactMarkdown>
  86|          </div>
  87|        </div>
  88|
  89|        {/* Replies List */}
  90|        <div className="space-y-4">
  91|          <h4 className="text-xs font-bold uppercase tracking-wider" style={{ color: 'var(--text-muted)' }}>Ph...
  92|
  93|          {replies.length === 0 ? (
  94|            <div className="text-center py-6 text-sm" style={{ color: 'var(--text-muted)' }}>
    9 5 |                            C h ° a   c ó   p h £ n   h Ó i   n à o .   H ã y   l à   n g ° Ý i    § u   t i ê n   t r £   l Ý i !
  96|            </div>
  97|          ) : (
  98|            <div className="space-y-4 pl-2" style={{ borderLeft: '1px solid var(--border-default)' }}>
  99|              {replies.map(reply => (
 100|                <div key={reply.id} className="space-y-2 p-3 rounded-xl" style={{ background: 'var(--bg-elevat...
 101|                  <div className="flex items-center justify-between text-xs">
 102|                    <div className="flex items-center gap-2" style={{ color: 'var(--text-muted)' }}>
 103|                      {reply.author?.avatar_url ? (
 104|                        <img src={reply.author.avatar_url} alt="Avatar" className="w-4 h-4 rounded-full object...
 105|                      ) : (
 106|                        <div className="w-4 h-4 rounded-full flex items-center justify-center" style={{ backgr...
 107|                          <User size={8} style={{ color: 'var(--text-muted)' }} />
 108|                        </div>
 109|                      )}
 110|                      <span className="font-semibold" style={{ color: 'var(--text-secondary)' }}>{reply.author...
 111|                      {reply.is_teacher_answer && (
 112|                        <span className="text-[8px] px-1 rounded uppercase font-bold" style={{ background: 'va...
 113|                      )}
 114|                    </div>
 115|                    <span className="text-[10px]" style={{ color: 'var(--text-muted)' }}>{new Date(reply.creat...
 116|                  </div>
 117|
 118|                  <div className="prose prose-invert max-w-none text-xs" style={{ color: 'var(--text-secondary...
 119|                    <ReactMarkdown
 120|                      remarkPlugins={[remarkGfm]}
 121|                      rehypePlugins={[rehypeSanitize]}
 122|                    >
 123|                      {reply.body}
 124|                    </ReactMarkdown>
 125|                  </div>
 126|                </div>
 127|              ))}
 128|            </div>
 129|          )}
 130|        </div>
 131|      </div>
 132|
 133|      {/* Comment Form */}
 134|      <form onSubmit={handleSend} className="p-4 flex-shrink-0" style={{ borderTop: '1px solid var(--border-de...
 135|        {error && (
 136|          <div className="p-2 mb-2 text-xs rounded-lg" style={{ background: 'color-mix(in srgb, var(--danger) ...
 137|            {error}
 138|          </div>
 139|        )}
 140|        <div className="flex gap-2">
 141|          <input
 142|            type="text"
 143|            required
 144|            disabled={submitting}
 145|            value={commentBody}
 146|            onChange={(e) => setCommentBody(e.target.value)}
    1 4 7 |                          p l a c e h o l d e r = " N h - p   n Ù i   d u n g   c â u   t r £   l Ý i . . . "
 148|            className="flex-1 rounded-xl px-4 py-2.5 text-xs outline-none transition-colors"
 149|            style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)', color: 'var(-...
 150|          />
 151|          <button
 152|            type="submit"
 153|            disabled={submitting}
 154|            className="p-2.5 rounded-xl transition-opacity disabled:opacity-50 flex items-center justify-center"
 155|            style={{ background: 'var(--brand-primary)', color: '#000' }}
 156|          >
 157|            <Send size={16} />
 158|          </button>
 159|        </div>
 160|      </form>
 161|    </div>
 162|  )
 163| }
 164|
```

File: components/ExamsList.js (140 lines, 8.0 KB)

```
  1| 'use client';
  2|
  3| import React, { useState, useEffect } from 'react';
  4| import { supabase } from '@/lib/supabase';
  5| import { motion } from 'framer-motion';
  6| import { FileText, Clock, Trophy, ArrowRight, Loader2, Search, Calendar, ChevronRight } from 'lucide-react';
  7|
  8| const ExamsList = ({ lang, onBack }) => {
  9|     const [exams, setExams] = useState([]);
 10|     const [loading, setLoading] = useState(true);
 11|     const [searchTerm, setSearchTerm] = useState('');
 12|
 13|     useEffect(() => {
 14|         fetchExams();
 15|     }, []);
 16|
 17|     async function fetchExams() {
 18|         try {
 19|             setLoading(true);
 20|             const { data } = await supabase
 21|                 .from('assignments')
 22|                 .select(`
 23|                     *,
 24|                     classes (name)
 25|                 `)
 26|                 .eq('is_published', true)
 27|                 .order('created_at', { ascending: false });
 28|
 29|             setExams(data || []);
 30|         } catch (err) {
 31|             console.error('Error fetching exams:', err);
 32|         } finally {
 33|             setLoading(false);
 34|         }
 35|     }
 36|
 37|     const filteredExams = exams.filter(exam =>
 38|         exam.title.toLowerCase().includes(searchTerm.toLowerCase())
 39|     );
```

```
    return (
        <div style={{ width: '100%', height: '100%', display: 'flex', flexDirection: 'column', color: 'var(--t...
            <div style={{ marginBottom: '32px' }}>
                <h2 style={{ fontSize: '28px', fontWeight: 800, margin: '0 0 8px 0', color: '#00f3ff' }}>
                    {lang === 'en' ? 'Examination Center' : 'Trung tâm K
                </h2>
                <p style={{ color: 'var(--text-secondary)', margin: 0 }}>
                    {lang === 'en' ? 'Access your official tests and ass
                </p>
            </div>

            <div style={{ position: 'relative', marginBottom: '24px' }}>
                <Search style={{ position: 'absolute', left: '16px', top: '50%', transform: 'translateY(-50%)'...
                <input
                    type="text"
                    placeholder={lang === 'en' ? "Search exams..." : "Ti
                    value={searchTerm}
                    onChange={(e) => setSearchTerm(e.target.value)}
                    style={{
                        width: '100%', padding: '14px 14px 14px 48px', borderRadius: '14px',
                        background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
                        color: 'white', outline: 'none', transition: 'all 0.2s'
                    }}
                    onFocus={(e) => e.target.style.borderColor = 'var(--brand-primary)'}
                    onBlur={(e) => e.target.style.borderColor = 'var(--border-default)'}
                />
            </div>

            {loading ? (
                <div style={{ flex: 1, display: 'flex', justifyContent: 'center', alignItems: 'center' }}>
                    <Loader2 className="animate-spin" color="var(--brand-primary)" size={40} />
                </div>
            ) : filteredExams.length > 0 ? (
                <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fill, minmax(320px, 1fr))', g...
                    {filteredExams.map((exam, idx) => (
                        <motion.div
                            key={exam.id}
                            initial={{ opacity: 0, y: 10 }}
                            animate={{ opacity: 1, y: 0 }}
                            transition={{ delay: idx * 0.05 }}
                            style={{
                                background: 'var(--bg-surface)', border: '1px solid var(--border-subtle)',
                                borderRadius: '20px', padding: '24px', cursor: 'pointer',
                                transition: 'all 0.3s', position: 'relative', overflow: 'hidden'
                            }}
                            onMouseEnter={(e) => { e.currentTarget.style.borderColor = 'var(--brand-primary)';...
                            onMouseLeave={(e) => { e.currentTarget.style.borderColor = 'var(--border-subtle)';...
                        >
                            <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'flex-...
                                <div style={{ padding: '10px', background: 'rgba(0, 243, 255, 0.1)', color: '#...
                                    <FileText size={20} />
                                </div>
                                <div style={{ textAlign: 'right' }}>
                                    <div style={{ fontSize: '10px', fontWeight: 800, color: 'var(--text-muted)...
                                        {lang === 'en' ? 'Duration' : 'T
                                    </div>
                                    <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-primar...
                                        <Clock size={12} /> 45'
                                    </div>
                                </div>
                            </div>

                            <h3 style={{ fontSize: '18px', fontWeight: 700, margin: '0 0 6px 0', lineHeight: 1...
                            <p style={{ fontSize: '13px', color: 'var(--text-secondary)', marginBottom: '20px'...
                                <Calendar size={14} /> {exam.classes?.name || (lang === 'en' ? 'General' : 'To...
                            </p>

                            <div style={{ height: '1px', background: 'var(--border-subtle)', margin: '0 -24px ...

                            <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'cente...
                                <div style={{ display: 'flex', alignItems: 'center', gap: '6px' }}>
                                    <Trophy size={14} color="var(--warning)" />
                                    <span style={{ fontSize: '12px', fontWeight: 700, color: 'var(--text-muted...
                                </div>
                                <button style={{
                                    padding: '8px 16px', background: '#00f3ff', color: '#000',
                                    fontSize: '11px', fontWeight: 800, borderRadius: '8px', border: 'none',
                                    cursor: 'pointer', display: 'flex', alignItems: 'center', gap: '6px',
                                    transition: 'all 0.2s'
                                }}>
                                    {lang === 'en' ? 'START EXAM' : 'B®T
                                </button>
                            </div>
                        </motion.div>
                    ))}
                </div>
            ) : (
                <div style={{ flex: 1, display: 'flex', flexDirection: 'column', alignItems: 'center', justify...
                    <FileText size={48} style={{ color: 'var(--text-muted)', marginBottom: '16px', opacity: 0....
                    <p style={{ color: 'var(--text-muted)', fontSize: '14px', fontWeight: 500 }}>
                        {lang === 'en' ? 'No exams found.' : 'Không tìm
                    </p>
                </div>
            )}
        </div>
    );
};

export default ExamsList;
```

File: components/FloatingChatbot.js (49 lines, 1.6 KB)

```
'use client'

import React, { useState } from 'react'
import { usePathname } from 'next/navigation'
import { motion, AnimatePresence } from 'framer-motion'
import { MessageCircle, X } from 'lucide-react'
import VirtualAssistant from './VirtualAssistant'

export default function FloatingChatbot() {
  const [isOpen, setIsOpen] = useState(false)
  const pathname = usePathname()
  const hiddenPaths = ['/student/discussion']
  if (hiddenPaths.some(p => pathname?.startsWith(p))) return null

  return (
    <>
      <AnimatePresence>
        {!isOpen && (
          <motion.button
```

```
  20|             initial={{ scale: 0, opacity: 0 }}
  21|             animate={{ scale: 1, opacity: 1 }}
  22|             exit={{ scale: 0, opacity: 0 }}
  23|             transition={{ type: 'spring', stiffness: 300, damping: 20 }}
  24|             onClick={() => setIsOpen(true)}
  25|             className="fixed bottom-20 right-4 z-[9999] w-14 h-14 rounded-full flex items-center justify-cente...
  26|             style={{
  27|               background: 'var(--brand-primary)',
  28|               borderColor: 'color-mix(in srgb, var(--brand-primary) 50%, white)',
  29|               boxShadow: '0 4px 20px color-mix(in srgb, var(--brand-primary) 40%, transparent)'
  30|             }}
  31|           >
  32|             <MessageCircle size={26} className="text-black" />
  33|           </motion.button>
  34|         )}
  35|       </AnimatePresence>
  36|
  37|       <VirtualAssistant
  38|         lang="vi"
  39|         appMode={null}
  40|         cartItems={[]}
  41|         remainingBudget={0}
  42|         missionTitle={null}
  43|         isOpen={isOpen}
  44|         setIsOpen={setIsOpen}
  45|       />
  46|     </>
  47|   )
  48| }
  49|
```

File: components/GameEngine.js (1175 lines, 54.9 KB)

```
   1| 'use client';
   2|
   3| import { useEffect, useRef, useState, useImperativeHandle, forwardRef, useCallback } from 'react';
   4| import confetti from 'canvas-confetti';
   5| import { IMAGE_MAP } from './imageAssets';
   6|
   7| const GRAB_THRESHOLD = 0.06;
   8| const RELEASE_THRESHOLD = 0.09;
   9|
  10| const imgCache = new Map();
  11|
  12| function getCachedImg(src) {
  13|   if (imgCache.has(src)) return imgCache.get(src);
  14|   const img = new Image();
  15|   img.crossOrigin = 'anonymous';
  16|   img.onload = () => imgCache.set(src, img);
  17|   img.onerror = () => imgCache.set(src, img);
  18|   img.src = src;
  19|   imgCache.set(src, img);
  20|   return null;
  21| }
  22|
  23| const IMAGE_MAP_TYPES = ['CPU', 'RAM', 'GPU', 'PSU', 'SSD', 'COOLER'];
  24|
  25| function randomImage(type) {
  26|   const images = IMAGE_MAP[type];
  27|   if (!images || images.length === 0) return '';
  28|   return images[Math.floor(Math.random() * images.length)];
  29| }
  30|
  31| function assignRandomImages(components) {
  32|   components.forEach(c => {
  33|     if (!c.imageUrl && IMAGE_MAP_TYPES.includes(c.type)) {
  34|       c.imageUrl = randomImage(c.type);
  35|     }
  36|   });
  37| }
  38|
  39| const GameEngine = forwardRef(({ landmarks, onGameEvent, purchasedItems, defaultPlaced, imageMode }, ref) => {
  40|     const canvasRef = useRef(null);
  41|
  42|     // Offscreen Canvas for caching static heavy elements
  43|     const bgCacheRef = useRef(null);
  44|
  45|     // Game State Ref - Init with or without purchasedItems
  46|     const stateRef = useRef(null);
  47|     if (stateRef.current === null) {
  48|         let initialComponents = [];
  49|         if (purchasedItems) {
  50|             let leftY = 50;
  51|             let rightY = 50;
  52|
  53|             purchasedItems.forEach((item) => {
  54|                 if (item.type === 'Mainboard') return; // Don't spawn mainboard as draggable part
  55|
  56|                 const spawnProps = (type) => {
  57|                     let w, h;
  58|                     if (type === 'CPU') { w = 80; h = 80; }
  59|                     else if (type === 'RAM') { w = 25; h = 260; }
  60|                     else if (type === 'GPU') { w = 320; h = 130; }
  61|                     else if (type === 'SSD' || type === 'Storage') { w = 140; h = 35; }
  62|                     else if (type === 'COOLER' || type === 'Cooler') { w = 90; h = 90; }
  63|                     else if (type === 'PSU') { w = 180; h = 160; }
  64|                     else { w = 100; h = 100; }
  65|                     return { w, h };
  66|                 };
  67|
  68|                 const pushComp = (ctype) => {
  69|                     const { w, h } = spawnProps(ctype);
  70|                     let x, y;
  71|                     if (initialComponents.length % 2 === 0) {
  72|                         x = 20; y = leftY; leftY += h + 20;
  73|                     } else {
  74|                         x = 1050; y = rightY; rightY += h + 20;
  75|                     }
  76|                     initialComponents.push({
  77|                         id: Math.random(),
  78|                         type: ctype === 'Storage' ? 'SSD' : ctype === 'Cooler' ? 'COOLER' : ctype,
  79|                         x, y, width: w, height: h, isGrabbed: false, isPlaced: false, itemData: item
  80|                     });
  81|                 };
  82|
  83|                 pushComp(item.type);
  84|                 if (item.type === 'RAM') { // Kits have 2 pieces
  85|                     pushComp('RAM');
  86|                 }
  87|             });
  88|         } else if (defaultPlaced) {
  89|             initialComponents = [
  90|                 { id: 1, type: 'CPU', x: 615, y: 230, width: 80, height: 80, isGrabbed: false, isPlaced: true },
```

```
                { id: 2, type: 'RAM', x: 800, y: 160, width: 25, height: 260, isGrabbed: false, isPlaced: true },
                { id: 4, type: 'RAM', x: 870, y: 160, width: 25, height: 260, isGrabbed: false, isPlaced: true },
                { id: 5, type: 'PSU', x: 135, y: 620, width: 180, height: 160, isGrabbed: false, isPlaced: tru...
                { id: 3, type: 'GPU', x: 455, y: 600, width: 320, height: 130, isGrabbed: false, isPlaced: tru...
                { id: 6, type: 'SSD', x: 515, y: 520, width: 140, height: 35, isGrabbed: false, isPlaced: true },
                { id: 7, type: 'COOLER', x: 610, y: 225, width: 90, height: 90, isGrabbed: false, isPlaced: tr...
            ];
        } else {
            initialComponents = [
                // Left Side staging:
                { id: 1, type: 'CPU', x: 20, y: 50, width: 80, height: 80, isGrabbed: false, isPlaced: false },
                { id: 2, type: 'RAM', x: 20, y: 200, width: 25, height: 260, isGrabbed: false, isPlaced: false },
                { id: 4, type: 'RAM', x: 100, y: 200, width: 25, height: 260, isGrabbed: false, isPlaced: fals...
                { id: 5, type: 'PSU', x: 20, y: 500, width: 180, height: 160, isGrabbed: false, isPlaced: fals...
                // Right Side staging:
                { id: 3, type: 'GPU', x: 1000, y: 650, width: 320, height: 130, isGrabbed: false, isPlaced: fa...
                { id: 6, type: 'SSD', x: 1050, y: 50, width: 140, height: 35, isGrabbed: false, isPlaced: fals...
                { id: 7, type: 'COOLER', x: 1050, y: 150, width: 90, height: 90, isGrabbed: false, isPlaced: f...
            ];
        }

        stateRef.current = {
            components: initialComponents,
            sockets: [
                { id: 'socket-cpu', type: 'CPU', x: 615, y: 230, width: 80, height: 80 },
                { id: 'socket-cooler', type: 'COOLER', x: 610, y: 225, width: 90, height: 90 },
                { id: 'socket-ram-1', type: 'RAM', x: 800, y: 160, width: 25, height: 260, vertical: true },
                { id: 'socket-ram-2', type: 'RAM', x: 870, y: 160, width: 25, height: 260, vertical: true },
                { id: 'socket-gpu', type: 'GPU', x: 455, y: 600, width: 320, height: 130 },
                { id: 'socket-psu', type: 'PSU', x: 135, y: 620, width: 200, height: 160 },
                { id: 'socket-ssd', type: 'SSD', x: 515, y: 520, width: 140, height: 35 }
            ]
        };
    }

    // Expose methods to parent
    useImperativeHandle(ref, () => ({
        spawnComponent: (type, count = 1) => {
            const spawnOne = () => {
                let w, h, spawnY = 100;
                if (type === 'CPU') { w = 80; h = 80; }
                else if (type === 'RAM') { w = 35; h = 160; spawnY = 250; }
                else if (type === 'GPU') { w = 320; h = 130; spawnY = 450; }
                else if (type === 'SSD') { w = 140; h = 35; spawnY = 320; }
                else if (type === 'COOLER') { w = 90; h = 90; spawnY = 350; }
                else if (type === 'PSU') { w = 180; h = 160; spawnY = 550; }

                const offset = stateRef.current.components.filter(c => c.type === type && !c.isPlaced).length;
                stateRef.current.components.push({
                    id: Date.now() + Math.random(),
                    type,
                    x: 120 + offset * 30,
                    y: spawnY + offset * 20,
                    width: w, height: h,
                    isGrabbed: false, isPlaced: false
                });
            };

            for (let i = 0; i < count; i++) {
                spawnOne();
            }
        },
        placeComponent: (type) => {
            const dims = { CPU: {w:80,h:80}, RAM: {w:25,h:260}, GPU: {w:320,h:130}, SSD: {w:140,h:35}, COOLER:...
            let comp = stateRef.current.components.find(c => c.type === type && !c.isPlaced);
            if (!comp) {
              const d = dims[type] || {w:80,h:80};
              const offset = stateRef.current.components.filter(c => c.type === type && !c.isPlaced).length;
              comp = { id: Date.now() + Math.random(), type, x: 120 + offset * 30, y: 100 + offset * 20, width...
              stateRef.current.components.push(comp);
            }
            const socket = stateRef.current.sockets.find(s =>
              s.type === type &&
              !stateRef.current.components.some(c2 => c2.isPlaced && c2 !== comp && Math.abs(c2.x - s.x) < 5 &...
            );
            if (!socket) return false;
            comp.x = socket.x;
            comp.y = socket.y;
            comp.width = socket.width;
            comp.height = socket.height;
            comp.isPlaced = true;
            comp.isGrabbed = false;
            if (onGameEvent) onGameEvent('placed', type);
            return true;
        }
    }));

    // Input States
    const mouseRef = useRef({ x: 0, y: 0, isDown: false });
    const landmarksRef = useRef(null);
    const cursorFilterRef = useRef({ x: null, y: null, alpha: 0.3 }); // Smooth but responsive cursor filter
    const grabLockRef = useRef({ x: null, y: null, active: false }); // Freeze cursor when pinching
    const pinchStateRef = useRef(false); // Hysteresis: track actual pinch state

    useEffect(() => {
        landmarksRef.current = landmarks;
    }, [landmarks]);

    useEffect(() => {
        if (imageMode && stateRef.current) {
            assignRandomImages(stateRef.current.components);
        }
    }, [imageMode]);

    const handleMouseMove = (e) => {
        const canvas = canvasRef.current;
        if (!canvas) return;
        const rect = canvas.getBoundingClientRect();
        const scale = canvas.width / rect.width;
        mouseRef.current.x = (e.clientX - rect.left) * scale;
        mouseRef.current.y = (e.clientY - rect.top) * scale;
    };

    const handleMouseDown = useCallback((e) => {
        if (!canvasRef.current) return;
        const rect = canvasRef.current.getBoundingClientRect();
        const scale = canvasRef.current.width / rect.width;
        const x = (e.clientX - rect.left) * scale;
        const y = (e.clientY - rect.top) * scale;

        mouseRef.current = { x, y, isDown: true };
        canvasRef.current.style.cursor = 'grabbing';
    }, []);
```

```
215|     const handleMouseUp = useCallback(() => {
216|         mouseRef.current.isDown = false;
217|         if (canvasRef.current) {
218|             canvasRef.current.style.cursor = 'grab';
219|         }
220|     }, []);
221|
222|     useEffect(() => {
223|         const canvas = canvasRef.current;
224|         if (!canvas) return;
225|         const ctx = canvas.getContext('2d', { alpha: false }); // Optimize for no alpha bg
226|         let animId;
227|
228|         // --- HELPER FUNCTIONS FOR 3D RENDERING ---
229|         const draw3DBox = (context, x, y, width, height, depth, colorTop, colorFront, colorSide, edgeColor = '...
230|             // Shadow (only if drawing to main context)
231|             if (context === ctx) {
232|                 context.fillStyle = 'rgba(0,0,0,0.5)';
233|                 context.beginPath();
234|                 context.moveTo(x + depth, y - depth); context.lineTo(x + width + depth, y - depth); context.li...
235|                 context.fill();
236|             }
237|
238|             context.lineWidth = 1;
239|             context.strokeStyle = edgeColor;
240|             context.lineJoin = 'round';
241|
242|             // Top Face
243|             context.fillStyle = colorTop;
244|             context.beginPath();
245|             context.moveTo(x, y); context.lineTo(x + width, y);
246|             context.lineTo(x + width + depth, y - depth); context.lineTo(x + depth, y - depth);
247|             context.closePath();
248|             context.fill(); context.stroke();
249|
250|             // Side Face
251|             context.fillStyle = colorSide;
252|             context.beginPath();
253|             context.moveTo(x + width, y); context.lineTo(x + width + depth, y - depth);
254|             context.lineTo(x + width + depth, y + height - depth); context.lineTo(x + width, y + height);
255|             context.closePath();
256|             context.fill(); context.stroke();
257|
258|             // Front Face
259|             context.fillStyle = colorFront;
260|             context.fillRect(x, y, width, height);
261|             context.strokeRect(x, y, width, height);
262|         };
263|
264|         const drawCylinder = (context, x, y, radius, height, colorDark, colorLight) => {
265|             const grad = context.createLinearGradient(x - radius, y, x + radius, y);
266|             grad.addColorStop(0, colorDark);
267|             grad.addColorStop(0.5, colorLight);
268|             grad.addColorStop(1, colorDark);
269|
270|             context.fillStyle = grad;
271|             context.beginPath();
272|             context.ellipse(x, y, radius, radius * 0.4, 0, 0, Math.PI * 2);
273|             context.fill();
274|
275|             context.fillRect(x - radius, y, radius * 2, height);
276|
277|             context.beginPath();
278|             context.ellipse(x, y + height, radius, radius * 0.4, 0, 0, Math.PI * 2);
279|             context.fill();
280|         };
281|
282|         // Static heavy elements cached to offscreen canvas
283|         const initBgCache = () => {
284|             const offCanvas = document.createElement('canvas');
285|             offCanvas.width = 1400;
286|             offCanvas.height = 800;
287|             const oCtx = offCanvas.getContext('2d');
288|
289|             // --- 0. Draw Background PC Case Chassis & Case Fans ---
290|             const caseGrad = oCtx.createLinearGradient(0, 0, 1400, 800);
291|             caseGrad.addColorStop(0, '#111827');
292|             caseGrad.addColorStop(1, '#030712');
293|             oCtx.fillStyle = caseGrad;
294|             oCtx.fillRect(0, 0, 1400, 800);
295|
296|             oCtx.save();
297|             oCtx.translate(-125, 0); // Center translation for whole Case + Motherboard
298|
299|             // Outer Case Boundary
300|             draw3DBox(oCtx, 240, 20, 940, 780, 20, '#1f2937', '#111827', '#030712');
301|
302|             // Front panel inner bracket
303|             oCtx.fillStyle = '#0f172a';
304|             oCtx.fillRect(1130, 40, 40, 740);
305|
306|             // Cable Routing Grommets
307|             oCtx.fillStyle = '#0a0a0a';
308|             for (let i = 100; i < 600; i += 150) {
309|                 oCtx.beginPath(); oCtx.roundRect(1080, i, 40, 100, 20); oCtx.fill();
310|                 oCtx.beginPath(); oCtx.roundRect(650 + (i / 3), 730, 80, 30, 15); oCtx.fill();
311|             }
312|
313|             // PSU Shroud
314|             draw3DBox(oCtx, 240, 600, 940, 200, 10, '#0f172a', '#020617', '#000000');
315|             oCtx.fillStyle = '#1e293b';
316|             oCtx.fillRect(250, 610, 220, 180);
317|             oCtx.strokeStyle = '#334155'; oCtx.lineWidth = 4;
318|             oCtx.strokeRect(250, 610, 220, 180);
319|
320|
321|             // Shift mainboard down to center CPU socket in view
322|             oCtx.save();
323|             oCtx.translate(0, 40);
324|
325|             // --- 1. Draw Elite Dark Motherboard Base ---
326|             const mainboardGrad = oCtx.createLinearGradient(480, 50, 1150, 770);
327|             mainboardGrad.addColorStop(0, '#1e1e24'); // Deep carbon slate
328|             mainboardGrad.addColorStop(0.5, '#121214'); // Dark
329|             mainboardGrad.addColorStop(1, '#09090b'); // Almost black shadow
330|             oCtx.fillStyle = mainboardGrad;
331|             oCtx.fillRect(500, 50, 650, 720);
332|
333|             // Motherboard metallic rim/border
334|             oCtx.strokeStyle = '#3f3f46';
335|             oCtx.lineWidth = 3;
336|             oCtx.strokeRect(500, 50, 650, 720);
337|
338|             // Cyberpunk PCB Angled Decals
```

```
339|             oCtx.fillStyle = 'rgba(255, 255, 255, 0.02)';
340|             oCtx.beginPath(); oCtx.moveTo(500, 600); oCtx.lineTo(900, 50); oCtx.lineTo(500, 50); oCtx.fill();
341|             oCtx.beginPath(); oCtx.moveTo(1150, 200); oCtx.lineTo(600, 770); oCtx.lineTo(1150, 770); oCtx.fill();
342|
343|             // Motherboard metallic mounting standoffs (9 holes)
344|             oCtx.fillStyle = '#9ca3af'; // silver screw
345|             oCtx.strokeStyle = '#374151'; oCtx.lineWidth = 2;
346|             [
347|                 [520, 70], [825, 70], [1130, 70],
348|                 [520, 380], [825, 380], [1130, 380],
349|                 [520, 750], [825, 750], [1130, 750]
350|             ].forEach(([sx, sy]) => {
351|                 oCtx.beginPath(); oCtx.arc(sx, sy, 5, 0, Math.PI * 2); oCtx.fill(); oCtx.stroke();
352|                 // Inner screw hole
353|                 oCtx.fillStyle = '#030712';
354|                 oCtx.beginPath(); oCtx.arc(sx, sy, 2, 0, Math.PI * 2); oCtx.fill(); oCtx.fillStyle = '#9ca3af';
355|             });
356|
357|             // Intense High-Density PCB Background Traces (Copper / Gold styling)
358|             oCtx.strokeStyle = 'rgba(180, 83, 9, 0.3)'; // Copper traces
359|             oCtx.lineWidth = 1;
360|             oCtx.beginPath();
361|
362|             // Generate heavily dense 90-degree/45-degree circuit traces
363|             for (let i = 0; i < 250; i++) {
364|                 let startX = 510 + Math.random() * 630;
365|                 let startY = 60 + Math.random() * 700;
366|                 let len1 = 15 + Math.random() * 50;
367|                 let len2 = 10 + Math.random() * 30;
368|                 oCtx.moveTo(startX, startY);
369|
370|                 let direction = Math.random();
371|                 if (direction > 0.75) {
372|                     oCtx.lineTo(startX + len1, startY);
373|                     oCtx.lineTo(startX + len1 + len2, startY + len2);
374|                 } else if (direction > 0.5) {
375|                     oCtx.lineTo(startX, startY + len1);
376|                     oCtx.lineTo(startX - len2, startY + len1 + len2);
377|                 } else if (direction > 0.25) {
378|                     oCtx.lineTo(startX - len1, startY);
379|                     oCtx.lineTo(startX - len1, startY - len2);
380|                 } else {
381|                     oCtx.lineTo(startX, startY - len1);
382|                     oCtx.lineTo(startX + len2, startY - len1 - len2);
383|                 }
384|             }
385|             oCtx.stroke();
386|
387|             // Micro-vias and solder pads
388|             oCtx.fillStyle = 'rgba(217, 119, 6, 0.4)'; // Dim Copper for pads
389|             for (let i = 0; i < 300; i++) {
390|                 let vx = 520 + Math.random() * 600;
391|                 let vy = 70 + Math.random() * 680;
392|                 oCtx.fillRect(vx, vy, 2, 2);
393|             }
394|             oCtx.fillStyle = '#fde047'; // Shiny Gold solder points
395|             for (let i = 0; i < 60; i++) {
396|                 let px = 550 + Math.random() * 550;
397|                 let py = 100 + Math.random() * 600;
398|                 oCtx.beginPath();
399|                 oCtx.arc(px, py, 1.5, 0, Math.PI * 2);
400|                 oCtx.fill();
401|             }
402|
403|             // 3D VRM Heatsinks (Aggressive Stealth Aluminum)
404|             draw3DBox(oCtx, 580, 50, 240, 60, 15, '#3f3f46', '#27272a', '#18181b', '#000');
405|             draw3DBox(oCtx, 580, 120, 50, 180, 15, '#3f3f46', '#27272a', '#18181b', '#000');
406|
407|             // VRM Heatsink Fins Detail with Cyber-slits
408|             oCtx.fillStyle = '#09090b';
409|             for (let i = 590; i < 810; i += 12) { oCtx.fillRect(i, 58, 4, 44); oCtx.fillRect(i + 1, 65, 2, 30); }
410|             for (let i = 130; i < 290; i += 12) { oCtx.fillRect(588, i, 34, 4); oCtx.fillRect(595, i + 1, 20, ...
411|
412|             // CPU Socket Area Bracket (Silver Metal LGA1700/AM5 Style)
413|             // Outer reinforcement plate
414|             draw3DBox(oCtx, 715, 165, 130, 130, 8, '#a1a1aa', '#d4d4d8', '#71717a', '#52525b');
415|
416|             // Inner hollow for pins
417|             oCtx.fillStyle = '#111827';
418|             oCtx.fillRect(735, 185, 90, 90);
419|
420|             // Socket pins bed (LGA style - dense gold contact array)
421|             oCtx.fillStyle = '#030712';
422|             oCtx.fillRect(740, 190, 80, 80);
423|             oCtx.fillStyle = '#fef08a'; // Bright gold pins
424|             for (let x = 742; x < 818; x += 3) {
425|                 for (let y = 192; y < 268; y += 3) {
426|                     if ((x + y) % 7 !== 0) oCtx.fillRect(x, y, 1, 1);
427|                 }
428|             }
429|
430|             // CPU Socket alignment triangle marker (gold corner)
431|             oCtx.fillStyle = '#fbbf24';
432|             oCtx.beginPath();
433|             oCtx.moveTo(785, 182);
434|             oCtx.lineTo(795, 182);
435|             oCtx.lineTo(790, 190);
436|             oCtx.closePath();
437|             oCtx.fill();
438|             oCtx.fillStyle = '#fff';
439|             oCtx.font = 'bold 7px monospace';
440|             oCtx.textAlign = 'center';
   4 4 1 |                         o C t x . f i l l T e x t ( '%² ' ,   7 9 0 ,   1 9 3 ) ;
442|
443|             // "LGA1700/AM5" text on socket
444|             oCtx.fillStyle = '#94a3b8';
445|             oCtx.font = 'bold 7px monospace';
446|             oCtx.textAlign = 'left';
447|             oCtx.fillText('LGA', 742, 205);
448|             oCtx.fillText('1700', 742, 214);
449|
450|             // Top Hinge Bracket & Bottom Locking Clasp (Silver)
451|             draw3DBox(oCtx, 730, 160, 100, 15, 6, '#cbd5e1', '#f1f5f9', '#94a3b8'); // Top hinge
452|             draw3DBox(oCtx, 750, 285, 60, 12, 6, '#cbd5e1', '#f1f5f9', '#94a3b8');  // Bottom lip
453|
454|             // Locking Metal Lever (Right side) - improved detail
455|             oCtx.strokeStyle = '#e2e8f0'; oCtx.lineWidth = 5;
456|             oCtx.shadowBlur = 4; oCtx.shadowColor = 'rgba(0,0,0,0.5)';
457|             oCtx.beginPath();
458|             oCtx.moveTo(850, 280); // Bottom latch
459|             oCtx.lineTo(865, 280);
460|             oCtx.lineTo(865, 150); // Up arm
461|             oCtx.lineTo(845, 150); // Top hook
462|             oCtx.stroke();
```

```
            oCtx.shadowBlur = 0;

            // Load lever highlight
            oCtx.strokeStyle = '#fef08a';
            oCtx.lineWidth = 2;
            oCtx.beginPath();
            oCtx.moveTo(850, 280);
            oCtx.lineTo(865, 280);
            oCtx.stroke();

            // Strict Proportion: Exactly 4 RAM Slots (Dual Channel Configuration)
            // Alternating colors: Elite dark gray and jet black
            for (let i = 0; i < 4; i++) {
                const startX = 890 + (i * 35); // 35px gap between DIMMs precisely scaled

                // Active slots 2 and 4
                const isOptimalSlot = (i === 1 || i === 3);
                const baseColor = isOptimalSlot ? '#52525b' : '#18181b';
                const shadowColor = isOptimalSlot ? '#3f3f46' : '#09090b';

                draw3DBox(oCtx, startX, 120, 18, 260, 6, baseColor, shadowColor, '#000');

                // Slot groove
                oCtx.fillStyle = '#000'; oCtx.fillRect(startX + 4, 125, 10, 250);

                // Top/Bottom clips (grey vs dark grey based on slot)
                oCtx.fillStyle = isOptimalSlot ? '#9ca3af' : '#4b5563';
                oCtx.fillRect(startX - 1, 108, 20, 12); oCtx.fillRect(startX - 1, 375, 20, 12);

                // PCB Gold trace pins bordering slot
                oCtx.fillStyle = '#f59e0b';
                for (let py = 130; py < 370; py += 5) {
                    if (py !== 260) { // realistic notch gap
                        oCtx.fillRect(startX - 2, py, 3, 2);
                        oCtx.fillRect(startX + 17, py, 3, 2);
                    }
                }
            }

            // GPU Armor Reinforced PCIe Slots (Steel/Metal)
            draw3DBox(oCtx, 560, 550, 400, 30, 8, '#e4e4e7', '#a1a1aa', '#71717a');
            oCtx.fillStyle = '#09090b'; oCtx.fillRect(570, 560, 380, 10);
            oCtx.fillStyle = '#fbbf24'; // PCIe gold pins
            for (let i = 575; i < 945; i += 4) oCtx.fillRect(i, 563, 2, 4);
            // Secondary simple slot
            draw3DBox(oCtx, 560, 650, 320, 20, 5, '#27272a', '#18181b', '#09090b');

            // M.2 NVMe Slot with Armor Heatsink Shield
            draw3DBox(oCtx, 640, 480, 150, 35, 6, '#3f3f46', '#27272a', '#18181b');
            oCtx.fillStyle = '#a1a1aa'; // Shield metallic logo accent
            oCtx.fillRect(660, 495, 60, 2); oCtx.fillRect(660, 500, 40, 2);

            // 3D CMOS Battery (Moved)
            drawCylinder(oCtx, 1000, 580, 22, 6, '#6b7280', '#e5e7eb');
            oCtx.beginPath(); oCtx.arc(1000, 580, 18, 0, Math.PI * 2); oCtx.strokeStyle = '#9ca3af'; oCtx.stro...

            // Scattered Metallic Chokes and Black Capacitors
            // Silver blocks around CPU
            for (let i = 0; i < 5; i++) draw3DBox(oCtx, 670, 180 + i * 20, 15, 15, 8, '#d4d4d8', '#a1a1aa', '#...
            for (let i = 0; i < 3; i++) draw3DBox(oCtx, 720 + i * 25, 120, 15, 15, 8, '#d4d4d8', '#a1a1aa', '#...
            // Premium Gold/Black Capacitors
            for (let i = 0; i < 8; i++) drawCylinder(oCtx, 610, 135 + i * 12, 5, 10, '#18181b', '#3f3f46');
            oCtx.fillStyle = '#f59e0b'; // Gold top caps
            for (let i = 0; i < 8; i++) oCtx.beginPath(), oCtx.arc(610, 135 + i * 12, 3, 0, Math.PI * 2), oCtx...

            // Southbridge Base (Chipset Heatsink)
            draw3DBox(oCtx, 960, 630, 110, 110, 10, '#27272a', '#18181b', '#09090b', '#000');
            oCtx.fillStyle = '#18181b'; oCtx.fillRect(970, 640, 90, 90);

            // Real-life Steel/Silver Motherboard Screws (replaced green)
            const drawScrew = (x, y) => {
                oCtx.fillStyle = '#f4f4f5'; // Bright silver
                oCtx.beginPath(); oCtx.arc(x, y, 6, 0, Math.PI * 2); oCtx.fill();
                oCtx.fillStyle = '#a1a1aa'; // Dark inner socket

                oCtx.beginPath(); oCtx.arc(x, y, 4, 0, Math.PI * 2); oCtx.fill();
                oCtx.strokeStyle = '#064e3b'; // Screw cross slots
                oCtx.lineWidth = 1.5;
                oCtx.beginPath(); oCtx.moveTo(x - 3, y - 3); oCtx.lineTo(x + 3, y + 3); oCtx.moveTo(x + 3, y -...
            };
            drawScrew(520, 70);
            drawScrew(1130, 70);
            drawScrew(520, 750);
            drawScrew(1130, 750);
            drawScrew(520, 410);
            drawScrew(1130, 410);

            oCtx.restore(); // end mainboard translate shift
            oCtx.restore(); // outer save (case translate)
            bgCacheRef.current = offCanvas;
        };

        if (!bgCacheRef.current) initBgCache();

        const drawAnimatedMotherboard = (ctx, time) => {
            // Draw static baked layer
            if (bgCacheRef.current) {
                ctx.drawImage(bgCacheRef.current, 0, 0);
            }


            // Glowing Circuit Traces (Animated)
            ctx.save();
            ctx.translate(-125, 0);
            ctx.translate(0, 40);

            ctx.strokeStyle = '#d97706';
            ctx.lineWidth = 1.5;
            ctx.shadowBlur = 4;
            ctx.shadowColor = '#f59e0b';
            ctx.setLineDash([15, 20]);
            ctx.lineDashOffset = -time * 10;
            ctx.beginPath();
            ctx.moveTo(600, 300); ctx.lineTo(550, 300); ctx.lineTo(550, 150); ctx.lineTo(520, 150);
            ctx.moveTo(800, 200); ctx.lineTo(850, 200); ctx.lineTo(850, 100); ctx.lineTo(1100, 100);
            ctx.moveTo(600, 350); ctx.lineTo(570, 380); ctx.lineTo(570, 480); ctx.lineTo(520, 480);
            ctx.moveTo(800, 350); ctx.lineTo(850, 390); ctx.lineTo(1050, 390); ctx.lineTo(1050, 650);
            ctx.stroke();
            ctx.shadowBlur = 0;
            ctx.setLineDash([]);

            // Southbridge Pulsating Glow
            const pulse = (Math.sin(time * 2) + 1) / 2;
            ctx.shadowBlur = 10; ctx.shadowColor = `rgba(245, 158, 11, ${pulse})`;
```

```
            ctx.strokeStyle = '#f59e0b'; ctx.lineWidth = 2; ctx.strokeRect(970, 640, 90, 90);
            ctx.shadowBlur = 0;

            // --- Component Slot Labels ---
            ctx.save();
            ctx.font = 'bold 11px monospace';
            ctx.textAlign = 'center';
            ctx.textBaseline = 'bottom';
            ctx.shadowBlur = 4;
            ctx.shadowColor = 'rgba(0,0,0,0.9)';

            // CPU Socket Label
            ctx.fillStyle = '#fbbf24';
            ctx.fillText('CPU SOCKET', 780, 165);
            // Cooler Label
            ctx.fillStyle = '#60a5fa';
            ctx.fillText('COOLER', 780, 310);
            // RAM Slots Label
            ctx.fillStyle = '#34d399';
            ctx.fillText('DDR5 RAM (Kênh ôi !' Khe 2 & 4)', 960, 110);
            // GPU Slot Label (PCIe)
            ctx.fillStyle = '#f472b6';
            ctx.fillText('PCIe x16 (GPU)', 760, 545);
            // M.2 SSD Label
            ctx.fillStyle = '#a78bfa';
            ctx.fillText('M.2 NVMe', 715, 475);
            // CMOS Battery Label
            ctx.fillStyle = '#94a3b8';
            ctx.font = '9px monospace';
            ctx.fillText('CMOS', 1000, 575);
            // Standoff screw labels
            ctx.font = '8px monospace';
            ctx.fillStyle = '#9ca3af';
            ctx.fillText(')¿', 520, 68);
            ctx.fillText(')¿', 1130, 68);
            ctx.fillText(')¿', 520, 748);
            ctx.fillText(')¿', 1130, 748);
            ctx.fillText(')¿', 520, 408);
            ctx.fillText(')¿', 1130, 408);

            ctx.restore();

            ctx.restore();
        };

        const drawComponent = (ctx, comp, time) => {
            ctx.save();

            // Image mode: draw actual 2D image instead of canvas art
            if (imageMode && comp.imageUrl) {
                ctx.translate(comp.x, comp.y);
                ctx.translate(comp.width / 2, comp.height / 2);
                if (comp.isGrabbed) {
                    ctx.scale(1.05, 1.05);
                }
                ctx.translate(-comp.width / 2, -comp.height / 2);
                ctx.shadowBlur = 6;
                ctx.shadowColor = 'rgba(0, 0, 0, 0.5)';
                ctx.shadowOffsetY = 4;
                let img = comp.imageUrl ? imgCache.get(comp.imageUrl) : null;
                if (img && img.complete && img.naturalWidth > 0) {
                    ctx.drawImage(img, 0, 0, comp.width, comp.height);
                } else {
                    if (!img) getCachedImg(comp.imageUrl);
                    ctx.fillStyle = '#333';
                    ctx.fillRect(0, 0, comp.width, comp.height);
                    ctx.fillStyle = '#666';
                    ctx.font = '12px monospace';
                    ctx.textAlign = 'center';
                    ctx.fillText(comp.type, comp.width / 2, comp.height / 2 + 4);
                }
                ctx.restore();
                return;
            }

            ctx.translate(comp.x, comp.y);

            // Realistic Drop Shadow - Native shadowBlur is EXTREMELY expensive on complex paths like GPU, cau...
            // When grabbed, we remove shadowBlur and rely entirely on scale + a fast native offset fill to en...
            ctx.translate(comp.width / 2, comp.height / 2);
            if (comp.isGrabbed) {
                ctx.scale(1.05, 1.05); // Simple scale is GPU accelerated and instant
                ctx.shadowBlur = 0;
                ctx.shadowOffsetY = 0;
            } else {
                ctx.shadowBlur = 6;
                ctx.shadowColor = 'rgba(0, 0, 0, 0.5)';
                ctx.shadowOffsetY = 4;
            }
            ctx.translate(-comp.width / 2, -comp.height / 2);

            if (comp.type === 'CPU') {
                // 3D CPU IHS Base (Premium Matte Silver with metallic gradient)
                const ihsGrad = ctx.createLinearGradient(0, 0, comp.width, comp.height);
                ihsGrad.addColorStop(0, '#f4f4f5');
                ihsGrad.addColorStop(0.5, '#d4d4d8');
                ihsGrad.addColorStop(1, '#a1a1aa');

                // High-End PCB Substrate (Deep Bronze/Brown like Ryzen/Intel bases)
                draw3DBox(ctx, 0, 0, comp.width, comp.height, 4, '#451a03', '#2e1503', '#1c0d02', '#000');

                // Dense Gold Contacts array on bottom edge of substrate
                ctx.fillStyle = '#fef08a';
                for (let i = 4; i < comp.width - 4; i += 4) {
                    ctx.fillRect(i, 2, 2, 2);
                    ctx.fillRect(i, comp.height - 4, 2, 2);
                    ctx.fillRect(2, i, 2, 2);
                    ctx.fillRect(comp.width - 4, i, 2, 2);
                }

                // Heat Spreader Surface (IHS)
                ctx.fillStyle = ihsGrad;
                ctx.shadowBlur = 5; ctx.shadowColor = 'rgba(0,0,0,0.6)';
                // Unique cut-out shape for IHS
                ctx.beginPath();
                ctx.moveTo(15, 10); ctx.lineTo(comp.width - 15, 10);
                ctx.lineTo(comp.width - 10, 15); ctx.lineTo(comp.width - 10, comp.height - 15);
                ctx.lineTo(comp.width - 15, comp.height - 10); ctx.lineTo(15, comp.height - 10);
                ctx.lineTo(10, comp.height - 15); ctx.lineTo(10, 15); ctx.closePath();
                ctx.fill();
                ctx.shadowBlur = 0;

                // Intricate Heat Spreader Engravings (QR Code like square + alignments)
                ctx.strokeStyle = '#6b7280'; ctx.lineWidth = 1.5;
```

```
                ctx.beginPath();
                ctx.moveTo(15, 15); ctx.lineTo(35, 15); ctx.lineTo(35, 35); ctx.lineTo(15, 35); ctx.closePath(...

                // Corner Alignment Triangle (Gold)
                ctx.fillStyle = '#eab308';
                ctx.beginPath();
                ctx.moveTo(5, 5); ctx.lineTo(12, 5); ctx.lineTo(5, 12); ctx.fill();

            } else if (comp.type === 'RAM') {
                // Tall 3D RAM Stick (Black Aluminum)
                draw3DBox(ctx, 0, 0, comp.width, comp.height, 10, '#1f2937', '#111827', '#030712', '#374151');

                // Advanced Aluminum Heatsink Grooves (Angular Cyber Cuts)
                ctx.strokeStyle = '#09090b'; ctx.lineWidth = 2;
                ctx.beginPath();
                for (let i = 15; i < comp.height - 15; i += 12) {
                    ctx.moveTo(0, i); ctx.lineTo(10, i + 5); ctx.lineTo(comp.width - 10, i + 5); ctx.lineTo(co...
                }
                ctx.stroke();

                // Bright ARGB LED Edge-Lit Diffuser
                const hue1 = (time * 120) % 360;
                const hue2 = (time * 120 + 80) % 360;
                const grad = ctx.createLinearGradient(0, 0, 0, comp.height);
                grad.addColorStop(0, `hsl(${hue1}, 100%, 65%)`);
                grad.addColorStop(0.5, '#ffffff'); // Crystal burst
                grad.addColorStop(1, `hsl(${hue2}, 100%, 65%)`);

                // RGB Core Light
                ctx.shadowBlur = 20; ctx.shadowColor = `hsl(${hue1}, 100%, 60%)`;
                ctx.fillStyle = grad;
                ctx.beginPath(); ctx.roundRect(comp.width / 2 - 4, 2, 8, comp.height - 4, 4); ctx.fill();
                ctx.shadowBlur = 0;

                // Gold PCB Connection Pins (bottom edge)
                ctx.fillStyle = '#eab308';
                for (let i = 10; i < comp.height - 10; i += 4) {
                    if (i !== comp.height / 2 && i !== comp.height / 2 + 4) { // Notch gap
                        ctx.fillRect(-4, i, 4, 2); // Left edge pins
                    }
                }

            } else if (comp.type === 'GPU') {
                // Massive 3D GPU Block (Elite Stealth Armor)
                const gpuGrad = ctx.createLinearGradient(0, 0, comp.width, 0);
                gpuGrad.addColorStop(0, '#27272a'); gpuGrad.addColorStop(0.5, '#3f3f46'); gpuGrad.addColorStop...
                draw3DBox(ctx, 0, 0, comp.width, comp.height, 25, gpuGrad, '#18181b', '#09090b', '#000');

                // Advanced Armor Plates and Indentations
                ctx.fillStyle = '#09090b';
                ctx.beginPath(); ctx.moveTo(10, 10); ctx.lineTo(comp.width - 10, 10); ctx.lineTo(comp.width - ...

                // Cyberpunk Neon/Tech line accents
                ctx.strokeStyle = '#0ea5e9'; ctx.lineWidth = 2;
                ctx.shadowBlur = 5; ctx.shadowColor = '#0ea5e9';
                ctx.beginPath(); ctx.moveTo(25, 25); ctx.lineTo(120, 25); ctx.lineTo(140, 45); ctx.stroke();
                ctx.beginPath(); ctx.moveTo(comp.width - 25, comp.height - 25); ctx.lineTo(comp.width - 120, c...
                ctx.shadowBlur = 0;

                // Exposed Copper Heatpipes (Multiple layers)
                ctx.strokeStyle = '#b45309'; ctx.lineWidth = 5;
                ctx.lineCap = 'round';
                [35, 45, comp.width - 45, comp.width - 35].forEach(x => {
                    ctx.beginPath(); ctx.moveTo(x, 20); ctx.lineTo(x, comp.height - 20); ctx.stroke();
                    // Highlights for pipes
                    ctx.strokeStyle = '#f59e0b'; ctx.lineWidth = 2;
                    ctx.beginPath(); ctx.moveTo(x - 1, 20); ctx.lineTo(x - 1, comp.height - 20); ctx.stroke();
                    ctx.strokeStyle = '#b45309'; ctx.lineWidth = 5; // Reset
                });

                // Advanced Tri-Fan Setup with 3D Depth & Reflection
                const fanRadii = 42;
                const fanCenters = [90, 160, 230];
                fanCenters.forEach(cx => {
                    // Fan Well Depth
                    ctx.fillStyle = '#030712';
                    ctx.beginPath(); ctx.arc(cx, comp.height / 2, fanRadii + 5, 0, Math.PI * 2); ctx.fill();

                    // RGB Ring Around Fan — only pulse when GPU is placed in PCIe slot
                    if (comp.isPlaced) {
                        const pulse = (Math.sin(time * 3 + cx) + 1) / 2;
                        ctx.strokeStyle = `rgba(16, 185, 129, ${0.4 + pulse * 0.6})`;
                        ctx.shadowBlur = 8; ctx.shadowColor = '#10b981';
                    } else {
                        ctx.strokeStyle = 'rgba(71, 85, 105, 0.5)';
                        ctx.shadowBlur = 0;
                    }
                    ctx.lineWidth = 3;
                    ctx.beginPath(); ctx.arc(cx, comp.height / 2, fanRadii + 1, 0, Math.PI * 2); ctx.stroke();
                    ctx.shadowBlur = 0;

                    // Blade Spin — only spin when GPU is placed
                    const gpuFanAngle = comp.isPlaced ? time * 30 : 0;
                    ctx.save();
                    ctx.translate(cx, comp.height / 2);
                    ctx.rotate(gpuFanAngle);

                    for (let i = 0; i < 9; i++) {
                        ctx.rotate(Math.PI * 2 / 9);
                        ctx.beginPath();
                        ctx.moveTo(0, 0);
                        ctx.bezierCurveTo(fanRadii * 0.3, -18, fanRadii * 0.8, -12, fanRadii - 2, 0);
                        ctx.bezierCurveTo(fanRadii * 0.8, 10, fanRadii * 0.3, 10, 0, 0);
                        ctx.fillStyle = comp.isPlaced ? 'rgba(71, 85, 105, 0.85)' : 'rgba(51, 65, 85, 0.5)';
                        ctx.fill();

                        const bladeGrad = ctx.createLinearGradient(0, -10, fanRadii, 10);
                        bladeGrad.addColorStop(0, comp.isPlaced ? 'rgba(156, 163, 175, 0.9)' : 'rgba(100, 116,...
                        bladeGrad.addColorStop(1, comp.isPlaced ? 'rgba(75, 85, 99, 0.9)' : 'rgba(51, 65, 85, ...
                        ctx.fillStyle = bladeGrad;
                        ctx.fill();

                        ctx.strokeStyle = comp.isPlaced ? 'rgba(255, 255, 255, 0.3)' : 'rgba(255,255,255,0.1)';
                        ctx.lineWidth = 1;
                        ctx.stroke();
                    }
                    ctx.restore();

                    // Fan Hub Center (Brushed metal)
                    drawCylinder(ctx, cx, comp.height / 2, 16, 3, '#27272a', '#a1a1aa');
                    // Hub Logo Ring
                    ctx.beginPath(); ctx.arc(cx, comp.height / 2, 10, 0, Math.PI * 2); ctx.strokeStyle = '#090...
                });

```

```
                // Top PCIe Connector Edge (Hidden slightly behind body, drops exactly into slot)
                ctx.fillStyle = '#f59e0b'; // Gold PCIe pins base
                ctx.fillRect(comp.width / 2 - 70, -8, 140, 8);
                // PCIe Pins detail
                ctx.fillStyle = '#b45309';
                for (let i = comp.width / 2 - 68; i < comp.width / 2 + 68; i += 3) {
                    if (i !== comp.width / 2 - 20) { // Small gap notch
                        ctx.fillRect(i, -8, 2, 6);
                    }
                }
            } else if (comp.type === 'SSD') {
                // Elite NVMe M.2 SSD
                const ssdGrad = ctx.createLinearGradient(0, 0, comp.width, comp.height);
                ssdGrad.addColorStop(0, '#18181b'); ssdGrad.addColorStop(1, '#09090b');
                draw3DBox(ctx, 0, 0, comp.width, comp.height, 4, ssdGrad, '#09090b', '#000', '#27272a');

                // Label
                ctx.fillStyle = '#0ea5e9'; // Cyan accent
                ctx.font = 'bold 10px monospace';
                ctx.fillText('NVMe M.2 1TB', 10, 22);

                // Gold Pins
                ctx.fillStyle = '#eab308';
                for (let i = 2; i < 20; i += 3) ctx.fillRect(-3, i, 3, 2);
                for (let i = 26; i < comp.height - 2; i += 3) ctx.fillRect(-3, i, 3, 2); // Gap for notch
            } else if (comp.type === 'PSU') {
                // Massive 3D PSU Power Box (Dark industrial aesthetic with gold trim)
                const psuGrad = ctx.createLinearGradient(0, 0, comp.width, comp.height);
                psuGrad.addColorStop(0, '#27272a'); psuGrad.addColorStop(1, '#09090b');
                draw3DBox(ctx, 0, 0, comp.width, comp.height, 18, psuGrad, '#18181b', '#09090b', '#000');

                // Gold Warning Trim
                ctx.strokeStyle = '#eab308'; ctx.lineWidth = 2;
                ctx.strokeRect(5, 5, comp.width - 10, comp.height - 10);

                // Advanced Modular Port Grid Interface
                ctx.fillStyle = '#09090b';
                ctx.fillRect(10, 10, comp.width - 20, 30);
                ctx.fillStyle = '#020617';
                // 12 Modular cable ports
                for (let row = 0; row < 2; row++) {
                    for (let col = 0; col < 6; col++) {
                        ctx.fillRect(15 + col * 26, 13 + row * 12, 20, 8);
                        // Gold pin inside port
                        ctx.fillStyle = '#fbbf24'; ctx.fillRect(18 + col * 26, 15 + row * 12, 14, 4); ctx.fill...
                    }
                }

                // Circular fan grille on top of PSU
                const cx = comp.width / 2;
                const cy = comp.height / 2 + 10;
                ctx.fillStyle = '#0f172a';
                ctx.beginPath(); ctx.arc(cx, cy, 55, 0, Math.PI * 2); ctx.fill();

                // Concentric circles for grille
                ctx.strokeStyle = '#334155'; ctx.lineWidth = 3;
                for (let r = 15; r <= 50; r += 10) {
                    ctx.beginPath(); ctx.arc(cx, cy, r, 0, Math.PI * 2); ctx.stroke();
                }

                // 24-pin Braided Cable snake protruding from side (Cable Managed!)
                ctx.strokeStyle = '#1e293b'; ctx.lineWidth = 14;
                ctx.lineCap = 'round';
                ctx.beginPath();
                ctx.moveTo(comp.width, comp.height - 40);

                if (comp.isPlaced) {
                    // Tuck cable immediately downwards and behind the back panel (Cable Management!)
                    ctx.bezierCurveTo(comp.width + 40, comp.height - 40, comp.width + 50, comp.height + 20, co...
                } else {
                    // Flailing cable when grabbed
                    ctx.bezierCurveTo(comp.width + 60, comp.height - 50, comp.width + 80, -20, comp.width + 15...
                }
                ctx.stroke();

                // Colorful wires inside the sleeve (only visible near the connector)
                ctx.strokeStyle = '#ef4444'; ctx.lineWidth = 2; // Red wire
                ctx.beginPath(); ctx.moveTo(comp.width, comp.height - 42);
                if (comp.isPlaced) {
                    ctx.bezierCurveTo(comp.width + 40, comp.height - 40, comp.width + 50, comp.height + 20, co...
                } else {
                    ctx.bezierCurveTo(comp.width + 60, comp.height - 50, comp.width + 80, -20, comp.width + 15...
                }
                ctx.stroke();

            } else if (comp.type === 'COOLER') {
                // Circular CPU Cooler with RGB and spinning fan
                ctx.fillStyle = '#0f172a';
                ctx.beginPath(); ctx.arc(comp.width / 2, comp.height / 2, 45, 0, Math.PI * 2); ctx.fill();
                ctx.strokeStyle = '#334155'; ctx.lineWidth = 4;
                ctx.stroke();

                // RGB Ring - only glow when placed
                ctx.strokeStyle = comp.isPlaced ? `hsl(${(time * 50) % 360}, 100%, 65%)` : '#334155';
                ctx.shadowBlur = comp.isPlaced ? 10 : 0;
                ctx.shadowColor = comp.isPlaced ? ctx.strokeStyle : 'transparent';
                ctx.lineWidth = 3;
                ctx.beginPath(); ctx.arc(comp.width / 2, comp.height / 2, 40, 0, Math.PI * 2); ctx.stroke();
                ctx.shadowBlur = 0;

                // Fan Blades - only spin when placed on CPU socket
                const fanAngle = comp.isPlaced ? time * 40 : 0; // stationary if not placed
                ctx.save();
                ctx.translate(comp.width / 2, comp.height / 2);
                ctx.rotate(fanAngle);
                for (let i = 0; i < 9; i++) {
                    ctx.rotate(Math.PI * 2 / 9);
                    ctx.beginPath();
                    ctx.moveTo(0, 0);
                    ctx.bezierCurveTo(15, -15, 30, -10, 38, 0);
                    ctx.bezierCurveTo(30, 8, 15, 8, 0, 0);
                    ctx.fillStyle = comp.isPlaced ? 'rgba(148, 163, 184, 0.9)' : 'rgba(100, 116, 139, 0.7)';
                    ctx.fill();
                }
                ctx.restore();

                // Center logo
                ctx.fillStyle = '#0f172a';
                ctx.beginPath(); ctx.arc(comp.width / 2, comp.height / 2, 12, 0, Math.PI * 2); ctx.fill();
                ctx.strokeStyle = '#1e293b'; ctx.lineWidth = 2; ctx.stroke();
                ctx.fillStyle = comp.isPlaced ? '#0ea5e9' : '#475569'; ctx.font = 'bold 8px Arial'; ctx.textAl...

                // "Not installed" indicator when not placed
                if (!comp.isPlaced) {
```

```
                    ctx.fillStyle = 'rgba(0,0,0,0.0)'; // transparent — just logic indicator
                }
            }

            ctx.restore();
        };

        const updateAndDraw = () => {
            const time = performance.now() / 1000;
            const state = stateRef.current;
            const w = canvas.width;
            const h = canvas.height;

            // Determine active cursor (Hand Tracking OR Mouse)
            let activeCursorX = mouseRef.current.x;
            let activeCursorY = mouseRef.current.y;
            let isGrabbing = mouseRef.current.isDown;
            let showHandCursor = false;

            if (landmarksRef.current && landmarksRef.current.length > 0) {
                const hand = landmarksRef.current[0];
                const indexTip = hand[8];
                const thumbTip = hand[4];
                const distance = Math.hypot(indexTip.x - thumbTip.x, indexTip.y - thumbTip.y);

                // Add sensitivity multiplier to make the cursor feel extremely fast and responsive
                const SENSITIVITY = 1.0;
                const offsetX = (indexTip.x - 0.5) * SENSITIVITY + 0.5;
                const offsetY = (indexTip.y - 0.5) * SENSITIVITY + 0.5;

                const rawX = Math.max(0, Math.min(1, offsetX)) * w;
                const rawY = Math.max(0, Math.min(1, offsetY)) * h;

                const filter = cursorFilterRef.current;
                if (filter.x === null) {
                    filter.x = rawX;
                    filter.y = rawY;
                } else {
                    filter.x += filter.alpha * (rawX - filter.x);
                    filter.y += filter.alpha * (rawY - filter.y);
                }

                activeCursorX = filter.x;
                activeCursorY = filter.y;
                // Hysteresis: easier to grab, harder to release (anti-jitter)
                if (pinchStateRef.current) {
                  isGrabbing = distance < RELEASE_THRESHOLD;
                  if (!isGrabbing) pinchStateRef.current = false;
                } else {
                  isGrabbing = distance < GRAB_THRESHOLD;
                  if (isGrabbing) pinchStateRef.current = true;
                }
                showHandCursor = true;

                // Freeze cursor lúc bắt đầu pinch để đảm chính xác, khi
                if (isGrabbing) {
                  const hasGrabbed = state.components.some(c => c.isGrabbed);
                  if (!hasGrabbed) {
                    if (!grabLockRef.current.active) {
                      grabLockRef.current = { x: activeCursorX, y: activeCursorY, active: true };
                    }
                    activeCursorX = grabLockRef.current.x;
                    activeCursorY = grabLockRef.current.y;
                  }
                } else {
                  grabLockRef.current = { x: null, y: null, active: false };
                }
            } else {
                cursorFilterRef.current.x = null;
            }

            let hoveredCompType = null;

            // Logic Update
            state.components.forEach(comp => {
                if (comp.isPlaced) return;

                if (activeCursorX > comp.x && activeCursorX < comp.x + comp.width &&
                    activeCursorY > comp.y && activeCursorY < comp.y + comp.height) {
                    hoveredCompType = comp.type;
                }

                if (comp.isGrabbed) {
                    if (isGrabbing) {
                        comp.x = activeCursorX - comp.width / 2;
                        comp.y = activeCursorY - comp.height / 2;
                    } else {
                        // Released
                        comp.isGrabbed = false;

                        // Check Snap to closest Unoccupied Socket
                        let closestSocket = null;
                        let minDist = 120; // Very forgiving snap radius

                        state.sockets.filter(s => s.type === comp.type).forEach(socket => {
                            if (comp.type === 'COOLER') {
                                const cpuPlaced = state.components.some(c => c.type === 'CPU' && c.isPlaced);
                                if (!cpuPlaced) return; // Prevent placing cooler before CPU
                            }

                            // Check if this specific socket is already occupied by another placed component
                            const isOccupied = state.components.some(c => c.isPlaced && c.id !== comp.id && c....
                            if (!isOccupied) {
                                const dist = Math.hypot(comp.x - socket.x, comp.y - socket.y);
                                if (dist < minDist) {
                                    minDist = dist;
                                    closestSocket = socket;
                                }
                            }
                        });

                        if (closestSocket) {
                            comp.x = closestSocket.x;
                            comp.y = closestSocket.y;
                            comp.isPlaced = true;
                            if (onGameEvent) onGameEvent('placed', comp.type);

                            // Trigger Confetti
                            const allPlaced = state.components.every(c => c.isPlaced);
                            if (allPlaced && confetti) {
                                confetti({
                                    particleCount: 200,
                                    spread: 100,
                                    origin: { y: 0.6 },
```

```
1083|                                 colors: ['#38bdf8', '#ff0055', '#10b981', '#f59e0b']
1084|                             });
1085|                             if (onGameEvent) onGameEvent('COMPLETE', 'ALL');
1086|                         }
1087|                     }
1088|                 }
1089|             } else {
1090|                 if (isGrabbing) {
1091|                     const holding = state.components.find(c => c.isGrabbed);
1092|                     if (!holding && hoveredCompType === comp.type) {
1093|                         comp.isGrabbed = true;
1094|                         if (onGameEvent) onGameEvent('grabbed', comp.type);
1095|                     }
1096|                 }
1097|             }
1098|         });
1099|
1100|         // --- DRAWING PHASE ---
1101|         ctx.fillStyle = '#0f172a'; // Deep base color
1102|         ctx.fillRect(0, 0, w, h);
1103|
1104|         // Render Motherboard (cached + dynamic)
1105|         drawAnimatedMotherboard(ctx, time);
1106|
1107|         // Draw Glowing Sockets (Drop Zones) inside Motherboard - Only if empty
1108|         state.sockets.forEach(socket => {
1109|             const componentPlaced = state.components.find(c => c.isPlaced && Math.abs(c.x - socket.x) < 5 ...
1110|             if (componentPlaced) return; // Do not draw glowing socket if filled perfectly
1111|
1112|             ctx.save();
1113|             ctx.translate(socket.x, socket.y);
1114|             const pulse = (Math.sin(time * 4) + 1) / 2;
1115|             ctx.strokeStyle = `rgba(16, 185, 129, ${0.5 + pulse * 0.5})`; // Emerald glowing pulsating border
1116|             ctx.shadowBlur = 10; ctx.shadowColor = '#10b981';
1117|             ctx.lineWidth = 3;
1118|             ctx.setLineDash([15, 10]);
1119|             ctx.lineDashOffset = -time * 25;
1120|             ctx.strokeRect(0, 0, socket.width, socket.height);
1121|             ctx.fillStyle = 'rgba(16, 185, 129, 0.08)';
1122|             ctx.fillRect(0, 0, socket.width, socket.height);
1123|             ctx.restore();
1124|         });
1125|
1126|         // Draw Components (Z-index sorting: placed -> unplaced non-grabbed -> grabbed goes ON TOP)
1127|         state.components.filter(c => c.isPlaced).forEach(comp => drawComponent(ctx, comp, time));
1128|         state.components.filter(c => !c.isPlaced && !c.isGrabbed).forEach(comp => drawComponent(ctx, comp,...
1129|         state.components.filter(c => c.isGrabbed).forEach(comp => drawComponent(ctx, comp, time));
1130|
1131|         // Draw Active Cursor Indicator
1132|         if (showHandCursor) {
1133|             ctx.beginPath();
1134|             ctx.arc(activeCursorX, activeCursorY, 15, 0, 2 * Math.PI);
1135|             ctx.fillStyle = isGrabbing ? 'rgba(234, 179, 8, 0.9)' : 'rgba(56, 189, 248, 0.9)';
1136|             ctx.fill();
1137|             ctx.strokeStyle = '#fff';
1138|             ctx.lineWidth = 3;
1139|             ctx.stroke();
1140|         }
1141|
1142|         animId = requestAnimationFrame(updateAndDraw);
1143|     };
1144|
1145|     // Start Loop
1146|     animId = requestAnimationFrame(updateAndDraw);
1147|
1148|     return () => cancelAnimationFrame(animId);
1149| }, [onGameEvent]);
1150|
1151| return (
1152|     <canvas
1153|         ref={canvasRef}
1154|         width={1400}
1155|         height={800}
1156|         onMouseMove={handleMouseMove}
1157|         onMouseDown={handleMouseDown}
1158|         onMouseUp={handleMouseUp}
1159|         onMouseLeave={handleMouseUp}
1160|         style={{
1161|             width: '100%',
1162|             maxHeight: '100%',
1163|             aspectRatio: '7/4',
1164|             background: '#0f172a',
1165|             touchAction: 'none',
1166|             cursor: 'crosshair'
1167|         }}
1168|     />
1169| );
1170| });
1171|
1172| GameEngine.displayName = 'GameEngine';
1173|
1174| export default GameEngine;
1175|
```

File: components/GameScene.tsx (864 lines, 35.7 KB)

```
   1| 'use client';
   2|
   3| import React, { useRef, useState, useEffect } from 'react';
   4| import { Canvas, useFrame, useThree, useLoader } from '@react-three/fiber';
   5| import * as THREE from 'three';
   6| import dynamic from 'next/dynamic';
   7| import { useAssemblyStore } from '@/lib/useStore';
   8|
   9| const HeadTracker = dynamic(() => import('./HeadTracker'), { ssr: false });
  10|
  11| function CameraRig() {
  12|   const { camera } = useThree();
  13|   const cameraCoords = useAssemblyStore((s) => s.cameraCoords);
  14|   const keys = useRef({ w: false, a: false, s: false, d: false });
  15|   const euler = useRef(new THREE.Euler(0, 0, 0, 'YXZ'));
  16|   const moveSpeed = 4;
  17|   const faceSensitivity = 3.0;
  18|
  19|   const accumulatedYaw = useRef(0);
  20|   const prevFaceYaw = useRef(0);
  21|   const stillnessTimer = useRef(0);
  22|   const viewSaved = useRef(false);
  23|   const mainView2 = useRef({ position: new THREE.Vector3(), quaternion: new THREE.Quaternion() });
  24|   const initialized = useRef(false);
  25|
  26|   useEffect(() => {
  27|     const down = (e: KeyboardEvent) => { const k = e.key.toLowerCase(); if (k in keys.current) (keys.current a...
```

```
    const up = (e: KeyboardEvent) => { const k = e.key.toLowerCase(); if (k in keys.current) (keys.current as ...
    window.addEventListener('keydown', down);
    window.addEventListener('keyup', up);

    camera.position.set(0, 1.6, 4.5);
    euler.current.set(0, 0, 0, 'YXZ');
    camera.quaternion.setFromEuler(euler.current);
    initialized.current = true;

    return () => { window.removeEventListener('keydown', down); window.removeEventListener('keyup', up); };
  }, []);

  useFrame((_, dt) => {
    const delta = Math.min(dt, 0.05);

    const rawPitch = -cameraCoords.pitch * 2.2;
    const rawYaw = cameraCoords.yaw * faceSensitivity;
    const yawMovement = Math.abs(rawYaw - prevFaceYaw.current);

    if (yawMovement > 0.008) {
      const diff = (rawYaw - prevFaceYaw.current) * 0.6;
      accumulatedYaw.current += diff;
      prevFaceYaw.current = rawYaw;
      stillnessTimer.current = 0;
      viewSaved.current = false;
    } else {
      stillnessTimer.current += delta;
      if (stillnessTimer.current >= 1.0 && !viewSaved.current && initialized.current) {
        mainView2.current.position.copy(camera.position);
        mainView2.current.quaternion.copy(camera.quaternion);
        viewSaved.current = true;
        stillnessTimer.current = 0;
      }
    }

    euler.current.set(rawPitch, accumulatedYaw.current, 0, 'YXZ');
    camera.quaternion.setFromEuler(euler.current);

    const forward = new THREE.Vector3(0, 0, -1).applyQuaternion(camera.quaternion);
    forward.y = 0; forward.normalize();
    const right = new THREE.Vector3(1, 0, 0).applyQuaternion(camera.quaternion);
    right.y = 0; right.normalize();
    const move = new THREE.Vector3();
    if (keys.current.w) move.add(forward);
    if (keys.current.s) move.sub(forward);
    if (keys.current.a) move.sub(right);
    if (keys.current.d) move.add(right);
    if (move.length() > 0) move.normalize().multiplyScalar(moveSpeed * delta);
    camera.position.add(move);
    camera.position.x = THREE.MathUtils.clamp(camera.position.x, -4.5, 4.5);
    camera.position.z = THREE.MathUtils.clamp(camera.position.z, -4.5, 4.0);
    camera.position.y = 1.6;
  });

  return null;
}

function LabBench({ position, size = [3.0, 0.9, 1.2], color = '#cbd5e1' }: { position: [number, number, number...
  const [w, h, d] = size;
  return (
    <group position={position}>
      <mesh position={[0, h, 0]} castShadow>
        <boxGeometry args={[w, 0.06, d]} />
        <meshPhysicalMaterial color={color} roughness={0.2} metalness={0.4} />
      </mesh>
      <mesh position={[0, h + 0.03, 0]}>
        <boxGeometry args={[w - 0.1, 0.008, d - 0.1]} />
        <meshPhysicalMaterial color="#f1f5f9" roughness={0.1} metalness={0.3} />
      </mesh>
      {([[-w / 2 + 0.1, h / 2, -d / 2 + 0.1], [-w / 2 + 0.1, h / 2, d / 2 - 0.1], [w / 2 - 0.1, h / 2, -d / 2 ...
        <mesh key={i} position={p}>
          <cylinderGeometry args={[0.04, 0.05, h, 8]} />
          <meshPhysicalMaterial color="#94a3b8" roughness={0.3} metalness={0.5} />
        </mesh>
      ))}
    </group>
  );
}

function Beaker({ position, color = '#60a5fa', height = 0.25, radius = 0.08 }: { position: [number, number, nu...
  return (
    <group position={position}>
      <mesh position={[0, height / 2, 0]} castShadow>
        <cylinderGeometry args={[radius * 0.85, radius, height, 16]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} metalness={0.1} transparent opacity={0.4} />
      </mesh>
      <mesh position={[0, height * 0.35, 0]}>
        <cylinderGeometry args={[radius * 0.75, radius * 0.75, height * 0.35, 16]} />
        <meshPhysicalMaterial color={color} roughness={0.1} transparent opacity={0.7} />
      </mesh>
      <mesh position={[0, height + 0.02, 0]}>
        <torusGeometry args={[radius * 0.8, 0.008, 8, 16]} />
        <meshPhysicalMaterial color="#94a3b8" roughness={0.3} metalness={0.2} />
      </mesh>
    </group>
  );
}

function Flask({ position, color = '#f97316' }: { position: [number, number, number]; color?: string }) {
  return (
    <group position={position}>
      <mesh position={[0, 0.2, 0]}>
        <cylinderGeometry args={[0.06, 0.06, 0.25, 12]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.35} />
      </mesh>
      <mesh position={[0, 0.06, 0]}>
        <sphereGeometry args={[0.1, 12, 12]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.35} />
      </mesh>
      <mesh position={[0, 0.06, 0]}>
        <sphereGeometry args={[0.08, 12, 12]} />
        <meshPhysicalMaterial color={color} roughness={0.1} transparent opacity={0.6} />
      </mesh>
    </group>
  );
}

function TestTubes({ position }: { position: [number, number, number] }) {
  const colors = ['#ef4444', '#22c55e', '#3b82f6', '#eab308', '#a855f7'];
  return (
    <group position={position}>
      {colors.map((c, i) => (
        <group key={i} position={[-0.1 + i * 0.05, 0, 0]}>
          <mesh position={[0, 0.12, 0]}>
```

```
            <cylinderGeometry args={[0.02, 0.025, 0.2, 8]} />
            <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.3} />
          </mesh>
          <mesh position={[0, 0.06, 0]}>
            <cylinderGeometry args={[0.018, 0.022, 0.08, 8]} />
            <meshPhysicalMaterial color={c} roughness={0.1} transparent opacity={0.6} />
          </mesh>
        </group>
      ))}
    </group>
  );
}

function Centrifuge({ position }: { position: [number, number, number] }) {
  return (
    <group position={position}>
      <mesh position={[0, 0.2, 0]}>
        <boxGeometry args={[0.4, 0.4, 0.4]} />
        <meshPhysicalMaterial color="#94a3b8" roughness={0.2} metalness={0.6} />
      </mesh>
      <mesh position={[0, 0.42, 0]}>
        <cylinderGeometry args={[0.22, 0.22, 0.04, 20]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.3} />
      </mesh>
      <mesh position={[0, 0.44, 0]}>
        <cylinderGeometry args={[0.1, 0.15, 0.06, 20]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.3} transparent opacity={0.5} />
      </mesh>
    </group>
  );
}

function Microscope({ position }: { position: [number, number, number] }) {
  return (
    <group position={position}>
      <mesh position={[0, 0.1, 0]}>
        <boxGeometry args={[0.2, 0.2, 0.25]} />
        <meshPhysicalMaterial color="#475569" roughness={0.2} metalness={0.5} />
      </mesh>
      <mesh position={[0, 0.25, 0.08]}>
        <cylinderGeometry args={[0.03, 0.03, 0.15, 8]} />
        <meshPhysicalMaterial color="#94a3b8" roughness={0.3} metalness={0.4} />
      </mesh>
      <mesh position={[0, 0.35, 0.12]}>
        <cylinderGeometry args={[0.06, 0.04, 0.04, 12]} />
        <meshPhysicalMaterial color="#1e293b" roughness={0.3} />
      </mesh>
      <mesh position={[0.12, 0.18, 0]}>
        <boxGeometry args={[0.04, 0.04, 0.15]} />
        <meshPhysicalMaterial color="#1e293b" roughness={0.3} />
      </mesh>
    </group>
  );
}

function DistillationApparatus({ position }: { position: [number, number, number] }) {
  return (
    <group position={position}>
      {/* Base platform */}
      <mesh position={[0, 0.03, 0]}>
        <boxGeometry args={[0.6, 0.06, 0.5]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.2} metalness={0.6} />
      </mesh>
      {/* Main boiling flask */}
      <mesh position={[-0.15, 0.2, 0]}>
        <sphereGeometry args={[0.15, 16, 16]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.35} />
      </mesh>
      <mesh position={[-0.15, 0.2, 0]}>
        <sphereGeometry args={[0.12, 16, 16]} />
        <meshPhysicalMaterial color="#f97316" roughness={0.1} transparent opacity={0.5} />
      </mesh>
      {/* Neck / column */}
      <mesh position={[-0.15, 0.4, 0]}>
        <cylinderGeometry args={[0.04, 0.05, 0.25, 12]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.35} />
      </mesh>
      {/* Condenser coil */}
      <mesh position={[0.1, 0.5, 0]}>
        <cylinderGeometry args={[0.06, 0.06, 0.3, 12]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.25} />
      </mesh>
      <mesh position={[0.1, 0.5, 0]}>
        <cylinderGeometry args={[0.03, 0.03, 0.3, 6]} />
        <meshPhysicalMaterial color="#94a3b8" roughness={0.2} metalness={0.4} />
      </mesh>
      {/* Collection flask */}
      <mesh position={[0.35, 0.18, 0]}>
        <sphereGeometry args={[0.12, 16, 16]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.35} />
      </mesh>
      <mesh position={[0.35, 0.18, 0]}>
        <sphereGeometry args={[0.09, 16, 16]} />
        <meshPhysicalMaterial color="#22c55e" roughness={0.1} transparent opacity={0.5} />
      </mesh>
      {/* Connector tube */}
      <mesh position={[0.0, 0.35, 0]}>
        <boxGeometry args={[0.25, 0.02, 0.02]} />
        <meshPhysicalMaterial color="#94a3b8" roughness={0.2} metalness={0.3} />
      </mesh>
      {/* Digital console */}
      <mesh position={[0, 0.08, 0.28]}>
        <boxGeometry args={[0.3, 0.1, 0.04]} />
        <meshPhysicalMaterial color="#1e293b" roughness={0.2} />
      </mesh>
      <mesh position={[0, 0.08, 0.3]}>
        <planeGeometry args={[0.25, 0.06]} />
        <meshPhysicalMaterial color="#22d3ee" roughness={0.1} emissive="#22d3ee" emissiveIntensity={0.3} />
      </mesh>
    </group>
  );
}

function RoboticArmSection() {
  return (
    <group position={[3.5, 0, 0]} rotation={[0, -Math.PI / 6, 0]}>
      {/* Base */}
      <mesh position={[0, 0.08, 0]}>
        <cylinderGeometry args={[0.2, 0.25, 0.16, 16]} />
        <meshPhysicalMaterial color="#475569" roughness={0.2} metalness={0.7} />
      </mesh>
      {/* Arm segment 1 */}
      <mesh position={[0, 0.35, 0.08]} castShadow>
        <boxGeometry args={[0.12, 0.3, 0.12]} />
```

```
        <meshPhysicalMaterial color="#94a3b8" roughness={0.2} metalness={0.6} />
      </mesh>
      {/* Joint */}
      <mesh position={[0, 0.52, 0.08]}>
        <sphereGeometry args={[0.07, 12, 12]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.2} metalness={0.5} />
      </mesh>
      {/* Arm segment 2 */}
      <mesh position={[0.15, 0.58, 0.08]} rotation={[0, 0, -0.4]}>
        <boxGeometry args={[0.25, 0.08, 0.08]} />
        <meshPhysicalMaterial color="#94a3b8" roughness={0.2} metalness={0.6} />
      </mesh>
      {/* Gripper */}
      <mesh position={[0.3, 0.6, 0.08]}>
        <boxGeometry args={[0.06, 0.1, 0.06]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.3} metalness={0.5} />
      </mesh>
      <mesh position={[0.33, 0.6, 0.04]}>
        <boxGeometry args={[0.04, 0.06, 0.02]} />
        <meshPhysicalMaterial color="#475569" roughness={0.3} metalness={0.5} />
      </mesh>
      <mesh position={[0.33, 0.6, 0.12]}>
        <boxGeometry args={[0.04, 0.06, 0.02]} />
        <meshPhysicalMaterial color="#475569" roughness={0.3} metalness={0.5} />
      </mesh>
      {/* Flask being held */}
      <mesh position={[0.38, 0.55, 0.08]}>
        <sphereGeometry args={[0.06, 10, 10]} />
        <meshPhysicalMaterial color="#e2e8f0" roughness={0.05} transparent opacity={0.35} />
      </mesh>
      <mesh position={[0.38, 0.55, 0.08]}>
        <sphereGeometry args={[0.04, 10, 10]} />
        <meshPhysicalMaterial color="#a855f7" roughness={0.1} transparent opacity={0.5} />
      </mesh>
      {/* Dispenser unit next to it */}
      <mesh position={[0.5, 0.2, -0.2]}>
        <boxGeometry args={[0.2, 0.4, 0.2]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.2} metalness={0.6} />
      </mesh>
      <mesh position={[0.5, 0.42, -0.2]}>
        <cylinderGeometry args={[0.04, 0.04, 0.05, 8]} />
        <meshPhysicalMaterial color="#1e293b" roughness={0.3} />
      </mesh>
    </group>
  );
}

function ComputerStation() {
  const screenData = useRef(new THREE.CanvasTexture(document.createElement('canvas')));
  const [screenReady, setScreenReady] = useState(false);

  useEffect(() => {
    const c = document.createElement('canvas');
    c.width = 256; c.height = 160;
    const ctx = c.getContext('2d'); if (!ctx) return;
    ctx.fillStyle = '#0c1929'; ctx.fillRect(0, 0, 256, 160);
    for (let i = 0; i < 30; i++) {
      ctx.fillStyle = `hsl(190, 80%, ${40 + Math.random() * 40}%)`;
      ctx.fillRect(10 + Math.random() * 200, 10 + Math.random() * 120, 3 + Math.random() * 20, 2 + Math.random...
    }
    for (let i = 0; i < 20; i++) {
      ctx.beginPath();
      ctx.arc(40 + Math.random() * 180, 30 + Math.random() * 100, 3 + Math.random() * 8, 0, Math.PI * 2);
      ctx.strokeStyle = `hsla(140, 70%, 50%, ${0.3 + Math.random() * 0.4})`;
      ctx.lineWidth = 1; ctx.stroke();
      ctx.fillStyle = `hsla(140, 70%, 50%, ${0.1 + Math.random() * 0.2})`;
      ctx.fill();
    }
    ctx.font = '10px monospace'; ctx.fillStyle = '#22d3ee'; ctx.textAlign = 'center';
    ctx.fillText('MOLECULAR ANALYSIS v3.2', 128, 148);
    const t = new THREE.CanvasTexture(c);
    t.needsUpdate = true;
    screenData.current = t;
    setScreenReady(true);
  }, []);

  return (
    <group position={[-3.5, 0, -0.5]} rotation={[0, 0.3, 0]}>
      {/* Desk */}
      <mesh position={[0, 0.55, 0]} castShadow>
        <boxGeometry args={[1.6, 0.04, 0.9]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.2} metalness={0.5} />
      </mesh>
      {([[-0.7, 0.27, -0.38], [-0.7, 0.27, 0.38], [0.7, 0.27, -0.38], [0.7, 0.27, 0.38]] as const).map((p, i) ...
        <mesh key={i} position={p}>
          <cylinderGeometry args={[0.03, 0.04, 0.55, 8]} />
          <meshPhysicalMaterial color="#94a3b8" roughness={0.3} metalness={0.4} />
        </mesh>
      ))}
      {/* Main screen */}
      <mesh position={[-0.25, 0.95, -0.08]}>
        <boxGeometry args={[0.5, 0.35, 0.03]} />
        <meshPhysicalMaterial color="#0f172a" roughness={0.1} />
      </mesh>
      <mesh position={[-0.25, 0.95, -0.05]}>
        <planeGeometry args={[0.45, 0.3]} />
        {screenReady && <meshPhysicalMaterial map={screenData.current} roughness={0.05} />}
      </mesh>
      {/* Second screen */}
      <mesh position={[0.35, 0.9, -0.08]}>
        <boxGeometry args={[0.4, 0.28, 0.03]} />
        <meshPhysicalMaterial color="#0f172a" roughness={0.1} />
      </mesh>
      <mesh position={[0.35, 0.9, -0.05]}>
        <planeGeometry args={[0.35, 0.23]} />
        {screenReady && <meshPhysicalMaterial map={screenData.current} roughness={0.05} />}
      </mesh>
      {/* Keyboard */}
      <mesh position={[0, 0.58, 0.15]}>
        <boxGeometry args={[0.35, 0.02, 0.12]} />
        <meshPhysicalMaterial color="#1e293b" roughness={0.5} />
      </mesh>
      {/* Chair */}
      <mesh position={[-0.6, 0.25, 0.45]}>
        <cylinderGeometry args={[0.15, 0.18, 0.05, 12]} />
        <meshPhysicalMaterial color="#334155" roughness={0.7} />
      </mesh>
      <mesh position={[-0.6, 0.48, 0.45]}>
        <cylinderGeometry args={[0.12, 0.12, 0.42, 12]} />
        <meshPhysicalMaterial color="#1e293b" roughness={0.6} />
      </mesh>
      <mesh position={[-0.6, 0.7, 0.4]}>
        <boxGeometry args={[0.3, 0.04, 0.25]} />
        <meshPhysicalMaterial color="#334155" roughness={0.7} />
```

```
      </mesh>
    </group>
  );
}

function Hologram() {
  const [frame] = useState(() => Math.floor(Math.random() * 100));

  return (
    <group position={[-1.5, 1.0, -1.0]}>
      <mesh position={[0, 0.02, 0]}>
        <cylinderGeometry args={[0.12, 0.2, 0.04, 20]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.2} metalness={0.5} />
      </mesh>
      <mesh position={[0, 0.4, 0]}>
        <cylinderGeometry args={[0.02, 0.02, 0.7, 8]} />
        <meshPhysicalMaterial color="#22d3ee" roughness={0.1} emissive="#22d3ee" emissiveIntensity={0.3} trans...
      </mesh>
      {/* Molecule hologram */}
      {([[0, 0.65, 0], [-0.08, 0.75, 0.05], [0.1, 0.8, -0.03], [-0.05, 0.9, -0.04], [0.12, 0.85, 0.06], [0.0, ...
        <mesh key={i} position={pos}>
          <sphereGeometry args={[0.03, 8, 8]} />
          <meshPhysicalMaterial color="#22d3ee" roughness={0.1} emissive="#22d3ee" emissiveIntensity={0.5} tra...
        </mesh>
      ))}
      {([[-0.04, 0.7, 0.03], [0.01, 0.72, -0.02], [-0.07, 0.72, -0.01], [0.05, 0.72, 0.01]] as const).map((pos...
        <mesh key={i + 10} position={pos}>
          <boxGeometry args={[0.06, 0.005, 0.005]} />
          <meshPhysicalMaterial color="#67e8f9" roughness={0.1} emissive="#67e8f9" emissiveIntensity={0.3} tra...
        </mesh>
      ))}
      {/* Glow ring */}
      <mesh position={[0, 0.65, 0]} rotation={[Math.PI / 2, 0, 0]}>
        <ringGeometry args={[0.08, 0.12, 24]} />
        <meshPhysicalMaterial color="#22d3ee" roughness={0.1} emissive="#22d3ee" emissiveIntensity={0.4} trans...
      </mesh>
    </group>
  );
}

function StorageCabinet({ position }: { position: [number, number, number] }) {
  return (
    <group position={position}>
      <mesh position={[0, 0.6, 0]}>
        <boxGeometry args={[1.0, 1.2, 0.5]} />
        <meshPhysicalMaterial color="#64748b" roughness={0.2} metalness={0.6} />
      </mesh>
      <mesh position={[0, 0.6, 0.27]}>
        <boxGeometry args={[0.9, 1.1, 0.02]} />
        <meshPhysicalMaterial color="#94a3b8" roughness={0.3} metalness={0.3} />
      </mesh>
      {/* Shelves visible through glass */}
      <mesh position={[0, 0.3, 0.27]}>
        <boxGeometry args={[0.85, 0.02, 0.02]} />
        <meshPhysicalMaterial color="#475569" roughness={0.4} />
      </mesh>
      <mesh position={[0, 0.7, 0.27]}>
        <boxGeometry args={[0.85, 0.02, 0.02]} />
        <meshPhysicalMaterial color="#475569" roughness={0.4} />
      </mesh>
      {/* Hazmat symbol */}
      <mesh position={[0, 0.9, 0.3]}>
        <planeGeometry args={[0.15, 0.15]} />
        <meshPhysicalMaterial color="#ef4444" roughness={0.5} />
      </mesh>
      <mesh position={[0, 0.9, 0.3]}>
        <planeGeometry args={[0.08, 0.08]} />
        <meshPhysicalMaterial color="#fef2f2" roughness={0.5} />
      </mesh>
    </group>
  );
}

function LabWindow() {
  const [campusTex, setCampusTex] = useState<THREE.CanvasTexture | null>(null);

  useEffect(() => {
    const c = document.createElement('canvas');
    c.width = 512; c.height = 384;
    const ctx = c.getContext('2d'); if (!ctx) return;
    // Sky
    const sky = ctx.createLinearGradient(0, 0, 0, 384);
    sky.addColorStop(0, '#94a3b8'); sky.addColorStop(0.5, '#cbd5e1'); sky.addColorStop(1, '#e2e8f0');
    ctx.fillStyle = sky; ctx.fillRect(0, 0, 512, 384);
    // Buildings
    ctx.fillStyle = '#64748b'; ctx.fillRect(80, 160, 60, 140);
    ctx.fillStyle = '#475569'; ctx.fillRect(100, 140, 50, 160);
    ctx.fillStyle = '#64748b'; ctx.fillRect(170, 130, 80, 170);
    ctx.fillStyle = '#334155'; ctx.fillRect(200, 110, 60, 190);
    ctx.fillStyle = '#64748b'; ctx.fillRect(280, 150, 70, 150);
    ctx.fillStyle = '#475569'; ctx.fillRect(320, 120, 50, 180);
    ctx.fillStyle = '#64748b'; ctx.fillRect(380, 160, 60, 140);
    // Windows on buildings
    ctx.fillStyle = '#94a3b8';
    for (let bx = 0; bx < 5; bx++) {
      for (let by = 0; by < 4; by++) {
        ctx.fillRect(290 + bx * 15, 160 + by * 25, 8, 14);
      }
    }
    // Trees
    ctx.fillStyle = '#4a7c59'; ctx.fillRect(30, 220, 15, 80);
    ctx.beginPath(); ctx.arc(37, 210, 25, 0, Math.PI * 2); ctx.fillStyle = '#3b6b47'; ctx.fill();
    ctx.fillStyle = '#4a7c59'; ctx.fillRect(440, 200, 18, 100);
    ctx.beginPath(); ctx.arc(449, 190, 30, 0, Math.PI * 2); ctx.fillStyle = '#3b6b47'; ctx.fill();
    // Greenery
    ctx.fillStyle = '#5a8f6a'; ctx.fillRect(0, 300, 512, 84);
    ctx.fillStyle = '#4a7c59'; ctx.fillRect(0, 310, 512, 20);
    // Road
    ctx.fillStyle = '#475569'; ctx.fillRect(0, 340, 512, 20);
    ctx.fillStyle = '#eab308'; ctx.fillRect(200, 348, 8, 4); ctx.fillRect(300, 348, 8, 4);
    const t = new THREE.CanvasTexture(c);
    t.needsUpdate = true;
    setCampusTex(t);
  }, []);

  return (
    <group position={[4.85, 1.6, 1.5]}>
      <mesh position={[0, 0, 0]}>
        <boxGeometry args={[0.06, 1.8, 2.0]} />
        <meshPhysicalMaterial color="#334155" roughness={0.8} side={THREE.DoubleSide} />
      </mesh>
      <mesh position={[0.02, 0, 0]} rotation={[0, -Math.PI / 2, 0]}>
        <planeGeometry args={[2.0, 1.8]} />
        <meshPhysicalMaterial color="#87ceeb" roughness={0.1} transparent opacity={0.2} />
```

```
524|       </mesh>
525|       <mesh position={[0.03, 0, 0]} rotation={[0, -Math.PI / 2, 0]}>
526|         <planeGeometry args={[1.8, 1.6]} />
527|         {campusTex && <meshPhysicalMaterial map={campusTex} roughness={0.2} />}
528|       </mesh>
529|       {/* Frame */}
530|       <mesh position={[0, 0.93, 0]}>
531|         <boxGeometry args={[0.08, 0.06, 2.04]} />
532|         <meshPhysicalMaterial color="#475569" roughness={0.5} />
533|       </mesh>
534|       <mesh position={[0, -0.93, 0]}>
535|         <boxGeometry args={[0.08, 0.06, 2.04]} />
536|         <meshPhysicalMaterial color="#475569" roughness={0.5} />
537|       </mesh>
538|       <mesh position={[0, 0, 1.03]}>
539|         <boxGeometry args={[0.08, 1.86, 0.06]} />
540|         <meshPhysicalMaterial color="#475569" roughness={0.5} />
541|       </mesh>
542|       <mesh position={[0, 0, -1.03]}>
543|         <boxGeometry args={[0.08, 1.86, 0.06]} />
544|         <meshPhysicalMaterial color="#475569" roughness={0.5} />
545|       </mesh>
546|     </group>
547|   );
548| }
549|
550| function Window() {
551|   return (
552|     <group position={[4.85, 1.5, -1.5]}>
553|       <mesh position={[0, 0, 0]}>
554|         <boxGeometry args={[0.04, 1.6, 1.4]} />
555|         <meshPhysicalMaterial color="#f8fafc" roughness={0.5} transparent opacity={0.15} />
556|       </mesh>
557|       <mesh position={[0.01, 0, 0]}>
558|         <planeGeometry args={[1.5, 1.7]} />
559|         <meshPhysicalMaterial color="#87ceeb" roughness={0.1} metalness={0.05} transparent opacity={0.35} />
560|       </mesh>
561|       <mesh position={[0, 0.86, 0]}>
562|         <boxGeometry args={[0.06, 0.04, 1.44]} />
563|         <meshPhysicalMaterial color="#e2e8f0" roughness={0.5} />
564|       </mesh>
565|       <mesh position={[0, -0.86, 0]}>
566|         <boxGeometry args={[0.06, 0.04, 1.44]} />
567|         <meshPhysicalMaterial color="#e2e8f0" roughness={0.5} />
568|       </mesh>
569|       <mesh position={[0, 0, 0.73]}>
570|         <boxGeometry args={[0.06, 1.64, 0.04]} />
571|         <meshPhysicalMaterial color="#e2e8f0" roughness={0.5} />
572|       </mesh>
573|       <mesh position={[0, 0, -0.73]}>
574|         <boxGeometry args={[0.06, 1.64, 0.04]} />
575|         <meshPhysicalMaterial color="#e2e8f0" roughness={0.5} />
576|       </mesh>
577|       <mesh position={[0, 0, 0]}>
578|         <boxGeometry args={[0.06, 1.64, 1.44]} />
579|         <meshPhysicalMaterial color="#475569" roughness={0.6} transparent opacity={0.08} />
580|       </mesh>
581|       <mesh position={[0.02, 0.3, 0.15]}>
582|         <planeGeometry args={[0.5, 0.4]} />
583|         <meshPhysicalMaterial color="#fbbf24" roughness={0.3} emissive="#fbbf24" emissiveIntensity={0.6} trans...
584|       </mesh>
585|       <lineSegments>
586|         <edgesGeometry args={[new THREE.BoxGeometry(0.08, 1.64, 1.44)]} />
587|         <lineBasicMaterial color="#94a3b8" />
588|       </lineSegments>
589|     </group>
590|   );
591| }
592|
593| function LabPoster() {
594|   const tex = useLoader(THREE.TextureLoader, '/lab-poster.png');
595|   tex.colorSpace = THREE.SRGBColorSpace;
596|   tex.anisotropy = 16;
597|   tex.minFilter = THREE.LinearMipmapLinearFilter;
598|   tex.magFilter = THREE.LinearFilter;
599|
600|   return (
601|     <group position={[-4.85, 1.5, 0]}>
602|       <mesh position={[0, 0, 0]}>
603|         <boxGeometry args={[0.06, 1.45, 2.78]} />
604|         <meshPhysicalMaterial color="#1e293b" roughness={0.6} metalness={0.3} />
605|       </mesh>
606|       <mesh position={[0.031, 0, 0]} rotation={[0, Math.PI / 2, 0]}>
607|         <planeGeometry args={[2.6, 1.3]} />
608|         <meshPhysicalMaterial map={tex} roughness={0.15} metalness={0.05} side={THREE.DoubleSide} />
609|       </mesh>
610|       <mesh position={[0, 0.67, 0]}>
611|         <boxGeometry args={[0.08, 0.05, 2.75]} />
612|         <meshPhysicalMaterial color="#475569" roughness={0.4} metalness={0.5} />
613|       </mesh>
614|       <mesh position={[0, -0.67, 0]}>
615|         <boxGeometry args={[0.08, 0.05, 2.75]} />
616|         <meshPhysicalMaterial color="#475569" roughness={0.4} metalness={0.5} />
617|       </mesh>
618|       <mesh position={[-1.37, 0, 0]}>
619|         <boxGeometry args={[0.08, 1.4, 0.05]} />
620|         <meshPhysicalMaterial color="#475569" roughness={0.4} metalness={0.5} />
621|       </mesh>
622|       <mesh position={[1.37, 0, 0]}>
623|         <boxGeometry args={[0.08, 1.4, 0.05]} />
624|         <meshPhysicalMaterial color="#475569" roughness={0.4} metalness={0.5} />
625|       </mesh>
626|     </group>
627|   );
628| }
629|
630| function LabPoster2() {
631|   const tex = useLoader(THREE.TextureLoader, '/lab-poster2.jpg');
632|   tex.colorSpace = THREE.SRGBColorSpace;
633|   tex.anisotropy = 16;
634|   tex.minFilter = THREE.LinearMipmapLinearFilter;
635|   tex.magFilter = THREE.LinearFilter;
636|
637|   return (
638|     <group position={[4.85, 1.5, 0]}>
639|       <mesh position={[0, 0, 0]}>
640|         <boxGeometry args={[0.06, 1.5, 1.5]} />
641|         <meshPhysicalMaterial color="#0f172a" roughness={0.7} metalness={0.2} />
642|       </mesh>
643|       <mesh position={[-0.031, 0, 0]} rotation={[0, -Math.PI / 2, 0]}>
644|         <planeGeometry args={[1.4, 1.4]} />
645|         <meshPhysicalMaterial map={tex} roughness={0.15} metalness={0.05} side={THREE.DoubleSide} />
646|       </mesh>
647|       <mesh position={[0, 0.72, 0]}>
```

```
648|         <boxGeometry args={[0.06, 0.04, 1.46]} />
649|         <meshPhysicalMaterial color="#1e293b" roughness={0.4} metalness={0.4} />
650|       </mesh>
651|       <mesh position={[0, -0.72, 0]}>
652|         <boxGeometry args={[0.06, 0.04, 1.46]} />
653|         <meshPhysicalMaterial color="#1e293b" roughness={0.4} metalness={0.4} />
654|       </mesh>
655|       <mesh position={[0, 0, -0.72]}>
656|         <boxGeometry args={[0.06, 1.46, 0.04]} />
657|         <meshPhysicalMaterial color="#1e293b" roughness={0.4} metalness={0.4} />
658|       </mesh>
659|       <mesh position={[0, 0, 0.72]}>
660|         <boxGeometry args={[0.06, 1.46, 0.04]} />
661|         <meshPhysicalMaterial color="#1e293b" roughness={0.4} metalness={0.4} />
662|       </mesh>
663|     </group>
664|   );
665| }
666|
667| function Door() {
668|   return (
669|     <group position={[0, 0, 4.85]}>
670|       <mesh position={[0, 1.1, 0]}>
671|         <boxGeometry args={[1.2, 2.2, 0.06]} />
672|         <meshPhysicalMaterial color="#94a3b8" roughness={0.3} metalness={0.4} />
673|       </mesh>
674|       <mesh position={[0, 1.1, 0.04]}>
675|         <boxGeometry args={[1.15, 2.15, 0.01]} />
676|         <meshPhysicalMaterial color="#e2e8f0" roughness={0.2} metalness={0.3} />
677|       </mesh>
678|       <mesh position={[-0.6, 1.1, 0]}>
679|         <boxGeometry args={[0.04, 2.22, 0.1]} />
680|         <meshPhysicalMaterial color="#475569" roughness={0.3} metalness={0.5} />
681|       </mesh>
682|       <mesh position={[0.6, 1.1, 0]}>
683|         <boxGeometry args={[0.04, 2.22, 0.1]} />
684|         <meshPhysicalMaterial color="#475569" roughness={0.3} metalness={0.5} />
685|       </mesh>
686|       <mesh position={[0, 2.21, 0]}>
687|         <boxGeometry args={[1.24, 0.04, 0.1]} />
688|         <meshPhysicalMaterial color="#475569" roughness={0.3} metalness={0.5} />
689|       </mesh>
690|       <mesh position={[0.45, 1.0, 0.08]}>
691|         <sphereGeometry args={[0.04, 8, 8]} />
692|         <meshPhysicalMaterial color="#94a3b8" roughness={0.2} metalness={0.8} />
693|       </mesh>
694|       <mesh position={[0, 1.1, 0.06]}>
695|         <planeGeometry args={[0.1, 0.1]} />
696|         <meshPhysicalMaterial color="#ef4444" roughness={0.5} transparent opacity={0.3} />
697|       </mesh>
698|     </group>
699|   );
700| }
701|
702| export default function GameScene() {
703|   return (
704|     <div className="w-full h-screen bg-[#f8fafc] relative overflow-hidden">
705|       <HeadTracker />
706|       <Canvas shadows camera={{ position: [0, 1.6, 4.5], fov: 60, near: 0.1, far: 25 }}>
707|         <color attach="background" args={['#ffffff']} />
708|
709|         <CameraRig />
710|
711|         <ambientLight intensity={1.4} color="#e8f4ff" />
712|         <hemisphereLight args={['#ffffff', '#c8dfff', 0.8]} />
713|         <directionalLight position={[8, 12, 6]} intensity={1.4} color="#ffffff" castShadow shadow-mapSize={[10...
714|         <directionalLight position={[-5, 8, 8]} intensity={1.2} color="#ffffff" />
715|         <pointLight position={[0, 3.5, 0]} intensity={1.6} color="#ffffff" />
716|         <pointLight position={[2, 3.5, -2]} intensity={0.8} color="#ffffff" />
717|         <pointLight position={[-2, 3.5, 2]} intensity={0.8} color="#ffffff" />
718|
719|         <mesh position={[0, -0.01, 0]} rotation={[-Math.PI / 2, 0, 0]} receiveShadow>
720|           <planeGeometry args={[10, 10]} />
721|           <meshPhysicalMaterial color="#8ba0b8" roughness={0.3} />
722|         </mesh>
723|
724|         <mesh position={[0, 0.002, 0]} rotation={[-Math.PI / 2, 0, 0]}>
725|           <planeGeometry args={[10, 10]} />
726|           <meshPhysicalMaterial color="#9ab0c8" roughness={0.4} transparent opacity={0.25} />
727|         </mesh>
728|
729|         {([
730|           { pos: [0, 0.01, -4.98], size: [10, 0.02, 0.015], c: '#6b8199' },
731|           { pos: [0, 0.01, -3.32], size: [10, 0.02, 0.015], c: '#6b8199' },
732|           { pos: [0, 0.01, -1.66], size: [10, 0.02, 0.015], c: '#6b8199' },
733|           { pos: [0, 0.01, 0], size: [10, 0.02, 0.015], c: '#6b8199' },
734|           { pos: [0, 0.01, 1.66], size: [10, 0.02, 0.015], c: '#6b8199' },
735|           { pos: [0, 0.01, 3.32], size: [10, 0.02, 0.015], c: '#6b8199' },
736|           { pos: [-4.98, 0.01, 0], size: [0.015, 0.02, 10], c: '#6b8199' },
737|           { pos: [-3.32, 0.01, 0], size: [0.015, 0.02, 10], c: '#6b8199' },
738|           { pos: [-1.66, 0.01, 0], size: [0.015, 0.02, 10], c: '#6b8199' },
739|           { pos: [1.66, 0.01, 0], size: [0.015, 0.02, 10], c: '#6b8199' },
740|           { pos: [3.32, 0.01, 0], size: [0.015, 0.02, 10], c: '#6b8199' },
741|           { pos: [4.98, 0.01, 0], size: [0.015, 0.02, 10], c: '#6b8199' },
742|         ] as const).map((item, i) => (
743|           <mesh key={i} position={item.pos}>
744|             <boxGeometry args={item.size} />
745|             <meshPhysicalMaterial color={item.c} roughness={0.5} transparent opacity={0.6} />
746|           </mesh>
747|         ))}
748|
749|         <mesh position={[0, 1.5, -5]} receiveShadow>
750|           <boxGeometry args={[10, 3, 0.18]} />
751|           <meshPhysicalMaterial color="#52525b" roughness={0.9} side={THREE.DoubleSide} />
752|         </mesh>
753|         <mesh position={[-2.8, 1.0, -4.9]}>
754|           <boxGeometry args={[1.2, 0.8, 0.04]} />
755|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
756|         </mesh>
757|         <mesh position={[2.8, 1.0, -4.9]}>
758|           <boxGeometry args={[1.2, 0.8, 0.04]} />
759|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
760|         </mesh>
761|         <mesh position={[0, 2.3, -4.9]}>
762|           <boxGeometry args={[3, 0.4, 0.04]} />
763|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.25} metalness={0.2} />
764|         </mesh>
765|
766|         <mesh position={[0, 1.5, 5]}>
767|           <boxGeometry args={[10, 3, 0.18]} />
768|           <meshPhysicalMaterial color="#52525b" roughness={0.9} side={THREE.DoubleSide} />
769|         </mesh>
770|         <mesh position={[3.5, 1.5, 4.9]}>
771|           <boxGeometry args={[2, 1.2, 0.04]} />
```

```
772|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
773|         </mesh>
774|         <mesh position={[-3.5, 1.5, 4.9]}>
775|           <boxGeometry args={[2, 1.2, 0.04]} />
776|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
777|         </mesh>
778|
779|         <mesh position={[-5, 1.5, 0]}>
780|           <boxGeometry args={[0.18, 3, 10]} />
781|           <meshPhysicalMaterial color="#52525b" roughness={0.9} side={THREE.DoubleSide} />
782|         </mesh>
783|         <mesh position={[-4.9, 1.8, -2.8]}>
784|           <boxGeometry args={[0.04, 1.0, 1.0]} />
785|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
786|         </mesh>
787|         <mesh position={[-4.9, 1.8, 2.8]}>
788|           <boxGeometry args={[0.04, 1.0, 1.0]} />
789|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
790|         </mesh>
791|
792|         <mesh position={[5, 1.5, 0]}>
793|           <boxGeometry args={[0.18, 3, 10]} />
794|           <meshPhysicalMaterial color="#52525b" roughness={0.9} side={THREE.DoubleSide} />
795|         </mesh>
796|         <mesh position={[4.9, 1.8, -3.8]}>
797|           <boxGeometry args={[0.04, 1.0, 0.8]} />
798|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
799|         </mesh>
800|         <mesh position={[4.9, 1.8, 3.8]}>
801|           <boxGeometry args={[0.04, 1.0, 0.8]} />
802|           <meshPhysicalMaterial color="#94a3b8" roughness={0.1} transparent opacity={0.35} metalness={0.2} />
803|         </mesh>
804|
805|         <mesh position={[0, 3, 0]} rotation={[Math.PI / 2, 0, 0]}>
806|           <planeGeometry args={[10, 10]} />
807|           <meshPhysicalMaterial color="#f1f5f9" roughness={0.8} />
808|         </mesh>
809|         <mesh position={[0, 2.98, -4]}>
810|           <boxGeometry args={[0.15, 0.04, 3]} />
811|           <meshPhysicalMaterial color="#f8faff" roughness={0.3} emissive="#dce8ff" emissiveIntensity={0.6} />
812|         </mesh>
813|         <mesh position={[0, 2.98, 0]}>
814|           <boxGeometry args={[0.15, 0.04, 3]} />
815|           <meshPhysicalMaterial color="#f8faff" roughness={0.3} emissive="#dce8ff" emissiveIntensity={0.6} />
816|         </mesh>
817|         <mesh position={[0, 2.98, 4]}>
818|           <boxGeometry args={[0.15, 0.04, 3]} />
819|           <meshPhysicalMaterial color="#f8faff" roughness={0.3} emissive="#dce8ff" emissiveIntensity={0.6} />
820|         </mesh>
821|
822|         {([[0, 0, -4.9], [0, 0, 4.9], [-4.9, 0, 0], [4.9, 0, 0]] as const).map((pos, i) => (
823|           <mesh key={i} position={pos}>
824|             <boxGeometry args={i < 2 ? [10, 0.08, 0.02] : [0.02, 0.08, 10]} />
825|             <meshPhysicalMaterial color="#6b8199" roughness={0.4} />
826|           </mesh>
827|         ))}
828|
829|         {/* Back wall: storage cabinets */}
830|         <StorageCabinet position={[-3.5, 0, -4.85]} />
831|         <StorageCabinet position={[-2.3, 0, -4.85]} />
832|         <StorageCabinet position={[2.5, 0, -4.85]} />
833|         <StorageCabinet position={[3.7, 0, -4.85]} />
834|
835|         {/* Center bench - main work table */}
836|         <LabBench position={[0, 0, -1.0]} size={[3.5, 0.9, 2.0]} />
837|
838|         {/* Left bench with computer station */}
839|         <LabBench position={[-2.5, 0, 1.5]} size={[2.0, 0.9, 1.0]} />
840|         <ComputerStation />
841|
842|         {/* Right bench with equipment */}
843|         <LabBench position={[3.0, 0, 1.0]} size={[2.0, 0.9, 1.0]} />
844|         <Centrifuge position={[3.0, 0.9, 1.0]} />
845|         <Microscope position={[2.5, 0.9, 1.3]} />
846|         <Beaker position={[3.5, 0.9, 1.2]} color="#22c55e" />
847|         <Flask position={[3.0, 0.9, 0.6]} color="#ef4444" />
848|
849|         {/* Robotic arm section */}
850|         <RoboticArmSection />
851|         <LabBench position={[4.2, 0, -1.8]} size={[1.2, 0.9, 0.8]} color="#94a3b8" />
852|         <Beaker position={[4.2, 0.9, -1.6]} color="#eab308" height={0.3} radius={0.1} />
853|         <Beaker position={[4.6, 0.9, -1.8]} color="#ef4444" height={0.2} radius={0.07} />
854|
855|         {/* Window (right wall, front corner) */}
856|         <LabWindow />
857|         <LabPoster />
858|         <LabPoster2 />
859|         <Door />
860|       </Canvas>
861|     </div>
862|   );
863| }
864|
```

File: components/HandTracker.js (242 lines, 9.1 KB)

```
    1| 'use client';
    2|
    3| import { useEffect, useRef, useState } from 'react';
    4|
    5| const MODEL_URLS = [
    6|   'https://cdn.jsdelivr.net/npm/@mediapipe/tasks-vision@0.10.18/wasm',
    7|   'https://unpkg.com/@mediapipe/tasks-vision@0.10.18/wasm',
    8|   'https://cdn.jsdelivr.net/npm/@mediapipe/tasks-vision@0.10.32/wasm',
    9| ];
   10|
   11| const LANDMARKER_URLS = [
   12|   'https://storage.googleapis.com/mediapipe-models/hand_landmarker/hand_landmarker/float16/1/hand_landmarker.t...
   13|   'https://cdn.jsdelivr.net/gh/simonsown/pc-master-lms@main/public/models/hand_landmarker.task',
   14| ];
   15|
   16| function checkWebGLSupport() {
   17|   try {
   18|     const canvas = document.createElement('canvas');
   19|     const gl = canvas.getContext('webgl2') || canvas.getContext('webgl');
   20|     if (!gl) return false;
   21|     return true;
   22|   } catch { return false; }
   23| }
   24|
   25| const HandTracker = ({ onLandmarks, numHands = 1 }) => {
   26|   const videoRef = useRef(null);
   27|   const canvasRef = useRef(null);
```

```
28|   const [handLandmarker, setHandLandmarker] = useState(null);
29|   const [webcamRunning, setWebcamRunning] = useState(false);
30|   const [error, setError] = useState(null);
31|   const [loading, setLoading] = useState(true);
    3 2 |       c o n s t   [ l o a d i n g M e s s a g e ,   s e t L o a d i n g M e s s a g e ]   =   u s e S t a t e ( '   a n g   k h ß i   t ¡ o   A I
33|   const retryCountRef = useRef(0);
34|   const streamRef = useRef(null);
35|   const animRef = useRef(null);
36|   const mountedRef = useRef(true);
37|   const frameSkipRef = useRef(0);
38|   const lastLMCallbackRef = useRef(null);
39|
40|   useEffect(() => {
41|     lastLMCallbackRef.current = onLandmarks;
42|   }, [onLandmarks]);
43|
44|   useEffect(() => {
45|     mountedRef.current = true;
46|     let cancelled = false;
47|
48|     const loadModel = async () => {
49|       setLoading(true);
    5 0 |               s e t L o a d i n g M e s s a g e ( '   a n g   t £ i   m ô   h ì n h   A I . . . ' ) ;
51|       const hasWebGL = checkWebGLSupport();
52|
53|       let lastError = null;
54|       for (let attempt = 0; attempt < MODEL_URLS.length * 2; attempt++) {
55|         if (cancelled) return;
56|         if (attempt > 0) {
57|           await new Promise(r => setTimeout(r, Math.min(1000 * Math.pow(2, attempt), 8000)));
58|         }
59|
60|         const visionUrlIdx = attempt % MODEL_URLS.length;
61|         const modelUrlIdx = Math.floor(attempt / MODEL_URLS.length) % LANDMARKER_URLS.length;
62|
63|         try {
64|           const { FilesetResolver, HandLandmarker } = await import('@mediapipe/tasks-vision');
65|
66|           if (cancelled) return;
    6 7 |                     s e t L o a d i n g M e s s a g e ( `   a n g   t £ i   A I . . .   ( t h í   $ { a t t e m p t   +   1 } ) ` ) ;
68|
69|           const vision = await FilesetResolver.forVisionTasks(MODEL_URLS[visionUrlIdx]);
70|           if (cancelled) return;
71|
72|           const isLowEnd = navigator.hardwareConcurrency && navigator.hardwareConcurrency <= 4;
73|           const landmarker = await HandLandmarker.createFromOptions(vision, {
74|             baseOptions: {
75|               modelAssetPath: LANDMARKER_URLS[modelUrlIdx],
76|               delegate: isLowEnd ? 'CPU' : (hasWebGL ? 'GPU' : 'CPU')
77|             },
78|             runningMode: 'VIDEO',
79|             numHands: numHands
80|           });
81|
82|           if (cancelled) return;
83|           setHandLandmarker(landmarker);
84|           setLoading(false);
85|           setTimeout(() => setWebcamRunning(true), 100);
86|           return;
87|         } catch (err) {
88|           lastError = err;
89|           console.warn(`HandTracker attempt ${attempt + 1} failed:`, err.message);
90|         }
91|       }
92|
93|       if (!cancelled) {
94|         setError(lastError?.message?.includes('NetworkError') || lastError?.message?.includes('Failed to fetch')
    9 5 |                     ?   ' K h ô n g   t h Ã   t £ i   m ô   h ì n h   A I   d o   m ¡ n g   y ¿ u .   V u i   l ò n g   t h í   l ¡ i   h o ·
    9 6 |                     :   ' K h ô n g   t h Ã   t £ i   m ô   h ì n h   A I .   V u i   l ò n g   t h í   l ¡ i . ' ) ;
97|         setLoading(false);
98|       }
99|     };
100|
101|     loadModel();
102|     return () => { cancelled = true; mountedRef.current = false; };
103|   }, []);
104|
105|   useEffect(() => {
106|     if (!handLandmarker || !webcamRunning) return;
107|     let cancelled = false;
108|
109|     const startCamera = async () => {
110|       try {
111|         if (!navigator.mediaDevices?.getUserMedia) {
    1 1 2 |                     s e t E r r o r ( ' T r ì n h   d u y Ç t   k h ô n g   h ×   t r ã   c a m e r a . ' ) ;
113|           return;
114|         }
115|
116|         const isLowEnd = navigator.hardwareConcurrency && navigator.hardwareConcurrency <= 4;
117|         const stream = await navigator.mediaDevices.getUserMedia({
118|           video: { width: { ideal: 320 }, height: { ideal: 240 }, facingMode: 'user', frameRate: { ideal: isLo...
119|         });
120|         if (cancelled) { stream.getTracks().forEach(t => t.stop()); return; }
121|         streamRef.current = stream;
122|
123|         const video = videoRef.current;
124|         if (!video) return;
125|         video.srcObject = stream;
126|         video.setAttribute('playsinline', '');
127|         video.setAttribute('autoplay', '');
128|
129|         await video.play();
130|
131|         const canvas = canvasRef.current;
132|         if (!canvas) return;
133|
134|         const predictLoop = async () => {
135|           if (!mountedRef.current) return;
136|
137|           const isLowEnd = navigator.hardwareConcurrency && navigator.hardwareConcurrency <= 4;
138|           const skipFrames = isLowEnd ? 3 : 2;
139|           frameSkipRef.current++;
140|           if (frameSkipRef.current % skipFrames !== 0) {
141|             animRef.current = requestAnimationFrame(predictLoop);
142|             return;
143|           }
144|
145|           if (video.videoWidth > 0 && video.videoHeight > 0) {
146|             canvas.width = video.videoWidth;
147|             canvas.height = video.videoHeight;
148|           }
149|
150|           try {
151|             const results = await handLandmarker.detectForVideo(video, performance.now());
```

```
152|
153|             if (results.landmarks && results.landmarks.length > 0) {
154|               const mirrored = results.landmarks.map((hand) =>
155|                 hand.map(p => ({ ...p, x: 1 - p.x }))
156|               );
157|               if (lastLMCallbackRef.current) {
158|                 lastLMCallbackRef.current(mirrored);
159|               }
160|             } else {
161|               if (lastLMCallbackRef.current) {
162|                 lastLMCallbackRef.current([]);
163|               }
164|             }
165|           } catch (e) {
166|             console.warn('detect error:', e);
167|           }
168|           animRef.current = requestAnimationFrame(predictLoop);
169|         };
170|
171|         predictLoop();
172|       } catch (err) {
173|         if (cancelled) return;
174|         const msg = err.name === 'NotAllowedError'
   1 7 5 |                     ?   ' Q u y Á n   t r u y   c - p   c a m e r a   b Ë   t ë   c h Ñ i .   V u i   l ò n g   c ¥ p   q u y Á n   t r o n g
   1 7 6 |                     :   ' K h ô n g   t h Ã   t r u y   c - p   c a m e r a :   '   +   e r r . m e s s a g e ;
177|         setError(msg);
178|       }
179|     };
180|
181|     startCamera();
182|     return () => { cancelled = true; if (animRef.current) cancelAnimationFrame(animRef.current); };
183|   }, [handLandmarker, webcamRunning]);
184|
185|   useEffect(() => {
186|     return () => {
187|       if (streamRef.current) {
188|         streamRef.current.getTracks().forEach(t => t.stop());
189|         streamRef.current = null;
190|       }
191|     };
192|   }, []);
193|
194|   const handleRetry = () => {
195|     setError(null);
196|     setHandLandmarker(null);
197|     setWebcamRunning(false);
198|     setLoading(true);
   1 9 9 |           s e t L o a d i n g M e s s a g e ( '   a n g   t h í   l ¡ i . . . ' ) ;
200|     retryCountRef.current = 0;
201|   };
202|
203|   if (error) {
204|     return (
205|       <div style={{ width: '100%', height: '100%', display: 'flex', flexDirection: 'column', alignItems: 'cent...
206|         <svg width="48" height="48" viewBox="0 0 24 24" fill="none" stroke="#ef4444" strokeWidth="1.5">
207|           <circle cx="12" cy="12" r="10" /><line x1="12" y1="8" x2="12" y2="12" /><line x1="12" y1="16" x2="12...
208|         </svg>
209|         <p style={{ fontSize: '13px', textAlign: 'center', margin: 0, maxWidth: '280px', lineHeight: 1.5 }}>{e...
210|         <button onClick={handleRetry} style={{ padding: '8px 20px', background: '#00d4aa', color: '#000', bord...
   2 1 1 |                     T h í   l ¡ i
212|         </button>
213|       </div>
214|     );
215|   }
216|
217|   return (
218|     <div style={{ position: 'relative', width: '100%', height: '100%', backgroundColor: 'black', overflow: 'hi...
219|       <video
220|         ref={videoRef}
221|         style={{ position: 'absolute', top: 0, left: 0, width: '100%', height: '100%', objectFit: 'cover', tra...
222|         playsInline
223|         muted
224|       />
225|       <canvas
226|         ref={canvasRef}
227|         style={{ position: 'absolute', top: 0, left: 0, width: '100%', height: '100%', transform: 'scaleX(-1)'...
228|       />
229|       {loading && (
230|         <div style={{ position: 'absolute', inset: 0, display: 'flex', flexDirection: 'column', alignItems: 'c...
231|           <div style={{ width: '32px', height: '32px', border: '3px solid #00d4aa', borderTopColor: 'transpare...
232|           <span style={{ color: '#10b981', fontWeight: 600, fontSize: '13px' }}>{loadingMessage}</span>
   2 3 3 |                     < s p a n   s t y l e = { {   c o l o r :   ' # 6 6 6 ' ,   f o n t S i z e :   ' 1 1 p x '   } } > S í   d ả n g   m ô   h
234|         </div>
235|       )}
236|       <style>{`@keyframes spin { to { transform: rotate(360deg) } }`}</style>
237|     </div>
238|   );
239| };
240|
241| export default HandTracker;
242|
```

File: components/HeadTracker.tsx (563 lines, 14.1 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import { useEffect, useRef, useState, useCallback } from 'react';
    4| import { useAssemblyStore } from '@/lib/useStore';
    5|
    6| const FACE_LANDMARKER_URL =
    7|   'https://storage.googleapis.com/mediapipe-models/face_landmarker/face_landmarker/float16/1/face_landmarker.t...
    8| const WASM_BASE = 'https://cdn.jsdelivr.net/npm/@mediapipe/tasks-vision@0.10.32/wasm';
    9|
   10| const LERP_FACTOR = 0.6;
   11| const PITCH_MIN = -0.6;
   12| const PITCH_MAX = 0.6;
   13| const YAW_MIN = -0.8;
   14| const YAW_MAX = 0.8;
   15|
   16| export default function HeadTracker() {
   17|   const setCameraCoords = useAssemblyStore((s) => s.setCameraCoords);
   18|   const cameraCoords = useAssemblyStore((s) => s.cameraCoords);
   19|
   20|   const videoRef = useRef<HTMLVideoElement>(null);
   21|   const canvasRef = useRef<HTMLCanvasElement>(null);
   22|   const streamRef = useRef<MediaStream | null>(null);
   23|   const landmarkerRef = useRef<any>(null);
   24|   const animRef = useRef<number>(0);
   25|   const mountedRef = useRef(true);
   26|
   27|   const [status, setStatus] = useState<'loading' | 'active' | 'error'>('loading');
   28|   const [errorMsg, setErrorMsg] = useState('');
   29|   const [hasWebcam, setHasWebcam] = useState(false);
```

```
  const [trackingFps, setTrackingFps] = useState(0);

  const smoothPitch = useRef(0);
  const smoothYaw = useRef(0);
  const fpsCount = useRef(0);
  const fpsTime = useRef(0);

  const drawFaceMesh = useCallback(
    (landmarks: { x: number; y: number; z: number }[]) => {
      const canvas = canvasRef.current;
      if (!canvas) return;
      const ctx = canvas.getContext('2d');
      if (!ctx) return;

      const w = canvas.width;
      const h = canvas.height;
      ctx.clearRect(0, 0, w, h);

      ctx.strokeStyle = 'rgba(0, 212, 170, 0.6)';
      ctx.lineWidth = 1;

      const FACE_CONNECTIONS: [number, number][] = [
        [10, 338],
        [338, 297],
        [297, 332],
        [332, 284],
        [284, 251],
        [251, 389],
        [389, 356],
        [356, 454],
        [454, 323],
        [323, 361],
        [361, 288],
        [288, 397],
        [397, 365],
        [365, 379],
        [379, 378],
        [378, 400],
        [400, 377],
        [377, 152],
        [152, 148],
        [148, 176],
        [176, 149],
        [149, 150],
        [150, 136],
        [136, 172],
        [172, 58],
        [58, 132],
        [132, 93],
        [93, 234],
        [234, 127],
        [127, 162],
        [162, 21],
        [21, 54],
        [54, 103],
        [103, 67],
        [67, 109],
        [109, 10],
        [10, 338],
        [46, 53],
        [53, 52],
        [52, 65],
        [65, 55],
        [55, 285],
        [285, 295],
        [295, 282],
        [282, 283],
        [283, 276],
        [276, 352],
        [352, 346],
        [346, 340],
        [340, 330],
        [330, 329],
        [329, 450],
        [450, 449],
        [449, 448],
        [448, 261],
        [261, 446],
        [446, 342],
        [342, 445],
        [445, 444],
        [444, 443],
        [443, 442],
        [442, 441],
        [441, 413],
        [413, 414],
        [414, 372],
        [372, 383],
        [383, 300],
        [300, 301],
        [301, 263],
        [263, 466],
        [466, 388],
        [388, 387],
        [387, 386],
        [386, 385],
        [385, 384],
        [384, 398],
        [398, 362],
        [362, 382],
        [382, 381],
        [381, 380],
        [380, 374],
        [374, 373],
        [373, 390],
        [390, 249],
        [249, 64],
        [64, 98],
        [98, 97],
        [97, 96],
        [96, 95],
        [95, 94],
        [94, 93],
        [93, 132],
        [116, 163],
        [163, 123],
        [123, 143],
        [143, 155],
        [155, 154],
        [154, 157],
        [157, 158],
        [158, 159],
        [159, 160],
        [160, 161],
```

```
154|         [161, 243],
155|         [243, 173],
156|         [173, 133],
157|         [133, 245],
158|         [245, 244],
159|         [244, 246],
160|         [246, 247],
161|         [247, 248],
162|         [248, 249],
163|         [33, 246],
164|         [246, 161],
165|         [161, 160],
166|         [160, 159],
167|         [159, 158],
168|         [158, 157],
169|         [157, 173],
170|         [173, 133],
171|         [133, 155],
172|         [155, 154],
173|         [154, 153],
174|         [153, 145],
175|         [145, 144],
176|         [144, 163],
177|         [163, 116],
178|         [168, 9],
179|         [9, 8],
180|         [8, 168],
181|         [168, 6],
182|         [6, 197],
183|         [197, 195],
184|         [195, 5],
185|         [5, 4],
186|         [4, 1],
187|         [1, 19],
188|         [19, 20],
189|         [20, 24],
190|         [24, 4],
191|         [4, 5],
192|         [5, 195],
193|         [197, 6],
194|         [6, 168],
195|         [168, 8],
196|         [8, 9],
197|       ];
198|
199|       for (const [i, j] of FACE_CONNECTIONS) {
200|         const p1 = landmarks[i];
201|         const p2 = landmarks[j];
202|         if (p1 && p2) {
203|           ctx.beginPath();
204|           ctx.moveTo(p1.x * w, p1.y * h);
205|           ctx.lineTo(p2.x * w, p2.y * h);
206|           ctx.stroke();
207|         }
208|       }
209|
210|       ctx.fillStyle = 'rgba(0, 212, 170, 0.8)';
211|       const keyPoints = [1, 4, 5, 6, 8, 9, 10, 33, 133, 152, 159, 249, 263, 362, 386, 454, 466, 468, 473];
212|       for (const idx of keyPoints) {
213|         const p = landmarks[idx];
214|         if (p) {
215|           ctx.beginPath();
216|           ctx.arc(p.x * w, p.y * h, 2.5, 0, Math.PI * 2);
217|           ctx.fill();
218|         }
219|       }
220|     },
221|     []
222|   );
223|
224|   useEffect(() => {
225|     mountedRef.current = true;
226|     let cancelled = false;
227|
228|     const init = async () => {
229|       try {
230|         setStatus('loading');
231|         const { FilesetResolver, FaceLandmarker } = await import(
232|           '@mediapipe/tasks-vision'
233|         );
234|
235|         if (cancelled) return;
236|
237|         const vision = await FilesetResolver.forVisionTasks(WASM_BASE);
238|         if (cancelled) return;
239|
240|         const landmarker = await FaceLandmarker.createFromOptions(vision, {
241|           baseOptions: {
242|             modelAssetPath: FACE_LANDMARKER_URL,
243|             delegate: 'GPU',
244|           },
245|           runningMode: 'VIDEO',
246|           numFaces: 1,
247|           outputFaceBlendshapes: false,
248|         });
249|
250|         if (cancelled) return;
251|         landmarkerRef.current = landmarker;
252|
253|         const stream = await navigator.mediaDevices.getUserMedia({
254|           video: {
255|             width: { ideal: 320 },
256|             height: { ideal: 240 },
257|             facingMode: 'user',
258|           },
259|         });
260|
261|         if (cancelled) {
262|           stream.getTracks().forEach((t) => t.stop());
263|           return;
264|         }
265|
266|         streamRef.current = stream;
267|         const video = videoRef.current;
268|         if (!video) return;
269|         video.srcObject = stream;
270|         video.setAttribute('playsinline', '');
271|         await video.play();
272|         setHasWebcam(true);
273|         setStatus('active');
274|         fpsTime.current = performance.now();
275|       } catch (err: any) {
276|         if (cancelled) return;
277|         const msg =
```

```
278|           err.name === 'NotAllowedError'
279|             ? 'Webcam access denied. Please allow camera permissions.'
280|             : err.name === 'NotFoundError'
281|               ? 'No webcam found.'
282|               : `Face tracking init failed: ${err.message}`;
283|         setErrorMsg(msg);
284|         setStatus('error');
285|       }
286|     };
287|
288|     init();
289|     return () => {
290|       cancelled = true;
291|       mountedRef.current = false;
292|       cancelAnimationFrame(animRef.current);
293|       if (streamRef.current) {
294|         streamRef.current.getTracks().forEach((t) => t.stop());
295|         streamRef.current = null;
296|       }
297|     };
298|   }, []);
299|
300|   useEffect(() => {
301|     if (status !== 'active' || !landmarkerRef.current) return;
302|
303|     let running = true;
304|     const video = videoRef.current;
305|
306|     const predictLoop = async () => {
307|       if (!running || !landmarkerRef.current || !video || video.readyState < 2)
308|         return;
309|
310|       try {
311|         const results = await landmarkerRef.current.detectForVideo(
312|           video,
313|           performance.now()
314|         );
315|
316|         if (results.faceLandmarks && results.faceLandmarks.length > 0) {
317|           const landmarks = results.faceLandmarks[0];
318|           const nose = landmarks[1];
319|           const leftEye = landmarks[33];
320|           const rightEye = landmarks[263];
321|           const leftEar = landmarks[234];
322|           const rightEar = landmarks[454];
323|           const mouth = landmarks[13];
324|
325|           if (nose && leftEye && rightEye && mouth) {
326|             const eyeMidX = (leftEye.x + rightEye.x) / 2;
327|             const eyeMidY = (leftEye.y + rightEye.y) / 2;
328|
329|             const rawYaw = (nose.x - 0.5) * 2;
330|             const rawPitch = (nose.y - 0.5) * 2;
331|
332|             smoothPitch.current +=
333|               LERP_FACTOR *
334|               (Math.max(PITCH_MIN, Math.min(PITCH_MAX, rawPitch)) -
335|                 smoothPitch.current);
336|             smoothYaw.current +=
337|               LERP_FACTOR *
338|               (Math.max(YAW_MIN, Math.min(YAW_MAX, rawYaw)) -
339|                 smoothYaw.current);
340|
341|             setCameraCoords({
342|               pitch: smoothPitch.current,
343|               yaw: smoothYaw.current,
344|               roll: 0,
345|             });
346|
347|             fpsCount.current++;
348|             const now = performance.now();
349|             if (now - fpsTime.current > 1000) {
350|               setTrackingFps(fpsCount.current);
351|               fpsCount.current = 0;
352|               fpsTime.current = now;
353|             }
354|           }
355|
356|           drawFaceMesh(results.faceLandmarks[0]);
357|         }
358|       } catch (e) {
359|       }
360|
361|       animRef.current = requestAnimationFrame(predictLoop);
362|     };
363|
364|     predictLoop();
365|     return () => {
366|       running = false;
367|       cancelAnimationFrame(animRef.current);
368|     };
369|   }, [status, setCameraCoords, drawFaceMesh]);
370|
371|   const handleRetry = () => {
372|     setStatus('loading');
373|     setErrorMsg('');
374|     setHasWebcam(false);
375|     landmarkerRef.current = null;
376|     window.location.reload();
377|   };
378|
379|   return (
380|     <div
381|       style={{
382|         position: 'fixed',
383|         top: 16,
384|         left: 16,
385|         width: 200,
386|         height: 150,
387|         borderRadius: 12,
388|         overflow: 'hidden',
389|         zIndex: 9999,
390|         border: '1px solid rgba(0, 212, 170, 0.3)',
391|         boxShadow: '0 4px 24px rgba(0,0,0,0.5)',
392|         background: '#000',
393|       }}
394|     >
395|       <video
396|         ref={videoRef}
397|         muted
398|         playsInline
399|         style={{
400|           position: 'absolute',
401|           inset: 0,
```

```
402|           width: '100%',
403|           height: '100%',
404|           objectFit: 'cover',
405|           transform: 'scaleX(-1)',
406|         }}
407|       />
408|       <canvas
409|         ref={canvasRef}
410|         width={320}
411|         height={240}
412|         style={{
413|           position: 'absolute',
414|           inset: 0,
415|           width: '100%',
416|           height: '100%',
417|           transform: 'scaleX(-1)',
418|           pointerEvents: 'none',
419|         }}
420|       />
421|       {status === 'loading' && (
422|         <div
423|           style={{
424|             position: 'absolute',
425|             inset: 0,
426|             display: 'flex',
427|             flexDirection: 'column',
428|             alignItems: 'center',
429|             justifyContent: 'center',
430|             gap: 8,
431|             background: 'rgba(0,0,0,0.85)',
432|           }}
433|         >
434|           <div
435|             style={{
436|               width: 24,
437|               height: 24,
438|               border: '2px solid rgba(0,212,170,0.3)',
439|               borderTopColor: '#00d4aa',
440|               borderRadius: '50%',
441|               animation: 'ht-spin 0.8s linear infinite',
442|             }}
443|           />
444|           <span style={{ color: '#00d4aa', fontSize: 10, fontWeight: 600 }}>
445|             INITIALIZING AI TRACKING
446|           </span>
447|         </div>
448|       )}
449|       {status === 'error' && (
450|         <div
451|           style={{
452|             position: 'absolute',
453|             inset: 0,
454|             display: 'flex',
455|             flexDirection: 'column',
456|             alignItems: 'center',
457|             justifyContent: 'center',
458|             gap: 8,
459|             padding: 12,
460|             background: 'rgba(0,0,0,0.9)',
461|           }}
462|         >
463|           <span style={{ color: '#ef4444', fontSize: 9, textAlign: 'center' }}>
464|             {errorMsg}
465|           </span>
466|           <button
467|             onClick={handleRetry}
468|             style={{
469|               padding: '4px 12px',
470|               background: '#00d4aa',
471|               color: '#000',
472|               border: 'none',
473|               borderRadius: 6,
474|               fontWeight: 700,
475|               fontSize: 10,
476|               cursor: 'pointer',
477|               fontFamily: 'inherit',
478|             }}
479|           >
480|             RETRY
481|           </button>
482|         </div>
483|       )}
484|       {status === 'active' && (
485|         <>
486|           <div
487|             style={{
488|               position: 'absolute',
489|               top: 6,
490|               left: 6,
491|               display: 'flex',
492|               alignItems: 'center',
493|               gap: 6,
494|               background: 'rgba(0,0,0,0.7)',
495|               padding: '3px 8px',
496|               borderRadius: 6,
497|               backdropFilter: 'blur(4px)',
498|             }}
499|           >
500|             <span
501|               style={{
502|                 width: 6,
503|                 height: 6,
504|                 borderRadius: '50%',
505|                 background: '#10b981',
506|                 boxShadow: '0 0 6px #10b981',
507|               }}
508|             />
509|             <span
510|               style={{
511|                 color: '#10b981',
512|                 fontSize: 8,
513|                 fontWeight: 700,
514|                 letterSpacing: '0.5px',
515|               }}
516|             >
517|               AI TRACKING ACTIVE
518|             </span>
519|           </div>
520|           <div
521|             style={{
522|               position: 'absolute',
523|               bottom: 6,
524|               right: 6,
525|               background: 'rgba(0,0,0,0.7)',
```

```
              padding: '2px 6px',
              borderRadius: 4,
              fontSize: 8,
              color: '#94a3b8',
              fontFamily: 'monospace',
            }}
          >
            {trackingFps} FPS
          </div>
          <div
            style={{
              position: 'absolute',
              bottom: 6,
              left: 6,
              display: 'flex',
              gap: 8,
              background: 'rgba(0,0,0,0.7)',
              padding: '2px 6px',
              borderRadius: 4,
              fontSize: 7,
              fontFamily: 'monospace',
              color: '#64748b',
            }}
          >
            <span>
              P: {(cameraCoords.pitch * 100).toFixed(0)}
            </span>
            <span>
              Y: {(cameraCoords.yaw * 100).toFixed(0)}
            </span>
          </div>
        </>
      )}
      <style>{`@keyframes ht-spin { to { transform: rotate(360deg); } }`}</style>
    </div>
  );
}

```

File: components/imageAssets.ts (126 lines, 4.9 KB)

```
export type ComponentType = 'CPU' | 'RAM' | 'GPU' | 'PSU' | 'SSD' | 'COOLER' | 'Mainboard' | 'HDD';

export const IMAGE_MAP: Record<string, string[]> = {
  CPU: [
    '/images/components/cpu_amd_front.png',
    '/images/components/cpu_amd_iso.png',
    '/images/components/cpu_intel_front.png',
    '/images/components/cpu_intel_iso.png',
    '/images/components/cpu_ryzen5_old_front.png',
    '/images/components/cpu_xeon_old_front.png',
    '/images/components/amd_ryzen_7_9800x3d.png',
    '/images/components/amd_ryzen_9_9950x.png',
    '/images/components/intel_core_i3_12100.png',
    '/images/components/intel_core_i7_14700f.png',
    '/images/components/intel_core_ultra_9_285k.png',
    '/images/components/intel_xeon_e5_2667_v4.png',
  ],
  RAM: [
    '/images/components/cudimm_ram.png',
    '/images/components/ddr4_ecc_ram.png',
    '/images/components/ddr4_ram_front.png',
    '/images/components/ddr4_ram_non_rgb.png',
    '/images/components/ddr5_ram_front.png',
    '/images/components/ddr5_ram_rgb.png',
    '/images/components/ram_ecc_front.png',
    '/images/components/ram_rgb_front.png',
    '/images/components/ram_rgb_iso.png',
  ],
  GPU: [
    '/images/components/gpu_gtx_1650_front.png',
    '/images/components/gpu_gtx_1660_front.png',
    '/images/components/gpu_rtx_5090_front.png',
    '/images/components/gpu_rtx_5090_iso.png',
    '/images/components/gpu_rx580_front.png',
    '/images/components/gpu_rx580_iso.png',
    '/images/components/gpu_rx_7600_front.png',
    '/images/components/gpu_rx_7600_iso.png',
    '/images/components/gtx_1660_super.png',
    '/images/components/nvidia_rtx_5090_front_view.png',
    '/images/components/nvidia_rtx_5090_white_bg.png',
    '/images/components/rtx_4060_itx.png',
    '/images/components/rtx_5070_ti.png',
    '/images/components/rtx_5080_16gb.png',
    '/images/components/rtx_5090_32gb.png',
    '/images/components/rtx_5090_pure_white_bg.png',
    '/images/components/rtx_5090_rainbow_fans.png',
    '/images/components/rtx_5090_rainbow_white_bg.png',
    '/images/components/rx_7600_8gb.png',
  ],
  PSU: [
    '/images/components/corsair_rm750e_psu.png',
    '/images/components/msi_mpg_ai1600ts_psu.png',
    '/images/components/psu_400w_iso.png',
    '/images/components/psu_back_front.png',
    '/images/components/psu_front.png',
    '/images/components/psu_iso_new.png',
    '/images/components/psu_side_front.png',
    '/images/components/sfx_gold_psu.png',
  ],
  SSD: [
    '/images/components/nvme_ssd_front.png',
    '/images/components/nvme_ssd_front_new.png',
    '/images/components/nvme_ssd_iso_new.png',
    '/images/components/samsung_990_pro_ssd.png',
    '/images/components/ssd_120gb_front.png',
    '/images/components/ssd_2_5_front.png',
    '/images/components/ssd_2_5_inch.png',
  ],
  COOLER: [
    '/images/components/aio_cooler_front.png',
    '/images/components/aio_pump_front.png',
    '/images/components/air_cooler_front.png',
    '/images/components/air_cooler_front_new.png',
    '/images/components/air_cooler_iso_new.png',
    '/images/components/arctic_liquid_freezer_iii_360.png',
    '/images/components/intel_stock_cooler.png',
    '/images/components/msi_mag_coreliquid_360.png',
    '/images/components/stock_cooler_iso.png',
    '/images/components/thermalright_peerless_assassin_120.png',
  ],
  Mainboard: [
    '/images/components/high_end_mainboard.png',
```

```
  83|     '/images/components/mainboard_a520_front.png',
  84|     '/images/components/mainboard_a520_iso.png',
  85|     '/images/components/mainboard_b550_front.png',
  86|     '/images/components/mainboard_b550_iso.png',
  87|     '/images/components/mainboard_b760_front.png',
  88|     '/images/components/mainboard_b760_iso.png',
  89|     '/images/components/mainboard_classic_green_front.png',
  90|     '/images/components/mainboard_classic_green_iso.png',
  91|     '/images/components/mainboard_front.png',
  92|     '/images/components/mainboard_h610_front.png',
  93|     '/images/components/mainboard_h610_iso.png',
  94|     '/images/components/mainboard_iso.png',
  95|     '/images/components/mainboard_military_green_front.png',
  96|     '/images/components/mainboard_military_green_iso.png',
  97|   ],
  98|   HDD: [
  99|     '/images/components/hdd_3_5_inch.png',
 100|     '/images/components/hdd_iso.png',
 101|     '/images/components/hdd_old_front.png',
 102|   ],
 103| };
 104|
 105| export function getRandomSrc(): string {
 106|   const all = Object.values(IMAGE_MAP).flat();
 107|   if (all.length === 0) return '';
 108|   return all[Math.floor(Math.random() * all.length)];
 109| }
 110|
 111| export function getRandomImage(type: string): string {
 112|   const images = IMAGE_MAP[type];
 113|   if (!images || images.length === 0) return '';
 114|   return images[Math.floor(Math.random() * images.length)];
 115| }
 116|
 117| export function preloadImages(type: string): Promise<HTMLImageElement[]> {
 118|   const urls = IMAGE_MAP[type] || [];
 119|   return Promise.all(urls.map(src => new Promise<HTMLImageElement>((resolve) => {
 120|     const img = new Image();
 121|     img.onload = () => resolve(img);
 122|     img.onerror = () => resolve(img);
 123|     img.src = src;
 124|   })));
 125| }
 126|
```

File: components/JoinClassModal.js (154 lines, 6.9 KB)

```
   1| 'use client';
   2|
   3| import React, { useState } from 'react';
   4| import { X, Users, Loader2, CheckCircle2 } from 'lucide-react';
   5| import { supabase } from '@/lib/supabase';
   6|
   7| const JoinClassModal = ({ isOpen, onClose, lang }) => {
   8|     const [classCode, setClassCode] = useState('');
   9|     const [loading, setLoading] = useState(false);
  10|     const [error, setError] = useState(null);
  11|     const [success, setSuccess] = useState(false);
  12|
  13|     if (!isOpen) return null;
  14|
  15|     const handleJoin = async (e) => {
  16|         e.preventDefault();
  17|         setLoading(true);
  18|         setError(null);
  19|
  20|         try {
  21|             const { data: { user } } = await supabase.auth.getUser();
    2 2 |                         i f   ( ! u s e r )   t h r o w   n e w   E r r o r ( l a n g   = = =   ' e n '   ?   ' P l e a s e   l o g i n   f i r
  23|
    2 4 |                         / /   1 .   T ì m   l Û p   h Í c   t h e o   m ã   ( d ù n g   S E C U R I T Y   D E F I N E R   f u n c t i o n   Â
  25|             const { data: classData, error: classErr } = await supabase
  26|                 .rpc('fn_lookup_class_by_code', { p_code: classCode.toUpperCase() })
  27|                 .single();
  28|
  29|             if (classErr || !classData) {
    3 0 |                                 t h r o w   n e w   E r r o r ( l a n g   = = =   ' e n '   ?   ' I n v a l i d   c l a s s   c o d e '   :   '
  31|             }
  32|
    3 3 |                         / /   2 .   K i Ã m   t r a   x e m   ã   t h a m   g i a   c h ° a
  34|             const { data: existingMember } = await supabase
  35|                 .from('class_members')
  36|                 .select('id')
  37|                 .eq('class_id', classData.id)
  38|                 .eq('student_id', user.id)
  39|                 .single();
  40|
  41|             if (existingMember) {
    4 2 |                                 t h r o w   n e w   E r r o r ( l a n g   = = =   ' e n '   ?   ' Y o u   a r e   a l r e a d y   i n   t h i s
  43|             }
  44|
    4 5 |                         / /   3 .   T h ê m   v à o   l Û p
  46|             const { error: joinErr } = await supabase
  47|                 .from('class_members')
  48|                 .insert({
  49|                     class_id: classData.id,
  50|                     student_id: user.id,
  51|                     status: 'active'
  52|                 });
  53|
  54|             if (joinErr) throw joinErr;
  55|
  56|             setSuccess(true);
  57|             setTimeout(() => {
  58|                 onClose();
  59|                 setSuccess(false);
  60|                 setClassCode('');
  61|             }, 2000);
  62|
  63|         } catch (err) {
  64|             setError(err.message);
  65|         } finally {
  66|             setLoading(false);
  67|         }
  68|     };
  69|
  70|     return (
  71|         <div style={{
  72|             position: 'fixed', top: 0, left: 0, width: '100vw', height: '100vh',
  73|             background: 'rgba(12, 15, 20, 0.85)', backdropFilter: 'blur(8px)',
  74|             zIndex: 9999, display: 'flex', justifyContent: 'center', alignItems: 'center', padding: '2rem'
  75|         }}>
  76|             <div style={{
```

```
 77|                 background: 'var(--bg-surface)', border: '1px solid var(--border-strong)', borderRadius: '24px',
 78|                 padding: '40px', maxWidth: '400px', width: '100%', color: 'var(--text-primary)',
 79|                 position: 'relative', boxShadow: '0 20px 50px rgba(0,0,0,0.5)'
 80|             }}>
 81|                 <button
 82|                     onClick={onClose}
 83|                     style={{ position: 'absolute', top: '24px', right: '24px', background: 'transparent', bord...
 84|                 ><X size={24} /></button>
 85|
 86|                 <div style={{ textAlign: 'center', marginBottom: '32px' }}>
 87|                     <div style={{
 88|                         width: '64px', height: '64px', borderRadius: '20px', background: 'rgba(0, 243, 255, 0....
 89|                         display: 'flex', alignItems: 'center', justifyContent: 'center', margin: '0 auto 20px'
 90|                     }}>
 91|                         <Users size={32} color="var(--brand-primary)" />
 92|                     </div>
 93|                     <h2 style={{ fontSize: '24px', fontWeight: 800, margin: 0 }}>
    9 4 |                                                 { l a n g   = = =   ' e n '   ?   ' J o i n   C l a s s '   :   ' T h a m   g i a   l Û p   h i
 95|                     </h2>
 96|                     <p style={{ color: 'var(--text-secondary)', fontSize: '14px', marginTop: '8px' }}>
    9 7 |                                                 { l a n g   = = =   ' e n '   ?   ' E n t e r   t h e   c o d e   p r o v i d e d   b y   y o u
 98|                     </p>
 99|                 </div>
100|
101|                 {success ? (
102|                     <div style={{ textAlign: 'center', padding: '20px' }}>
103|                         <CheckCircle2 size={48} color="var(--success)" style={{ margin: '0 auto 16px' }} />
104|                         <p style={{ color: 'var(--success)', fontWeight: 600 }}>
   1 0 5 |                                                         { l a n g   = = =   ' e n '   ?   ' S u c c e s s f u l l y   j o i n e d ! '   :   '
106|                         </p>
107|                     </div>
108|                 ) : (
109|                     <form onSubmit={handleJoin} style={{ display: 'flex', flexDirection: 'column', gap: '20px'...
110|                         <div>
111|                             <input
112|                                 type="text"
113|                                 value={classCode}
114|                                 onChange={(e) => setClassCode(e.target.value.toUpperCase())}
115|                                 placeholder="VD: TIN001"
116|                                 required
117|                                 style={{
118|                                     width: '100%', padding: '16px', borderRadius: '12px',
119|                                     background: 'var(--bg-base)', border: '1px solid var(--border-strong)',
120|                                     color: 'white', fontSize: '18px', fontWeight: 700, textAlign: 'center',
121|                                     textTransform: 'uppercase', letterSpacing: '2px'
122|                                 }}
123|                             />
124|                         </div>
125|
126|                         {error && (
127|                             <p style={{ color: '#ef4444', fontSize: '13px', margin: 0, textAlign: 'center', fo...
128|                                 {error}
129|                             </p>
130|                         )}
131|
132|                         <button
133|                             type="submit"
134|                             disabled={loading}
135|                             style={{
136|                                 width: '100%', padding: '16px', borderRadius: '12px',
137|                                 background: 'var(--brand-primary)', color: '#000',
138|                                 fontSize: '16px', fontWeight: 700, border: 'none',
139|                                 cursor: loading ? 'not-allowed' : 'pointer',
140|                                 display: 'flex', alignItems: 'center', justifyContent: 'center', gap: '10px',
141|                                 transition: 'all 0.2s'
142|                             }}
143|                         >
144|                             {loading ? <Loader2 className="animate-spin" size={20} /> : (lang === 'en' ? 'Join...
145|                         </button>
146|                     </form>
147|                 )}
148|             </div>
149|         </div>
150|     );
151| };
152|
153| export default JoinClassModal;
154|
```

File: components/LearningMode.js (421 lines, 22.7 KB)

```
  1| 'use client';
  2|
  3| import { useState, useEffect, useRef } from 'react';
  4|
  5| import confetti from 'canvas-confetti';
  6| import GameEngine from './GameEngine';
  7| import LearningRoadmap from './LearningRoadmap';
  8| import HandTracker from './HandTracker';
  9|
 10|
 11| const HARDWARE_DATA = {
 12| // ... existing data ...
 13|     'CPU': {
 14|         en: "The Central Processing Unit (CPU) is the brain of the computer. It performs basic arithmetic, log...
    1 5 |                 v n :   " C e n t r a l   P r o c e s s i n g   U n i t   ( C P U )   l à   b Ù   n ã o   c ç a   m á y   t í n h .   N ó   t h
 16|     },
 17|     'RAM': {
 18|         en: "Random Access Memory (RAM) is a form of computer memory that can be read and changed in any order...
    1 9 |                 v n :   " R a n d o m   A c c e s s   M e m o r y   ( R A M )   l à   m Ù t   d ¡ n g   b Ù   n h Ô   m á y   t í n h   c ó   t
 20|     },
 21|     'GPU': {
 22|         en: "A Graphics Processing Unit (GPU) is a specialized electronic circuit designed to rapidly manipula...
    2 3 |                 v n :   " G r a p h i c s   P r o c e s s i n g   U n i t   ( G P U )   l à   m Ù t   m ¡ c h   i Ç n   t í   c h u y ê n   c
 24|     },
 25|     'Mainboard': {
 26|         en: "The Motherboard (Mainboard) is the main printed circuit board (PCB) in general-purpose computers ...
    2 7 |                 v n :   " B o   m ¡ c h   c h ç   ( M a i n b o a r d )   l à   b £ n g   m ¡ c h   i n   c h í n h   t r o n g   m á y   t í n
 28|     },
 29|     'Screws': {
 30|         en: "Screws secure the components inside the case.",
    3 1 |                 v n :   " Ð c   v í t   g i ú p   c Ñ   Ë n h   c á c   l i n h   k i Ç n   b ê n   t r o n g   v Ï   c a s e . "
 32|     },
 33|     'PSU': {
 34|         en: "A Power Supply Unit (PSU) converts mains AC to low-voltage regulated DC power for the internal co...
    3 5 |                 v n :   " N g u Ồ n   m á y   t í n h   ( P S U )   c h u y Ã n   Õ i   i Ç n   x o a y   c h i Á u   A C   t h à n h   i
 36|     }
 37| };
 38|
 39| const getTargetForLevel = (levelId) => {
 40|     switch (levelId) {
 41|         case 1: return 'CPU';
 42|         case 2: return 'RAM';
```

```
43|         case 3: return 'GPU';
44|         case 4: return 'PSU';
45|         case 5: return 'Screws'; // Final check
46|         default: return 'CPU';
47|     }
48| };
49|
50| const getQuizTopicForLevel = (levelId) => {
51|     switch (levelId) {
52|         case 1: return 'CPU';
53|         case 2: return 'RAM';
54|         case 3: return 'GPU';
55|         case 4: return 'PSU';
56|         case 5: return 'Computer Case';
57|         default: return 'CPU';
58|     }
59| };
60|
61| const LearningMode = ({
62|     lang,
63|     externalSelection,
64|     appMode,
65|     landmarks,
66|     cameraEnabled,
67|     onLandmarks,
68|     onHover,
69|     onGameEvent,
70|     onTakeQuiz,
71|     onBackToMenu,
72| }) => {
73|     // subMode: 'select' | 'roadmap' | 'assembly' | 'free'
74|     const [subMode, setSubMode] = useState('select');
75|     // view is 'roadmap' or 'assembly' (used in roadmap/structured learning)
76|     const [view, setView] = useState('roadmap');
77|     const [currentLevelId, setCurrentLevelId] = useState(null);
78|     const [unlockedLevels, setUnlockedLevels] = useState([1]);
79|     const [completedLevels, setCompletedLevels] = useState([]);
80|     const [viewFull, setViewFull] = useState(false);
81|
82|     const processedPlacementRef = useRef(null);
83|
84|     // local block tracking
85|     const [progress, setProgress] = useState([]);
86|
87|     useEffect(() => {
88|         try {
89|             const savedUnlocked = localStorage.getItem('unlockedLevels');
90|             const savedCompleted = localStorage.getItem('completedLevels');
91|             if (savedUnlocked) setUnlockedLevels(JSON.parse(savedUnlocked));
92|             if (savedCompleted) setCompletedLevels(JSON.parse(savedCompleted));
93|         } catch (e) {
94|             console.error("Error loading progress from localStorage", e);
95|             // Default values already set in useState
96|         }
97|     }, []);
98|
99|     const saveProgress = (newUnlocked, newCompleted) => {
100|         setUnlockedLevels(newUnlocked);
101|         setCompletedLevels(newCompleted);
102|         localStorage.setItem('unlockedLevels', JSON.stringify(newUnlocked));
103|         localStorage.setItem('completedLevels', JSON.stringify(newCompleted));
104|     };
105|
106|     const handleNodeClick = (levelId) => {
107|         setCurrentLevelId(levelId);
108|         setView('assembly');
109|         setProgress([]);
110|     };
111|
112|     function handleQuizSuccess(levelId) {
113|         const newCompleted = [...new Set([...completedLevels, levelId])];
114|         if (levelId < 5) {
115|             const nextLevel = levelId + 1;
116|             const newUnlocked = [...new Set([...unlockedLevels, levelId, nextLevel])];
117|             saveProgress(newUnlocked, newCompleted);
118|         } else {
119|             saveProgress(unlockedLevels, newCompleted); // level 5 complete
120|         }
121|
122|         setView('roadmap');
123|
124|         // Firework effect
125|         confetti({
126|             particleCount: 150,
127|             spread: 80,
128|             origin: { y: 0.6 }
129|         });
130|     }
131|
132|     function triggerQuizForLevel(levelId, hardwareTarget) {
133|         // We prompt the user with the quiz modal.
134|         // If they succeed (score >= 8), handleQuizSuccess runs.
135|         const quizTopic = getQuizTopicForLevel(levelId);
136|         onTakeQuiz(quizTopic, levelId, (score) => {
137|             if (score >= 8) {
138|                 handleQuizSuccess(levelId);
139|             }
140|         });
141|     }
142|
143|     useEffect(() => {
144|         if (!externalSelection || !externalSelection.type || view !== 'assembly' || !currentLevelId) return;
145|
146|         // Prevent infinite loop by checking if we already processed this exact placement event via its ID
147|         if (processedPlacementRef.current === externalSelection.id) return;
148|         processedPlacementRef.current = externalSelection.id;
149|
150|         const target = getTargetForLevel(currentLevelId);
151|         const type = externalSelection.type;
152|
153|         if (type === target || (target === 'Screws' && type === 'Mainboard')) {
154|             if (target === 'RAM') {
155|                 setProgress(prev => {
156|                     const newProgress = [...prev, type];
157|                     const ramPlaced = newProgress.filter(t => t === 'RAM').length;
158|                     if (ramPlaced >= 2) {
159|                         // Use timeout to let state settle before opening quiz modal
160|                         setTimeout(() => triggerQuizForLevel(currentLevelId, target), 50);
161|                     }
162|                     return newProgress;
163|                 });
164|             } else {
165|                 triggerQuizForLevel(currentLevelId, target);
166|             }
```

```
167|         }
168|     }, [externalSelection, view, currentLevelId]);
169|
170|     // --- Sub-mode selector screen ---
171|     if (subMode === 'select') {
172|         return (
173|             <div style={{ width: '100%', maxWidth: '900px', margin: '0 auto', display: 'flex', flexDirection: ...
174|                 <h2 className="neon-text-blue" style={{ margin: 0, fontSize: '2.5rem', letterSpacing: '2px', t...
  1 7 5 |                                         { l a n g   = = =   ' e n '   ?   ' P r a c t i c e   M o d e '   :   ' C h ¿    Ù   L u y Ç n   T - p
176|                 </h2>
177|                     <p style={{ color: 'var(--text-muted)', textAlign: 'center', fontSize: '1.1rem' }}>
  1 7 8 |                                         { l a n g   = = =   ' e n '   ?   ' C h o o s e   h o w   y o u   w a n t   t o   p r a c t i c e : '
179|                 </p>
180|                 <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '2rem', width: '100%' }}>
181|                     {/* Roadmap */}
182|                     <button
183|                         onClick={() => setSubMode('roadmap')}
184|                         className="glass-panel"
185|                         style={{
186|                             display: 'flex', flexDirection: 'column', alignItems: 'center', padding: '3rem 2re...
187|                             cursor: 'pointer', border: '1px solid var(--accent-blue)', background: 'var(--bg-s...
188|                             borderRadius: '16px', color: 'var(--text-primary)'
189|                         }}
190|                         onMouseOver={e => { e.currentTarget.style.borderColor = 'rgba(0,243,255,0.6)'; }}
191|                         onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--accent-blue)'; }}
192|                     >
  1 9 3 |                                                 < s p a n   s t y l e = { {   f o n t S i z e :   ' 3 . 5 r e m '   } } >Ø=Ýúþ  < / s p a n >
194|                         <div style={{ textAlign: 'center' }}>
195|                             <h3 style={{ color: 'var(--accent-blue)', marginBottom: '0.5rem', fontSize: '1.5re...
  1 9 6 |                                                     { l a n g   = = =   ' e n '   ?   ' L e a r n i n g   R o a d m a p '   :   ' L
197|                             </h3>
198|                             <p style={{ color: 'var(--text-muted)', fontSize: '0.95rem' }}>
  1 9 9 |                                                     { l a n g   = = =   ' e n '   ?   ' S t e p - b y - s t e p   g u i d e d   m i
200|                             </p>
201|                         </div>
202|                         <div style={{ height: '4px', width: '100%', background: 'var(--accent-blue)', boxShado...
203|                     </button>
204|
205|                     {/* Free Practice */}
206|                     <button
207|                         onClick={() => setSubMode('free')}
208|                         className="glass-panel"
209|                         style={{
210|                             display: 'flex', flexDirection: 'column', alignItems: 'center', padding: '3rem 2re...
211|                             cursor: 'pointer', border: '1px solid var(--brand-primary)', background: 'var(--bg...
212|                             borderRadius: '16px', color: 'var(--text-primary)'
213|                         }}
214|                         onMouseOver={e => { e.currentTarget.style.borderColor = 'rgba(52,211,153,0.6)'; }}
215|                         onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--brand-primary)'; }}
216|                     >
  2 1 7 |                                                 < s p a n   s t y l e = { {   f o n t S i z e :   ' 3 . 5 r e m '   } } >Ø=Þàþ  < / s p a n >
218|                         <div style={{ textAlign: 'center' }}>
219|                             <h3 style={{ color: 'var(--brand-primary)', marginBottom: '0.5rem', fontSize: '1.5...
  2 2 0 |                                                     { l a n g   = = =   ' e n '   ?   ' F r e e   P r a c t i c e '   :   ' L u y (
221|                             </h3>
222|                             <p style={{ color: 'var(--text-muted)', fontSize: '0.95rem' }}>
  2 2 3 |                                                     { l a n g   = = =   ' e n '   ?   ' F r e e l y   a s s e m b l e   c o m p o r
224|                             </p>
225|                         </div>
226|                         <div style={{ height: '4px', width: '100%', background: 'var(--brand-primary)', boxSha...
227|                     </button>
228|                 </div>
229|             </div>
230|         );
231|     }
232|
233|     // --- Free Practice sub-mode ---
234|     if (subMode === 'free') {
235|         return (
236|             <div style={{ display: 'flex', flexDirection: 'column', gap: '1rem', width: '100%' }}>
237|                 <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
238|                     <h2 className="neon-text-green" style={{ margin: 0, fontSize: '18px' }}>
  2 3 9 |                                                 { l a n g   = = =   ' e n '   ?   'Ø=Þàþ   F r e e   P r a c t i c e '   :   'Ø=Þàþ   L u y (
240|                     </h2>
241|                     <button onClick={() => setSubMode('select')} style={{
242|                         padding: '6px 14px', background: 'transparent', color: 'var(--text-primary)',
243|                         border: '1px solid var(--border-default)', borderRadius: '8px', cursor: 'pointer', fon...
244|                     }}>
  2 4 5 |                                                 { l a n g   = = =   ' e n '   ?   '!•   B a c k '   :   '!•   Q u a y   l ¡ i ' }
246|                     </button>
247|                 </div>
248|                 <div style={{ display: 'flex', gap: '16px', alignItems: 'flex-start' }}>
249|                     <div style={{ flex: 1, maxWidth: '800px' }}>
250|                         <GameEngine
251|                             onHover={onHover}
252|                             onGameEvent={onGameEvent}
253|                             landmarks={landmarks}
254|                         />
255|                     </div>
256|                     <div style={{ width: '220px', flexShrink: 0 }}>
257|                         <div style={{
258|                             borderRadius: '12px', overflow: 'hidden',
259|                             border: '1px solid rgba(0,212,170,0.25)',
260|                             boxShadow: '0 0 16px rgba(0,212,170,0.15)',
261|                             background: '#0f172a',
262|                         }}>
263|                             <div style={{ padding: '6px 10px', background: 'rgba(0,212,170,0.08)', borderBotto...
  2 6 4 |                                                     < s p a n >Ø=Ü÷   C a m e r a < / s p a n >
265|                                 <span style={{ fontSize: '10px', color: cameraEnabled ? '#10b981' : '#ef4444' }}>
  2 6 6 |                                                         { c a m e r a E n a b l e d   ?   ' B - t '   :   ' T ¯ t ' }
267|                                 </span>
268|                             </div>
269|                             <div style={{ width: '100%', aspectRatio: '4/3', minHeight: '140px', position: 're...
270|                                 {cameraEnabled && <HandTracker onLandmarks={onLandmarks} numHands={1} />}
271|                                 {!cameraEnabled && (
272|                                     <div style={{ width: '100%', height: '100%', display: 'flex', alignItems: ...
  2 7 3 |                                                                 C a m e r a   T ® T
274|                                     </div>
275|                                 )}
276|                             </div>
277|                         </div>
278|                     </div>
279|                 </div>
280|             </div>
281|         );
282|     }
283|
284|     // --- Full PC View (pre-assembled, full screen) ---
285|     if (viewFull) {
286|         return (
287|             <div style={{ position: 'fixed', inset: 0, zIndex: 9999, background: '#030712' }}>
288|                 <div style={{ position: 'absolute', top: 10, left: 10, zIndex: 10, display: 'flex', gap: 8 }}>
289|                     <button onClick={() => setViewFull(false)} style={{
290|                         padding: '6px 14px', background: 'rgba(255,255,255,0.08)', color: '#fff',
```

```
291|                        border: '1px solid rgba(255,255,255,0.15)', borderRadius: 8, cursor: 'pointer',
292|                        fontSize: 12, fontWeight: 600, fontFamily: 'inherit', backdropFilter: 'blur(8px)',
293|                    }}>
  2 9 4 |                                                !•   { l a n g   = = =   ' e n '   ?   ' B a c k '   :   ' Q u a y   l ¡ i ' }
295|                    </button>
296|                    <div style={{
297|                        padding: '6px 14px', background: 'rgba(0,212,170,0.1)',
298|                        border: '1px solid rgba(0,212,170,0.2)', borderRadius: 8,
299|                        color: '#00d4aa', fontSize: 11, fontWeight: 600, fontFamily: 'inherit',
300|                        backdropFilter: 'blur(8px)',
301|                    }}>
  3 0 2 |                                                Ø=Ý¥þ    { l a n g   = = =   ' e n '   ?   ' F u l l   P C   V i e w '   :   ' X e m   F u l l
303|                    </div>
304|                </div>
305|                <div style={{ width: '100vw', height: '100vh' }}>
306|                    <GameEngine defaultPlaced={true} landmarks={landmarks} />
307|                </div>
308|            </div>
309|        );
310|    }
311|
312|    // --- Roadmap sub-mode: show roadmap or level assembly ---
313|    if (subMode === 'roadmap' && view === 'roadmap') {
314|        return (
315|            <div style={{ width: '100%', display: 'flex', flexDirection: 'column', gap: '1rem' }}>
316|                <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
317|                    <h2 className="neon-text-green" style={{ margin: 0 }}>
  3 1 8 |                                                    { l a n g   = = =   ' e n '   ?   ' I n t e r a c t i v e   L e a r n i n g   R o a d m a p '
319|                    </h2>
320|                    <div style={{ display: 'flex', gap: 8 }}>
321|                        <button onClick={() => setViewFull(true)} style={{
322|                            padding: '8px 18px', background: 'rgba(0,212,170,0.1)', color: '#00d4aa',
323|                            border: '1px solid rgba(0,212,170,0.3)', borderRadius: 8, cursor: 'pointer',
324|                            fontWeight: 600, fontSize: 12, fontFamily: 'inherit',
325|                        }}>
  3 2 6 |                                                        Ø=Ý¥þ    { l a n g   = = =   ' e n '   ?   ' F u l l   P C '   :   ' X e m   F u l l   P
327|                        </button>
328|                        <button onClick={() => setSubMode('select')} style={{
329|                            padding: '8px 18px', background: 'transparent', color: 'var(--text-primary)',
330|                            border: '1px solid var(--border-default)', borderRadius: 8, cursor: 'pointer', fon...
331|                        }}>
  3 3 2 |                                                        { l a n g   = = =   ' e n '   ?   '!•   B a c k '   :   '!•   Q u a y   l ¡ i ' }
333|                        </button>
334|                    </div>
335|                </div>
336|                <LearningRoadmap
337|                    lang={lang}
338|                    unlockedLevels={unlockedLevels}
339|                    completedLevels={completedLevels}
340|                    onNodeClick={handleNodeClick}
341|                    landmarks={landmarks}
342|                />
343|            </div>
344|        );
345|    }
346|
347|    // Assembly View
348|    const targetHardware = getTargetForLevel(currentLevelId);
349|
350|    return (
351|        <div className="practice-layout" style={{ display: 'flex', flexDirection: 'column', gap: '1rem' }}>
352|            <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
353|                <h2 className="neon-text-green" style={{ margin: 0, fontSize: '18px' }}>
  3 5 4 |                                        { l a n g   = = =   ' e n '   ?   ` L e v e l   $ { c u r r e n t L e v e l I d } :   A c t i o n `   :
355|                </h2>
356|                <button onClick={() => setView('roadmap')} style={{ padding: '6px 14px', background: 'transpar...
  3 5 7 |                                        { l a n g   = = =   ' e n '   ?   '+   B a c k '   :   '+   V Á ' }
358|                </button>
359|            </div>
360|
361|            <div style={{ display: 'flex', gap: '16px', alignItems: 'flex-start' }}>
362|                {/* Left: Mainboard game area - compact */}
363|                <div style={{ flex: 1, maxWidth: '800px', position: 'relative' }}>
364|                    <GameEngine
365|                        onHover={onHover}
366|                        onGameEvent={onGameEvent}
367|                        landmarks={landmarks}
368|                    />
369|                </div>
370|
371|                {/* Right: Camera on top + Info below */}
372|                <div style={{ width: '220px', flexShrink: 0, display: 'flex', flexDirection: 'column', gap: '1...
373|                    {/* Camera */}
374|                    <div style={{
375|                        borderRadius: '12px', overflow: 'hidden',
376|                        border: '1px solid rgba(0,212,170,0.25)',
377|                        boxShadow: '0 0 16px rgba(0,212,170,0.15)',
378|                        background: '#0f172a',
379|                    }}>
380|                        <div style={{ padding: '6px 10px', background: 'rgba(0,212,170,0.08)', borderBottom: '...
  3 8 1 |                                                < s p a n >Ø=Ù÷   C a m e r a < / s p a n >
382|                            <span style={{ fontSize: '10px', color: cameraEnabled ? '#10b981' : '#ef4444' }}>
  3 8 3 |                                                    { c a m e r a E n a b l e d   ?   ' B - t '   :   ' T ¯ t ' }
384|                            </span>
385|                        </div>
386|                        <div style={{ width: '100%', aspectRatio: '4/3', minHeight: '140px', position: 'relati...
387|                            {cameraEnabled && (
388|                                <HandTracker onLandmarks={onLandmarks} numHands={1} />
389|                            )}
390|                            {!cameraEnabled && (
391|                                <div style={{ width: '100%', height: '100%', display: 'flex', alignItems: 'cen...
  3 9 2 |                                                        C a m e r a   T ® T
393|                                </div>
394|                            )}
395|                        </div>
396|                    </div>
397|
398|                    {/* Hardware Info Panel */}
399|                    <div className="glass-panel" style={{ padding: '14px', borderRadius: '12px', display: 'fle...
400|                        <h3 style={{ color: '#60a5fa', margin: 0, fontSize: '14px', fontWeight: 800 }}>{target...
401|                        <p style={{ color: 'var(--text-secondary)', lineHeight: 1.5, fontSize: '13px', margin:...
402|                            {HARDWARE_DATA[targetHardware === 'Screws' ? 'Screws' : targetHardware]?.[lang]}
403|                        </p>
404|                        <p style={{ color: '#00d4aa', fontWeight: 700, fontSize: '12px', margin: 0 }}>
405|                            {lang === 'en'
406|                                ? (targetHardware === 'Screws' ? "Assemble to trigger the quiz!" : `Place the ...
  4 0 7 |                                                    :   ( t a r g e t H a r d w a r e   = = =   ' S c r e w s '   ?   " L ¯ p   
408|                        </p>
409|                        <button onClick={() => triggerQuizForLevel(currentLevelId, targetHardware)}
410|                            style={{ padding: '10px', background: 'var(--accent-blue)', color: '#fff', border:...
  4 1 1 |                                                    { l a n g   = = =   ' e n '   ?   ' S t a r t   Q u i z   'œ '   :   ' L à m   B à i   K
412|                        </button>
413|                    </div>
414|                </div>
```

```
            </div>
        </div>
    );
};

export default LearningMode;
```

File: components/LearningRoadmap.js (252 lines, 13.2 KB)

```
import React, { useState, useEffect, useRef } from 'react';
import { motion } from 'framer-motion';

const LEVELS = [
    { id: 1, titleEn: 'Level 1: The Heart', titleVn: 'Level 1: Trái tim', target: 'CPU', descEn: 'Install the ...
    { id: 2, titleEn: 'Level 2: The Memory', titleVn: 'Level 2: BÙ nhÛ',
    { id: 3, titleEn: 'Level 3: The Graphics', titleVn: 'Level 3: Ó hÍa
    { id: 4, titleEn: 'Level 4: The Power', titleVn: 'Level 4: NguÓn', t
    { id: 5, titleEn: 'Level 5: Final Check', titleVn: 'Level 5: Hoàn th
];

// Simple 1D exponential moving average as a basic low-pass filter (simplified One Euro)
class LowPassFilter {
    constructor(alpha = 0.5) {
        this.alpha = alpha;
        this.lastVal = null;
    }
    filter(val) {
        if (this.lastVal === null) {
            this.lastVal = val;
            return val;
        }
        this.lastVal = this.alpha * val + (1 - this.alpha) * this.lastVal;
        return this.lastVal;
    }
}

const LearningRoadmap = ({ lang, unlockedLevels = [1], completedLevels = [], onNodeClick, landmarks, trackingS...
    const containerRef = useRef(null);
    const filterX = useRef(new LowPassFilter(0.15));
    const filterY = useRef(new LowPassFilter(0.15));

    const [cursorPos, setCursorPos] = useState({ x: -100, y: -100, isPinching: false });
    const [hoveredNode, setHoveredNode] = useState(null);
    const pinchActiveRef = useRef(false);

    useEffect(() => {
        if (!containerRef.current || !landmarks || landmarks.length === 0) return;

        const hand = landmarks[0];
        const indexTip = hand[8];
        const thumbTip = hand[4];

        const rect = containerRef.current.getBoundingClientRect();
        const scaleX = (indexTip.x - 0.5) * trackingSensitivity + 0.5;
        const scaleY = (indexTip.y - 0.5) * trackingSensitivity + 0.5;
        const rawX = scaleX * rect.width;
        const rawY = scaleY * rect.height;

        const smoothX = filterX.current.filter(rawX);
        const smoothY = filterY.current.filter(rawY);

        const distance = Math.hypot(indexTip.x - thumbTip.x, indexTip.y - thumbTip.y);
        // Hysteresis: easier to pinch, harder to release
        const isPinching = pinchActiveRef.current
          ? distance < 0.10
          : distance < 0.07;
        pinchActiveRef.current = isPinching;

        setCursorPos({ x: smoothX, y: smoothY, isPinching });

        // Node hit detection with padding
            const PADDING = 30; // Vùng Çm cho phép chÍn dÅ h¡n
        let found = null;

        // Nodes positions map based on index for simplicity structure below
        const nodeCoords = [
            { id: 1, x: 100, y: 100 },
            { id: 2, x: 300, y: 100 },
            { id: 3, x: 300, y: 350 },
            { id: 4, x: 500, y: 350 },
            { id: 5, x: 500, y: 600 },
        ];

        for (let node of nodeCoords) {
            // approximate bounding box based on UI layout
            const dx = Math.abs(smoothX - node.x - 50); // node center X offset
            const dy = Math.abs(smoothY - node.y - 50); // node center Y offset
            if (dx < 50 + PADDING && dy < 50 + PADDING) {
                found = node.id;
                break;
            }
        }

        setHoveredNode(found);

        if (isPinching && found && unlockedLevels.includes(found)) {
            onNodeClick(found);
        }
    }, [landmarks, unlockedLevels, onNodeClick, trackingSensitivity]);

    const getNodeState = (levelId) => {
        if (completedLevels.includes(levelId)) return 'completed';
        if (unlockedLevels.includes(levelId)) return 'active';
        return 'locked';
    };

    const getNodeStyle = (state) => {
                if (state === 'locked') return { bg: '#444', border: '#666', ic
                if (state === 'active') return { bg: 'rgba(0, 123, 255, 0.2)', b
                if (state === 'completed') return { bg: 'rgba(0, 255, 100, 0.2)
    };

    const [layoutScale, setLayoutScale] = useState(1);
    useEffect(() => {
        const updateScale = () => {
            const hScale = window.innerWidth < 800 ? Math.min(1, window.innerWidth / 800) : 1;
            setLayoutScale(hScale);
        };
        updateScale();
        window.addEventListener('resize', updateScale);
        return () => window.removeEventListener('resize', updateScale);
    }, []);
```

```
    return (
        <div ref={containerRef} style={{
            width: '100%',
            height: '100%', // Take full height available
            maxHeight: '80vh', // Prevent overpowering the screen
            background: '#0f172a',
            backgroundImage: 'linear-gradient(#1e293b 1px, transparent 1px), linear-gradient(90deg, #1e293b 1p...
            backgroundSize: '40px 40px',
            position: 'relative',
            borderRadius: '16px',
            border: '2px solid #334155',
            overflowY: 'auto', // Allow scrolling down the roadmap
            overflowX: 'hidden',
            display: 'block', // Changed from flex strictly centering
            paddingTop: '20px'
        }}>
            {/* Extended height map */}
            <div style={{ width: '800px', height: '800px', position: 'relative', transform: `scale(${layoutSca...
                {/* SVGs for Circuit Lines (Elongated for scroll) */}
                <svg style={{ position: 'absolute', top: 0, left: 0, width: '100%', height: '100%', pointerEve...
                    <path d="M 150 150 L 350 150" stroke={unlockedLevels.includes(2) ? '#00ccff' : '#444'} str...
                        style={{ filter: unlockedLevels.includes(2) ? 'drop-shadow(0 0 5px #00ccff)' : 'none',...
                    <path d="M 350 150 L 350 400" stroke={unlockedLevels.includes(3) ? '#00ccff' : '#444'} str...
                        style={{ filter: unlockedLevels.includes(3) ? 'drop-shadow(0 0 5px #00ccff)' : 'none',...
                    <path d="M 350 400 L 550 400" stroke={unlockedLevels.includes(4) ? '#00ccff' : '#444'} str...
                        style={{ filter: unlockedLevels.includes(4) ? 'drop-shadow(0 0 5px #00ccff)' : 'none',...
                    <path d="M 550 400 L 550 650" stroke={unlockedLevels.includes(5) ? '#00ccff' : '#444'} str...
                        style={{ filter: unlockedLevels.includes(5) ? 'drop-shadow(0 0 5px #00ccff)' : 'none',...
                </svg>

                {/* Nodes */}
                {LEVELS.map((lvl, index) => {
                    const state = getNodeState(lvl.id);
                    const style = getNodeStyle(state);
                    const coords = [
                        { top: '100px', left: '100px' },
                        { top: '100px', left: '300px' },
                        { top: '350px', left: '300px' }, // Down
                        { top: '350px', left: '500px' },
                        { top: '600px', left: '500px' }, // Down further
                    ][index];

                    const isHovered = hoveredNode === lvl.id;

                    return (
                        <div key={lvl.id} style={{ position: 'absolute', ...coords }}>
                            <motion.div
                                onClick={() => { if (state !== 'locked') onNodeClick(lvl.id); }}
                                animate={state === 'active' ? { scale: [1, 1.1, 1], boxShadow: [style.glow, '0...
                                transition={{ repeat: Infinity, duration: 2 }}
                                style={{
                                    width: '100px', height: '100px',
                                    borderRadius: '50%',
                                    background: style.bg,
                                    border: `4px solid ${style.border}`,
                                    display: 'flex', alignItems: 'center', justifyContent: 'center',
                                    flexDirection: 'column',
                                    cursor: state === 'locked' ? 'not-allowed' : 'pointer',
                                    boxShadow: style.glow,
                                    position: 'relative',
                                    zIndex: 10
                                }}
                                whileHover={{ scale: state !== 'locked' ? 1.1 : 1 }}
                            >
                                <span style={{ fontSize: '2rem' }}>{style.icon}</span>
                                {state === 'completed' && (
                                    <div style={{ display: 'flex', gap: '2px', marginTop: '4px' }}>
                                                                                                    <span style={{ fontSize: '0.8rem
                                                                                                    <span style={{ fontSize: '0.8rem
                                                                                                    <span style={{ fontSize: '0.8rem
                                    </div>
                                )}
                            </motion.div>

                            {/* Title Under Node */}
                            <div style={{
                                position: 'absolute', top: '105px', left: '50%', transform: 'translateX(-50%)',
                                whiteSpace: 'nowrap', textAlign: 'center', fontSize: '0.85rem', fontWeight: 'b...
                                color: state === 'locked' ? '#64748b' : '#38bdf8',
                                textShadow: state === 'locked' ? 'none' : '0 2px 4px rgba(0,0,0,0.8)',
                                pointerEvents: 'none'
                            }}>
                                {lang === 'en' ? lvl.titleEn : lvl.titleVn}
                            </div>

                            {/* Tooltip on hover */}
                            {(isHovered || true) && (
                                <motion.div
                                    initial={{ opacity: 0, y: 10 }}
                                    animate={{ opacity: isHovered ? 1 : 0, y: isHovered ? 0 : 10 }}
                                    style={{
                                        position: 'absolute',
                                        top: '-90px', left: '50%', transform: 'translateX(-50%)',
                                        background: 'rgba(15, 23, 42, 0.95)',
                                        border: '1px solid #334155',
                                        padding: '10px', borderRadius: '8px',
                                        width: '200px', pointerEvents: 'none',
                                        color: 'white', zIndex: 20,
                                        boxShadow: '0 4px 6px rgba(0,0,0,0.5)',
                                        textAlign: 'center'
                                    }}
                                >
                                    <div style={{ fontWeight: 'bold', color: '#00ccff', marginBottom: '4px' }}>
                                        {lang === 'en' ? lvl.titleEn : lvl.titleVn}
                                    </div>
                                    <div style={{ fontSize: '0.85rem', color: '#cbd5e1' }}>
                                        {lang === 'en' ? lvl.descEn : lvl.descVn}
                                    </div>
                                </motion.div>
                            )}
                        </div>
                    );
                })}

                {/* Webcam Cursor overlay */}
                {landmarks && landmarks.length > 0 && (
                    <div style={{
                        position: 'absolute',
                        left: cursorPos.x - 10,
                        top: cursorPos.y - 10,
                        width: 20,
                        height: 20,
                        borderRadius: '50%',
```

```
                        background: cursorPos.isPinching ? 'yellow' : 'cyan',
                        border: '2px solid black',
                        pointerEvents: 'none',
                        zIndex: 200,
                        boxShadow: cursorPos.isPinching ? '0 0 15px yellow' : '0 0 10px cyan',
                        transition: 'background 0.2s'
                    }} />
                )}
            </div>
        </div>
    );
};

export default LearningRoadmap;

```

File: components/LectureCourse.js (699 lines, 38.2 KB)

```
'use client';

import React, { useEffect, useState } from 'react';
import { motion, AnimatePresence } from 'framer-motion';
import { supabase } from '@/lib/supabase';
import {
    BookOpen, Video, FileText, Image as ImageIcon, FileSearch, Code,
    Loader2, ArrowLeft, Book, Maximize2, X, Clock, CheckCircle, Circle,
    GraduationCap, Lightbulb, ChevronRight, Sparkles, Play, Trophy,
    BookMarked, Flame, Star, Compass
} from 'lucide-react';
import { BadgesPanel } from './LessonInteractive';
import NotificationBar from './NotificationBar';
import LessonComments from './LessonComments';
import { useRealtime } from '@/lib/realtime-provider';

const containerVariants = {
    hidden: { opacity: 0 },
    visible: { opacity: 1, transition: { staggerChildren: 0.08 } }
};
const itemVariants = {
    hidden: { opacity: 0, y: 24 },
    visible: { opacity: 1, y: 0, transition: { type: 'spring', stiffness: 100, damping: 15 } }
};

function SimpleMarkdown({ text }) {
    const html = (text || '')
        .replace(/^## (.+)$/gm, '<h2 style="color:#2563EB;font-size:1.25rem;margin:20px 0 10px;font-weight:700...
        .replace(/^# (.+)$/gm, '<h1 style="color:#2563EB;font-size:1.6rem;margin:24px 0 12px;font-weight:800">...
        .replace(/\*\*(.+?)\*\*/g, '<strong style="color:#0F172A">$1</strong>')
        .replace(/\*(.+?)\*/g, '<em>$1</em>')
        .replace(/^- (.+)$/gm, '<li style="margin:6px 0">$1</li>')
        .replace(/\n/g, '<br/>');
    return <div dangerouslySetInnerHTML={{ __html: html }} style={{ color: '#475569', lineHeight: 1.8 }} />;
}

const getYouTubeEmbed = (url) => {
    if (!url) return '';
    const id = url.match(/(?:youtube\.com\/(?:[^/]+\/.+\/|(?:v|e(?:mbed)?)\/|.*[?&]v=)|youtu\.be\/)([^"&?/\s]{...
    return id ? `https://www.youtube.com/embed/${id}` : '';
};
const getDriveEmbed = (url) => {
    if (!url) return '';
    const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1];
    return id ? `https://drive.google.com/file/d/${id}/preview` : (url.includes('/preview') ? url : '');
};
const getPdfEmbedUrl = (url) => {
    if (!url) return '';
    const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1];
    if (id) {
        const downloadUrl = `https://drive.google.com/uc?export=download&id=${id}`;
        return `https://docs.google.com/viewer?url=${encodeURIComponent(downloadUrl)}&embedded=true`;
    }
    return url;
};
const parseRichContent = (content) => {
    const parts = [];
    const regex = /<div class="(video-embed|pdf-embed)">([\s\S]*?)<\/div>/g;
    let lastIndex = 0, match;
    while ((match = regex.exec(content)) !== null) {
        if (match.index > lastIndex) parts.push({ type: 'markdown', content: content.substring(lastIndex, matc...
        parts.push({ type: match[1] === 'video-embed' ? 'video' : 'pdf', url: match[2].trim() });
        lastIndex = match.index + match[0].length;
    }
    if (lastIndex < content.length) parts.push({ type: 'markdown', content: content.substring(lastIndex) });
    if (parts.length === 0) parts.push({ type: 'markdown', content });
    return parts;
};

/// %%% Lesson Detail View %%%%
```

```
106|                animate={{ x: 0 }}
107|                transition={{ type: 'spring', stiffness: 120, damping: 20 }}
108|                className="w-full md:w-[240px] flex-shrink-0 bg-white border-b md:border-b-0 md:border-r borde...
109|            >
110|                <motion.button
111|                    whileHover={{ x: -4 }}
112|                    onClick={onBack}
113|                    className="flex items-center gap-2 text-slate-500 hover:text-slate-700 mb-6 text-sm font-m...
114|                >
115|                                        < A r r o w L e f t   s i z e = { 1 6 }   / >   Q u a y   l ¡ i
116|                </motion.button>
117|                            < h 4   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   u p p e r c a s e   t r a c k i n g - w i d e
118|                {loading ? (
119|                    <div className="flex justify-center py-8">
120|                        <Loader2 className="animate-spin text-blue-600" size={20} />
121|                    </div>
122|                ) : (
123|                    <nav className="flex flex-col gap-1">
124|                        {sections.map((s, i) => (
125|                            <a
126|                                key={s.id}
127|                                href={`#sec-${s.id}`}
128|                                className="flex items-center gap-3 px-3 py-2.5 rounded-xl text-slate-700 hover...
129|                            >
130|                                <span className="w-6 h-6 rounded-lg bg-blue-100 text-blue-700 flex items-cente...
131|                                    {i + 1}
132|                                </span>
133|                                <span className="truncate">{s.title}</span>
134|                            </a>
135|                        ))}
136|                    </nav>
137|                )}
138|
139|                <div className="mt-auto pt-6">
140|                    <motion.button
141|                        whileHover={{ scale: 1.02 }}
142|                        whileTap={{ scale: 0.97 }}
143|                        onClick={handleComplete}
144|                        disabled={completing}
145|                        className={`w-full py-3 px-4 rounded-xl font-bold text-sm flex items-center justify-ce...
146|                            isCompleted
147|                                ? 'bg-emerald-50 text-emerald-600 border-emerald-200'
148|                                : 'bg-blue-600 text-white border-blue-600 hover:bg-blue-700 shadow-lg shadow-b...
149|                        }`}
150|                    >
151|                        {completing ? (
152|                            <Loader2 className="animate-spin" size={16} />
153|                        ) : isCompleted ? (
154|                                                        < > < C h e c k C i r c l e   s i z e = { 1 6 }   / >    ã   h o à n   t h à n h < / >
155|                        ) : (
156|                                                        < > < C i r c l e   s i z e = { 1 6 }   / >    á n h   d ¥ u   h o à n   t h à n h < /
157|                        )}
158|                    </motion.button>
159|                </div>
160|            </motion.aside>
161|
162|            {/* Main content */}
163|            <div className="flex-1 overflow-y-auto">
164|                <div className="max-w-4xl mx-auto px-4 sm:px-6 md:px-8 py-4 sm:py-6 md:py-8">
165|                    {lesson.thumbnail_url && (
166|                        <motion.div
167|                            initial={{ opacity: 0, y: 20 }}
168|                            animate={{ opacity: 1, y: 0 }}
169|                            className="w-full h-[260px] rounded-2xl overflow-hidden mb-8 shadow-lg"
170|                        >
171|                            <img src={lesson.thumbnail_url} className="w-full h-full object-cover" />
172|                        </motion.div>
173|                    )}
174|                    <motion.div
175|                        initial={{ opacity: 0, y: 16 }}
176|                        animate={{ opacity: 1, y: 0 }}
177|                        transition={{ delay: 0.1 }}
178|                        className="flex justify-between items-start mb-6"
179|                    >
180|                        <div>
181|                            <h1 className="text-3xl font-extrabold text-slate-900 mb-2">{lesson.title}</h1>
182|                            {lesson.description && (
183|                                <p className="text-slate-500 text-base leading-relaxed">{lesson.description}</p>
184|                            )}
185|                        </div>
186|                        {isCompleted && (
187|                            <div className="flex items-center gap-2 bg-emerald-50 text-emerald-600 px-4 py-2 r...
188|                                                                < C h e c k C i r c l e   s i z e = { 1 6 }   / >    ã   h o à n   t h à n h
189|                            </div>
190|                        )}
191|                    </motion.div>
192|                    <div className="h-1 w-16 bg-gradient-to-r from-blue-500 to-emerald-400 rounded-full mb-10" />
193|
194|                    {loading ? (
195|                        <div className="flex justify-center py-20">
196|                            <Loader2 className="animate-spin text-blue-600" size={40} />
197|                        </div>
198|                    ) : (
199|                        <motion.div
200|                            variants={containerVariants}
201|                            initial="hidden"
202|                            animate="visible"
203|                            className="flex flex-col gap-12"
204|                        >
205|                            {sections.map(s => (
206|                                <motion.section key={s.id} id={`sec-${s.id}`} variants={itemVariants}>
207|                                    <div className="flex items-center gap-3 mb-5">
208|                                        <div className="p-2.5 rounded-xl bg-blue-100 text-blue-700">
209|                                            {s.type === 'video' && <Video size={18} />}
210|                                            {s.type === 'text' && <FileText size={18} />}
211|                                            {s.type === 'image' && <ImageIcon size={18} />}
212|                                            {s.type === 'pdf' && <FileSearch size={18} />}
213|                                            {s.type === 'embed' && <Code size={18} />}
214|                                        </div>
215|                                        <h2 className="text-xl font-bold text-slate-900">{s.title}</h2>
216|                                    </div>
217|                                    {s.type === 'video' && getYouTubeEmbed(s.content) && (
218|                                        <div className="w-full aspect-video rounded-2xl overflow-hidden bg-sla...
219|                                            <iframe src={getYouTubeEmbed(s.content)} className="w-full h-full ...
220|                                        </div>
221|                                    )}
222|                                    {s.type === 'text' && (
223|                                        <div className="bg-white border border-slate-200 rounded-2xl p-8 shado...
224|                                            {parseRichContent(s.content).map((part, i) => {
225|                                                if (part.type === 'video') {
226|                                                    const embedUrl = getYouTubeEmbed(part.url);
227|                                                    return embedUrl ? (
228|                                                        <div key={i} className="w-full aspect-video rounded-xl...
229|                                                            <iframe src={embedUrl} className="w-full h-full bo...
```

```
230|                                                    </div>
231|                                                ) : null;
232|                                            }
233|                                            if (part.type === 'pdf') {
234|                                                const embedUrl = getPdfEmbedUrl(part.url);
235|                                                return embedUrl ? (
236|                                                    <div key={i} className="rounded-xl overflow-hidden bor...
237|                                                        <iframe src={embedUrl} className="w-full h-[540px]...
238|                                                    </div>
239|                                                ) : null;
240|                                            }
241|                                            return <SimpleMarkdown key={i} text={part.content} />;
242|                                        })}
243|                                    </div>
244|                                )}
245|                                {s.type === 'image' && s.content && (
246|                                    <div className="rounded-2xl overflow-hidden shadow-lg">
247|                                        <img src={s.content} className="w-full h-auto block" />
248|                                    </div>
249|                                )}
250|                                {s.type === 'pdf' && getPdfEmbedUrl(s.content) && (
251|                                    <div className="bg-white rounded-2xl overflow-hidden border border-sla...
252|                                        <iframe src={getPdfEmbedUrl(s.content)} className="w-full h-[540px...
253|                                        <div className="px-6 py-3 flex justify-end border-t border-slate-1...
254|                                            <a href={s.content} target="_blank" className="text-blue-600 h...
255|                                                <Maximize2 size={14} /> Toàn màn hình
256|                                            </a>
257|                                        </div>
258|                                    </div>
259|                                )}
260|                                {s.type === 'embed' && s.content && (
261|                                    <div className="rounded-2xl overflow-hidden border border-slate-200 bg...
262|                                        <div dangerouslySetInnerHTML={{ __html: s.content }} />
263|                                    </div>
264|                                )}
265|                            </motion.section>
266|                        ))}
267|                    </motion.div>
268|                )}
269|
   270 |                                    { / *   V i d e o   m ß   r Ù n g   * / }
271|                {(() => {
272|                    const EXTRA_VIDEOS = {
   273 |                                                'c p u ' :  [ {  t i t l e :  ' C P U  l à  g ì ?  -  G i £ i  t h í c h  c h
   274 |                                                'm a i n b o a r d ' :  [ {  t i t l e :  ' B o  m ¡ c h  c h ç  l à  g ì ? ' ,
275|                        'ram': [{ title: 'RAM là gì? DDR4 vs DDR5', id: 'qTQ7vg1JFDA' }],
   276 |                                                'g p u ' :  [ {  t i t l e :  ' C a r d  Ó  h Í a  h o ¡ t  Ù n g  t h ¿
   277 |                                                'Ô  c é n g ' :  [ {  t i t l e :  ' S S D  v s  H D D  -  N ê n  c h Í n
   278 |                                                'n g u Ồ n ' :  [ {  t i t l e :  ' N g u Ồ n  m á y  t í n h  -  H ° Ù n g
   279 |                                                'c a s e ' :  [ {  t i t l e :  ' C a s e  m á y  t í n h  -  C á c  l o ¡ i
280|                    }
281|                    const matchKey = Object.keys(EXTRA_VIDEOS).find(k => lesson.title?.toLowerCase().inclu...
282|                    const videos = matchKey ? EXTRA_VIDEOS[matchKey] : null
283|                    if (!videos) return null
284|                    return (
285|                        <motion.div
286|                            initial={{ opacity: 0 }}
287|                            animate={{ opacity: 1 }}
288|                            transition={{ delay: 0.3 }}
289|                            className="mt-16 pt-10 border-t border-slate-200"
290|                        >
291|                            <h3 className="text-xl font-bold text-slate-900 mb-6 flex items-center gap-3">
   292 |                                                < S p a r k l e s  s i z e = { 2 2 }  c l a s s N a m e = " t e x t -
293|                            </h3>
294|                            <div className="grid grid-cols-1 sm:grid-cols-2 gap-5">
295|                                {videos.map((v, i) => (
296|                                    <motion.div
297|                                        key={i}
298|                                        whileHover={{ y: -4 }}
299|                                        className="rounded-xl overflow-hidden bg-white border border-slate...
300|                                    >
301|                                        <div className="aspect-video">
302|                                            <iframe src={`https://www.youtube-nocookie.com/embed/${v.id}`}...
303|                                        </div>
304|                                        <div className="p-4">
305|                                            <p className="text-slate-800 font-semibold text-sm">{v.title}</p>
306|                                        </div>
307|                                    </motion.div>
308|                                ))}
309|                            </div>
310|                        </motion.div>
311|                    )
312|                })()}
313|
314|                {/* Books */}
315|                {books.length > 0 && (
316|                    <motion.div
317|                        initial={{ opacity: 0 }}
318|                        animate={{ opacity: 1 }}
319|                        transition={{ delay: 0.4 }}
320|                        className="mt-16 pt-10 border-t border-slate-200"
321|                    >
322|
   323 |                                                < B o o k  s i z e = { 2 2 }  c l a s s N a m e = " t e x t - b l u e - 6 0 0
324|                        </h3>
325|                        <div className="grid grid-cols-2 sm:grid-cols-3 md:grid-cols-4 lg:grid-cols-5 gap-4">
326|                            {books.map(book => (
327|                                <motion.div
328|                                    key={book.id}
329|                                    whileHover={{ y: -6, scale: 1.02 }}
330|                                    onClick={() => setSelectedBook(book)}
331|                                    className="bg-white rounded-xl p-4 border border-slate-200 cursor-poin...
332|                                >
333|                                    {book.cover_image_url && (
334|                                        <img src={book.cover_image_url} className="w-full aspect-[3/4] obj...
335|                                    )}
336|                                    <p class="text-sm font-bold text-slate-800 text-center line-clamp-...
337|                                </motion.div>
338|                            ))}
339|                        </div>
340|                    </motion.div>
341|                )}
342|
343|                {/* Bottom complete button */}
344|                <motion.div
345|                    initial={{ opacity: 0 }}
346|                    animate={{ opacity: 1 }}
347|                    transition={{ delay: 0.5 }}
348|                    className="mt-16 pt-10 border-t border-slate-200 flex justify-center"
349|                >
350|                    <motion.button
351|                        whileHover={{ scale: 1.03 }}
352|                        whileTap={{ scale: 0.97 }}
353|                        onClick={handleComplete}
```

```
354|                             disabled={completing}
355|                             className={`px-12 py-4 rounded-2xl font-extrabold text-lg flex items-center gap-3 ...
356|                                 isCompleted
357|                                     ? 'bg-emerald-50 text-emerald-600 border-emerald-300 shadow-lg shadow-emer...
358|                                     : 'bg-blue-600 text-white border-blue-600 hover:bg-blue-700 shadow-xl shad...
359|                             }`}
360|                         >
361|                             {completing ? (
362|                                 <Loader2 className="animate-spin" size={22} />
363|                             ) : isCompleted ? (
   3 6 4 |                                                 < > < C h e c k C i r c l e   s i z e = { 2 2 }   / >    ã   h o à n   t h à n
365|                             ) : (
   3 6 6 |                                                 < > < C i r c l e   s i z e = { 2 2 }   / >    á n h   d ¥ u   h o à n   t h ã
367|                             )}
368|                         </motion.button>
369|                     </motion.div>
370|
371|                     {!loading && (
372|                         <div className="mt-20 pt-10 border-t border-slate-200 flex flex-col gap-12">
373|                             <BadgesPanel completedCount={completedCount} />
374|                             <LessonComments lessonId={lesson.id} />
375|                         </div>
376|                     )}
377|                 </div>
378|             </div>
379|
380|             {/* Book Modal */}
381|             <AnimatePresence>
382|                 {selectedBook && (
383|                     <motion.div
384|                         initial={{ opacity: 0 }}
385|                         animate={{ opacity: 1 }}
386|                         exit={{ opacity: 0 }}
387|                         className="fixed inset-0 bg-black/90 z-[2000] flex flex-col"
388|                     >
389|                         <div className="px-6 py-4 flex justify-between items-center bg-slate-900 border-b bord...
390|                             <h3 class="text-white font-bold text-lg truncate">{selectedBook.title}</h3>
391|                             <motion.button
392|                                 whileHover={{ scale: 1.1, rotate: 90 }}
393|                                 onClick={() => setSelectedBook(null)}
394|                                 className="bg-slate-800 hover:bg-slate-700 border-none text-white p-2 rounded-...
395|                             >
396|                                 <X size={24} />
397|                             </motion.button>
398|                         </div>
399|                         <div className="flex-1">
400|                             <iframe src={getDriveEmbed(selectedBook.drive_embed_url)} className="w-full h-full...
401|                         </div>
402|                     </motion.div>
403|                 )}
404|             </AnimatePresence>
405|         </div>
406|     );
407| }
408|
   4 0 9 |   / /  % % %    L e s s o n   C a r d  % % %
```

```
478|             initial={{ opacity: 0, scale: 0.95 }}
479|             animate={{ opacity: 1, scale: 1 }}
480|             className="flex flex-col items-center justify-center py-20 px-6"
481|         >
482|             <motion.div
483|                 animate={{ y: [0, -10, 0] }}
484|                 transition={{ repeat: Infinity, duration: 4, ease: 'easeInOut' }}
485|                 className="w-32 h-32 mb-8 rounded-full bg-gradient-to-br from-blue-100 to-emerald-100 flex ite...
486|             >
487|                 {isTextbook ? (
488|                     <BookMarked size={56} className="text-blue-500" strokeWidth={1.5} />
489|                 ) : (
490|                     <Sparkles size={56} className="text-amber-500" strokeWidth={1.5} />
491|                 )}
492|             </motion.div>
493|             <h3 className="text-xl font-extrabold text-slate-800 mb-3">
  4 9 4 |                                 { i s T e x t b o o k   ?   ' C h ° a   c ó   s á c h   g i á o   k h o a '   :   ' C h ° a   c ó   b à i   m Í
495|             </h3>
496|             <p className="text-slate-500 text-base text-center max-w-md mb-8 leading-relaxed">
497|                 {isTextbook
  4 9 8 |                                         ?   ' C á c   b à i   h Í c   t r o n g   s á c h   g i á o   k h o a   s ½   x u ¥ t   h i Ç n   t ¡ i
  4 9 9 |                                         :   ' B à i   v i ¿ t   k i ¿ n   t h é c   m ß   r Ù n g   s ½   ° ã c   t h ê m   v à o   Ã   g i
500|                 }
501|             </p>
502|             <motion.button
503|                 whileHover={{ scale: 1.05 }}
504|                 whileTap={{ scale: 0.95 }}
505|                 onClick={onExplore}
506|                 className="px-8 py-3.5 bg-gradient-to-r from-blue-600 to-emerald-500 text-white font-bold text...
507|             >
  5 0 8 |                                 < C o m p a s s   s i z e = { 1 8 }   / >   K h á m   p h á   b à i   g i £ n g
509|             </motion.button>
510|         </motion.div>
511|     );
512| }
513|
  5 1 4 |   / /  % % %    M a i n   C o m p o n e n t  % % %
```

```
602|                        {/* Badges */}
603|                        {userId && (
604|                            <div className="flex flex-wrap items-center gap-2">
605|                                <span className="inline-flex items-center gap-1.5 text-[11px] sm:text-xs font-...
   6 0 6 |                                                                    Ø=ÜÚ   { t o t a l L e s s o n s }   b à i   h Í c
607|                                </span>
608|                                <span className="inline-flex items-center gap-1.5 text-[11px] sm:text-xs font-...
   6 0 9 |                                                                    '    { t o t a l C o m p l e t e d }   h o à n   t h à n h
610|                                </span>
611|                                <span className="inline-flex items-center gap-1.5 text-[11px] sm:text-xs font-...
   6 1 2 |                                                                    +P   { t o t a l L e s s o n s   >   0   ?   M a t h . r o u n d ( ( t o
613|                                </span>
614|                            </div>
615|                        )}
616|                    </div>
617|                </div>
618|            </div>
619|
620|            {/* Tabs */}
621|            <div className="flex-shrink-0 bg-white border-b border-slate-200">
622|                <div className="max-w-7xl mx-auto px-4 sm:px-6 md:px-10 py-3 flex gap-2 overflow-x-auto scroll...
623|                    {tabs.map(tab => {
624|                        const isActive = activeTab === tab.key;
625|                        return (
626|                            <motion.button
627|                                key={tab.key}
628|                                layout
629|                                onClick={() => setActiveTab(tab.key)}
630|                                className={`relative flex items-center gap-2.5 px-5 py-2.5 rounded-full text-s...
631|                                    isActive
632|                                        ? 'bg-gradient-to-r from-blue-600 to-emerald-500 text-white shadow-md'
633|                                        : 'bg-slate-100 text-slate-600 hover:bg-slate-200'
634|                                }`}
635|                            >
636|                                {tab.icon}
637|                                {tab.label}
638|                                <span className={`px-2 py-0.5 rounded-full text-[11px] font-extrabold ${
639|                                    isActive
640|                                        ? 'bg-white/20 text-white'
641|                                        : 'bg-slate-200 text-slate-500'
642|                                }`}>
643|                                    {loading ? '...' : lessons[tab.key].length}
644|                                </span>
645|                                {!loading && lessons[tab.key].some(l => completedIds.has(l.id)) && (
646|                                    <span className={`px-2 py-0.5 rounded-full text-[11px] font-extrabold ${
647|                                        isActive ? 'bg-white/20 text-white' : 'bg-emerald-100 text-emerald-600'
648|                                    }`}>
649|                                        {lessons[tab.key].filter(l => completedIds.has(l.id)).length}
650|                                    </span>
651|                                )}
652|                            </motion.button>
653|                        );
654|                    })}
655|                </div>
656|            </div>
657|
658|            {/* Content */}
659|            <div className="flex-1 overflow-y-auto px-4 sm:px-6 md:px-10 py-4 sm:py-6">
660|                <div className="max-w-7xl mx-auto">
661|                    {loading ? (
662|                        <div className="flex justify-center py-24">
663|                            <div className="flex flex-col items-center gap-4">
664|                                <Loader2 className="animate-spin text-blue-600" size={44} />
   6 6 5 |                                                                    < p   c l a s s N a m e = " t e x t - s l a t e - 5 0 0   t e x t - s m   f o r
666|                            </div>
667|                        </div>
668|                    ) : currentLessons.length === 0 ? (
669|                        <EmptyState
670|                            tabKey={activeTab}
671|                            onExplore={() => {
672|                                const otherKey = activeTab === 'textbook' ? 'extended' : 'textbook';
673|                                if (lessons[otherKey].length > 0) setActiveTab(otherKey);
674|                            }}
675|                        />
676|                    ) : (
677|                        <motion.div
678|                            variants={containerVariants}
679|                            initial="hidden"
680|                            animate="visible"
681|                        >
682|                            <div className="grid grid-cols-1 sm:grid-cols-2 lg:grid-cols-3 xl:grid-cols-4 gap-5">
683|                                {currentLessons.map(lesson => (
684|                                    <LessonCard
685|                                        key={lesson.id}
686|                                        lesson={lesson}
687|                                        isCompleted={completedIds.has(lesson.id)}
688|                                        onClick={() => setSelectedLesson(lesson)}
689|                                    />
690|                                ))}
691|                            </div>
692|                        </motion.div>
693|                    )}
694|                </div>
695|            </div>
696|        </div>
697|    );
698| }
699|
```

File: components/LessonComments.js (107 lines, 5.9 KB)

```
    1| 'use client';
    2| import React, { useState, useEffect } from 'react';
    3| import { supabase } from '@/lib/supabase';
    4| import { Loader2, Send, Trash2, MessageCircle } from 'lucide-react';
    5|
    6| export default function LessonComments({ lessonId }) {
    7|     const [comments, setComments] = useState([]);
    8|     const [text, setText] = useState('');
    9|     const [loading, setLoading] = useState(true);
   10|     const [sending, setSending] = useState(false);
   11|     const [userId, setUserId] = useState(null);
   12|     const [userEmail, setUserEmail] = useState('');
   13|
   14|     useEffect(() => {
   15|         const init = async () => {
   16|             const { data: { user } } = await supabase.auth.getUser();
   17|             if (user) { setUserId(user.id); setUserEmail(user.email); }
   18|             fetchComments();
   19|         };
   20|         init();
   21|     }, [lessonId]);
   22|
```

```
 23|     const fetchComments = async () => {
 24|         const { data } = await supabase
 25|             .from('lesson_comments')
 26|             .select('*')
 27|             .eq('lesson_id', lessonId)
 28|             .order('created_at', { ascending: true });
 29|         setComments(data || []);
 30|         setLoading(false);
 31|     };
 32|
 33|     const handleSend = async () => {
 34|         if (!text.trim() || !userId) return;
 35|         setSending(true);
 36|         const { data } = await supabase.from('lesson_comments').insert({
 37|             lesson_id: lessonId, user_id: userId, content: text.trim(), user_email: userEmail
 38|         }).select().single();
 39|         if (data) setComments(prev => [...prev, data]);
 40|         setText('');
 41|         setSending(false);
 42|     };
 43|
 44|     const handleDelete = async (id) => {
 45|         await supabase.from('lesson_comments').delete().eq('id', id);
 46|         setComments(prev => prev.filter(c => c.id !== id));
 47|     };
 48|
 49|     if (loading) return <div style={{ display: 'flex', justifyContent: 'center', padding: '40px' }}><Loader2 c...
 50|
 51|     return (
 52|         <div style={{ display: 'flex', flexDirection: 'column', gap: '16px' }}>
 53|             <div style={{ display: 'flex', alignItems: 'center', gap: '10px', marginBottom: '8px' }}>
 54|                 <MessageCircle size={20} color="#00f3ff" />
    5 5 |                                 < h 3   s t y l e = { {   m a r g i n :   0 ,   f o n t S i z e :   ' 1 . 1 r e m ' ,   f o n t W e i g h t :
 56|             </div>
 57|
 58|             {/* Comments list */}
 59|             <div style={{ display: 'flex', flexDirection: 'column', gap: '12px', maxHeight: '400px', overflowY...
 60|                 {comments.length === 0 && (
    6 1 |                                         < p   s t y l e = { {   c o l o r :   ' # 4 b 5 5 6 3 ' ,   t e x t A l i g n :   ' c e n t e r ' ,   p
 62|                 )}
 63|                 {comments.map(c => (
 64|                     <div key={c.id} style={{ background: 'rgba(255,255,255,0.03)', border: '1px solid rgba(255...
 65|                         <div style={{ width: '36px', height: '36px', borderRadius: '50%', background: 'rgba(0,...
 66|                             {(c.user_email || 'U')[0].toUpperCase()}
 67|                         </div>
 68|                         <div style={{ flex: 1 }}>
 69|                             <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'cente...
 70|                                 <span style={{ fontSize: '12px', fontWeight: 700, color: '#00f3ff' }}>{c.user_...
 71|                                 <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
 72|                                     <span style={{ fontSize: '11px', color: '#4b5563' }}>{new Date(c.created_a...
 73|                                     {c.user_id === userId && (
 74|                                         <button onClick={() => handleDelete(c.id)} style={{ background: 'none'...
 75|                                     )}
 76|                                 </div>
 77|                             </div>
 78|                             <p style={{ margin: 0, color: '#e0e6ed', fontSize: '14px', lineHeight: 1.6 }}>{c.c...
 79|                         </div>
 80|                     </div>
 81|                 ))}
 82|             </div>
 83|
 84|             {/* Input */}
 85|             {userId ? (
 86|                 <div style={{ display: 'flex', gap: '10px', marginTop: '8px' }}>
 87|                     <input
 88|                         value={text}
 89|                         onChange={e => setText(e.target.value)}
 90|                         onKeyDown={e => e.key === 'Enter' && !e.shiftKey && handleSend()}
    9 1 |                                                 p l a c e h o l d e r = " N h - p   b i n h   l u - n . . .   ( E n t e r   Ã   g í i ) "
 92|                         style={{ flex: 1, background: 'rgba(255,255,255,0.04)', border: '1px solid rgba(255,25...
 93|                     />
 94|                     <button onClick={handleSend} disabled={sending || !text.trim()}
 95|                         style={{ padding: '12px 20px', background: '#00f3ff', color: '#050a14', border: 'none'...
 96|                         {sending ? <Loader2 className="animate-spin" size={16} /> : <Send size={16} />}
 97|                     </button>
 98|                 </div>
 99|             ) : (
100|                 <p style={{ color: '#4b5563', textAlign: 'center', padding: '16px', background: 'rgba(255,255,...
   1 0 1 |                                         V u i   l ò n g   < a   h r e f = " / l o g i n "   s t y l e = { {   c o l o r :   ' # 0 0 f 3 f f '
102|                 </p>
103|             )}
104|         </div>
105|     );
106| }
107|
```

File: components/LessonInteractive.js (206 lines, 14.9 KB)

```
==========================================================================================
   1| 'use client';
   2| import React, { useState, useEffect } from 'react';
   3| import { Loader2, ChevronLeft, ChevronRight, RotateCcw, CheckCircle, XCircle, Trophy } from 'lucide-react';
   4| import LessonComments from './LessonComments';
   5|
     6 |   / /  % %    B A D G E S  % % %
```

```
    );
}

// %% FLASHCARD %%%%
```

```
160|                            <div style={{ marginTop: '12px', padding: '12px', background: 'rgba(0,243,255,0.05...
   1 6 1 |                                                          Ø=Ü¡   { q . e x p l a n a t i o n }
162|                            </div>
163|                        )}
164|                    </div>
165|                );
166|            })}
167|            {!submitted ? (
168|                <button onClick={() => setSubmitted(true)} disabled={Object.keys(answers).length < questions.l...
169|                    style={{ padding: '14px', background: '#00f3ff', color: '#050a14', border: 'none', borderR...
   1 7 0 |                                      N Ù p   b à i   ( { O b j e c t . k e y s ( a n s w e r s ) . l e n g t h } / { q u e s t i o n s . l e
171|                </button>
172|            ) : (
173|                                <button onClick={() => { setGenerated(false); setAnswers({}); setSubmitted(fal...
   1 7 4 |                                         Ø=Ý    T ¡ o   q u i z   m Ù i
175|                </button>
176|            )}
177|        </div>
178|    );
179| }
180|
   1 8 1 |   / /  % %    M a i n   T a b s   C o m p o n e n t  % % %
```

```
            if (glowFrame) cancelAnimationFrame(glowFrame);
        };
    }, [onComplete]);

    if (!visible) return null;

    const ringCount = 4;
    const rings = [];
    const ringColors = ['#00d4aa', '#6366f1', '#a855f7', '#ffb900'];
    for (let i = 0; i < ringCount; i++) {
        const baseSize = 110 + i * 40;
        const delay = i * 0.6;
        const direction = i % 2 === 0 ? 1 : -1;
        const opacity = 0.6 - i * 0.1;
        rings.push(
            <div key={i} style={{
                position: 'absolute',
                width: `${baseSize}px`,
                height: `${baseSize}px`,
                borderRadius: '50%',
                border: `2px solid transparent`,
                borderTopColor: ringColors[i],
                borderRightColor: i % 2 === 1 ? ringColors[i] : 'transparent',
                borderBottomColor: i % 3 === 0 ? ringColors[i] : 'transparent',
                transform: `rotate(${rotation * direction + delay * 30}deg)`,
                transition: 'transform 0.05s linear',
                opacity: opacity,
                boxShadow: `0 0 ${15 + glowPulse * 20}px ${ringColors[i]}40, inset 0 0 ${10 + glowPulse * 15}p...
                filter: `brightness(${1 + glowPulse * 0.3})`,
            }} />
        );
    }

    const particles = [];
    for (let i = 0; i < 16; i++) {
        const angle = (i / 16) * 360;
        const radius = 100 + glowPulse * 20;
        const x = Math.cos((angle * Math.PI) / 180) * radius;
        const y = Math.sin((angle * Math.PI) / 180) * radius;
        const colors = ['#00d4aa', '#6366f1', '#a855f7', '#ffb900'];
        particles.push(
            <div key={`dot-${i}`} style={{
                position: 'absolute',
                width: '4px',
                height: '4px',
                borderRadius: '50%',
                background: colors[i % 4],
                transform: `translate(${x}px, ${y}px)`,
                opacity: 0.2 + Math.sin((rotation * 2 + angle * 3) * Math.PI / 180) * 0.4,
                boxShadow: `0 0 8px ${colors[i % 4]}`,
                transition: 'opacity 0.1s ease',
            }} />
        );
    }

    const glowIntensity = 0.5 + glowPulse * 0.5;

    return (
        <div
            onClick={() => {
                setVisible(false);
                onComplete();
            }}
            style={{
                position: 'fixed',
                top: 0,
                left: 0,
                width: '100vw',
                height: '100vh',
                background: 'var(--bg-base)',
                zIndex: 99999,
                display: 'flex',
                flexDirection: 'column',
                justifyContent: 'center',
                alignItems: 'center',
                cursor: 'pointer',
                opacity: visible ? 1 : 0,
                transition: 'opacity 0.4s ease',
                overflow: 'hidden'
            }}
        >
            <div style={{
                position: 'absolute', inset: 0, pointerEvents: 'none',
                background: `
                    radial-gradient(circle at 30% 40%, rgba(0,212,170,${0.03 * glowIntensity}) 0%, transparent...
                    radial-gradient(circle at 70% 60%, rgba(99,102,241,${0.03 * glowIntensity}) 0%, transparen...
                    radial-gradient(circle at 50% 80%, rgba(168,85,247,${0.03 * glowIntensity}) 0%, transparen...
                    radial-gradient(circle at 20% 70%, rgba(255,185,0,${0.02 * glowIntensity}) 0%, transparent...
                `,
            }} />

            <div style={{
                display: 'flex',
                flexDirection: 'column',
                alignItems: 'center',
                gap: '28px',
                position: 'relative',
                zIndex: 10
            }}>
                <div style={{
                    position: 'relative',
                    width: '180px',
                    height: '180px',
                    display: 'flex',
                    alignItems: 'center',
                    justifyContent: 'center',
                }}>
                    {rings}
                    <div style={{
                        position: 'absolute',
                        display: 'flex',
                        alignItems: 'center',
                        justifyContent: 'center',
                    }}>
                        {particles}
                    </div>
                    <div style={{
                        position: 'absolute',
                        width: '130px',
                        height: '130px',
                        borderRadius: '50%',
                        background: `radial-gradient(circle, rgba(0,212,170,${0.12 + glowPulse * 0.08}) 0%, tr...
                        display: 'flex',
                        alignItems: 'center',
```

```
                        justifyContent: 'center',
                    }}>
                        <img
                            src="/logo.png"
                            alt="Logo"
                            style={{
                                width: '72px',
                                height: '72px',
                                objectFit: 'contain',
                                filter: `drop-shadow(0 0 ${20 + glowPulse * 30}px rgba(0, 212, 170, ${0.4 + gl...
                                transform: `scale(${1 + glowPulse * 0.03})`,
                                transition: 'all 0.1s ease',
                            }}
                        />
                    </div>
                </div>

                <div style={{ textAlign: 'center' }}>
                    <h1 style={{
                        color: '#ffffff',
                        fontSize: '24px',
                        fontWeight: 900,
                        letterSpacing: '3px',
                        margin: 0,
                        textShadow: `0 0 ${10 + glowPulse * 20}px rgba(0, 212, 170, ${0.2 + glowPulse * 0.3})`,
                    }}>
                        PC MASTER{' '}
                        <span style={{
                            background: 'linear-gradient(90deg, #00d4aa, #6366f1, #a855f7, #ffb900, #00d4aa)',
                            backgroundSize: '300% auto',
                            WebkitBackgroundClip: 'text',
                            WebkitTextFillColor: 'transparent',
                            backgroundClip: 'text',
                            animation: 'loadingGradient 2s linear infinite',
                        }}>
                            BUILDER
                        </span>
                    </h1>
                    <p style={{
                        fontSize: '10px',
                        color: 'rgba(255,255,255,0.4)',
                        textTransform: 'uppercase',
                        letterSpacing: '3px',
                        marginTop: '8px',
                        fontWeight: 700,
                        textShadow: `0 0 10px rgba(0,212,170,0.2)`,
                    }}>
                        H Ç   T h Ñ n g     à o   T ¡ o   C ô n g   N g h Ç   S Ñ
                    </p>
                </div>

                <div style={{
                    padding: '10px 24px',
                    background: 'rgba(255,255,255,0.04)',
                    border: '1px solid rgba(255,255,255,0.06)',
                    borderRadius: '14px',
                    minWidth: '280px',
                    textAlign: 'center',
                    backdropFilter: 'blur(4px)',
                }}>
                    <p style={{
                        background: 'linear-gradient(90deg, #00d4aa, #6366f1, #a855f7)',
                        backgroundSize: '200% auto',
                        WebkitBackgroundClip: 'text',
                        WebkitTextFillColor: 'transparent',
                        backgroundClip: 'text',
                        animation: 'loadingGradient 2s linear infinite',
                        fontSize: '13px',
                        fontWeight: 700,
                        margin: 0,
                    }} key={step}>
                        {loadingMessages[step]}
                    </p>
                </div>

                <div style={{
                    width: '300px',
                    height: '4px',
                    background: 'rgba(255,255,255,0.05)',
                    borderRadius: '10px',
                    overflow: 'hidden',
                    boxShadow: 'inset 0 0 6px rgba(0,0,0,0.3)',
                }}>
                    <div style={{
                        width: `${progress}%`,
                        height: '100%',
                        background: 'linear-gradient(90deg, #00d4aa, #6366f1, #a855f7, #ffb900)',
                        backgroundSize: '300% auto',
                        animation: 'loadingGradient 1.5s linear infinite',
                        transition: 'width 0.15s ease',
                        boxShadow: '0 0 16px rgba(0, 212, 170, 0.6), 0 0 30px rgba(99, 102, 241, 0.3)',
                    }} />
                </div>
            </div>

            <div style={{
                position: 'absolute',
                bottom: '40px',
                color: 'rgba(255,255,255,0.25)',
                fontSize: '11px',
                letterSpacing: '2px',
                fontWeight: 600,
                textTransform: 'uppercase',
                animation: 'loadingPulse 2s ease-in-out infinite',
            }}>
                C h ¡ m     Ã   b Ï   q u a
            </div>

            <style>{`
                @keyframes loadingGradient {
                    0% { background-position: 0% center; }
                    100% { background-position: 300% center; }
                }
                @keyframes loadingPulse {
                    0%, 100% { opacity: 0.3; }
                    50% { opacity: 0.8; }
                }
            `}</style>
        </div>
    );
};

export default LoadingScreen;
```

File: components/MacCompatibilityChecker.js (301 lines, 20.3 KB)

```
'use client';

import { useState, useMemo } from 'react';

const MAC_ORIG = [
  { platform: 'Mac', id: 'macbook-air-m1', name: 'MacBook Air M1 (2020)', cpu: 'Apple M1', ram: '8GB Unified',...
  { platform: 'Mac', id: 'macbook-pro-14-m4', name: 'MacBook Pro 14" M4 Pro', cpu: 'Apple M4 Pro', ram: '24GB ...
  { platform: 'Mac', id: 'mac-mini-m4', name: 'Mac Mini M4 (2024)', cpu: 'Apple M4', ram: '16GB Unified', gpu:...
];

const PC_SYSTEMS = [
      {platform: 'Win', id: 'win-budget', name: 'PC Siêu R»', cpu: 'Xeon E5
      {platform: 'Win', id: 'win-office', name: 'PC Vn Phòng', cpu: 'i3-14
      {platform: 'Win', id: 'win-work', name: 'PC ÓHÍa T§m Trung', cpu: '
      {platform: 'Win', id: 'win-gaming', name: 'PC Gaming Thu§n', cpu: 'Ry
  { platform: 'Win', id: 'win-mini', name: 'PC Mini ITX', cpu: 'Ryzen 5 7600', ram: '16-32GB DDR5', gpu: 'RTX ...
  { platform: 'Win', id: 'win-pro', name: 'PC Workstation Pro', cpu: 'i7-14700K / Ryzen 9 7950X', ram: '64GB D...
      {platform: 'Win', id: 'win-ultra', name: 'PC Siêu C¥p', cpu: 'i9-1490
  { platform: 'Win', id: 'win-server', name: 'PC NAS / Server', cpu: 'i3-N305 / Ryzen 3', ram: '8-16GB', gpu: ...
  ...MAC_ORIG,
];

const ALL_WORK_TYPES = ['Vn phòng', 'Gaming', 'Render', 'L-p trình', 'D

function formatPrice(tr) {
  return tr + 'tr';
}

function analyzePurpose(text) {
  const w = { office: 0, gaming: 0, render: 0, coding: 0, edit: 0 };
  const k = text.toLowerCase();
      if (k.match(/vn phòng|word|excel|email|web|hÍc|sinh viên|hÍp|thuy¿t t
      if (k.match(/game|ch¡i|valorant|lol|pubg|fortnite|aaa|competitive/i))
  if (k.match(/render|blender|after effect|3d|maya|cad|vray|keyshot/i)) w.render = 10;
      if (k.match(/l-p trình|code|dev|web|react|python|java|android|ios|doc
      if (k.match(/dñng phim|edit|design|thi¿t k¿|photoshop|illustrator|figm
  if (k.match(/ai|deep learning|machine learning|train|model/i)) { w.render = 10; w.coding = 10; }
  if (Object.values(w).every(v => v === 0)) w.office = 5;
  return w;
}

export default function MacCompatibilityChecker({ lang = 'vn' }) {
  const [purpose, setPurpose] = useState('');
  const [purposeDone, setPurposeDone] = useState(false);
  const [selected, setSelected] = useState(null);
  const [filterPlatform, setFilterPlatform] = useState('all');
  const [showAll, setShowAll] = useState(false);

  const analysis = useMemo(() => {
    if (!purposeDone || !purpose.trim()) return null;
    return analyzePurpose(purpose);
  }, [purpose, purposeDone]);

  const scored = useMemo(() => {
    let list = [...PC_SYSTEMS];
    if (filterPlatform !== 'all') list = list.filter(s => s.platform === filterPlatform);
    return list.map(s => {
      let totalScore = 0;
      if (analysis) {
        for (const k of Object.keys(analysis)) totalScore += (s.score[k] || 0) * (analysis[k] || 1);
      } else {
        totalScore = Object.values(s.score).reduce((a, b) => a + b, 0);
      }
      return { ...s, totalScore };
    }).sort((a, b) => b.totalScore - a.totalScore);
  }, [analysis, filterPlatform]);

  const topMatch = scored[0];

  return (
    <div style={{
      position: 'fixed', inset: 0, zIndex: 9999,
      background: 'var(--bg-base)', display: 'flex', flexDirection: 'column',
      fontFamily: 'system-ui, sans-serif', overflow: 'hidden',
    }}>
      {/* Header */}
      <div style={{
        display: 'flex', alignItems: 'center', justifyContent: 'space-between',
        padding: '12px 24px', borderBottom: '1px solid var(--border-default)',
        background: 'var(--bg-surface)', flexShrink: 0,
      }}>
        <div style={{ display: 'flex', alignItems: 'center', gap: 10 }}>
                    <span style={{ fontSize: 22 }}>Ø=Ü¡</span>
          <div>
            <div style={{ fontSize: 16, fontWeight: 800, color: 'var(--text-primary)' }}>
                              Gãi Ý Máy Tính
            </div>
            <div style={{ fontSize: 11, color: 'var(--text-muted)' }}>
                              Chín c¥u hình phù hãp vÛi nhu c§u & ngân sách
            </div>
          </div>
        </div>
        <button onClick={() => window.history.back()}
          style={{
            padding: '6px 14px', borderRadius: 8,
            border: '1px solid var(--border-default)',
            background: 'transparent', color: 'var(--text-muted)',
            fontSize: 12, cursor: 'pointer', fontFamily: 'inherit',
                      }}>'  </button>
      </div>

      <div style={{ flex: 1, overflow: 'auto', padding: '16px 24px' }}>
        <div style={{ maxWidth: 900, margin: '0 auto', display: 'flex', flexDirection: 'column', gap: 12 }}>

          {/* Purpose input */}
          <div style={{
            background: 'var(--bg-surface)', border: '1px solid var(--border-default)',
            borderRadius: 12, padding: '18px 22px',
          }}>
            <div style={{ fontSize: 13, fontWeight: 700, color: 'var(--text-primary)', marginBottom: 8, displa...
                              <span style={{ fontSize: 18 }}>Øß¯</span> Mác ích sí dâng
            </div>
            <p style={{ fontSize: 11, color: 'var(--text-muted)', margin: '0 0 10px' }}>
                              Nhp công viÇc b¡n c§n làm — tôi s½ gãi ý c¥u hình phù hãp
            </p>
            <div style={{ display: 'flex', gap: 8 }}>
              <input value={purpose} onChange={e => setPurpose(e.target.value)}
                                placeholder="VD: L-p trình web, ch¡i game, dñng phim..."
                style={{
                  flex: 1, padding: '10px 14px', borderRadius: 8,
```

```
121|                    background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
122|                    color: 'var(--text-primary)', fontSize: 13, fontFamily: 'inherit', outline: 'none',
123|                  }}
124|                  onKeyDown={e => e.key === 'Enter' && purpose.trim() && setPurposeDone(true)}
125|                />
126|                <button onClick={() => purpose.trim() && setPurposeDone(true)}
127|                  style={{
128|                    padding: '10px 20px', borderRadius: 8, fontSize: 12, fontWeight: 700,
129|                    background: 'var(--brand-primary)', border: 'none',
130|                    color: '#fff', cursor: 'pointer', fontFamily: 'inherit',
131|                  }}>
  1 3 2 |                                G ã i   ý
133|                </button>
134|              </div>
135|            </div>
136|
137|            {/* Top match */}
138|            {topMatch && analysis && (
139|              <div style={{
140|                background: 'var(--bg-surface)',
141|                border: `1px solid ${topMatch.color}33`, borderRadius: 12, padding: '14px 18px',
142|                display: 'flex', alignItems: 'center', gap: 12,
143|                animation: 'fadeIn 0.3s',
144|              }}>
145|                <div style={{
146|                  width: 40, height: 40, borderRadius: 10,
147|                  background: `${topMatch.color}15`, display: 'flex',
148|                  alignItems: 'center', justifyContent: 'center', fontSize: 20,
149|                }}>{topMatch.icon}</div>
150|                <div style={{ flex: 1 }}>
151|                  <div style={{ fontSize: 11, color: 'var(--text-muted)', marginBottom: 2 }}>
  1 5 2 |                                  &    G ã i   ý   t Ñ t   n h ¥ t   c h o   b ¡ n
153|                  </div>
154|                  <div style={{ fontSize: 14, fontWeight: 700, color: 'var(--text-primary)' }}>{topMatch.name}</...
155|                  <div style={{ fontSize: 11, color: 'var(--text-secondary)', marginTop: 2 }}>
156|                    {topMatch.cpu} · {topMatch.gpu} · {topMatch.ram}
157|                  </div>
158|                </div>
159|                <div style={{ textAlign: 'right', flexShrink: 0 }}>
160|                  <div style={{ fontSize: 16, fontWeight: 800, color: topMatch.color }}>
161|                    {formatPrice(Math.round((topMatch.priceRange.min + topMatch.priceRange.max) / 2))}
162|                  </div>
163|                  <div style={{ fontSize: 10, color: 'var(--text-muted)' }}>
164|                    {formatPrice(topMatch.priceRange.min)}–{formatPrice(topMatch.priceRange.max)}
165|                  </div>
166|                </div>
167|              </div>
168|            )}
169|
170|            {/* Filters */}
171|            <div style={{ display: 'flex', gap: 6, alignItems: 'center', flexWrap: 'wrap' }}>
172|              <span style={{ fontSize: 10, fontWeight: 700, color: 'var(--text-muted)', textTransform: 'uppercas...
173|              {['all', 'Windows', 'Mac'].map(p => (
174|                <button key={p} onClick={() => setFilterPlatform(p)}
175|                  style={{
176|                    padding: '4px 12px', borderRadius: 6, fontSize: 10, fontWeight: 600,
177|                    background: filterPlatform === p ? 'var(--brand-subtle)' : 'var(--bg-elevated)',
178|                    border: `1px solid ${filterPlatform === p ? 'var(--brand-primary)' : 'var(--border-default)'}`,
179|                    color: filterPlatform === p ? 'var(--brand-primary)' : 'var(--text-muted)',
180|                    cursor: 'pointer', fontFamily: 'inherit',
  1 8 1 |                                  } } > { p   = = =   ' a l l '   ?   ' T ¥ t   c £ '   :   p } < / b u t t o n >
182|              ))}
183|            </div>
184|
185|            {/* System cards */}
186|            <div style={{ display: 'flex', flexDirection: 'column', gap: 6 }}>
187|              {(showAll ? scored : scored.slice(0, 6)).map((sys, i) => {
188|                const avgPrice = Math.round((sys.priceRange.min + sys.priceRange.max) / 2);
189|                const isTop = topMatch?.id === sys.id;
190|                return (
191|                  <div key={sys.id}
192|                    onClick={() => setSelected(selected?.id === sys.id ? null : sys)}
193|                    style={{
194|                      background: 'var(--bg-surface)',
195|                      border: `1px solid ${isTop ? `${sys.color}33` : 'var(--border-default)'}`,
196|                      borderRadius: 12, cursor: 'pointer', overflow: 'hidden',
197|                      animation: `fadeInUp 0.3s ease-out ${i * 0.05}s both`,
198|                    }}>
199|                    <div style={{ padding: '12px 16px', display: 'flex', gap: 12, alignItems: 'flex-start' }}>
200|                      <div style={{
201|                        width: 36, height: 36, borderRadius: 8,
202|                        background: `${sys.color}15`, display: 'flex',
203|                        alignItems: 'center', justifyContent: 'center', fontSize: 18, flexShrink: 0,
204|                      }}>{sys.icon}</div>
205|                      <div style={{ flex: 1, minWidth: 0 }}>
206|                        <div style={{ display: 'flex', alignItems: 'center', gap: 6, marginBottom: 2 }}>
207|                          <span style={{ fontSize: 14, fontWeight: 700, color: 'var(--text-primary)' }}>{sys.nam...
208|                          {isTop && (
209|                            <span style={{ fontSize: 8, fontWeight: 700, padding: '1px 6px', borderRadius: 99, b...
210|                          )}
211|                          <span style={{
212|                            fontSize: 8, fontWeight: 600, padding: '1px 6px', borderRadius: 99,
213|                            background: sys.platform === 'Mac' ? 'rgba(85,85,85,0.15)' : 'rgba(59,130,246,0.15)',
214|                            color: sys.platform === 'Mac' ? '#888' : '#3b82f6',
215|                          }}>{sys.platform}</span>
216|                        </div>
217|                        <div style={{ fontSize: 10, color: 'var(--text-secondary)', lineHeight: 1.5, marginBotto...
218|                          {sys.cpu} · {sys.gpu} · {sys.ram}
219|                        </div>
220|                        <div style={{ display: 'flex', gap: 4, flexWrap: 'wrap' }}>
221|                          {sys.suitable.slice(0, 4).map(sw => (
222|                            <span key={sw} style={{ fontSize: 8, padding: '1px 6px', borderRadius: 99, backgroun...
223|                          ))}
224|                        </div>
225|                        {/* Score bars */}
226|                        <div style={{ display: 'flex', gap: 4, marginTop: 6 }}>
227|                          {Object.entries(sys.score).map(([k, v]) => (
228|                            <div key={k} style={{ flex: 1 }}>
229|                              <div style={{ height: 3, borderRadius: 2, background: 'var(--border-subtle)', over...
230|                                <div style={{ height: '100%', width: `${(v / 10) * 100}%`, background: v >= 8 ? ...
231|                              </div>
232|                              <div style={{ fontSize: 7, color: 'var(--text-muted)', textTransform: 'uppercase',...
233|                            </div>
234|                          ))}
235|                        </div>
236|                      </div>
237|                      <div style={{ textAlign: 'right', flexShrink: 0 }}>
238|                        <div style={{ fontSize: 15, fontWeight: 800, color: sys.color }}>{formatPrice(avgPrice)}...
239|                        <div style={{ fontSize: 9, color: 'var(--text-muted)' }}>{formatPrice(sys.priceRange.min...
240|                        {analysis && (
241|                          <div style={{ marginTop: 4, fontSize: 10, fontWeight: 700, color: sys.totalScore > 20 ...
  2 4 2 |                                                  { M a t h . r o u n d ( s y s . t o t a l S c o r e ) }     i Ã m
243|                          </div>
244|                        )}
```

```
245|                    </div>
246|                  </div>
247|
248|                  {selected?.id === sys.id && (
249|                    <div style={{ padding: '0 16px 14px', borderTop: '1px solid var(--border-subtle)' }}>
250|                      <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: 8, marginTop: 12 }}>
251|                        <div style={{ background: 'var(--bg-elevated)', borderRadius: 8, padding: '10px 12px' }}>
252|                          <div style={{ fontSize: 9, fontWeight: 700, color: 'var(--text-muted)', textTransfor...
253|                          <div style={{ display: 'flex', flexDirection: 'column', gap: 3 }}>
254|                            {[{ l: 'CPU', v: sys.cpu }, { l: 'GPU', v: sys.gpu }, { l: 'RAM', v: sys.ram }, { ...
255|                              <div key={spec.l} style={{ display: 'flex', gap: 6, fontSize: 10 }}>
256|                                <span style={{ color: 'var(--text-muted)', minWidth: 40 }}>{spec.l}</span>
257|                                <span style={{ color: 'var(--text-secondary)' }}>{spec.v}</span>
258|                              </div>
259|                            ))}
260|                          </div>
261|                        </div>
262|                        <div style={{ background: 'var(--bg-elevated)', borderRadius: 8, padding: '10px 12px' }}>
263|                          <div style={{ fontSize: 9, fontWeight: 700, color: 'var(--text-muted)', textTransfor...
264|                          <ul style={{ margin: 0, padding: '0 0 0 14px', display: 'flex', flexDirection: 'colu...
265|                            {sys.features.map((f, i) => (
266|                              <li key={i} style={{ fontSize: 10, color: 'var(--text-secondary)' }}>{f}</li>
267|                            ))}
268|                          </ul>
269|                        </div>
270|                      </div>
271|                      <div style={{ background: 'var(--bg-elevated)', borderRadius: 8, padding: '10px 12px', m...
272|                        <div style={{ fontSize: 9, fontWeight: 700, color: 'var(--text-muted)', textTransform:...
273|                        <div style={{ display: 'flex', gap: 4, flexWrap: 'wrap' }}>
274|                          {sys.suitable.map(sw => (
275|                            <span key={sw} style={{ fontSize: 9, padding: '2px 8px', borderRadius: 99, backgro...
276|                          ))}
277|                        </div>
278|                      </div>
279|                    </div>
280|                  )}
281|                </div>
282|              );
283|            })}
284|          </div>
285|
286|          {!showAll && scored.length > 6 && (
287|            <button onClick={() => setShowAll(true)}
288|              style={{
289|                padding: '8px', borderRadius: 8, fontSize: 11, fontWeight: 600,
290|                background: 'var(--bg-surface)', border: '1px solid var(--border-default)',
291|                color: 'var(--text-muted)', cursor: 'pointer', fontFamily: 'inherit',
292|              }}>
   293|                              Xem thêm {scored.length - 6} cấu hình...
294|            </button>
295|          )}
296|        </div>
297|      </div>
298|    </div>
299|  );
300| }
301|
```

File: components/MainMenu.js (348 lines, 19.8 KB)

```
1| 'use client';
2|
3| import React, { useState, useEffect } from 'react';
4| import { BookOpen, Cpu, ShoppingCart, Users, ArrowRight, Info, LogIn, LogOut, User, Award, Swords, Star, Troph...
5| import { supabase } from '@/lib/supabase';
6| import Link from 'next/link';
7| import { useRouter } from 'next/navigation';
8| import { motion } from 'framer-motion';
9| import { useIsMobile } from '@/hooks/useIsMobile';
10| import NotificationBell from './NotificationBell';
11|
12| const s = {
13|   red: '#D32F2F',
14|   navy: '#1A2F4A',
15|   teal: '#0097A7',
16|   orange: '#F5A623'
17| };
18|
19| const fadeUp = (delay = 0) => ({
20|   initial: { opacity: 0, y: 20 },
21|   animate: { opacity: 1, y: 0 },
22|   transition: { duration: 0.4, delay, ease: [0.25, 0.46, 0.45, 0.94] }
23| });
24|
25| const MainMenu = ({ onStart, lang, onOpenLogin }) => {
26|     const isMobile = useIsMobile();
27|     const [user, setUser] = useState(null);
28|     const [profile, setProfile] = useState(null);
29|     const [loading, setLoading] = useState(true);
30|     const router = useRouter();
31|
32|     useEffect(() => {
33|         const checkUser = async () => {
34|             const { data: { user: currentUser } } = await supabase.auth.getUser();
35|             setUser(currentUser);
36|             if (currentUser) {
37|                 const { data: userProfile } = await supabase
38|                     .from('profiles')
39|                     .select('role, full_name')
40|                     .eq('id', currentUser.id)
41|                     .single();
42|                 setProfile(userProfile);
43|             }
44|             setLoading(false);
45|         };
46|         checkUser();
47|     }, []);
48|
49|     const handleSignOut = async () => {
50|         await supabase.auth.signOut();
51|         window.location.href = '/';
52|     };
53|
54|     const modes = [
   55|                 {id: 'course', title: 'Bài Giảng', desc: 'Lý thuyết phần cứng t
   56|                 {id: 'learning', title: 'Luyện Tập', desc: 'Lắp ráp tự do theo
   57|                 {id: 'market', title: 'Chợ Máy Tính', desc: 'Mua linh kiện, tN
   58|                 {id: 'multiplayer', title: '2 Người Chơi', desc: 'Đối kháng — a
59|     ];
60|
61|     return (
62|         <div style={{
63|             display: 'flex', flexDirection: 'column', width: '100%', maxWidth: '1100px',
```

```
            margin: '0 auto', padding: isMobile ? '16px' : '32px 48px', minHeight: '100vh'
        }}>
            <motion.div {...fadeUp(0)} style={{ marginBottom: '16px' }}>
                <div style={{ position: 'relative', height: '32px', overflow: 'hidden', borderRadius: '8px', m...
                    <div style={{
                        position: 'absolute', inset: 0,
                        background: 'linear-gradient(90deg, transparent 0%, rgba(0,212,170,0.04) 20%, rgba(99,...
                    }} />
                    {[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11].map(i => (
                        <motion.div key={i}
                            animate={{
                                left: ['-100px', 'calc(100% + 100px)'],
                                opacity: [0, 1, 1, 0],
                            }}
                            transition={{
                                duration: 3.0 - (i % 3) * 0.3,
                                repeat: Infinity,
                                delay: i * 0.25,
                                ease: 'linear',
                            }}
                            style={{
                                position: 'absolute', top: `${4 + (i % 4) * 7}px`,
                                width: `${6 + (i % 5) * 3}px`, height: '2px',
                                borderRadius: '2px',
                                background: i % 3 === 0
                                    ? 'linear-gradient(90deg, var(--brand-primary), #6366f1)'
                                    : i % 3 === 1
                                        ? 'linear-gradient(90deg, #a855f7, var(--brand-primary))'
                                        : 'linear-gradient(90deg, #ffb900, #f472b6)',
                                boxShadow: `0 0 ${8 + i * 2}px ${i % 3 === 0 ? 'rgba(0,212,170,0.6)' : i % 3 =...
                            }}
                        />
                    ))}
                    {[0, 1, 2, 3, 4, 5].map(i => (
                        <motion.div key={`dot-${i}`}
                            animate={{
                                left: ['-60px', 'calc(100% + 60px)'],
                                y: [0, -8, 0, 8, 0],
                            }}
                            transition={{
                                duration: 4.0 - i * 0.2,
                                repeat: Infinity,
                                delay: i * 0.5,
                                ease: 'easeInOut',
                            }}
                            style={{
                                position: 'absolute', top: '12px',
                                width: '5px', height: '5px', borderRadius: '50%',
                                background: i % 3 === 0 ? '#00d4aa' : i % 3 === 1 ? '#a855f7' : '#ffb900',
                                boxShadow: `0 0 14px ${i % 3 === 0 ? '#00d4aa' : i % 3 === 1 ? '#a855f7' : '#f...
                            }}
                        />
                    ))}
                </div>
                <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'flex-start' }}>
                    <div>
                        <h1 style={{ fontSize: '24px', fontWeight: 800, color: 'var(--text-primary)', margin: ...
                            PC Master Builder
                        </h1>
                        <p style={{ fontSize: '13px', color: 'var(--text-muted)', margin: '2px 0 0' }}>
                            Mô phỏng lắp ráp PC 2D tích hợp AI
                        </p>
                    </div>
                    <div>
                    {loading ? (
                    <div style={{ width: '40px' }} />
                ) : user ? (
                    <div style={{ display: 'flex', alignItems: 'center', gap: '10px' }}>
                        <NotificationBell />
                        <Link href={profile?.role === 'teacher' ? '/teacher' : profile?.role === 'parent' ? '/...
                            style={{
                                display: 'flex', alignItems: 'center', gap: '8px', textDecoration: 'none',
                                padding: '6px 14px', borderRadius: '8px',
                                background: 'var(--bg-elevated)', border: '1px solid var(--border-default)'
                            }}>
                            <div style={{
                                width: '28px', height: '28px', borderRadius: '50%',
                                background: 'linear-gradient(135deg, var(--brand-primary), #6366f1)',
                                display: 'flex', alignItems: 'center',
                                justifyContent: 'center', color: '#fff'
                            }}>
                                <User size={14} />
                            </div>
                            <span style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)' }}>
                                {profile?.full_name || user.email?.split('@')[0]}
                            </span>
                        </Link>
                        <button onClick={handleSignOut}
                            style={{
                                background: 'linear-gradient(135deg, var(--brand-primary), #6366f1)',
                                color: '#fff', border: 'none',
                                padding: '6px 12px', borderRadius: '6px', cursor: 'pointer',
                                fontSize: '12px', display: 'flex', alignItems: 'center',
                                gap: '4px', fontWeight: 600, fontFamily: 'inherit'
                            }}>
                            <LogOut size={14} /> Thoát
                        </button>
                    </div>
                ) : (
                    <button onClick={onOpenLogin}
                        style={{
                            background: 'linear-gradient(90deg, var(--accent-amber), var(--accent-orange))',
                            color: '#fff', border: 'none', padding: '8px 18px', borderRadius: '8px',
                            fontWeight: 700, cursor: 'pointer', display: 'flex', alignItems: 'center',
                            gap: '6px', fontSize: '13px', fontFamily: 'inherit'
                        }}>
                            <LogIn size={16} />  Đăng nhập
                        </button>
                )}
                    </div>
                </div>
            </motion.div>

            <motion.div {...fadeUp(0.05)} style={{
                borderBottom: '1px solid var(--border-default)',
                margin: '20px 0'
            }} />



            {/* 4 MODES GRID */}
            <motion.div {...fadeUp(0.15)} style={{ marginBottom: '24px' }}>
                <div style={{
                    fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)',
```

```
188|                    textTransform: 'uppercase', letterSpacing: '1.5px', marginBottom: '12px'
189|                }}>
   1 9 0 |                                        C h ¿     Ù
191|                </div>
192|                <div style={{
193|                    display: 'grid',
194|                    gridTemplateColumns: isMobile ? 'repeat(2, 1fr)' : 'repeat(4, 1fr)',
195|                    gap: isMobile ? '10px' : '12px'
196|                }}>
197|                    {modes.map((mode, idx) => (
198|                        <motion.button
199|                            key={mode.id}
200|                            onClick={() => onStart(mode.id)}
201|                            whileHover={{ y: -2, boxShadow: '0 4px 12px var(--shadow-color)' }}
202|                            style={{
203|                                display: 'flex', flexDirection: 'column',
204|                                padding: '20px', borderRadius: '12px',
205|                                border: '1px solid var(--border-default)',
206|                                background: 'var(--bg-surface)',
207|                                cursor: 'pointer', textAlign: 'left', width: '100%',
208|                                fontFamily: 'inherit',
209|                                transition: 'border-color 0.2s, box-shadow 0.2s'
210|                            }}
211|                            onMouseOver={e => { e.currentTarget.style.borderColor = mode.color; e.currentTarge...
212|                            onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e....
213|                        >
214|                            <div style={{
215|                                width: '44px', height: '44px', borderRadius: '10px',
216|                                background: `${mode.color}15`, color: mode.color,
217|                                display: 'flex', alignItems: 'center', justifyContent: 'center',
218|                                marginBottom: '14px', flexShrink: 0
219|                            }}>
220|                                <mode.Icon size={22} />
221|                            </div>
222|                            <div style={{ fontSize: '15px', fontWeight: 700, color: 'var(--text-primary)', mar...
223|                                {mode.title}
224|                            </div>
225|                            <div style={{ fontSize: '12px', color: 'var(--text-muted)', lineHeight: 1.5, flex:...
226|                                {mode.desc}
227|                            </div>
228|                            <div style={{ marginTop: '10px', display: 'flex', justifyContent: 'flex-end' }}>
229|                                <ArrowRight size={14} style={{ color: 'var(--text-muted)' }} />
230|                            </div>
231|                        </motion.button>
232|                    ))}
233|                </div>
234|            </motion.div>
235|
236|            {/* EXTRA MODES */}
237|            <motion.div {...fadeUp(0.25)} style={{ marginBottom: '24px' }}>
238|                <div style={{
239|                    fontSize: '11px', fontWeight: 700, color: 'var(--text-muted)',
240|                    textTransform: 'uppercase', letterSpacing: '1.5px', marginBottom: '12px'
241|                }}>
242|                    {lang === 'en' ? 'More' : Thêm'}
243|                </div>
244|                <div style={{ display: 'grid', gridTemplateColumns: isMobile ? '1fr' : 'repeat(2, 1fr)', gap: ...
245|                    {[
   2 4 6 |                                        {   i d :   ' e x a m s ' ,   t i t l e :   ' K ó   T h i ' ,   d e s c :   ' K i Ã m   t r a
   2 4 7 |                                        {   i d :   ' c h a l l e n g e ' ,   t i t l e :   ' N h i Ç m   V å ' ,   d e s c :   ' N h i
248|                    ].map((mode) => (
249|                        <motion.button
250|                            key={mode.id}
251|                            onClick={() => mode.id === 'practice' ? router.push('/practice') : onStart(mode.id)}
252|                            whileHover={{ y: -1 }}
253|                            style={{
254|                                display: 'flex', alignItems: 'center', gap: '12px',
255|                                padding: '12px 16px', borderRadius: '10px',
256|                                border: '1px solid var(--border-default)',
257|                                background: 'var(--bg-elevated)',
258|                                cursor: 'pointer', textAlign: 'left', width: '100%',
259|                                fontFamily: 'inherit',
260|                                transition: 'border-color 0.2s'
261|                            }}
262|                            onMouseOver={e => { e.currentTarget.style.borderColor = mode.color; e.currentTarge...
263|                            onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e....
264|                        >
265|                            <div style={{
266|                                width: '34px', height: '34px', borderRadius: '8px',
267|                                background: `${mode.color}12`, color: mode.color,
268|                                display: 'flex', alignItems: 'center', justifyContent: 'center', flexShrink: 0
269|                            }}>
270|                                <mode.Icon size={16} />
271|                            </div>
272|                            <div>
273|                                <div style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)' ...
274|                                <div style={{ fontSize: '11px', color: 'var(--text-muted)' }}>{mode.desc}</div>
275|                            </div>
276|                        </motion.button>
277|                    ))}
278|                </div>
279|            </motion.div>
280|
281|            {/* PRO LEARNING SYSTEM */}
282|            <motion.div {...fadeUp(0.2)} style={{ marginBottom: '24px' }}>
283|                <div style={{
284|                    fontSize: '11px', fontWeight: 700, color: 'var(--accent-amber)',
285|                    textTransform: 'uppercase', letterSpacing: '1.5px', marginBottom: '12px',
286|                    display: 'flex', alignItems: 'center', gap: '6px'
287|                }}>
288|                    <Zap size={13} /> Pro Learning System
289|                </div>
290|                <div style={{ display: 'grid', gridTemplateColumns: isMobile ? 'repeat(2, 1fr)' : 'repeat(3, 1...
291|                    {[
   2 9 2 |                                        {   i d :   ' / b u i l d e r / o s - i n s t a l l ' ,   t i t l e :   ' C à i   W i n d o w s
   2 9 3 |                                        {   i d :   ' / b u i l d e r / d i a g n o s i s ' ,   t i t l e :   ' C h u © n   o á n ' ,
   2 9 4 |                                        {   i d :   ' / b u i l d e r / i n v o i c e - c h e c k ' ,   t i t l e :   ' Q u é t   H ó a
   2 9 5 |                                        {   i d :   ' / b u i l d e r / 3 d - v i e w e r ' ,   t i t l e :   ' P C   B u i l d e r   3
   2 9 6 |                                        {   i d :   ' / b u i l d e r / c o m m o n - m i s t a k e s ' ,   t i t l e :   ' L × i   T h
   2 9 7 |                                        {   i d :   ' / b u i l d e r / m a c - c h e c k ' ,   t i t l e :   ' G ã i _ Ý   M á y   T i
   2 9 8 |                                        {   i d :   ' / b u i l d e r / c a r e e r - b u i l d ' ,   t i t l e :   ' Ù c   M ¡   &
   2 9 9 |                                        {   i d :   ' / b u i l d e r / 3 d - c o m p o n e n t s ' ,   t i t l e :   ' K h o   L i n h
300|
301|                    ].map((mode) => (
302|                        <motion.a
303|                            key={mode.id}
304|                            href={mode.id}
305|                            whileHover={{ y: -2, boxShadow: '0 4px 16px rgba(0,0,0,0.2)' }}
306|                            style={{
307|                                display: 'flex', alignItems: 'center', gap: '10px',
308|                                padding: '14px', borderRadius: '10px',
309|                                border: '1px solid var(--border-default)',
310|                                background: 'var(--bg-surface)',
311|                                cursor: 'pointer', textDecoration: 'none',
```

```
312|                                transition: 'border-color 0.2s, box-shadow 0.2s'
313|                            }}
314|                            onMouseOver={e => { e.currentTarget.style.borderColor = mode.color; e.currentTarge...
315|                            onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e....
316|                        >
317|                            <div style={{
318|                                width: '36px', height: '36px', borderRadius: '8px',
319|                                background: `${mode.color}15`, color: mode.color,
320|                                display: 'flex', alignItems: 'center', justifyContent: 'center', flexShrink: 0
321|                            }}>
322|                                <mode.Icon size={18} />
323|                            </div>
324|                            <div>
325|                                <div style={{ fontSize: '12px', fontWeight: 600, color: 'var(--text-primary)' ...
326|                                <div style={{ fontSize: '10px', color: 'var(--text-muted)' }}>{mode.desc}</div>
327|                            </div>
328|                        </motion.a>
329|                    ))}
330|                </div>
331|            </motion.div>
332|
333|            <motion.div {...fadeUp(0.35)} style={{
334|                marginTop: '12px', padding: '12px 16px', borderRadius: '10px',
335|                background: `${s.orange}08`, border: `1px solid ${s.orange}20`,
336|                display: 'flex', gap: '10px', alignItems: 'flex-start'
337|            }}>
338|                <Info size={15} color={s.orange} style={{ flexShrink: 0, marginTop: '1px' }} />
339|                <span style={{ fontSize: '12px', color: 'var(--text-muted)', lineHeight: 1.5 }}>
    3 4 0 |                                        B ¡ n   c ó   t h Ã   d ù n g   W e b c a m   h o · c   C h u Ù t   Ã   l ¯ p   r á p .   i Á u   c
341|                </span>
342|            </motion.div>
343|        </div>
344|    );
345| };
346|
347| export default MainMenu;
348|
```

File: components/Marketplace.js (335 lines, 23.4 KB)

```
    1| 'use client';
    2|
    3| import React, { useState, useMemo } from 'react';
    4| import { motion, AnimatePresence } from 'framer-motion';
    5| import componentsData from '../data/componentsData.json';
    6| import scenariosData from '../data/build-scenarios.json';
    7|
    8| const categories = ['CPU', 'Mainboard', 'RAM', 'GPU', 'PSU', 'Storage', 'Cooler'];
      9 |   c o n s t   c a t e g o r y L a b e l s   =   {   ' C P U ' :   ' B Ù   v i   x í   l ý ' ,   ' M a i n b o a r d ' :   ' B o   m ¡ c h   c h ô
    1 0 |   c o n s t   c a t e g o r y I c o n s   =   {   ' C P U ' :   '&¡ ' ,   ' M a i n b o a r d ' :   'Ø=Ý   ' ,   ' R A M ' :   'Ø>Ýà ' ,   ' G P U
   11|
   12| const DIFFICULTY_COLORS = { easy: '#10b981', medium: '#f59e0b', hard: '#ef4444', expert: '#8b5cf6' };
    1 3 |   c o n s t   D I F F I C U L T Y _ L A B E L S   =   {   e a s y :   ' D Å ' ,   m e d i u m :   ' T r u n g   b ì n h ' ,   h a r d :   ' K h ó
    1 4 |   c o n s t   U S E _ C A S E _ L A B E L S   =   {   o f f i c e :   'Ø=Ú¼   V   n   p h ò n g ' ,   g a m i n g :   'Ø<ß®   G a m i n g ' ,   w
   15|
   16| const Marketplace = ({ lang = 'en', onCheckout, onCancel }) => {
   17|     const [phase, setPhase] = useState('select'); // select | store | done
   18|     const [selectedScenario, setSelectedScenario] = useState(null);
   19|     const [cart, setCart] = useState([]);
   20|     const [budget, setBudget] = useState(0);
   21|     const [initialBudget, setInitialBudget] = useState(0);
   22|     const [activeTab, setActiveTab] = useState('CPU');
   23|     const [errorMsg, setErrorMsg] = useState('');
   24|
   25|     const s = {
   26|         bgBase: 'var(--bg-base)', bgSurface: 'var(--bg-surface)', bgElevated: 'var(--bg-elevated)',
   27|         textPrimary: 'var(--text-primary)', textMuted: 'var(--text-muted)', textSecondary: 'var(--text-seconda...
   28|         border: 'var(--border-default)', brand: 'var(--brand-primary)', success: 'var(--success)', danger: 'va...
   29|     };
   30|
   31|     const selectScenario = (scenario) => {
   32|         setSelectedScenario(scenario);
   33|         const b = scenario.budget_max;
   34|         setBudget(b);
   35|         setInitialBudget(b);
   36|         setCart([]);
   37|         setErrorMsg('');
   38|         setPhase('store');
   39|     };
   40|
   41|     const filteredProducts = useMemo(() => componentsData.filter(item => item.type === activeTab), [activeTab]);
   42|     const groupedProducts = useMemo(() => {
   43|         const groups = {};
   44|         for (const prod of filteredProducts) {
    4 5 |                 c o n s t   k e y   =   p r o d . s o c k e t   | |   p r o d . r a m T y p e   | |   ( p r o d . t y p e   = = =   ' C
   46|             if (!groups[key]) groups[key] = [];
   47|             groups[key].push(prod);
   48|         }
   49|         return groups;
   50|     }, [filteredProducts]);
   51|
   52|     const validateCompat = (item) => {
   53|         if (item.type === 'Mainboard') {
   54|             const cpu = cart.find(c => c.type === 'CPU');
    5 5 |                 i f   ( c p u   & &   c p u . s o c k e t   ! = =   i t e m . s o c k e t )   r e t u r n   `K h ô n g   t ° ¡ n g   t
   56|         }
   57|         if (item.type === 'CPU') {
   58|             const mb = cart.find(c => c.type === 'Mainboard');
    5 9 |                 i f   ( m b   & &   m b . s o c k e t   ! = =   i t e m . s o c k e t )   r e t u r n   `K h ô n g   t ° ¡ n g   t h ì
   60|         }
   61|         if (item.type === 'RAM') {
   62|             const mb = cart.find(c => c.type === 'Mainboard');
    6 3 |                 i f   ( m b   & &   m b . r a m T y p e   & &   m b . r a m T y p e   ! = =   i t e m . r a m T y p e )   r e t u r n
   64|         }
   65|         return null;
   66|     };
   67|
   68|     const handleAddToCart = (product) => {
    6 9 |             i f   ( c a r t . f i n d ( i t e m   = >   i t e m . t y p e   = = =   p r o d u c t . t y p e ) )   {   s e t E r r o r M s g
   70|         const compatError = validateCompat(product);
   71|         if (compatError) { setErrorMsg(compatError); return; }
    7 2 |             i f   ( b u d g e t   -   p r o d u c t . p r i c e   <   0 )   {   s e t E r r o r M s g ( ' K h ô n g   ç   n g â n   s á c
   73|         setErrorMsg('');
   74|         setCart(prev => [...prev, product]);
   75|         setBudget(prev => prev - product.price);
   76|     };
   77|
   78|     const handleRemoveFromCart = (product) => {
   79|         setCart(prev => prev.filter(c => c.id !== product.id));
   80|         setBudget(prev => prev + product.price);
   81|         setErrorMsg('');
   82|     };
   83|
```

```
 84|     const handleCheckout = () => {
 85|         const required = ['CPU', 'Mainboard', 'RAM', 'PSU'];
 86|         const missing = required.filter(req => !cart.some(c => c.type === req));
    8 7 |                 i f   ( m i s s i n g . l e n g t h   >   0 )   {   s e t E r r o r M s g ( ` T h i ¿ u   l i n h   k i Ç n   t h i ¿ t   y ¿ u
 88|         if (onCheckout) onCheckout({
 89|             purchasedItems: cart,
 90|             remainingBudget: budget,
 91|             scenario: selectedScenario,
    9 2 |                         s c e n a r i o N a m e :   s e l e c t e d S c e n a r i o ? . n a m e _ v n   | |   ' T ñ   d o '
 93|         });
 94|         setPhase('done');
 95|     };
 96|
 97|     return (
 98|         <div style={{ display: 'flex', flexDirection: 'column', width: '100%', maxWidth: '1300px', margin: '0 ...
 99|             {phase === 'select' && (
100|                 <motion.div initial={{ opacity: 0, y: 20 }} animate={{ opacity: 1, y: 0 }} style={{ flex: 1, o...
101|                     <div className="flex items-center gap-3 mb-2">
   1 0 2 |                                         < s p a n   c l a s s N a m e = " t e x t - 2 x l " >Ø<ßê < / s p a n >
103|                         <div>
   1 0 4 |                                                 < h 2   c l a s s N a m e = " t e x t - x l   f o n t - b o l d "   s t y l e = { {   c
   1 0 5 |                                                 < p   c l a s s N a m e = " t e x t - s m "   s t y l e = { {   c o l o r :   s . t e x
106|                         </div>
107|                     </div>
108|                     <div className="grid gap-4 mt-4" style={{ gridTemplateColumns: 'repeat(auto-fill, minmax(3...
109|                         {scenariosData.map((sc, i) => (
110|                             <motion.div
111|                                 key={sc.id}
112|                                 initial={{ opacity: 0, y: 20 }}
113|                                 animate={{ opacity: 1, y: 0 }}
114|                                 transition={{ delay: i * 0.07 }}
115|                                 whileHover={{ y: -4, boxShadow: '0 12px 32px var(--shadow-hover)' }}
116|                                 onClick={() => selectScenario(sc)}
117|                                 className="rounded-2xl p-5 cursor-pointer"
118|                                 style={{ background: s.bgSurface, border: `1px solid ${s.border}` }}
119|                             >
120|                                 <div className="flex items-start gap-4">
   1 2 1 |                                                 < d i v   c l a s s N a m e = " t e x t - 4 x l " > { s c . i c o n   |
122|                                     <div className="flex-1">
123|                                         <h3 className="text-lg font-bold" style={{ color: s.textPrimary }}>{sc...
124|                                         <p className="text-sm mt-1" style={{ color: s.textMuted, lineHeight: 1...
125|                                         <div className="flex flex-wrap gap-2 mt-3">
126|                                             <span className="px-3 py-1 rounded-full text-xs font-bold"
127|                                                 style={{ background: `${DIFFICULTY_COLORS[sc.difficulty]}20`, ...
128|                                                 {DIFFICULTY_LABELS[sc.difficulty]}
129|                                             </span>
130|                                             <span className="px-3 py-1 rounded-full text-xs font-bold" style={...
   1 3 1 |                                                                                 Ø=Ú°   { s c . b u d g e t _ m i n . t o L o c a
132|                                             </span>
133|                                             {sc.requirements?.use_case && (
134|                                                 <span className="px-3 py-1 rounded-full text-xs" style={{ back...
135|                                                     {USE_CASE_LABELS[sc.requirements.use_case]}
136|                                                 </span>
137|                                             )}
138|                                         </div>
139|                                         {sc.requirements && (
140|                                             <div className="flex flex-wrap gap-1.5 mt-2">
   1 4 1 |                                                                                 { s c . r e q u i r e m e n t s . m i n _ r a m
   1 4 2 |                                                                                 { s c . r e q u i r e m e n t s . m i n _ s t o
   1 4 3 |                                                                                 { s c . r e q u i r e m e n t s . m i n _ g p u
   1 4 4 |                                                                                 { s c . r e q u i r e m e n t s . m i n _ c o n
   1 4 5 |                                                                                 { s c . r e q u i r e m e n t s . r e q u i r e
146|                                             </div>
147|                                         )}
148|                                     </div>
149|                                 </div>
150|                             </motion.div>
151|                         ))}
152|                     </div>
153|                     <button onClick={onCancel} className="mt-4 px-6 py-2 rounded-xl font-bold text-sm cursor-p...
154|                         style={{ background: 'transparent', color: s.textMuted, border: `1px solid ${s.border}...
   1 5 5 |                                         Q u a y   l ¡ i
156|                     </button>
157|                 </motion.div>
158|             )}
159|
160|             {phase === 'store' && selectedScenario && (
161|                 <>
162|                     {/* Header */}
163|                     <motion.div initial={{ opacity: 0, y: -12 }} animate={{ opacity: 1, y: 0 }}
164|                         style={{ padding: '16px 24px', background: s.bgSurface, border: `1px solid ${s.border}...
165|                         <div className="flex justify-between items-center gap-4">
166|                             <div className="flex items-center gap-3">
167|                                 <motion.button whileHover={{ scale: 1.1 }} whileTap={{ scale: 0.9 }}
168|                                     onClick={() => setPhase('select')}
169|                                     className="text-lg cursor-pointer" style={{ background: 'none', border: 'n...
   1 7 0 |                                                                 !•
171|                                 </motion.button>
172|                                 <div>
173|                                     <div className="flex items-center gap-2">
   1 7 4 |                                                         < s p a n   c l a s s N a m e = " t e x t - x l " > { s e l e c
175|                                         <span className="font-bold" style={{ color: s.textPrimary }}>{selected...
176|                                         <span className="text-xs px-2 py-0.5 rounded-full font-bold"
177|                                             style={{ background: `${DIFFICULTY_COLORS[selectedScenario.difficu...
178|                                             {DIFFICULTY_LABELS[selectedScenario.difficulty]}
179|                                         </span>
180|                                     </div>
181|                                     <p className="text-xs mt-0.5" style={{ color: s.textMuted }}>{selectedScen...
182|                                 </div>
183|                             </div>
184|                             <div className="text-right shrink-0">
185|                                 <span className="text-xs font-bold uppercase tracking-wider" style={{ color: s...
186|                                 <div className="text-2xl font-black" style={{ color: budget > initialBudget * ...
   1 8 7 |                                                             { b u d g e t . t o L o c a l e S t r i n g ( ) }   «
188|                                 </div>
189|                                 <div style={{ height: '4px', background: s.bgElevated, borderRadius: '2px', ma...
190|                                     <div style={{ width: `${(budget / initialBudget) * 100}%`, height: '100%',...
191|                                 </div>
192|                             </div>
193|                         </div>
194|                     </motion.div>
195|
196|                     {/* Error */}
197|                     <AnimatePresence>{errorMsg && (
198|                         <motion.div initial={{ opacity: 0, y: -8 }} animate={{ opacity: 1, y: 0 }} exit={{ opa...
199|                             style={{ padding: '10px 16px', background: `color-mix(in srgb, ${s.danger} 10%, tr...
   2 0 0 |                                                 &    { e r r o r M s g }
201|                         </motion.div>
202|                     )}</AnimatePresence>
203|
204|                     {/* Store */}
205|                     <div className="flex gap-4 flex-1 overflow-hidden min-h-0">
206|                         <div style={{ flex: 1, padding: '20px', background: s.bgSurface, border: `1px solid ${...
207|                             {/* Tabs */}
```

```
208|                            <div className="flex gap-2 overflow-x-auto pb-1 shrink-0">
209|                                {categories.map(cat => (
210|                                    <motion.button key={cat} onClick={() => setActiveTab(cat)} whileTap={{ sca...
211|                                        style={{
212|                                            padding: '8px 16px', display: 'flex', alignItems: 'center', gap: '...
213|                                            background: activeTab === cat ? s.brand : s.bgElevated,
214|                                            color: activeTab === cat ? '#fff' : s.textSecondary,
215|                                            border: `1px solid ${activeTab === cat ? s.brand : s.border}`,
216|                                            borderRadius: '10px', cursor: 'pointer', fontWeight: 700, fontSize...
217|                                            whiteSpace: 'nowrap', fontFamily: 'inherit'
218|                                        }}>
219|                                        <span>{categoryIcons[cat]}</span> {categoryLabels[cat]}
220|                                    </motion.button>
221|                                ))}
222|                            </div>
223|
224|                            {/* Products */}
225|                            <div className="flex-1 overflow-y-auto">
226|                                {Object.entries(groupedProducts).map(([groupKey, products]) => (
227|                                    <div key={groupKey} className="mb-4">
228|                                        <div className="text-xs font-bold uppercase tracking-wider mb-2" style...
229|                                        <div className="grid gap-3" style={{ gridTemplateColumns: 'repeat(auto...
230|                                            {products.map(prod => {
231|                                                const inCart = cart.some(c => c.id === prod.id);
232|                                                return (
233|                                                    <motion.div key={prod.id} whileHover={{ y: -2 }} style={{
234|                                                        background: s.bgElevated, border: `1px solid ${inCart ...
235|                                                        borderRadius: '12px', padding: '14px', opacity: inCart...
236|                                                    }}>
237|                                                        {inCart && <div className="absolute top-2 right-2 text...
238|                                                        <h4 className="text-sm font-bold pr-10" style={{ color...
239|                                                        <div className="text-base font-black mt-1" style={{ co...
240|                                                        <p className="text-xs mt-1" style={{ color: s.textMute...
241|                                                        <div className="flex flex-wrap gap-1 mt-1.5">
242|                                                            {prod.socket && <Tag label={`Socket: ${prod.socket...
243|                                                            {prod.ramType && <Tag label={`RAM: ${prod.ramType}...
244|                                                            {prod.power && <Tag label={`TDP: ${prod.power}W`} />}
245|                                                            {prod.wattage && <Tag label={`${prod.wattage}W`} />}
246|                                                        </div>
247|                                                        <motion.button whileTap={{ scale: 0.95 }} disabled={in...
248|                                                            style={{
249|                                                                width: '100%', padding: '8px', marginTop: '8px...
250|                                                                background: inCart ? s.bgElevated : s.brand, c...
251|                                                                border: `1px solid ${inCart ? s.border : s.bra...
252|                                                                cursor: inCart ? 'not-allowed' : 'pointer', fo...
253|
254 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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r t  ?  '
255|
256|                                                        </motion.button>
257|                                                    </motion.div>
258|                                                );
259|                                            })}
260|                                        </div>
261|                                    </div>
262|                                ))}
263|                            </div>
264|
265|                            {/* Cart */}
266|                            <div className="w-72 shrink-0 flex flex-col gap-3 p-5 rounded-2xl overflow-y-auto"
267|                                style={{ background: s.bgSurface, border: `1px solid ${s.border}` }}>
268|                                <div className="flex justify-between items-center pb-3" style={{ borderBottom: `1p...
269 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
270|                                    <span className="text-xs font-bold" style={{ color: s.textMuted }}>{cart.lengt...
271|                                </div>
272|                                <div className="flex-1 overflow-y-auto space-y-2">
273|                                    <AnimatePresence>
274|                                        {cart.length === 0 ? (
275|                                            <div className="text-center py-8" style={{ color: s.textMuted, fontSiz...
276 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
277 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
278|                                            </div>
279|                                        ) : cart.map(item => (
280|                                            <motion.div key={item.id} initial={{ opacity: 0, x: 20 }} animate={{ o...
281|                                                className="flex justify-between items-center gap-2 p-3 rounded-xl"...
282|                                                <div className="flex-1 min-w-0">
283|                                                    <div className="text-xs font-bold uppercase" style={{ color: s...
284|                                                    <div class="text-xs font-bold truncate" style={{ color: s....
285|                                                </div>
286|                                                <div class="flex items-center gap-2 shrink-0">
287|                                                    <span class="text-xs font-bold" style={{ color: s.success ...
288|                                                    <button onClick={() => handleRemoveFromCart(item)}
289|                                                        class="text-lg leading-none cursor-pointer" style={{ b...
290|                                                </div>
291|                                            </motion.div>
292|                                        ))}
293|                                    </AnimatePresence>
294|                                </div>
295|                                <div class="pt-3 space-y-2" style={{ borderTop: `1px solid ${s.border}` }}>
296|                                    <motion.button onClick={handleCheckout} whileTap={{ scale: 0.97 }}
297|                                        class="w-full py-3 rounded-xl font-bold text-sm text-white cursor-poin...
298|                                        style={{ background: `linear-gradient(135deg, ${s.brand}, #067a4d)`, borde...
299 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ø=Þ€  T Ù I  P H Ò N G  L A B
300|                                    </motion.button>
301|                                    <button onClick={() => setPhase('select')}
302|                                        class="w-full py-2 rounded-xl font-bold text-xs cursor-pointer"
303|                                        style={{ background: 'transparent', color: s.textMuted, border: `1px solid...
304 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
305|                                    </button>
306|                                </div>
307|                            </div>
308|                        </div>
309|                    </>
310|                )}
311|
312|                {phase === 'done' && (
313|                    <motion.div initial={{ opacity: 0 }} animate={{ opacity: 1 }} className="flex items-center jus...
314|                        <div class="text-center p-8 rounded-2xl" style={{ background: s.bgSurface, border: `1p...
315 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
316|                        </div>
317|                    </motion.div>
318|                )}
319|            </div>
320|        );
321| };
322|
323| function Tag({ label }) {
324|     const s2 = { border: 'var(--border-default)', bg: 'var(--bg-elevated)', text: 'var(--text-muted)' };
325|     return <span class="text-xs px-2 py-0.5 rounded font-semibold" style={{ background: s2.bg, color: s2.t...
326| }
327|
328| function ReqTag({ label }) {
329|     return <span class="text-[10px] px-2 py-0.5 rounded-full" style={{ background: 'rgba(245,158,11,0.1)',...
330|
331|
```

```
  332| }
  333|
  334| export default Marketplace;
  335|
```

File: components/MultiplayerEngine.js (350 lines, 18.5 KB)

```
    1| 'use client';
    2|
    3| import React, { useState, useEffect, useMemo, useRef, useCallback } from 'react';
    4| import GameEngine from './GameEngine';
    5|
    6| const P1_COLOR = '#6366f1';
    7| const P2_COLOR = '#f59e0b';
    8| const SUCCESS_COLOR = '#10b981';
    9|
   10| const T = {
   11|     vi: {
       1 2 |                 t i t l e :   ' C H ¾     Ø   2   N G ¯ Ü I   C H   I ' ,
       1 3 |                 s u b t i t l e :   ' M × i   n g ° Ý i     é n g   1   b ê n   —   G i ¡   t a y   l ê n    Ã   s µ n   s à n g ! ' ,
       1 4 |                 p 1 L a b e l :   ' N G ¯ Ü I   C H   I   1 ' ,
       1 5 |                 p 2 L a b e l :   ' N G ¯ Ü I   C H   I   2 ' ,
       1 6 |                 w a i t i n g :   '   a n g   c h Ý   n g ° Ý i   c h ¡ i . . . ' ,
       1 7 |                 r e a d y :   ' S µ n   s à n g ! ' ,
       1 8 |                 p 1 R e a d y :   ' P 1    ã   s µ n   s à n g ' ,
       1 9 |                 p 2 R e a d y :   ' P 2    ã   s µ n   s à n g ' ,
       2 0 |                 b o t h R e a d y :   ' C £   2    ã   s µ n   s à n g   —   B ¯ t    § u ! ' ,
       2 1 |                 s t a r t M a t c h :   ' B ® T    ¦ U ' ,
       2 2 |                 s t a r t i n g :   '   A N G   B ® T    ¦ U . . . ' ,
       2 3 |                 p 1 W i n s :   ' P 1   T H ® N G ! ' ,
       2 4 |                 p 2 W i n s :   ' P 2   T H ® N G ! ' ,
   25|         vs: 'VS',
       2 6 |                 h a n d O k :   '   ã   t h ¥ y   t a y ' ,
       2 7 |                 h a n d R a i s e d :   '   ã   g i ¡   l ê n ' ,
       2 8 |                 h a n d M i s s i n g :   '   ° a   t a y   v à o   k h u n g ' ,
       2 9 |                 h a n d s C o u n t :   ' C £   2   t a y ' ,
       3 0 |                 p 1 D e s c :   ' G i ¡   1   t a y   l ê n   c a o ! ' ,
       3 1 |                 p 2 D e s c :   ' G i ¡   1   t a y   l ê n   c a o ! ' ,
   32|     },
   33|     en: {
   34|         title: '2-PLAYER MODE',
   35|         subtitle: 'Stand on opposite sides — Raise your hand to ready up!',
   36|         p1Label: 'PLAYER 1',
   37|         p2Label: 'PLAYER 2',
   38|         waiting: 'Waiting for players...',
   39|         ready: 'Ready!',
   40|         p1Ready: 'P1 ready',
   41|         p2Ready: 'P2 ready',
   42|         bothReady: 'Both ready — Start!',
   43|         startMatch: 'START',
   44|         starting: 'STARTING...',
   45|         p1Wins: 'P1 WINS!',
   46|         p2Wins: 'P2 WINS!',
   47|         vs: 'VS',
   48|         handOk: 'Hand detected',
   49|         handRaised: 'Hand raised',
   50|         handMissing: 'Show your hand',
   51|         handsCount: 'Both hands',
   52|         p1Desc: 'Raise your hand!',
   53|         p2Desc: 'Raise your hand!',
   54|     },
   55| };
   56|
   57| const L = (key, lang) => (T[lang === 'en' ? 'en' : 'vi']?.[key] ?? T.vi[key]);
   58|
   59| const LM_SMOOTH = 0.3;
   60|
   61| function smoothLandmarks(raw, cache) {
   62|   if (!raw || raw.length === 0) return raw;
   63|   if (!cache || cache.length !== raw.length || cache[0]?.length !== raw[0]?.length) return raw;
   64|   return raw.map((hand, hi) =>
   65|     hand.map((lm, li) => {
   66|       const p = cache[hi]?.[li];
   67|       if (!p) return { ...lm };
   68|       return {
   69|         x: p.x + LM_SMOOTH * (lm.x - p.x),
   70|         y: p.y + LM_SMOOTH * (lm.y - p.y),
   71|         z: (p.z ?? 0) + LM_SMOOTH * ((lm.z ?? 0) - (p.z ?? 0)),
   72|       };
   73|     })
   74|   );
   75| }
   76|
   77| const MultiplayerEngine = ({ landmarks, onGameEvent, lang, trackingSensitivity }) => {
   78|   const smoothCacheRef = useRef(null);
   79|
   80|   const smoothedLandmarks = useMemo(() => {
   81|     if (!landmarks || landmarks.length === 0) {
   82|       smoothCacheRef.current = null;
   83|       return landmarks;
   84|     }
   85|     const cache = smoothCacheRef.current;
   86|     const smoothed = smoothLandmarks(landmarks, cache);
   87|     smoothCacheRef.current = smoothed;
   88|     return smoothed;
   89|   }, [landmarks]);
   90|     const [p1State, setP1State] = useState({ detected: false, ready: false, finished: false, time: 0 });
   91|     const [p2State, setP2State] = useState({ detected: false, ready: false, finished: false, time: 0 });
   92|     const [gameStarted, setGameStarted] = useState(false);
   93|     const [winner, setWinner] = useState(null);
   94|     const [countdown, setCountdown] = useState(0);
   95|
   96|     const timerRef = useRef(null);
   97|     const mountedRef = useRef(true);
   98|
   99|     // Spatial detection: P1 = left side (x<0.5), P2 = right side (x>=0.5)
  100|     const p1Landmarks = useMemo(() => {
  101|         if (!smoothedLandmarks || smoothedLandmarks.length === 0) return null;
  102|         const leftSide = smoothedLandmarks.filter(hand =>
  103|             hand[0] && hand[0].x !== undefined && hand[0].x < 0.5
  104|         );
  105|         return leftSide.length >= 1 ? leftSide : null;
  106|     }, [smoothedLandmarks]);
  107|
  108|     const p2Landmarks = useMemo(() => {
  109|         if (!smoothedLandmarks || smoothedLandmarks.length === 0) return null;
  110|         const rightSide = smoothedLandmarks.filter(hand =>
  111|             hand[0] && hand[0].x !== undefined && hand[0].x >= 0.5
  112|         );
  113|         return rightSide.length >= 1 ? rightSide : null;
  114|     }, [smoothedLandmarks]);
  115|
  116|     function isHandRaised(hand) {
```

```
        return hand && hand[8] && hand[8].y !== undefined && hand[8].y < 0.35;
    }

    // Player detection
    useEffect(() => {
        if (gameStarted) return;
        const p1h = p1Landmarks;
        const p1d = p1h && p1h.length >= 1;
        const p1r = p1d && p1h.every(h => isHandRaised(h));
        setP1State(prev => ({ ...prev, detected: !!p1d, ready: !!p1r }));

        const p2h = p2Landmarks;
        const p2d = p2h && p2h.length >= 1;
        const p2r = p2d && p2h.every(h => isHandRaised(h));
        setP2State(prev => ({ ...prev, detected: !!p2d, ready: !!p2r }));
    }, [p1Landmarks, p2Landmarks, gameStarted]);

    const canStart = p1State.ready && p2State.ready;

    const startGame = useCallback(() => {
        setCountdown(3);
        const cdInterval = setInterval(() => {
            setCountdown(prev => {
                if (prev <= 1) {
                    clearInterval(cdInterval);
                    setGameStarted(true);
                    setP1State(prev => ({ ...prev, time: 0, finished: false }));
                    setP2State(prev => ({ ...prev, time: 0, finished: false }));
                    setWinner(null);
                    const startTime = Date.now();
                    timerRef.current = setInterval(() => {
                        const elapsed = ((Date.now() - startTime) / 1000).toFixed(1);
                        setP1State(prev => prev.finished ? prev : { ...prev, time: elapsed });
                        setP2State(prev => prev.finished ? prev : { ...prev, time: elapsed });
                    }, 100);
                    return 0;
                }
                return prev - 1;
            });
        }, 1000);
    }, []);

    const handlePlayerFinish = useCallback((playerId) => {
        if (!gameStarted || winner) return;
        const id = playerId === 1 ? 'P1' : 'P2';
        if (playerId === 1) setP1State(prev => ({ ...prev, finished: true }));
        else setP2State(prev => ({ ...prev, finished: true }));
        setWinner(id);
        clearInterval(timerRef.current);
        if (onGameEvent) onGameEvent(`win_${playerId}`, 'all');
    }, [gameStarted, winner, onGameEvent]);

    const dotTrans = 'top 0.1s,left 0.1s';

    return (
        <div style={{ width: '100%', display: 'flex', flexDirection: 'column', gap: '1rem' }}>
            {!gameStarted ? (
                <div style={{
                    padding: '40px 32px', borderRadius: '24px',
                    background: 'linear-gradient(135deg, rgba(99,102,241,0.08), rgba(245,158,11,0.08))',
                    border: '1px solid rgba(255,255,255,0.08)',
                    display: 'flex', flexDirection: 'column', alignItems: 'center', gap: '24px',
                }}>
                    <div style={{ textAlign: 'center' }}>
                        <h2 style={{ color: '#fff', fontSize: '28px', fontWeight: 800, margin: '0 0 6px 0', le...
182 |                                                  &”p    { L ( ' t i t l e ' ,   l a n g ) }
                        </h2>
                        <p style={{ color: 'var(--text-secondary)', fontSize: '14px', margin: 0 }}>
                            {L('subtitle', lang)}
                        </p>
                    </div>

                    <div style={{ display: 'flex', gap: '24px', width: '100%', maxWidth: '800px', alignItems: ...
                        {[{ id: 1, state: p1State, color: P1_COLOR, label: L('p1Label', lang), desc: L('p1Desc...
                          { id: 2, state: p2State, color: P2_COLOR, label: L('p2Label', lang), desc: L('p2Desc...
                            const handsCount = p.landmarks ? p.landmarks.length : 0;
                            return (
                            <div key={p.id} style={{
                                flex: 1, textAlign: 'center', padding: '28px 20px', borderRadius: '20px',
                                border: p.state.ready ? `2px solid ${p.color}` : '1px solid rgba(255,255,255,0...
                                background: p.state.ready ? `${p.color}18` : 'rgba(255,255,255,0.03)',
                                position: 'relative', overflow: 'hidden',
                            }}>
                                {handsCount > 0 && (
                                    <div style={{ position: 'absolute', top: '10px', right: '10px', padding: '...
                                        {handsCount} {L('handOk', lang)}
                                    </div>
                                )}
                                <div style={{ fontSize: '40px', marginBottom: '8px', filter: p.state.detected ...
206 |                                                          { p . s t a t e . r e a d y   ?   ''   '   :   p . s t a t e . d e t e c
                                </div>
                                <h3 style={{ color: p.color, margin: '0 0 6px 0', fontSize: '16px', fontWeight...
                                <p style={{ color: p.state.ready ? 'var(--success)' : (p.state.detected ? 'var...
210 |                                                          { p . s t a t e . r e a d y   ?   ''    '   +   L ( ' r e a d y ' ,   l
                                </p>
                                {p.state.ready && (
                                    <div style={{ display: 'inline-block', padding: '4px 16px', background: p....
                                        READY
                                    </div>
                                )}
                                {p.landmarks && p.landmarks.map((hand, hi) => {
                                    const tip = hand?.[8];
                                    if (!tip) return null;
                                    return (
                                        <div key={hi} style={{
                                            position: 'absolute',
                                            top: `${Math.min(tip.y * 100, 88)}%`,
                                            left: `${Math.min(tip.x * 100, 88)}%`,
                                            width: '12px', height: '12px',
                                            background: p.color,
                                            borderRadius: '50%',
                                            border: '2px solid rgba(255,255,255,0.9)',
                                            boxShadow: `0 0 10px ${p.color}`,
                                            transform: 'translate(-50%, -50%)',
                                            opacity: 0.85,
                                        }} />
                                    );
                                })}
                            </div>
                            );
                        })}
                    </div>

                    {countdown > 0 ? (
```

```
241|                        <div style={{ fontSize: '72px', fontWeight: 900, color: '#fff', textShadow: '0 0 40px ...
242|                            {countdown}
243|                        </div>
244|                    ) : (
245|                        <button onClick={startGame} disabled={!canStart}
246|                            style={{
247|                                padding: '16px 56px', fontSize: '20px', fontWeight: 800, letterSpacing: '2px',
248|                                background: canStart ? 'linear-gradient(135deg, #00d4aa, #06b6d4)' : 'rgba(255...
249|                                color: canStart ? '#000' : 'var(--text-muted)',
250|                                border: 'none', borderRadius: '16px', cursor: canStart ? 'pointer' : 'not-allo...
251|                                boxShadow: canStart ? '0 8px 32px rgba(0,212,170,0.4)' : 'none',
252|                            }}>
  253 |                                                    { c a n S t a r t   ?   'Ø=Þ€   '   +   L ( ' s t a r t M a t c h ' ,   l a n g )   :
254|                        </button>
255|                    )}
256|
257|                    {!canStart && !countdown && (
258|                        <p style={{ color: 'var(--text-secondary)', fontSize: '13px', margin: 0 }}>
  259 |                                                    { p 1 S t a t e . r e a d y   & &   ! p 2 S t a t e . r e a d y   ?   `Ø=ÜI   $ { L ( '
  260 |                                                      ! p 1 S t a t e . r e a d y   & &   p 2 S t a t e . r e a d y   ?   `Ø=ÜI   $ { L ( '
261|                             L('waiting', lang)}
262|                        </p>
263|                    )}
264|                </div>
265|            ) : (
266|                <div style={{ display: 'flex', flexDirection: 'column', gap: '16px', width: '100%' }}>
267|                    <div style={{
268|                        display: 'flex', justifyContent: 'space-between', alignItems: 'center',
269|                        padding: '16px 28px', borderRadius: '16px',
270|                        background: 'rgba(0,0,0,0.3)', border: '1px solid rgba(255,255,255,0.08)',
271|                    }}>
272|                        <div style={{ textAlign: 'center', flex: 1 }}>
273|                            <div style={{ fontSize: '12px', color: P1_COLOR, fontWeight: 700, letterSpacing: '...
274|                            <div style={{ fontSize: '32px', fontWeight: 800, color: '#fff', fontFamily: 'monos...
  275 |                                                                { w i n n e r   = = =   ' P 2 '   ?   '#ù '   :   ` $ { p 1 S t a t e . t i m e
276|                            </div>
277|                        </div>
278|                        <div style={{
279|                            padding: '6px 24px', borderRadius: '28px',
280|                            background: winner ? 'rgba(16,185,129,0.2)' : 'rgba(255,255,255,0.04)',
281|                            border: `1px solid ${winner ? SUCCESS_COLOR : 'rgba(255,255,255,0.08)'}`,
282|                        }}>
283|                            <span style={{ fontSize: '18px', fontWeight: 900, color: winner ? SUCCESS_COLOR : ...
  284 |                                                                { w i n n e r   ?   `Ø<ßÆ   $ { w i n n e r   = = =   ' P 1 '   ?   ' P 1 '   :
285|                            </span>
286|                        </div>
287|                        <div style={{ textAlign: 'center', flex: 1 }}>
288|                            <div style={{ fontSize: '12px', color: P2_COLOR, fontWeight: 700, letterSpacing: '...
289|                            <div style={{ fontSize: '32px', fontWeight: 800, color: '#fff', fontFamily: 'monos...
  290 |                                                                { w i n n e r   = = =   ' P 1 '   ?   '#ù '   :   ` $ { p 2 S t a t e . t i m e
291|                            </div>
292|                        </div>
293|                    </div>
294|
295|                    <div style={{ display: 'grid', gridTemplateColumns: '1fr 1fr', gap: '16px', width: '100%' }}>
296|                        <div style={{
297|                            position: 'relative', borderRadius: '16px', overflow: 'hidden',
298|                            border: winner === 'P1' ? `3px solid ${SUCCESS_COLOR}` : `1px solid ${P1_COLOR}40`,
299|                        }}>
300|                            <div style={{ position: 'absolute', top: '8px', left: '8px', zIndex: 100, padding:...
301|                            <GameEngine landmarks={p1Landmarks}
302|                                onGameEvent={(ev) => { if (ev === 'COMPLETE') handlePlayerFinish(1); }}
303|                                trackingSensitivity={trackingSensitivity} />
304|                            {winner === 'P1' && (
305|                                <div style={{ position: 'absolute', inset: 0, background: 'rgba(16,185,129,0.1...
306|                                    <h2 style={{ color: '#fff', fontSize: '2.5rem', fontWeight: 900, textShado...
  307 |                                                                Ø<ßÆ   { L ( ' p 1 W i n s ' ,   l a n g ) }
308|                                    </h2>
309|                                </div>
310|                            )}
311|                        </div>
312|                        <div style={{
313|                            position: 'relative', borderRadius: '16px', overflow: 'hidden',
314|                            border: winner === 'P2' ? `3px solid ${SUCCESS_COLOR}` : `1px solid ${P2_COLOR}40`,
315|                        }}>
316|                            <div style={{ position: 'absolute', top: '8px', right: '8px', zIndex: 100, padding...
317|                            <GameEngine landmarks={p2Landmarks}
318|                                onGameEvent={(ev) => { if (ev === 'COMPLETE') handlePlayerFinish(2); }}
319|                                trackingSensitivity={trackingSensitivity} />
320|                            {winner === 'P2' && (
321|                                <div style={{ position: 'absolute', inset: 0, background: 'rgba(16,185,129,0.1...
322|                                    <h2 style={{ color: '#fff', fontSize: '2.5rem', fontWeight: 900, textShado...
  323 |                                                                Ø<ßÆ   { L ( ' p 2 W i n s ' ,   l a n g ) }
324|                                    </h2>
325|                                </div>
326|                            )}
327|                        </div>
328|                    </div>
329|
330|                    {winner && (
331|                        <div style={{ textAlign: 'center', marginTop: '8px' }}>
332|                            <button onClick={() => { setGameStarted(false); setWinner(null); setCountdown(0); ...
333|                                style={{
334|                                    padding: '12px 36px', fontSize: '16px', fontWeight: 700,
335|                                    background: 'linear-gradient(135deg, #00d4aa, #06b6d4)',
336|                                    color: '#000', border: 'none', borderRadius: '12px', cursor: 'pointer',
337|                                    boxShadow: '0 4px 16px rgba(0,212,170,0.3)',
338|                                }}>
  339 |                                                            Ø=Ý    C h ¡ i   l ¡ i
340|                            </button>
341|                        </div>
342|                    )}
343|                </div>
344|            )}
345|        </div>
346|    );
347| };
348|
349| export default MultiplayerEngine;
350|
```

File: components/Navbar.tsx (315 lines, 14.6 KB)

```
1| 'use client'
2|
3| import React, { useState, useEffect } from 'react'
4| import Link from 'next/link'
5| import { usePathname } from 'next/navigation'
6| import { motion, AnimatePresence } from 'framer-motion'
7| import { Home, BookOpen, Trophy, FileText, LayoutDashboard, Users, BarChart3, Bell, Menu, X, Settings, LogOut,...
8| import { getProfile, logout } from '@/lib/auth-actions'
9| import { NotificationBell } from '@/components/notifications/NotificationBell'
10|
```

```
11| export default function Navbar() {
12|   const pathname = usePathname()
13|
14|   const [isScrolled, setIsScrolled] = useState(false)
15|   const [mobileMenuOpen, setMobileMenuOpen] = useState(false)
16|   const [userProfile, setUserProfile] = useState<any>(null)
17|   const [loading, setLoading] = useState(true)
18|   const [avatarDropdownOpen, setAvatarDropdownOpen] = useState(false)
19|
20|   // Fetch user profile on mount
21|   useEffect(() => {
22|     const fetchProfile = async () => {
23|       try {
24|         const profile = await getProfile()
25|         setUserProfile(profile)
26|       } catch (error) {
27|         console.error("Failed to fetch profile", error)
28|       } finally {
29|         setLoading(false)
30|       }
31|     }
32|     fetchProfile()
33|   }, [])
34|
35|   // Handle scroll behavior
36|   useEffect(() => {
37|     const handleScroll = () => {
38|       if (window.scrollY > 50) {
39|         setIsScrolled(true)
40|       } else {
41|         setIsScrolled(false)
42|       }
43|     }
44|     window.addEventListener('scroll', handleScroll)
45|     return () => window.removeEventListener('scroll', handleScroll)
46|   }, [])
47|
48|   // Menu items based on role
49|   const role = userProfile?.role || 'student'
50|
51|   const studentMenu = [
    5 2 |           {   n a m e :   ' T r a n g   c h ç ' ,   p a t h :   ' / s t u d e n t ' ,   i c o n :   < H o m e   s i z e = { 1 8 }   / >   } ,
    5 3 |           {   n a m e :   ' B à i   h Í c ' ,   p a t h :   ' / c o u r s e s ' ,   i c o n :   < B o o k O p e n   s i z e = { 1 8 }   / >   } ,
    5 4 |           {   n a m e :   ' K ó _ t h i ' ,   p a t h :   ' / e x a m s ' ,   i c o n :   < F i l e T e x t   s i z e = { 1 8 }   / >   } ,
    5 5 |           {   n a m e :   ' T r _ c   n g h i Ç m ' ,   p a t h :   ' / q u i z ' ,   i c o n :   < H e l p C i r c l e   s i z e = { 1 8 }   / >
    5 6 |           {   n a m e :   ' X ¿ p   h ¡ n g ' ,   p a t h :   ' / l e a d e r b o a r d ' ,   i c o n :   < T r o p h y   s i z e = { 1 8 }   / >
57|   ]
58|
59|   const teacherMenu = [
60|     { name: 'Dashboard', path: '/teacher', icon: <LayoutDashboard size={18} /> },
    6 1 |           {   n a m e :   ' B à i   h Í c ' ,   p a t h :   ' / t e a c h e r / l e s s o n s ' ,   i c o n :   < B o o k O p e n   s i z e = { 1
62|     { name: 'Ngân hàng', path: '/teacher/questions', icon: <FileText size={18} /> },
    6 3 |           {   n a m e :   ' L Ů p   h Í c ' ,   p a t h :   ' / t e a c h e r / c l a s s e s ' ,   i c o n :   < U s e r s   s i z e = { 1 8 }
64|     { name: 'Báo cáo', path: '/teacher/reports', icon: <BarChart3 size={18} /> },
65|   ]
66|
67|   const activeMenu = role === 'teacher' ? teacherMenu : studentMenu
68|
69|   const handleLogout = async () => {
70|     await logout()
71|   }
72|
73|   // Don't show complex navbar on landing page or auth pages if not needed,
74|   // but usually this navbar is placed inside protected layouts (e.g. app/(dashboard)/layout.tsx)
75|   // We assume this component is used correctly by the parent.
76|
77|   return (
78|     <>
79|       <nav
80|         className={`fixed top-0 left-0 right-0 z-50 w-full border-b border-[#1e293b] transition-all duration-3...
81|           isScrolled
82|             ? 'bg-[#0f0f1a]/90 backdrop-blur-md py-2 shadow-lg'
83|             : 'bg-[#0f0f1a] py-4'
84|         }`}
85|       >
86|         <div className="max-w-7xl mx-auto px-4 sm:px-6 lg:px-8">
87|           <div className="flex flex-row items-center justify-between">
88|
89|             {/* LOGO — bên trái */}
90|             <Link href="/" className="flex flex-row items-center gap-2 flex-shrink-0 group">
91|               <img src="/logo.png" alt="Logo" className="w-8 h-8 object-contain transition-transform group-hov...
92|               <span className="font-bold text-white tracking-tight hidden sm:block">PC MASTER <span className=...
93|             </Link>
94|
    9 5 |                         { / *   N A V   L I N K S   —   g i ï a ,   C H È   H I Æ N   D E S K T O P   * / }
96|             <div className="hidden md:flex flex-row items-center gap-1">
97|               {activeMenu.map((item) => {
98|                 const isActive = pathname === item.path || pathname?.startsWith(item.path + '/')
99|                 return (
100|                   <Link
101|                     key={item.path}
102|                     href={item.path}
103|                     className={`relative px-4 py-2 rounded-full flex flex-row items-center gap-2 text-sm font-...
104|                       isActive ? 'text-white' : 'text-slate-400 hover:text-white hover:bg-[#16213e]'
105|                     }`}
106|                   >
107|                     {isActive && (
108|                       <motion.div
109|                         layoutId="navbar-indicator"
110|                         className="absolute inset-0 bg-[#1e293b] rounded-full -z-10 border border-[#2a3655]"
111|                         transition={{ type: "spring", stiffness: 400, damping: 30 }}
112|                       />
113|                     )}
114|                     {item.icon}
115|                     <span>{item.name}</span>
116|                   </Link>
117|                 )
118|               })}
119|             </div>
120|
    1 2 1 |                         { / *   A C T I O N S   —   b ê n   p h £ i   * / }
122|             <div className="flex flex-row items-center gap-2 sm:gap-4">
123|
124|               {/* Notifications */}
125|               {userProfile && <NotificationBell userId={userProfile.id} />}
126|
127|               {/* User Avatar & Dropdown (Desktop) */}
128|               <div className="hidden md:block relative">
129|                 {loading ? (
130|                   <div className="w-9 h-9 rounded-full bg-[#1e293b] animate-pulse"></div>
131|                 ) : userProfile ? (
132|                   <>
133|                     <button
134|                       onClick={() => setAvatarDropdownOpen(!avatarDropdownOpen)}
```

```
135|                      className="flex items-center gap-2 focus:outline-none"
136|                    >
137|                      <div className="w-9 h-9 rounded-full bg-gradient-to-tr from-[#00d2a0] to-[#00b4d8] p-[2p...
138|                        <div className="w-full h-full rounded-full bg-[#16213e] flex items-center justify-cent...
139|                          {userProfile.avatar_url ? (
140|                            <img src={userProfile.avatar_url} alt="Avatar" className="w-full h-full object-cov...
141|                          ) : (
142|                            <UserIcon size={16} className="text-slate-300" />
143|                          )}
144|                        </div>
145|                      </div>
146|                    </button>
147|
148|                    <AnimatePresence>
149|                      {avatarDropdownOpen && (
150|                        <>
151|                          <div className="fixed inset-0 z-40" onClick={() => setAvatarDropdownOpen(false)}></div>
152|                          <motion.div
153|                            initial={{ opacity: 0, y: 10, scale: 0.95 }}
154|                            animate={{ opacity: 1, y: 0, scale: 1 }}
155|                            exit={{ opacity: 0, y: 10, scale: 0.95 }}
156|                            transition={{ duration: 0.15 }}
157|                            className="absolute right-0 mt-2 w-56 bg-[#16213e] border border-[#1e293b] rounded...
158|                          >
159|                            <div className="px-4 py-2 border-b border-[#1e293b] mb-2">
160|                              <p className="text-sm font-bold text-white truncate">{userProfile.full_name}</p>
161|                              <p className="text-xs text-slate-400 truncate">{userProfile.email}</p>
162|                              <div className="mt-1 inline-block px-2 py-0.5 rounded text-[10px] font-bold uppe...
163|                                {role}
164|                              </div>
165|                            </div>
166|
167|                            <Link href="/profile" onClick={() => setAvatarDropdownOpen(false)} className="flex...
1 6 8 |                                                    < U s e r I c o n   s i z e = { 1 6 }   / >   H Ó   s ¡   c á   n h â n
169|                            </Link>
170|                            <Link href="/settings" onClick={() => setAvatarDropdownOpen(false)} className="fle...
1 7 1 |                                                    < S e t t i n g s   s i z e = { 1 6 }   / >   C à i     · t
172|                            </Link>
173|
174|                            <div className="h-[1px] bg-[#1e293b] my-2"></div>
175|
176|                            <button onClick={() => { setAvatarDropdownOpen(false); handleLogout(); }} className...
1 7 7 |                                                    < L o g O u t   s i z e = { 1 6 }   / >       n g   x u ¥ t
178|                            </button>
179|                          </motion.div>
180|                        </>
181|                      )}
182|                    </AnimatePresence>
183|                  </>
184|                ) : (
185|                  <Link href="/login" className="px-4 py-2 bg-[#00d2a0] text-black text-sm font-bold rounded-l...
1 8 6 |                                                n g   n h - p
187|                  </Link>
188|                )}
189|              </div>
190|
1 9 1 |                                { / *   H a m b u r g e r   –   C H È   M O B I L E   * / }
192|              <button
193|                className="md:hidden p-2 text-slate-400 hover:text-white bg-[#16213e] rounded-lg border border...
194|                onClick={() => setMobileMenuOpen(true)}
195|              >
196|                <Menu size={20} />
197|              </button>
198|            </div>
199|
200|          </div>
201|        </div>
202|      </nav>
203|
204|      {/* MOBILE MENU DRAWER */}
205|      <AnimatePresence>
206|        {mobileMenuOpen && (
207|          <>
208|            <motion.div
209|              initial={{ opacity: 0 }}
210|              animate={{ opacity: 1 }}
211|              exit={{ opacity: 0 }}
212|              onClick={() => setMobileMenuOpen(false)}
213|              className="fixed inset-0 bg-black/60 backdrop-blur-sm z-[60] md:hidden"
214|            />
215|
216|            <motion.div
217|              initial={{ x: '-100%' }}
218|              animate={{ x: 0 }}
219|              exit={{ x: '-100%' }}
220|              transition={{ type: 'spring', damping: 25, stiffness: 300 }}
221|              className="fixed top-0 left-0 bottom-0 w-[280px] bg-[#0f0f1a] border-r border-[#1e293b] z-[70] f...
222|            >
223|              {/* Drawer Header */}
224|              <div className="p-4 border-b border-[#1e293b] flex items-center justify-between bg-[#16213e]/50">
225|                <div className="flex items-center gap-3">
226|                  {userProfile ? (
227|                    <div className="w-10 h-10 rounded-full bg-[#1e293b] flex items-center justify-center borde...
228|                      <UserIcon size={20} className="text-[#00d2a0]" />
229|                    </div>
230|                  ) : (
231|                    <img src="/logo.png" alt="Logo" className="w-8 h-8" />
232|                  )}
233|                  <div>
234|                    <div className="font-bold text-sm text-white">
235|                      {userProfile ? userProfile.full_name : 'PC MASTER LMS'}
236|                    </div>
237|                    {userProfile && (
238|                      <div className="text-xs text-[#00d2a0] uppercase font-bold">{role}</div>
239|                    )}
240|                  </div>
241|                </div>
242|                <button onClick={() => setMobileMenuOpen(false)} className="p-2 text-slate-400 hover:text-whit...
243|                  <X size={20} />
244|                </button>
245|              </div>
246|
247|              {/* Drawer Links */}
248|              <div className="flex-1 overflow-y-auto py-4 px-3 flex flex-col gap-1">
249|                {activeMenu.map(item => {
250|                  const isActive = pathname === item.path || pathname?.startsWith(item.path + '/')
251|                  return (
252|                    <Link
253|                      key={item.path}
254|                      href={item.path}
255|                      onClick={() => setMobileMenuOpen(false)}
256|                      className={`flex items-center gap-3 px-4 py-3 rounded-xl font-medium transition-colors ${
257|                        isActive
258|                          ? 'bg-[#00d2a0]/10 text-[#00d2a0] border border-[#00d2a0]/20'
```

```
  259|                          : 'text-slate-300 hover:bg-[#16213e] hover:text-white'
  260|                        }`}
  261|                      >
  262|                        {item.icon}
  263|                        {item.name}
  264|                      </Link>
  265|                    )
  266|                  })}
  267|
  268|                  {userProfile && (
  269|                    <>
  270|                      <div className="h-[1px] bg-[#1e293b] my-3 mx-2"></div>
  271|                      <Link
  272|                        href="/profile"
  273|                        onClick={() => setMobileMenuOpen(false)}
  274|                        className="flex items-center gap-3 px-4 py-3 rounded-xl font-medium text-slate-300 hover...
  275|                      >
    2 7 6 |                                          < U s e r I c o n   s i z e = { 1 8 }   / >   H Ó   s ¡   c á   n h â n
  277|                      </Link>
  278|                      <Link
  279|                        href="/settings"
  280|                        onClick={() => setMobileMenuOpen(false)}
  281|                        className="flex items-center gap-3 px-4 py-3 rounded-xl font-medium text-slate-300 hover...
  282|                      >
    2 8 3 |                                          < S e t t i n g s   s i z e = { 1 8 }   / >   C à i     · t
  284|                      </Link>
  285|                    </>
  286|                  )}
  287|                </div>
  288|
  289|                {/* Drawer Footer */}
  290|                <div className="p-4 border-t border-[#1e293b] bg-[#16213e]/30">
  291|                  {userProfile ? (
  292|                    <button
  293|                      onClick={() => { setMobileMenuOpen(false); handleLogout(); }}
  294|                      className="w-full flex items-center justify-center gap-2 py-3 rounded-xl font-bold bg-red-...
  295|                    >
    2 9 6 |                                        < L o g O u t   s i z e = { 1 8 }   / >       n g   x u ¥ t
  297|                    </button>
  298|                  ) : (
  299|                    <Link
  300|                      href="/login"
  301|                      onClick={() => setMobileMenuOpen(false)}
  302|                      className="w-full flex items-center justify-center py-3 rounded-xl font-bold bg-[#00d2a0] ...
  303|                    >
    3 0 4 |                                          n g   n h - p   /       n g   k ý
  305|                    </Link>
  306|                  )}
  307|                </div>
  308|              </motion.div>
  309|            </>
  310|          )}
  311|        </AnimatePresence>
  312|      </>
  313|    )
  314| }
  315|
```

File: components/NotificationBar.js (49 lines, 2.6 KB)

```
    1| 'use client';
    2| import React, { useState, useEffect } from 'react';
    3| import { supabase } from '@/lib/supabase';
    4| import { Bell, X } from 'lucide-react';
    5|
    6| export default function NotificationBar() {
    7|     const [notifications, setNotifications] = useState([]);
    8|     const [dismissed, setDismissed] = useState(new Set());
    9|
   10|     useEffect(() => {
   11|         const fetch = async () => {
   12|             const { data } = await supabase
   13|                 .from('notifications')
   14|                 .select('*')
   15|                 .eq('is_global', true)
   16|                 .order('created_at', { ascending: false })
   17|                 .limit(3);
   18|             setNotifications(data || []);
   19|         };
   20|         fetch();
   21|     }, []);
   22|
   23|     const visible = notifications.filter(n => !dismissed.has(n.id));
   24|     if (visible.length === 0) return null;
   25|
   26|     return (
   27|         <div style={{ position: 'fixed', top: '16px', right: '16px', zIndex: 500, display: 'flex', flexDirecti...
   28|             {visible.map(n => (
   29|                 <div key={n.id} style={{ background: 'rgba(10,20,40,0.97)', border: '1px solid rgba(0,243,255,...
   30|                     <style>{`@keyframes slideInRight { from { transform: translateX(100px); opacity: 0; } to {...
   31|                     <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'flex-start', ...
   32|                         <div style={{ display: 'flex', gap: '10px', alignItems: 'flex-start' }}>
   33|                             <Bell size={16} color="#00f3ff" style={{ flexShrink: 0, marginTop: '2px' }} />
   34|                             <div>
   35|                                 <p style={{ margin: '0 0 4px 0', fontSize: '13px', fontWeight: 700, color: 'wh...
   36|                                 {n.content && <p style={{ margin: 0, fontSize: '12px', color: '#8899a6', lineH...
   37|                                 <p style={{ margin: '6px 0 0 0', fontSize: '11px', color: '#4b5563' }}>{new Da...
   38|                             </div>
   39|                         </div>
   40|                         <button onClick={() => setDismissed(prev => new Set([...prev, n.id]))} style={{ backgr...
   41|                             <X size={16} />
   42|                         </button>
   43|                     </div>
   44|                 </div>
   45|             ))}
   46|         </div>
   47|     );
   48| }
   49|
```

File: components/NotificationBell.tsx (122 lines, 5.5 KB)

```
    1| 'use client'
    2|
    3| import React, { useEffect, useState, useRef } from 'react'
    4| import { Bell, CheckCheck, X } from 'lucide-react'
    5| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
    6| import { useNotifications } from '@/hooks/useNotifications'
    7|
    8| export default function NotificationBell() {
    9|   const supabase = createClientComponentClient()
```

```
  10|   const [userId, setUserId] = useState<string | null>(null)
  11|   const [isOpen, setIsOpen] = useState(false)
  12|   const dropdownRef = useRef<HTMLDivElement>(null)
  13|
  14|   useEffect(() => {
  15|     let mounted = true
  16|     supabase.auth.getUser().then(({ data: { user } }) => {
  17|       if (mounted) setUserId(user?.id ?? null)
  18|     })
  19|     return () => { mounted = false }
  20|   }, [supabase])
  21|
  22|   useEffect(() => {
  23|     const handleClickOutside = (e: MouseEvent) => {
  24|       if (dropdownRef.current && !dropdownRef.current.contains(e.target as Node)) {
  25|         setIsOpen(false)
  26|       }
  27|     }
  28|     if (isOpen) {
  29|       document.addEventListener('mousedown', handleClickOutside)
  30|     }
  31|     return () => document.removeEventListener('mousedown', handleClickOutside)
  32|   }, [isOpen])
  33|
  34|   const { unreadCount, notifications, markAsRead, markAllAsRead } = useNotifications(userId ?? undefined)
  35|
  36|   return (
  37|     <div ref={dropdownRef} style={{ position: 'relative', display: 'inline-block' }}>
  38|       <button
  39|         aria-label="Notifications"
  40|         className="p-2 rounded-md hover:bg-[rgba(255,255,255,0.02)]"
  41|         onClick={(() => setIsOpen(prev => !prev)}
  42|         style={{ cursor: 'pointer' }}
  43|       >
  44|         <Bell size={18} />
  45|       </button>
  46|       {unreadCount > 0 && (
  47|         <span style={{ position: 'absolute', top: 0, right: 0, transform: 'translate(30%,-30%)' }}
  48|           className="text-xs bg-[#f03060] text-white rounded-full w-5 h-5 flex items-center justify-center">
  49|           {unreadCount > 99 ? '99+' : unreadCount}
  50|         </span>
  51|       )}
  52|
  53|       {isOpen && (
  54|         <div style={{
  55|           position: 'absolute', top: '100%', right: 0, marginTop: '8px',
  56|           width: '360px', maxHeight: '480px', overflow: 'hidden',
  57|           background: 'var(--bg-surface)', borderRadius: '12px',
  58|           border: '1px solid var(--border-strong)',
  59|           boxShadow: '0 12px 40px rgba(0,0,0,0.25)',
  60|           zIndex: 9999, display: 'flex', flexDirection: 'column',
  61|         }}>
  62|           <div style={{
  63|             display: 'flex', alignItems: 'center', justifyContent: 'space-between',
  64|             padding: '14px 16px', borderBottom: '1px solid var(--border-default)',
  65|           }}>
  66|             <span style={{ fontWeight: 700, fontSize: '14px' }}>Thông báo</span>
  67|             <div style={{ display: 'flex', gap: '8px', alignItems: 'center' }}>
  68|               {unreadCount > 0 && (
  69|                 <button onClick={markAllAsRead}
  70|                   style={{ display: 'flex', alignItems: 'center', gap: '4px', padding: '4px 10px', borderRadiu...
    7 1 |                                   < C h e c k C h e c k   s i z e = { 1 4 }   / >     ã     Í c   t ¥ t   c £
  72|                 </button>
  73|               )}
  74|               <button onClick={() => setIsOpen(false)}
  75|                 style={{ background: 'transparent', border: 'none', color: 'var(--text-muted)', cursor: 'point...
  76|                 <X size={16} />
  77|               </button>
  78|             </div>
  79|           </div>
  80|           <div style={{ overflowY: 'auto', flex: 1 }}>
  81|             {notifications.length === 0 ? (
  82|               <div style={{ padding: '40px 16px', textAlign: 'center', color: 'var(--text-muted)', fontSize: '...
  83|                 <Bell size={24} style={{ margin: '0 auto 8px', opacity: 0.3 }} />
    8 4 |                                   C h ° a   c ó   t h ô n g   b á o   n à o
  85|               </div>
  86|             ) : (
  87|               notifications.map(n => (
  88|                 <div key={n.id} style={{
  89|                   padding: '12px 16px', borderBottom: '1px solid var(--border-subtle)',
  90|                   cursor: 'pointer', background: n.is_read ? 'transparent' : 'color-mix(in srgb, var(--brand-p...
  91|                   transition: 'background 0.15s',
  92|                 }}
  93|                   onClick={(() => { if (!n.is_read) markAsRead(n.id) }}
  94|                 >
  95|                   <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'flex-start', ga...
  96|                     <div style={{ flex: 1, minWidth: 0 }}>
  97|                       <div style={{ fontSize: '13px', fontWeight: n.is_read ? 500 : 700, color: 'var(--text-pr...
  98|                         {n.title}
  99|                       </div>
 100|                       {n.body && (
 101|                         <div style={{ fontSize: '12px', color: 'var(--text-muted)', lineHeight: 1.4, display: ...
 102|                           {n.body}
 103|                         </div>
 104|                       )}
 105|                     </div>
 106|                     {!n.is_read && (
 107|                       <div style={{ width: '8px', height: '8px', borderRadius: '50%', background: 'var(--brand...
 108|                     )}
 109|                   </div>
 110|                   <div style={{ fontSize: '10px', color: 'var(--text-muted)', marginTop: '4px' }}>
 111|                     {new Date(n.created_at).toLocaleDateString('vi-VN')}
 112|                   </div>
 113|                 </div>
 114|               ))
 115|             )}
 116|           </div>
 117|         </div>
 118|       )}
 119|     </div>
 120|   )
 121| }
 122|
```

File: components/notifications/NotificationBell.tsx (85 lines, 3.1 KB)

```
    1| 'use client'
    2|
    3| import React, { useState, useRef, useEffect } from 'react'
    4| import { Bell } from 'lucide-react'
    5| import { useNotifications } from '@/hooks/useNotifications'
    6| import { NotificationItem } from './NotificationItem'
    7| import Link from 'next/link'
```

```
  8|
  9| export function NotificationBell({ userId }: { userId?: string }) {
 10|   const [isOpen, setIsOpen] = useState(false)
 11|   const { notifications, unreadCount, markAsRead, markAllAsRead } = useNotifications(userId)
 12|   const dropdownRef = useRef<HTMLDivElement>(null)
 13|
 14|   // Close dropdown when clicking outside
 15|   useEffect(() => {
 16|     function handleClickOutside(event: MouseEvent) {
 17|       if (dropdownRef.current && !dropdownRef.current.contains(event.target as Node)) {
 18|         setIsOpen(false)
 19|       }
 20|     }
 21|     document.addEventListener("mousedown", handleClickOutside)
 22|     return () => document.removeEventListener("mousedown", handleClickOutside)
 23|   }, [])
 24|
 25|   return (
 26|     <div className="relative" ref={dropdownRef}>
 27|       {/* Bell button */}
 28|       <button
 29|         onClick={() => setIsOpen(!isOpen)}
 30|         className="relative p-2 text-slate-400 hover:text-white hover:bg-[#16213e] rounded-full transition-col...
    3 1 |                  a r i a - l a b e l = { ` T h ô n g   b á o $ { u n r e a d C o u n t   >   0   ?   `   ( $ { u n r e a d C o u n t }   c h ° a
 32|       >
 33|         <Bell size={20} />
 34|         {unreadCount > 0 && (
 35|           <span className="
 36|             absolute top-1.5 right-1.5 w-2.5 h-2.5
 37|             bg-[#e84855] border-2 border-[#0f0f1a] rounded-full
 38|           "></span>
 39|         )}
 40|       </button>
 41|
    4 2 |              { / *   D r o p d o w n   —   5   n o t i f i c a t i o n s   m Û i   n h ¥ t   * / }
 43|       {isOpen && (
 44|         <div className="
 45|           absolute right-0 top-full mt-2 w-80
 46|           bg-[#1a1c25] border border-gray-800
 47|           rounded-xl shadow-2xl z-50 overflow-hidden
 48|         ">
 49|           <div className="flex items-center justify-between px-4 py-3 border-b border-gray-800 bg-[#16213e]/50">
 50|             <span className="text-sm font-bold text-[#dde0ed]">Thông báo</span>
 51|             {unreadCount > 0 && (
 52|               <button onClick={markAllAsRead} className="text-xs text-[#00d4aa] font-medium hover:underline">
    5 3 |                                 Í c   t ¥ t   c £
 54|               </button>
 55|             )}
 56|           </div>
 57|
 58|           <div className="max-h-[350px] overflow-y-auto">
 59|             {notifications.length === 0 ? (
 60|               <div className="p-6 text-center text-sm text-gray-400">
    6 1 |                                 C h ° a   c ó   t h ô n g   b á o   n à o
 62|               </div>
 63|             ) : (
 64|               notifications.slice(0, 5).map(n => (
 65|                 <NotificationItem key={n.id} notification={n} onRead={markAsRead} />
 66|               ))
 67|             )}
 68|           </div>
 69|
 70|           <Link
 71|             href="/notifications"
 72|             onClick={() => setIsOpen(false)}
 73|             className="
 74|               block text-center py-3 text-xs font-medium text-[#00d4aa]
 75|               border-t border-gray-800 bg-[#16213e]/30 hover:bg-[#16213e] transition-colors
 76|             "
 77|           >
    7 8 |                         X e m   t ¥ t   c £   t h ô n g   b á o   !’
 79|           </Link>
 80|         </div>
 81|       )}
 82|     </div>
 83|   )
 84| }
 85|
```

File: components/notifications/NotificationItem.tsx (64 lines, 2.5 KB)

```
  1| 'use client'
  2|
  3| import React from 'react'
  4| import Link from 'next/link'
  5| import { Notification } from '@/hooks/useNotifications'
  6| import { CheckCircle, BookOpen, Clock, MessageSquare, Trophy, FileText, Bell } from 'lucide-react'
  7|
  8| interface Props {
  9|   notification: Notification
 10|   onRead: (id: string) => void
 11| }
 12|
 13| export function NotificationItem({ notification, onRead }: Props) {
 14|   const getIcon = () => {
 15|     switch (notification.type) {
 16|       case 'quiz_graded': return <CheckCircle size={16} className="text-[#00d4aa]" />
 17|       case 'lesson_unlocked': return <BookOpen size={16} className="text-blue-400" />
 18|       case 'deadline_reminder': return <Clock size={16} className="text-orange-400" />
 19|       case 'teacher_message': return <MessageSquare size={16} className="text-purple-400" />
 20|       case 'achievement_earned': return <Trophy size={16} className="text-yellow-400" />
 21|       case 'certificate_ready': return <FileText size={16} className="text-pink-400" />
 22|       default: return <Bell size={16} className="text-gray-400" />
 23|     }
 24|   }
 25|
 26|   const timeAgo = (dateStr: string) => {
 27|     const diff = Math.floor((new Date().getTime() - new Date(dateStr).getTime()) / 1000)
    2 8 |          i f   ( d i f f   <   6 0 )   r e t u r n   ' V ë a   x o n g '
    2 9 |          i f   ( d i f f   <   3 6 0 0 )   r e t u r n   ` $ { M a t h . f l o o r ( d i f f   /   6 0 ) }   p h ú t   t r ° Û c `
    3 0 |          i f   ( d i f f   <   8 6 4 0 0 )   r e t u r n   ` $ { M a t h . f l o o r ( d i f f   /   3 6 0 0 ) }   g i Ý   t r ° Û c `
    3 1 |          r e t u r n   ` $ { M a t h . f l o o r ( d i f f   /   8 6 4 0 0 ) }   n g à y   t r ° Û c `
 32|   }
 33|
 34|   return (
 35|     <Link
 36|       href={notification.action_url || '#'}
 37|       onClick={() => {
 38|         if (!notification.is_read) onRead(notification.id)
 39|       }}
 40|       className={`block px-4 py-3 border-b border-white/5 hover:bg-white/5 transition-colors ${!notification.i...
 41|     >
 42|       <div className="flex gap-3">
```

```
  43|         <div className="mt-1 flex-shrink-0">
  44|           {getIcon()}
  45|         </div>
  46|         <div className="flex-1 min-w-0">
  47|           <p className={`text-sm font-medium truncate ${!notification.is_read ? 'text-white font-bold' : 'text...
  48|             {notification.title}
  49|           </p>
  50|           <p className="text-xs text-gray-400 mt-0.5 line-clamp-2">
  51|             {notification.body}
  52|           </p>
  53|           <p className="text-[10px] text-gray-500 mt-1">
  54|             {timeAgo(notification.created_at)}
  55|           </p>
  56|         </div>
  57|         {!notification.is_read && (
  58|           <div className="w-2 h-2 bg-[#e84855] rounded-full mt-2 flex-shrink-0"></div>
  59|         )}
  60|       </div>
  61|     </Link>
  62|   )
  63| }
  64|
```

File: components/notifications/notifications/NotificationBell.tsx (85 lines, 3.1 KB)

```
   1| 'use client'
   2|
   3| import React, { useState, useRef, useEffect } from 'react'
   4| import { Bell } from 'lucide-react'
   5| import { useNotifications } from '@/hooks/useNotifications'
   6| import { NotificationItem } from './NotificationItem'
   7| import Link from 'next/link'
   8|
   9| export function NotificationBell({ userId, filterTypes }: { userId?: string, filterTypes?: string[] }) {
  10|   const [isOpen, setIsOpen] = useState(false)
  11|   const { notifications, unreadCount, markAsRead, markAllAsRead } = useNotifications(userId, { filterTypes })
  12|   const dropdownRef = useRef<HTMLDivElement>(null)
  13|
  14|   // Close dropdown when clicking outside
  15|   useEffect(() => {
  16|     function handleClickOutside(event: MouseEvent) {
  17|       if (dropdownRef.current && !dropdownRef.current.contains(event.target as Node)) {
  18|         setIsOpen(false)
  19|       }
  20|     }
  21|     document.addEventListener("mousedown", handleClickOutside)
  22|     return () => document.removeEventListener("mousedown", handleClickOutside)
  23|   }, [])
  24|
  25|   return (
  26|     <div className="relative" ref={dropdownRef}>
  27|       {/* Bell button */}
  28|       <button
  29|         onClick={() => setIsOpen(!isOpen)}
  30|         className="relative p-2 text-slate-400 hover:text-white hover:bg-[#16213e] rounded-full transition-col...
    3 1 |                 a r i a - l a b e l = { ` T h ô n g   b á o $ { u n r e a d C o u n t   >   0   ?   `   ( $ { u n r e a d C o u n t }   c h ° a
  32|       >
  33|         <Bell size={20} />
  34|         {unreadCount > 0 && (
  35|           <span className="
  36|             absolute top-1.5 right-1.5 w-2.5 h-2.5
  37|             bg-[#e84855] border-2 border-[#0f0f1a] rounded-full
  38|           "></span>
  39|         )}
  40|       </button>
  41|
    4 2 |               { / *   D r o p d o w n   –   5   n o t i f i c a t i o n s   m Û i   n h ¥ t   * / }
  43|       {isOpen && (
  44|         <div className="
  45|           absolute right-0 top-full mt-2 w-80
  46|           bg-[#1a1c25] border border-gray-800
  47|           rounded-xl shadow-2xl z-50 overflow-hidden
  48|         ">
  49|           <div className="flex items-center justify-between px-4 py-3 border-b border-gray-800 bg-[#16213e]/50">
  50|             <span className="text-sm font-bold text-[#dde0ed]">Thông báo</span>
  51|             {unreadCount > 0 && (
  52|               <button onClick={markAllAsRead} className="text-xs text-[#00d4aa] font-medium hover:underline">
    5 3 |                                   Í c   t ¥ t   c £
  54|               </button>
  55|             )}
  56|           </div>
  57|
  58|           <div className="max-h-[350px] overflow-y-auto">
  59|             {notifications.length === 0 ? (
  60|               <div className="p-6 text-center text-sm text-gray-400">
    6 1 |                                 C h ° a   c ó   t h ô n g   b á o   n à o
  62|               </div>
  63|             ) : (
  64|               notifications.slice(0, 5).map(n => (
  65|                 <NotificationItem key={n.id} notification={n} onRead={markAsRead} />
  66|               ))
  67|             )}
  68|           </div>
  69|
  70|           <Link
  71|             href="/notifications"
  72|             onClick={() => setIsOpen(false)}
  73|             className="
  74|               block text-center py-3 text-xs font-medium text-[#00d4aa]
  75|               border-t border-gray-800 bg-[#16213e]/30 hover:bg-[#16213e] transition-colors
  76|             "
  77|           >
    7 8 |                       X e m   t ¥ t   c £   t h ô n g   b á o   !’
  79|           </Link>
  80|         </div>
  81|       )}
  82|     </div>
  83|   )
  84| }
  85|
```

File: components/notifications/notifications/NotificationItem.tsx (64 lines, 2.5 KB)

```
   1| 'use client'
   2|
   3| import React from 'react'
   4| import Link from 'next/link'
   5| import { Notification } from '@/hooks/useNotifications'
   6| import { CheckCircle, BookOpen, Clock, MessageSquare, Trophy, FileText, Bell } from 'lucide-react'
   7|
   8| interface Props {
```

```
  9|   notification: Notification
 10|   onRead: (id: string) => void
 11| }
 12|
 13| export function NotificationItem({ notification, onRead }: Props) {
 14|   const getIcon = () => {
 15|     switch (notification.type) {
 16|       case 'quiz_graded': return <CheckCircle size={16} className="text-[#00d4aa]" />
 17|       case 'lesson_unlocked': return <BookOpen size={16} className="text-blue-400" />
 18|       case 'deadline_reminder': return <Clock size={16} className="text-orange-400" />
 19|       case 'teacher_message': return <MessageSquare size={16} className="text-purple-400" />
 20|       case 'achievement_earned': return <Trophy size={16} className="text-yellow-400" />
 21|       case 'certificate_ready': return <FileText size={16} className="text-pink-400" />
 22|       default: return <Bell size={16} className="text-gray-400" />
 23|     }
 24|   }
 25|
 26|   const timeAgo = (dateStr: string) => {
 27|     const diff = Math.floor((new Date().getTime() - new Date(dateStr).getTime()) / 1000)
    28 |          i f   ( d i f f   <   6 0 )   r e t u r n   ' V ë a   x o n g '
    29 |          i f   ( d i f f   <   3 6 0 0 )   r e t u r n   ` $ { M a t h . f l o o r ( d i f f   /   6 0 ) }   p h ú t   t r ° Û c `
    30 |          i f   ( d i f f   <   8 6 4 0 0 )   r e t u r n   ` $ { M a t h . f l o o r ( d i f f   /   3 6 0 0 ) }   g i Ý   t r ° Û c `
    31 |          r e t u r n   ` $ { M a t h . f l o o r ( d i f f   /   8 6 4 0 0 ) }   n g à y   t r ° Û c `
 32|   }
 33|
 34|   return (
 35|     <Link
 36|       href={notification.action_url || '#'}
 37|       onClick={() => {
 38|         if (!notification.is_read) onRead(notification.id)
 39|       }}
 40|       className={`block px-4 py-3 border-b border-white/5 hover:bg-white/5 transition-colors ${!notification.i...
 41|     >
 42|       <div className="flex gap-3">
 43|         <div className="mt-1 flex-shrink-0">
 44|           {getIcon()}
 45|         </div>
 46|         <div className="flex-1 min-w-0">
 47|           <p className={`text-sm font-medium truncate ${!notification.is_read ? 'text-white font-bold' : 'text...
 48|             {notification.title}
 49|           </p>
 50|           <p className="text-xs text-gray-400 mt-0.5 line-clamp-2">
 51|             {notification.body}
 52|           </p>
 53|           <p className="text-[10px] text-gray-500 mt-1">
 54|             {timeAgo(notification.created_at)}
 55|           </p>
 56|         </div>
 57|         {!notification.is_read && (
 58|           <div className="w-2 h-2 bg-[#e84855] rounded-full mt-2 flex-shrink-0"></div>
 59|         )}
 60|       </div>
 61|     </Link>
 62|   )
 63| }
 64|
```

File: components/notifications/notifications/ParentNotificationBell.tsx (21 lines, 0.4 KB)

```
  1| 'use client'
  2|
  3| import React from 'react'
  4| import { NotificationBell } from './NotificationBell'
  5|
  6| export function ParentNotificationBell({ userId }: { userId?: string }) {
  7|   return (
  8|     <NotificationBell
  9|       userId={userId}
 10|       filterTypes={[
 11|         'child_absent',
 12|         'child_low_score',
 13|         'child_completed_path',
 14|         'lesson_completed',
 15|         'quiz_graded',
 16|         'achievement_earned'
 17|       ]}
 18|     />
 19|   )
 20| }
 21|
```

File: components/Onboarding.tsx (145 lines, 4.9 KB)

```
  1| 'use client'
  2|
  3| import React, { useState, useEffect } from 'react'
  4| import { motion, AnimatePresence } from 'framer-motion'
  5| import { Sparkles, Cpu, BookOpen, Trophy, ArrowRight, X } from 'lucide-react'
  6| import confetti from 'canvas-confetti'
  7|
  8| export default function Onboarding() {
  9|   const [show, setShow] = useState(false)
 10|   const [step, setStep] = useState(1)
 11|
 12|   useEffect(() => {
 13|     const isDone = localStorage.getItem('onboarding_done')
 14|     if (!isDone) {
 15|       const timer = setTimeout(() => setShow(true), 1500)
 16|       return () => clearTimeout(timer)
 17|     }
 18|   }, [])
 19|
 20|   const handleNext = () => {
 21|     if (step === 4) {
 22|       handleClose()
 23|     } else {
 24|       setStep(step + 1)
 25|       if (step === 3) {
 26|         confetti({
 27|           particleCount: 100,
 28|           spread: 70,
 29|           origin: { y: 0.6 }
 30|         })
 31|       }
 32|     }
 33|   }
 34|
 35|   const handleClose = () => {
 36|     localStorage.setItem('onboarding_done', 'true')
 37|     setShow(false)
 38|   }
```

```
  39|
  40|   if (!show) return null
  41|
  42|   const steps = [
  43|     {
  44|       id: 1,
    4 5 |              t i t l e :   ' C h à o   m ë n g   b ¡ n    ¿ n _ v Û i   P C   M a s t e r !  Ø<ß‰ ' ,
    4 6 |              d e s c :   ' N Á n   t £ n g   h Í c   t - p   l ¯ p   r á p   m á y   t í n h   t h ô n g   m i n h   n h ¥ t   d à n h   c h o
  47|       icon: <Sparkles className="text-yellow-400" size={48} />,
  48|       color: 'bg-yellow-400/10'
  49|     },
  50|     {
  51|       id: 2,
    5 2 |              t i t l e :   ' P h ò n g   L a b   3 D   t h ñ c   t ¿  Ø=Ü» ' ,
    5 3 |              d e s c :   ' L ¯ p   r á p   h ¡ n   5 0 +   l i n h   k i Ç n   t h - t   v Û i   t h ô n g   s Ñ   v - t   l ý   c h í n h   x á
  54|       icon: <Cpu className="text-[#00d2a0]" size={48} />,
  55|       color: 'bg-[#00d2a0]/10'
  56|     },
  57|     {
  58|       id: 3,
    5 9 |              t i t l e :   ' H Í c   t ë   c h u y ê n   g i a  Ø<ß“ ' ,
    6 0 |              d e s c :   ' H Ç   t h Ñ n g   b à i   g i £ n g   v i d e o   t ° ¡ n g   t á c   v à   s ñ   h ×   t r ã   c ç a   A I   G u r u
  61|       icon: <BookOpen className="text-blue-400" size={48} />,
  62|       color: 'bg-blue-400/10'
  63|     },
  64|     {
  65|       id: 4,
    6 6 |              t i t l e :   ' S µ n   s à n g   c h ° a ?  Ø=Þ€ ' ,
    6 7 |              d e s c :   ' B ¯ t    § u   h à n h   t r ì n h   c h i n h   p h ¯ c   c ô n g   n g h Ç   c ç a   b ¡ n   n g a y   b â y   g i
  68|       icon: <Trophy className="text-purple-400" size={48} />,
  69|       color: 'bg-purple-400/10'
  70|     }
  71|   ]
  72|
  73|   const currentStep = steps[step - 1]
  74|
  75|   return (
  76|     <AnimatePresence>
  77|       <div className="fixed inset-0 z-[9999] flex items-center justify-center p-6">
  78|         <motion.div
  79|           initial={{ opacity: 0 }}
  80|           animate={{ opacity: 1 }}
  81|           exit={{ opacity: 0 }}
  82|           className="absolute inset-0 bg-black/80 backdrop-blur-md"
  83|           onClick={handleClose}
  84|         />
  85|
  86|         <motion.div
  87|           initial={{ opacity: 0, scale: 0.9, y: 20 }}
  88|           animate={{ opacity: 1, scale: 1, y: 0 }}
  89|           exit={{ opacity: 0, scale: 0.9, y: 20 }}
  90|           className="relative w-full max-w-lg bg-[#16213e] border border-[#1e293b] rounded-[32px] overflow-hid...
  91|         >
  92|           <button
  93|             onClick={handleClose}
  94|             className="absolute top-6 right-6 p-2 text-slate-500 hover:text-white transition-colors z-10"
  95|           >
  96|             <X size={20} />
  97|           </button>
  98|
  99|           <div className="p-8 md:p-12 text-center">
 100|             <motion.div
 101|               key={step}
 102|               initial={{ opacity: 0, scale: 0.5 }}
 103|               animate={{ opacity: 1, scale: 1 }}
 104|               className={`w-24 h-24 ${currentStep.color} rounded-3xl flex items-center justify-center mx-auto ...
 105|             >
 106|               {currentStep.icon}
 107|             </motion.div>
 108|
 109|             <motion.div
 110|               key={`text-${step}`}
 111|               initial={{ opacity: 0, x: 20 }}
 112|               animate={{ opacity: 1, x: 0 }}
 113|               className="space-y-4 mb-10"
 114|             >
 115|               <h2 className="text-3xl font-black text-white leading-tight">{currentStep.title}</h2>
 116|               <p className="text-slate-400 text-lg leading-relaxed">{currentStep.desc}</p>
 117|             </motion.div>
 118|
 119|             <div className="flex flex-col gap-4">
 120|               <button
 121|                 onClick={handleNext}
 122|                 className="w-full py-4 bg-[#00d2a0] hover:bg-[#00e6af] text-black font-black rounded-2xl trans...
 123|               >
    1 2 4 |                              { s t e p   = = =   4   ?   ' B ® T    ¦ U   N G A Y '   :   ' T I ¾ P   T ä C ' }
 125|                 <ArrowRight size={20} className="group-hover:translate-x-1 transition-transform" />
 126|               </button>
 127|
 128|               <div className="flex justify-center gap-2">
 129|                 {steps.map((_, i) => (
 130|                   <div
 131|                     key={i}
 132|                     className={`h-1.5 rounded-full transition-all duration-300 ${
 133|                       i + 1 === step ? 'w-8 bg-[#00d2a0]' : 'w-2 bg-[#1e293b]'
 134|                     }`}
 135|                   />
 136|                 ))}
 137|               </div>
 138|             </div>
 139|           </div>
 140|         </motion.div>
 141|       </div>
 142|     </AnimatePresence>
 143|   )
 144| }
 145|
```

File: components/OSInstallationSimulator.js (1129 lines, 43.4 KB)

```
   1| 'use client';
   2|
   3| import React, { useState, useEffect, useRef } from 'react';
   4|
   5| /**
   6|  * @typedef {import('@/types/pc-components').Build} Build
   7|  * @typedef {import('@/types/pc-components').CPUProduct} CPUProduct
   8|  * @typedef {import('@/types/pc-components').GPUProduct} GPUProduct
   9|  * @typedef {import('@/types/pc-components').RAMProduct} RAMProduct
  10|  * @typedef {import('@/types/pc-components').SSDProduct} SSDProduct
  11|  */
  12|
  13| const WINDOWS_VERSION = 'Windows 11 Pro (24H2)';
```

```
14|
15| const WIFI_NETWORKS = [
16|   { id: 1, name: 'Nhà riêng', strength: 4, secured: true },
17|   { id: 2, name: 'V n phòng PCM', strength: 5, secured: true },
18|   { id: 3, name: 'WiFi Quán Cà Phê', strength: 2, secured: false },
19|   { id: 4, name: 'Mạng LángGiÁng', strength: 3, secured: true },
20|   { id: 5, name: '5G Hotspot', strength: 5, secured: true },
21|   { id: 6, name: 'WiFi Tr°Ýng HÍc', strength: 4, secured: true },
22| ];
23|
24| const SETUP_STEPS = [
25|   { label: 'GiÛi thiÇu', icon: 'Ø=ÜÖ' },
26|   { label: 'Ngôn ngï', icon: 'Ø<ß' },
27|   { label: 'Cài ·t', icon: '&™þ' },
28|   { label: 'Tài khoÉn', icon: 'Ø=Üd' },
29|   { label: 'QuyÁn riêng t°', icon: 'Ø=Ý' },
30|   { label: 'Mïng', icon: 'Ø=Üö' },
31|   { label: 'Hoàn t¥t', icon: 'Ø<ß‰' },
32| ];
33|
34| const INSTALL_MESSAGES = [
35|   { min: 0, max: 12, text: 'ang sao chép t-p tin cài ·t...' },
36|   { min: 12, max: 28, text: 'ang cài ·t tính n ng Windows...' },
37|   { min: 28, max: 45, text: 'ang áp dång cài ·t hÇ thÑng...' },
38|   { min: 45, max: 65, text: 'ang chu©n bË thi¿t bË cça bïn...' },
39|   { min: 65, max: 82, text: 'ang thi¿t l-p tùy chÉnh...' },
40|   { min: 82, max: 95, text: 'S p xong rÓi...' },
41|   { min: 95, max: 100, text: 'ang hoàn t¥t...' },
42| ];
43|
44| function LoadingSpinner({ size, color }) {
45|   return (
46|     <div
47|       style={{
48|         width: size || 40,
49|         height: size || 40,
50|         border: '3px solid rgba(255,255,255,0.15)',
51|         borderTopColor: color || 'var(--accent-blue, #0078d4)',
52|         borderRadius: '50%',
53|         animation: 'ospin 0.8s linear infinite',
54|       }}
55|     />
56|   );
57| }
58|
59| function ToggleSwitch({ checked, onChange, disabled }) {
60|   return (
61|     <button
62|       onClick={() => { if (!disabled) onChange(!checked); }}
63|       disabled={disabled}
64|       style={{
65|         width: '44px', height: '24px',
66|         background: checked ? '#0078d4' : 'rgba(255,255,255,0.15)',
67|         borderRadius: '12px', border: 'none',
68|         cursor: disabled ? 'default' : 'pointer',
69|         position: 'relative', transition: 'background 0.2s',
70|         padding: 0, flexShrink: 0,
71|       }}
72|       type="button"
73|     >
74|       <div
75|         style={{
76|           width: '18px', height: '18px',
77|           background: 'white', borderRadius: '50%',
78|           position: 'absolute', top: '3px',
79|           left: checked ? '23px' : '3px',
80|           transition: 'left 0.2s',
81|           boxShadow: '0 1px 3px rgba(0,0,0,0.3)',
82|         }}
83|       />
84|     </button>
85|   );
86| }
87|
88| function WiFiIcon({ strength }) {
89|   return (
90|     <span style={{ display: 'inline-flex', alignItems: 'flex-end', gap: '2px', height: '16px' }}>
91|       {[1, 2, 3, 4, 5].map(i => (
92|         <span
93|           key={i}
94|           style={{
95|             width: '3px',
96|             height: `${4 + i * 2.5}px`,
97|             background: i <= strength ? '#fff' : 'rgba(255,255,255,0.2)',
98|             borderRadius: '1px 1px 0 0',
99|             transition: 'background 0.3s',
100|           }}
101|         />
102|       ))}
103|     </span>
104|   );
105| }
106|
107| const glassPanel = {
108|   background: 'rgba(0, 103, 192, 0.15)',
109|   backdropFilter: 'blur(12px)',
110|   WebkitBackdropFilter: 'blur(12px)',
111|   border: '1px solid rgba(255,255,255,0.12)',
112|   borderRadius: '12px',
113| };
114|
115| const win11Btn = (active) => ({
116|   padding: '8px 32px',
117|   background: active ? '#0078d4' : 'rgba(255,255,255,0.08)',
118|   color: active ? 'white' : 'rgba(255,255,255,0.4)',
119|   border: 'none',
120|   borderRadius: '6px',
121|   fontSize: '14px',
122|   fontWeight: 600,
123|   cursor: active ? 'pointer' : 'default',
124|   fontFamily: 'inherit',
125|   transition: 'all 0.15s',
126|   opacity: active ? 1 : 0.5,
127| });
128|
129| function StepIndicator({ currentStep, steps }) {
130|   return (
131|     <div
132|       style={{
133|         display: 'flex', justifyContent: 'center', alignItems: 'center',
134|         gap: '8px', padding: '16px 20px',
135|       }}
136|     >
137|       {steps.map((step, i) => (
```

```
138|         <React.Fragment key={i}>
139|           <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
140|             <div
141|               style={{
142|                 width: '32px', height: '32px', borderRadius: '50%',
143|                 display: 'flex', alignItems: 'center', justifyContent: 'center',
144|                 fontSize: '12px', fontWeight: 700,
145|                 background: i < currentStep
146|                   ? '#0078d4'
147|                   : i === currentStep
148|                     ? 'rgba(0,120,212,0.3)'
149|                     : 'rgba(255,255,255,0.08)',
150|                 color: i <= currentStep ? 'white' : 'rgba(255,255,255,0.3)',
151|                 border: i === currentStep ? '2px solid #0078d4' : '2px solid transparent',
152|                 transition: 'all 0.3s',
153|               }}
154|             >
   1 5 5 |                             { i   <   c u r r e n t S t e p   ?   '' '   :   s t e p . i c o n }
156|             </div>
157|             <span
158|               style={{
159|                 color: i <= currentStep ? 'white' : 'rgba(255,255,255,0.3)',
160|                 fontSize: '11px', fontWeight: i === currentStep ? 600 : 400,
161|                 transition: 'color 0.3s',
162|               }}
163|             >
164|               {step.label}
165|             </span>
166|           </div>
167|           {i < steps.length - 1 && (
168|             <div
169|               style={{
170|                 width: '32px', height: '2px',
171|                 background: i < currentStep ? '#0078d4' : 'rgba(255,255,255,0.1)',
172|                 transition: 'background 0.3s',
173|               }}
174|             />
175|           )}
176|         </React.Fragment>
177|       ))}
178|     </div>
179|   );
180| }
181|
182| function LanguageRegionStep({ lang, region, keyboard, onLangChange, onRegionChange, onKeyboardChange, onNext }) {
   1 8 3 |       c o n s t   l a n g u a g e s   =   [ ' T i ¿ n g   V i Ç t ' ,   ' E n g l i s h   ( U n i t e d   S t a t e s ) ' ,   ' E n g l i s h   (
   1 8 4 |       c o n s t   r e g i o n s   =   [ ' V i Ç t   N a m ' ,   ' U n i t e d   S t a t e s ' ,   ' U n i t e d   K i n g d o m ' ,   ' J a p a r
   1 8 5 |       c o n s t   k e y b o a r d s   =   [ ' T i ¿ n g   V i Ç t   ( T e l e x ) ' ,   ' T i ¿ n g   V i Ç t   ( V N I ) ' ,   ' U S   Q W E R T
186|
187|   const selectStyle = (val, current) => ({
188|     padding: '10px 16px',
189|     width: '100%',
190|     background: val === current ? 'rgba(0,120,212,0.2)' : 'rgba(255,255,255,0.06)',
191|     border: val === current ? '1px solid #0078d4' : '1px solid rgba(255,255,255,0.1)',
192|     borderRadius: '8px',
193|     color: 'white',
194|     cursor: 'pointer',
195|     fontSize: '13px',
196|     textAlign: 'left',
197|     fontFamily: 'inherit',
198|     transition: 'all 0.15s',
199|   });
200|
201|   return (
202|     <div
203|       style={{
204|         display: 'flex', flexDirection: 'column', alignItems: 'center',
205|         gap: '24px', padding: '24px 20px 40px',
206|         maxWidth: '480px', margin: '0 auto',
207|         width: '100%',
208|       }}
209|     >
   2 1 0 |               < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x '   } } >Ø<ß  < / d i v >
   2 1 1 |               < h 2   s t y l e = { {   c o l o r :   ' w h i t e ' ,   f o n t S i z e :   ' 2 4 p x ' ,   f o n t W e i g h t :   3 0 0 ,   m a
212|
213|       <div style={{ width: '100%' }}>
   2 1 4 |                 < l a b e l   s t y l e = { {   c o l o r :   ' # a a a ' ,   f o n t S i z e :   ' 1 2 p x ' ,   d i s p l a y :   ' b l o c k
215|         <div style={{ display: 'flex', flexDirection: 'column', gap: '4px', maxHeight: '140px', overflowY: 'au...
216|           {languages.map(l => (
217|             <button key={l} onClick={() => onLangChange(l)} style={selectStyle(l, lang)} type="button">{l}</bu...
218|           ))}
219|         </div>
220|       </div>
221|
222|       <div style={{ width: '100%' }}>
   2 2 3 |                 < l a b e l   s t y l e = { {   c o l o r :   ' # a a a ' ,   f o n t S i z e :   ' 1 2 p x ' ,   d i s p l a y :   ' b l o c k
224|         <div style={{ display: 'flex', flexDirection: 'column', gap: '4px' }}>
225|           {regions.map(r => (
226|             <button key={r} onClick={() => onRegionChange(r)} style={selectStyle(r, region)} type="button">{r}...
227|           ))}
228|         </div>
229|       </div>
230|
231|       <div style={{ width: '100%' }}>
232|         <label style={{ color: '#aaa', fontSize: '12px', display: 'block', marginBottom: '6px' }}>Bàn phím</la...
233|         <div style={{ display: 'flex', flexDirection: 'column', gap: '4px' }}>
234|           {keyboards.map(k => (
235|             <button key={k} onClick={() => onKeyboardChange(k)} style={selectStyle(k, keyboard)} type="button"...
236|           ))}
237|         </div>
238|       </div>
239|
240|       <button onClick={onNext} style={{ ...win11Btn(true), padding: '12px 48px', fontSize: '15px', marginTop: ...
   2 4 1 |                 T i ¿ p   t h e o  !'
242|       </button>
243|     </div>
244|   );
245| }
246|
247| function InstallingStep({ progress }) {
248|   const msg = INSTALL_MESSAGES.find(m => progress >= m.min && progress < m.max) || INSTALL_MESSAGES[INSTALL_ME...
249|
250|   return (
251|     <div
252|       style={{
253|         display: 'flex', flexDirection: 'column', alignItems: 'center',
254|         justifyContent: 'center', gap: '32px', padding: '60px 20px',
255|         minHeight: '400px',
256|       }}
257|     >
258|       <LoadingSpinner size={60} color="#0078d4" />
259|       <h2 style={{ color: 'white', fontSize: '22px', fontWeight: 300, margin: 0 }}>
   2 6 0 |                 a n g   c à i    · t   W i n d o w s   1 1
261|       </h2>
```

```
262|       <div style={{ width: '100%', maxWidth: '400px' }}>
263|         <div style={{ height: '6px', background: 'rgba(255,255,255,0.1)', borderRadius: '3px', overflow: 'hidd...
264|           <div
265|             style={{
266|               height: '100%', width: `${progress}%`,
267|               background: 'linear-gradient(90deg, #0078d4, #00b4d8)',
268|               borderRadius: '3px',
269|               transition: 'width 0.15s ease-out',
270|               boxShadow: '0 0 8px rgba(0,120,212,0.5)',
271|             }}
272|           />
273|         </div>
274|         <div style={{ display: 'flex', justifyContent: 'space-between', marginTop: '6px' }}>
275|           <span style={{ color: '#888', fontSize: '12px' }}>{Math.round(progress)}%</span>
276|           <span style={{ color: '#ccc', fontSize: '12px' }}>{msg.text}</span>
277|         </div>
278|       </div>
279|       <div style={{ color: '#555', fontSize: '12px', textAlign: 'center', maxWidth: '360px', marginTop: '20px'...
280|         PC Master Build &copy; {new Date().getFullYear()}
281|       </div>
282|     </div>
283|   );
284| }
285|
286| function AccountSetupStep({ username, password, confirmPassword, onUsernameChange, onPasswordChange, onConfirm...
287|   const [error, setError] = useState('');
288|
289|   const inputStyle = {
290|     width: '100%', padding: '12px 16px', background: 'rgba(255,255,255,0.06)',
291|     border: '1px solid rgba(255,255,255,0.12)', borderRadius: '8px',
292|     color: 'white', fontSize: '15px', outline: 'none',
293|     fontFamily: 'inherit', boxSizing: 'border-box',
294|     transition: 'border-color 0.15s',
295|   };
296|
297|   const handleNext = () => {
   2 9 8 |         i f   ( ! u s e r n a m e . t r i m ( ) )   {   s e t E r r o r ( ' V u i   l ò n g   n h - p   t ê n   n g ° Ý i   d ù n g ' ) ;   r e
   2 9 9 |         i f   ( p a s s w o r d   & &   p a s s w o r d   ! = =   c o n f i r m P a s s w o r d )   {   s e t E r r o r ( ' M - t   k h © u   k
300|     setError('');
301|     onNext();
302|   };
303|
304|   return (
305|     <div
306|       style={{
307|         display: 'flex', flexDirection: 'column', alignItems: 'center',
308|         gap: '24px', padding: '40px 20px',
309|         maxWidth: '420px', margin: '0 auto',
310|       }}
311|     >
   3 1 2 |             < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x '   } } >Ø=Üd < / d i v >
   3 1 3 |             < h 2   s t y l e = { {   c o l o r :   ' w h i t e ' ,   f o n t S i z e :   ' 2 4 p x ' ,   f o n t W e i g h t :   3 0 0 ,   m a
314|       <p style={{ color: '#aaa', fontSize: '13px', textAlign: 'center', margin: 0 }}>
   3 1 5 |                 T h i ¿ t   l - p   t ê n   v à   m - t   k h © u   c h o   t h i ¿ t   b Ë   n à y
316|       </p>
317|
318|       {error && (
319|         <div style={{ color: 'var(--danger, #f46a6a)', fontSize: '13px', background: 'rgba(244,106,106,0.12)',...
320|           {error}
321|         </div>
322|       )}
323|
324|       <div style={{ width: '100%', display: 'flex', flexDirection: 'column', gap: '16px' }}>
325|         <div>
   3 2 6 |                     < l a b e l   s t y l e = { {   c o l o r :   ' # a a a ' ,   f o n t S i z e :   ' 1 2 p x ' ,   d i s p l a y :   ' b l o
327|           <input
328|             value={username}
329|             onChange={e => onUsernameChange(e.target.value)}
   3 3 0 |                         p l a c e h o l d e r = " N h - p   t ê n   c ç a   b ¡ n "
331|             style={inputStyle}
332|           />
333|         </div>
334|         <div>
   3 3 5 |                     < l a b e l   s t y l e = { {   c o l o r :   ' # a a a ' ,   f o n t S i z e :   ' 1 2 p x ' ,   d i s p l a y :   ' b l o
336|           <input
337|             value={password}
338|             onChange={e => onPasswordChange(e.target.value)}
339|             type="password"
   3 4 0 |                         p l a c e h o l d e r = " N h - p   m - t   k h © u "
341|             style={inputStyle}
342|           />
343|         </div>
344|         <div>
   3 4 5 |                     < l a b e l   s t y l e = { {   c o l o r :   ' # a a a ' ,   f o n t S i z e :   ' 1 2 p x ' ,   d i s p l a y :   ' b l o
346|           <input
347|             value={confirmPassword}
348|             onChange={e => onConfirmChange(e.target.value)}
349|             type="password"
   3 5 0 |                         p l a c e h o l d e r = " N h - p   l ¡ i   m - t   k h © u "
351|             style={inputStyle}
352|           />
353|         </div>
354|       </div>
355|
356|       <div style={{ display: 'flex', gap: '12px', marginTop: '8px' }}>
   3 5 7 |                 < b u t t o n   o n C l i c k = { o n B a c k }   s t y l e = { w i n 1 1 B t n ( ) }   t y p e = " b u t t o n " >!•   Q u a y
   3 5 8 |                 < b u t t o n   o n C l i c k = { h a n d l e N e x t }   s t y l e = { w i n 1 1 B t n ( t r u e ) }   t y p e = " b u t t o n
359|       </div>
360|     </div>
361|   );
362| }
363|
364| function PrivacySettingsStep({ settings, onToggle, onNext, onBack }) {
365|   const items = [
   3 6 6 |         {   k e y :   ' l o c a t i o n ' ,   l a b e l :   ' V Ë   t r í ' ,   d e s c :   ' C h o   p h é p   W i n d o w s   v à   é n g   c
   3 6 7 |         {   k e y :   ' d i a g n o s t i c s ' ,   l a b e l :   ' D ï   l i Ç u   c h © n   o á n ' ,   d e s c :   ' G í i   d ï   l i Ç u
   3 6 8 |         {   k e y :   ' a d s ' ,   l a b e l :   ' I D   q u £ n g   c á o ' ,   d e s c :   ' C h o   p h é p   é n g   d ã n g   s í   d ã n
369|   ];
370|
371|   return (
372|     <div
373|       style={{
374|         display: 'flex', flexDirection: 'column', alignItems: 'center',
375|         gap: '24px', padding: '40px 20px',
376|         maxWidth: '480px', margin: '0 auto',
377|       }}
378|     >
   3 7 9 |             < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x '   } } >Ø=Ý  < / d i v >
   3 8 0 |             < h 2   s t y l e = { {   c o l o r :   ' w h i t e ' ,   f o n t S i z e :   ' 2 4 p x ' ,   f o n t W e i g h t :   3 0 0 ,   m a
381|       <p style={{ color: '#aaa', fontSize: '13px', textAlign: 'center', margin: 0 }}>
   3 8 2 |                 C h Í n   c à i   · t   q u y Á n   r i ê n g   t °   c h o   t h i ¿ t   b Ë   c ç a   b ¡ n .   B ¡ n   c ó   t h Ã   t h a
383|       </p>
384|
385|       <div style={{ width: '100%', display: 'flex', flexDirection: 'column', gap: '8px', ...glassPanel, paddin...
```

```
386|         {items.map(item => (
387|           <div
388|             key={item.key}
389|             style={{
390|               display: 'flex', justifyContent: 'space-between', alignItems: 'center',
391|               padding: '12px 16px', borderRadius: '8px',
392|               background: 'rgba(0,0,0,0.15)',
393|             }}
394|           >
395|             <div>
396|               <div style={{ color: 'white', fontSize: '14px', fontWeight: 600 }}>{item.label}</div>
397|               <div style={{ color: '#aaa', fontSize: '11px', marginTop: '2px' }}>{item.desc}</div>
398|             </div>
399|             <ToggleSwitch checked={settings[item.key]} onChange={() => onToggle(item.key)} />
400|           </div>
401|         ))}
402|       </div>
403|
404|       <div style={{ display: 'flex', gap: '12px', marginTop: '8px' }}>
   4 0 5 |                  < b u t t o n   o n C l i c k = { o n B a c k }   s t y l e = { w i n 1 1 B t n ( ) }   t y p e = " b u t t o n " >!•   Q u a
   4 0 6 |                  < b u t t o n   o n C l i c k = { o n N e x t }   s t y l e = { w i n 1 1 B t n ( t r u e ) }   t y p e = " b u t t o n " > T i
407|       </div>
408|     </div>
409|   );
410| }
411|
412| function NetworkSetupStep({ selectedNetwork, isConnected, onSelect, onConnect, onSkip, onBack }) {
413|   return (
414|     <div
415|       style={{
416|         display: 'flex', flexDirection: 'column', alignItems: 'center',
417|         gap: '24px', padding: '40px 20px',
418|         maxWidth: '480px', margin: '0 auto',
419|       }}
420|     >
   4 2 1 |              < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x '   } } >Ø=Üö < / d i v >
   4 2 2 |              < h 2   s t y l e = { {   c o l o r :   ' w h i t e ' ,   f o n t S i z e :   ' 2 4 p x ' ,   f o n t W e i g h t :   3 0 0 ,   m a
423|       <p style={{ color: '#aaa', fontSize: '13px', textAlign: 'center', margin: 0 }}>
   4 2 4 |                  C h Í n   m ¡ n g   W i F i   Ã   k ¿ t   n Ñ i   I n t e r n e t
425|       </p>
426|
427|       <div style={{ width: '100%', display: 'flex', flexDirection: 'column', gap: '6px', ...glassPanel, paddin...
428|         {WIFI_NETWORKS.map(net => (
429|           <button
430|             key={net.id}
431|             onClick={() => onSelect(net)}
432|             style={{
433|               display: 'flex', justifyContent: 'space-between', alignItems: 'center',
434|               padding: '12px 16px', borderRadius: '8px', cursor: 'pointer',
435|               background: selectedNetwork?.id === net.id ? 'rgba(0,120,212,0.2)' : 'rgba(0,0,0,0.15)',
436|               border: selectedNetwork?.id === net.id ? '1px solid #0078d4' : '1px solid transparent',
437|               color: 'white', fontSize: '14px', fontFamily: 'inherit',
438|               textAlign: 'left', transition: 'all 0.15s', width: '100%',
439|             }}
440|             type="button"
441|           >
442|             <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
443|               <WiFiIcon strength={net.strength} />
444|               <span>{net.name}</span>
445|             </div>
446|             {net.secured
   4 4 7 |                            ?   < s p a n   s t y l e = { {   c o l o r :   ' # 8 8 8 ' ,   f o n t S i z e :   ' 1 1 p x '   } } >Ø=Ý   B £ c
   4 4 8 |                            :   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - w a r n i n g ,   # f 5 9 e 0 b ) ' ,   f o n t S i z
449|             }
450|           </button>
451|         ))}
452|       </div>
453|
454|       {isConnected && (
455|         <div style={{ color: 'var(--success, #28c76f)', fontSize: '13px', display: 'flex', alignItems: 'center...
   4 5 6 |                    < s p a n >'  < / s p a n >    ã   k ¿ t   n Ñ i   v Û i   < s t r o n g > { s e l e c t e d N e t w o r k ? . n a m e } <
457|         </div>
458|       )}
459|
460|       <div style={{ display: 'flex', gap: '12px', marginTop: '4px' }}>
   4 6 1 |                  < b u t t o n   o n C l i c k = { o n B a c k }   s t y l e = { w i n 1 1 B t n ( ) }   t y p e = " b u t t o n " >!•   Q u a
462|         {selectedNetwork && !isConnected && (
   4 6 3 |                    < b u t t o n   o n C l i c k = { o n C o n n e c t }   s t y l e = { w i n 1 1 B t n ( t r u e ) }   t y p e = " b u t t
464|         )}
465|         <button onClick={onSkip} style={{ ...win11Btn(true), background: 'transparent', border: '1px solid rgb...
   4 6 6 |                    B Ï   q u a   !'
467|         </button>
468|       </div>
469|     </div>
470|   );
471| }
472|
473| function SpecRow({ icon, label, value }) {
474|   return (
475|     <div
476|       style={{
477|         display: 'flex', alignItems: 'flex-start', gap: '12px',
478|         padding: '10px 12px', borderRadius: '8px',
479|         background: 'rgba(0,0,0,0.15)',
480|       }}
481|     >
482|       <span style={{ fontSize: '16px', flexShrink: 0, marginTop: '1px' }}>{icon}</span>
483|       <div>
484|         <div style={{ color: '#aaa', fontSize: '11px', fontWeight: 700, textTransform: 'uppercase', marginBott...
485|         <div style={{ color: 'white', fontSize: '13px', lineHeight: '1.4' }}>{value}</div>
486|       </div>
487|     </div>
488|   );
489| }
490|
491| function SpecsApp({ build, onClose }) {
492|   const cpu = build?.cpu;
493|   const gpu = build?.gpu;
494|   const ram = build?.ram || [];
495|   const ssd = build?.ssd || [];
496|   const hdd = build?.hdd || [];
497|
498|   const totalRamGb = ram.reduce((sum, r) => sum + (r.ram_capacity_gb || 0), 0);
499|   const totalStorageGb = [...ssd, ...hdd].reduce((sum, s) => sum + (s.ssd_capacity_gb || 0), 0);
500|
501|   const cpuScore = (cpu?.cpu_cores || 4) * (cpu?.cpu_threads || 8) * ((cpu?.cpu_boost_ghz || 3) * 100)
502|     + (cpu?.cpu_cinebench_r23_multi || 10000) / 10;
503|   const gpuScore = (gpu?.gpu_vram_gb || 4) * 2000 + (gpu?.gpu_benchmark_1080p || 5000);
504|   const ramScore = totalRamGb * 50 + (ram[0]?.ram_speed_mhz || 3200) * 2;
505|   const storageScore = totalStorageGb * 2 + (ssd[0]?.ssd_read_mbps || 3000);
506|   const performanceScore = Math.round((cpuScore + gpuScore + ramScore + storageScore) / 5);
507|
508|   const getPerformanceLevel = (score) => {
   5 0 9 |          i f   ( s c o r e   > =   1 5 0 0 0 )   r e t u r n   {   l a b e l :   ' X u ¥ t   s ¯ c ' ,   c o l o r :   ' v a r ( - - s u c c e s
```

```
  5 1 0 |          i f   ( s c o r e   > =   1 0 0 0 0 )   r e t u r n   {   l a b e l :   ' T Ñ t ' ,   c o l o r :   ' # 0 0 7 8 d 4 '   } ;
511|     if (score >= 6000) return { label: 'Trung bình', color: 'var(--warning, #f59e0b)' };
  5 1 2 |          r e t u r n   {   l a b e l :   ' C ¡   b £ n ' ,   c o l o r :   ' # 8 8 8 '   } ;
513|   };
514|
515|   const perf = getPerformanceLevel(performanceScore);
516|
517|   return (
518|     <div
519|       style={{
520|         position: 'fixed', top: '50%', left: '50%', transform: 'translate(-50%,-50%)',
521|         zIndex: 100, width: '520px', maxWidth: '90vw', maxHeight: '80vh', overflowY: 'auto',
522|         ...glassPanel, padding: '24px',
523|         boxShadow: '0 20px 60px rgba(0,0,0,0.6)',
524|         animation: 'osfadein 0.3s ease-out',
525|       }}
526|     >
527|       <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center', marginBottom: '20p...
528|         <h3 style={{ color: 'white', margin: 0, fontSize: '16px', fontWeight: 700, display: 'flex', alignItems...
  5 2 9 |                     Ø=Ü»   T h ô n g   t i n   h Ç   t h Ñ n g
530|         </h3>
531|         {onClose && (
532|           <button
533|             onClick={onClose}
534|             style={{
535|               background: 'rgba(255,255,255,0.1)', border: 'none',
536|               color: '#aaa', width: '28px', height: '28px', borderRadius: '6px',
537|               cursor: 'pointer', fontSize: '16px',
538|               display: 'flex', alignItems: 'center', justifyContent: 'center',
539|             }}
540|             type="button"
541|           >
  5 4 2 |                         '
543|           </button>
544|         )}
545|       </div>
546|
547|       <div
548|         style={{
549|           ...glassPanel, padding: '16px', marginBottom: '16px', textAlign: 'center',
550|           border: `1px solid ${perf.color}33`,
551|         }}
552|       >
553|         <div style={{ color: perf.color, fontSize: '28px', fontWeight: 800, letterSpacing: '-1px' }}>
554|           {performanceScore.toLocaleString()}
555|         </div>
556|         <div style={{ color: perf.color, fontSize: '12px', fontWeight: 600, marginTop: '4px' }}>
557|           {perf.label}
558|         </div>
  5 5 9 |                   < d i v   s t y l e = { {   c o l o r :   ' # 8 8 8 ' ,   f o n t S i z e :   ' 1 1 p x ' ,   m a r g i n T o p :   ' 4 p x '
560|       </div>
561|
562|       <div style={{ display: 'flex', flexDirection: 'column', gap: '8px' }}>
  5 6 3 |                   < S p e c R o w   i c o n = "Ø>ÞŸ "   l a b e l = " H Ç    i Á u   h à n h "   v a l u e = { W I N D O W S _ V E R S I O N }
564|         {cpu && (
565|           <SpecRow
  5 6 6 |                         i c o n = "&¡ "
567|             label="CPU"
  5 6 8 |                         v a l u e = { ` $ { c p u . b r a n d }   $ { c p u . m o d e l }   ( $ { c p u . c p u _ c o r e s }   n h â n ,   $ {
569|           />
570|         )}
571|         {gpu && (
572|           <SpecRow
  5 7 3 |                         i c o n = "Ø<ß® "
574|             label="GPU"
575|             value={`${gpu.brand} ${gpu.model} (${gpu.gpu_vram_gb}GB VRAM)`}
576|           />
577|         )}
578|         {ram.length > 0 && (
579|           <SpecRow
  5 8 0 |                         i c o n = "Ø>Ýà "
581|             label="RAM"
582|             value={`${totalRamGb}GB DDR${ram[0].ram_ddr_type || ''} ${ram[0].ram_speed_mhz || ''}MHz`}
583|           />
584|         )}
585|         <SpecRow
  5 8 6 |                       i c o n = "Ø=Ü¾ "
  5 8 7 |                       l a b e l = " L ° u   t r ï "
588|           value={`${totalStorageGb}GB (${ssd.length} SSD${hdd.length > 0 ? `, ${hdd.length} HDD` : ''})`}
589|         />
590|         {ssd[0] && (
591|           <SpecRow
  5 9 2 |                         i c o n = "Ø=Þ€ "
593|             label="SSD"
  5 9 4 |                         v a l u e = { ` $ { s s d [ 0 ] . b r a n d }   $ { s s d [ 0 ] . m o d e l }   -   $ { s s d [ 0 ] . s s d _ c a p a c
595|           />
596|         )}
597|       </div>
598|     </div>
599|   );
600| }
601|
602| function DesktopPhase({ build, username, onExit }) {
603|   const [openApp, setOpenApp] = useState(null);
604|   const [startOpen, setStartOpen] = useState(false);
605|   const [time, setTime] = useState('');
606|   const [showWelcome, setShowWelcome] = useState(true);
607|
608|   useEffect(() => {
609|     const t = setInterval(
610|       () => setTime(new Date().toLocaleTimeString('vi-VN', { hour: '2-digit', minute: '2-digit' })),
611|       1000,
612|     );
613|     setTime(new Date().toLocaleTimeString('vi-VN', { hour: '2-digit', minute: '2-digit' }));
614|     return () => clearInterval(t);
615|   }, []);
616|
617|   useEffect(() => {
618|     if (showWelcome) {
619|       const timer = setTimeout(() => setShowWelcome(false), 4000);
620|       return () => clearTimeout(timer);
621|     }
622|   }, [showWelcome]);
623|
624|   const wallpaperColors = 'linear-gradient(135deg,#0f1b2d 0%,#0d2137 40%,#1a0533 100%)';
625|
626|   const desktopApps = [
  6 2 7 |           {   i d :   ' s p e c s ' ,   i c o n :   'Ø=Ü» ' ,   n a m e :   ' P C   S p e c s '   } ,
  6 2 8 |           {   i d :   ' b r o w s e r ' ,   i c o n :   'Ø<ß  ' ,   n a m e :   ' E d g e '   } ,
  6 2 9 |           {   i d :   ' f i l e s ' ,   i c o n :   'Ø=ÜÁ ' ,   n a m e :   ' F i l e   E x p l o r e r '   } ,
  6 3 0 |           {   i d :   ' s t o r e ' ,   i c o n :   'Ø=ÞÒ ' ,   n a m e :   ' S t o r e '   } ,
631|   ];
632|
633|   const appWindows = {
```

```
634|     specs: (
635|       <SpecsApp build={build} onClose={() => setOpenApp(null)} />
636|     ),
637|     browser: (
638|       <div
639|         style={{
640|           position: 'fixed', top: '50%', left: '50%', transform: 'translate(-50%,-50%)',
641|           ...glassPanel, padding: '24px', zIndex: 100,
642|           boxShadow: '0 20px 60px rgba(0,0,0,0.6)',
643|           minWidth: '400px', textAlign: 'center',
644|         }}
645|       >
  646 |                 < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x ' ,   m a r g i n B o t t o m :   ' 1 2 p x '   } } >Ø<ß  < / d i v >
647|         <h3 style={{ color: 'white', margin: '0 0 8px 0', fontWeight: 600 }}>Microsoft Edge</h3>
  648 |                 < p   s t y l e = { {   c o l o r :   ' # a a a ' ,   f o n t S i z e :   ' 1 3 p x '   } } > T r ì n h   d u y Ç t   w e b   m
649|         <button onClick={() => setOpenApp(null)} style={{ ...win11Btn(true), marginTop: '12px' }} type="button...
650|       </div>
651|     ),
652|     files: (
653|       <div
654|         style={{
655|           position: 'fixed', top: '50%', left: '50%', transform: 'translate(-50%,-50%)',
656|           ...glassPanel, padding: '24px', zIndex: 100,
657|           boxShadow: '0 20px 60px rgba(0,0,0,0.6)',
658|           minWidth: '380px',
659|         }}
660|       >
  661 |                 < h 3   s t y l e = { {   c o l o r :   ' w h i t e ' ,   m a r g i n :   ' 0   0   1 2 p x   0 ' ,   f o n t S i z e :   ' 1 5
662|         <div style={{ display: 'flex', flexDirection: 'column', gap: '6px', marginBottom: '16px' }}>
663|           {['Desktop', 'Downloads', 'Documents', 'Pictures', 'Music'].map(f => (
664|             <div key={f} style={{ color: '#ccc', padding: '8px 12px', borderRadius: '6px', background: 'rgba(2...
  665 |                             Ø=ÚÁ   { f }
666|             </div>
667|           ))}
668|         </div>
  669 |                 < b u t t o n   o n C l i c k = { ( )   = >   s e t O p e n A p p ( n u l l ) }   s t y l e = { w i n 1 1 B t n ( t r u e ) }
670|       </div>
671|     ),
672|     store: (
673|       <div
674|         style={{
675|           position: 'fixed', top: '50%', left: '50%', transform: 'translate(-50%,-50%)',
676|           ...glassPanel, padding: '24px', zIndex: 100,
677|           boxShadow: '0 20px 60px rgba(0,0,0,0.6)',
678|           minWidth: '400px', textAlign: 'center',
679|         }}
680|       >
  681 |                 < d i v   s t y l e = { {   f o n t S i z e :   ' 4 8 p x ' ,   m a r g i n B o t t o m :   ' 1 2 p x '   } } >Ø=ÞÒ < / d i v >
682|         <h3 style={{ color: 'white', margin: '0 0 8px 0', fontWeight: 600 }}>Microsoft Store</h3>
  683 |                 < p   s t y l e = { {   c o l o r :   ' # a a a ' ,   f o n t S i z e :   ' 1 3 p x '   } } > H à n g   n g h ì n   é n g   d ả
684|         <button onClick={() => setOpenApp(null)} style={{ ...win11Btn(true), marginTop: '12px' }} type="button...
685|       </div>
686|     ),
687|   };
688|
689|   return (
690|     <div
691|       style={{
692|         position: 'fixed', inset: 0, zIndex: 9999,
693|         background: wallpaperColors,
694|         fontFamily: "'Segoe UI', 'Segoe UI Variable', sans-serif",
695|         userSelect: 'none', overflow: 'hidden',
696|       }}
697|       onClick={() => { if (startOpen) setStartOpen(false); }}
698|     >
699|       {showWelcome && (
700|         <div
701|           style={{
702|             position: 'absolute', inset: 0, zIndex: 50,
703|             display: 'flex', flexDirection: 'column', alignItems: 'center', justifyContent: 'center',
704|             background: 'rgba(0,0,0,0.7)', backdropFilter: 'blur(8px)',
705|             animation: 'osfadein 0.5s',
706|           }}
707|         >
  708 |                     < d i v   s t y l e = { {   f o n t S i z e :   ' 6 4 p x ' ,   m a r g i n B o t t o m :   ' 1 6 p x '   } } >Ø>ÞŸ < / d i
709|         <h1 style={{ color: 'white', fontSize: '32px', fontWeight: 300, margin: 0 }}>
  710 |                         C h à o   m ë n g     ¿ n   v Ù i   W i n d o w s   1 1
711|         </h1>
712|         <p style={{ color: '#aaa', fontSize: '14px', marginTop: '12px' }}>
713|           {username || 'PC Master User'}
714|         </p>
715|         </div>
716|       )}
717|
718|       <div
719|         style={{
720|           padding: '20px', display: 'flex', flexDirection: 'column', gap: '16px',
721|           width: '80px', position: 'relative', zIndex: 10,
722|         }}
723|       >
724|         {desktopApps.map(app => (
725|           <div
726|             key={app.id}
727|             onDoubleClick={() => setOpenApp(app)}
728|             style={{
729|               display: 'flex', flexDirection: 'column', alignItems: 'center',
730|               gap: '4px', cursor: 'pointer', padding: '8px', borderRadius: '6px',
731|               color: 'white',
732|             }}
733|             onMouseOver={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.1)'; }}
734|             onMouseOut={e => { e.currentTarget.style.background = 'transparent'; }}
735|           >
736|             <span style={{ fontSize: '32px' }}>{app.icon}</span>
737|             <span style={{ fontSize: '11px', textAlign: 'center', textShadow: '1px 1px 2px black' }}>
738|               {app.name}
739|             </span>
740|           </div>
741|         ))}
742|       </div>
743|
744|       {openApp && appWindows[openApp.id]}
745|
746|       <div
747|         style={{
748|           position: 'fixed', bottom: 0, left: 0, right: 0, height: '48px',
749|           background: 'rgba(32,32,32,0.95)', backdropFilter: 'blur(20px)',
750|           WebkitBackdropFilter: 'blur(20px)',
751|           borderTop: '1px solid rgba(255,255,255,0.1)',
752|           display: 'flex', alignItems: 'center', justifyContent: 'space-between',
753|           padding: '0 16px', zIndex: 200,
754|         }}
755|         onClick={e => e.stopPropagation()}
756|       >
757|         <div style={{ display: 'flex', alignItems: 'center', gap: '4px' }}>
```

```
758|           <button
759|             onClick={() => setStartOpen(v => !v)}
760|             style={{
761|               background: 'transparent', border: 'none', fontSize: '22px',
762|               cursor: 'pointer', padding: '6px 10px', borderRadius: '6px',
763|               transition: 'background 0.15s',
764|             }}
765|             type="button"
766|           >
   7 6 7 |                           Ø>þŸ
768|           </button>
769|           {desktopApps.map(app => (
770|             <button
771|               key={app.id}
772|               onClick={() => setOpenApp(app)}
773|               title={app.name}
774|               style={{
775|                 background: openApp?.id === app.id ? 'rgba(255,255,255,0.15)' : 'transparent',
776|                 border: 'none', fontSize: '20px', padding: '6px 10px', borderRadius: '6px',
777|                 cursor: 'pointer', fontFamily: 'inherit',
778|                 borderBottom: openApp?.id === app.id ? '2px solid #0078d4' : '2px solid transparent',
779|               }}
780|               type="button"
781|             >
782|               {app.icon}
783|             </button>
784|           ))}
785|         </div>
786|
787|         <div style={{ display: 'flex', alignItems: 'center', gap: '12px' }}>
788|           <button
789|             onClick={onExit}
790|             style={{
791|               background: 'rgba(239,68,68,0.8)', color: 'white', border: 'none',
792|               padding: '4px 14px', borderRadius: '6px', cursor: 'pointer',
793|               fontSize: '12px', fontWeight: 700, fontFamily: 'inherit',
794|             }}
795|             type="button"
796|           >
   7 9 7 |                           #û   T ¯ t   m á y
798|           </button>
799|           <div style={{ color: 'white', fontSize: '12px', textAlign: 'right' }}>
800|             <div style={{ fontWeight: 600 }}>{time}</div>
801|             <div style={{ color: '#aaa', fontSize: '10px' }}>
802|               {new Date().toLocaleDateString('vi-VN')}
803|             </div>
804|           </div>
805|         </div>
806|       </div>
807|
808|       {startOpen && (
809|         <div
810|           onClick={e => e.stopPropagation()}
811|           style={{
812|             position: 'fixed', bottom: '56px', left: '50%', transform: 'translateX(-50%)',
813|             width: '520px', background: 'rgba(36,36,36,0.98)', backdropFilter: 'blur(30px)',
814|             WebkitBackdropFilter: 'blur(30px)',
815|             borderRadius: '12px', padding: '24px',
816|             border: '1px solid rgba(255,255,255,0.1)',
817|             boxShadow: '0 24px 80px rgba(0,0,0,0.6)',
818|             zIndex: 300, animation: 'osfadein 0.15s ease-out',
819|           }}
820|         >
821|           <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '20px' }}>
822|             <input
   8 2 3 |                             p l a c e h o l d e r = " T ì m   k i ¿ m   é n g   d å n g ,   c à i    · t . . . "
824|               style={{
825|                 flex: 1, padding: '10px 16px', borderRadius: '8px', border: 'none',
826|                 background: 'rgba(255,255,255,0.08)', color: 'white', fontSize: '13px',
827|                 outline: 'none', fontFamily: 'inherit',
828|               }}
829|             />
830|           </div>
831|           <div
832|             style={{
833|               color: 'rgba(255,255,255,0.6)', fontWeight: 600, marginBottom: '12px',
834|               fontSize: '12px', textTransform: 'uppercase', letterSpacing: '1px',
835|             }}
836|           >
   8 3 7 |                            è n g   d å n g
838|           </div>
839|           <div style={{ display: 'grid', gridTemplateColumns: 'repeat(4,1fr)', gap: '8px', marginBottom: '16px...
840|             {desktopApps.map(app => (
841|               <button
842|                 key={app.id}
843|                 onClick={() => { setOpenApp(app); setStartOpen(false); }}
844|                 style={{
845|                   background: 'transparent', border: 'none', cursor: 'pointer',
846|                   display: 'flex', flexDirection: 'column', alignItems: 'center',
847|                   gap: '4px', padding: '12px 8px', borderRadius: '8px',
848|                   color: 'white', fontFamily: 'inherit',
849|                   transition: 'background 0.15s',
850|                 }}
851|                 onMouseOver={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.08)'; }}
852|                 onMouseOut={e => { e.currentTarget.style.background = 'transparent'; }}
853|                 type="button"
854|               >
855|                 <span style={{ fontSize: '28px' }}>{app.icon}</span>
856|                 <span style={{ fontSize: '11px' }}>{app.name}</span>
857|               </button>
858|             ))}
859|           </div>
860|           <div
861|             style={{
862|               borderTop: '1px solid rgba(255,255,255,0.06)', paddingTop: '12px',
863|               display: 'flex', justifyContent: 'space-between', alignItems: 'center',
864|             }}
865|           >
866|             <span style={{ color: '#aaa', fontSize: '13px' }}>
   8 6 7 |                           Ø=Ûd   { u s e r n a m e   | |   ' P C   M a s t e r   U s e r ' }
868|             </span>
869|             <button
870|               onClick={onExit}
871|               style={{
872|                 background: 'transparent', border: 'none', color: '#aaa',
873|                 cursor: 'pointer', fontSize: '13px', fontFamily: 'inherit',
874|               }}
875|               type="button"
876|             >
   8 7 7 |                           #û   T ¯ t   m á y
878|             </button>
879|           </div>
880|         </div>
881|       )}
```

```
882|     </div>
883|   );
884| }
885|
886| function IntroStep({ onNext }) {
887|   const [phase, setPhase] = useState(0);
888|   const phases = [
   8 8 9 |          {  i c o n :  'Ø=Ùæ ' ,  t i t l e :  ' B ¡ n  v ë a  m u a  m Ù t  b Ù  P C  m Û i ! ' ,  d e s c :  ' L i n h  k i Ç n
   8 9 0 |          {  i c o n :  'Ø=Ù¿ ' ,  t i t l e :  ' N h ° n g  m á y  t í n h  c h ° a  c ó  h Ç  í Á u  h à n h ' ,  d e s c :  ' K
   8 9 1 |          {  i c o n :  'Ø>ÞÝ ' ,  t i t l e :  ' C à i  W i n d o w s  1 1  b £ n  q u y Á n  –  a n  t o à n ,  b £ o  m - t ' ,
892|   ];
893|
894|   useEffect(() => {
895|     if (phase < phases.length - 1) {
896|       const t = setTimeout(() => setPhase(p => p + 1), 2500);
897|       return () => clearTimeout(t);
898|     }
899|   }, [phase]);
900|
901|   return (
902|     <div style={{
903|       display: 'flex', flexDirection: 'column', alignItems: 'center',
904|       justifyContent: 'center', gap: 20, padding: '40px 20px',
905|       minHeight: 400, maxWidth: 600, margin: '0 auto',
906|     }}>
907|       <div style={{
908|         fontSize: 72, animation: 'ospulse 2s ease-in-out infinite',
909|         transition: 'all 0.4s',
910|       }}>{phases[phase].icon}</div>
911|       <h2 style={{ color: 'white', fontSize: 22, fontWeight: 300, margin: 0, textAlign: 'center' }}>
912|         {phases[phase].title}
913|       </h2>
914|       <p style={{ color: '#aaa', fontSize: 14, textAlign: 'center', lineHeight: 1.6, margin: 0 }}>
915|         {phases[phase].desc}
916|       </p>
917|
918|       {phase === phases.length - 1 && (
919|         <div style={{
920|           animation: 'osfadein 0.5s', display: 'flex', flexDirection: 'column',
921|           gap: 14, width: '100%', marginTop: 8,
922|         }}>
923|           <div style={{
924|             background: 'rgba(0,120,212,0.1)', border: '1px solid rgba(0,120,212,0.2)',
925|             borderRadius: 10, padding: '14px 18px',
926|           }}>
927|             <div style={{ fontSize: 12, fontWeight: 700, color: '#0078d4', marginBottom: 6 }}>
   9 2 8 |                            Ø=Ûå  T £ i  W i n d o w s  1 1  b £ n  q u y Á n  ( c h í n h  t h Ñ n g )
929|             </div>
930|             <ul style={{ margin: 0, padding: '0 0 0 16px', display: 'flex', flexDirection: 'column', gap: 4 }}>
931|               <li style={{ fontSize: 12, color: '#aaa' }}>
932|                 <a href="https://www.microsoft.com/software-download/windows11" target="_blank" rel="noopener ...
933|                   style={{ color: '#3b82f6' }}>
   9 3 4 |                                  M i c r o s o f t . c o m  –  T ¡ o  U S B  c à i  W i n  c h í n h  t h é c
935|                 </a>
936|               </li>
937|               <li style={{ fontSize: 12, color: '#aaa' }}>
938|                 <a href="https://www.microsoft.com/en-us/evalcenter/evaluate-windows-11-enterprise" target="_b...
939|                   style={{ color: '#3b82f6' }}>
   9 4 0 |                                  T r u n g  t â m  á n h  g i á  –  W i n d o w s  1 1  E n t e r p r i s e  E v a l u a t i o n
941|                 </a>
942|               </li>
943|             </ul>
944|           </div>
945|           <button onClick={onNext}
946|             style={{
947|               padding: '12px 48px', borderRadius: 8, fontSize: 15, fontWeight: 600,
948|               background: '#0078d4', border: 'none', color: 'white', cursor: 'pointer',
949|               fontFamily: 'inherit', alignSelf: 'center',
950|             }}>
   9 5 1 |                          B ¯ t  § u  c à i  · t  !’
952|           </button>
953|         </div>
954|       )}
955|     </div>
956|   );
957| }
958|
959| export default function OSInstallationSimulator({ build, onComplete, onExit }) {
960|   const [step, setStep] = useState(0);
   9 6 1 |       c o n s t  [ l a n g ,  s e t L a n g ]  =  u s e S t a t e ( ' T i ¿ n g  V i Ç t ' ) ;
   9 6 2 |       c o n s t  [ r e g i o n ,  s e t R e g i o n ]  =  u s e S t a t e ( ' V i Ç t  N a m ' ) ;
   9 6 3 |       c o n s t  [ k e y b o a r d ,  s e t K e y b o a r d ]  =  u s e S t a t e ( ' T i ¿ n g  V i Ç t  ( T e l e x ) ' ) ;
964|   const [installProgress, setInstallProgress] = useState(0);
965|   const [username, setUsername] = useState('');
966|   const [password, setPassword] = useState('');
967|   const [confirmPassword, setConfirmPassword] = useState('');
968|   const [privacySettings, setPrivacySettings] = useState({ location: true, diagnostics: false, ads: false });
969|   const [selectedNetwork, setSelectedNetwork] = useState(null);
970|   const [isConnected, setIsConnected] = useState(false);
971|   const [desktopReady, setDesktopReady] = useState(false);
972|
973|   useEffect(() => {
974|     if (step === 2) {
975|       setInstallProgress(0);
976|       const timer = setInterval(() => {
977|         setInstallProgress(p => {
978|           if (p >= 100) {
979|             clearInterval(timer);
980|             setTimeout(() => setStep(3), 500);
981|             return 100;
982|           }
983|           const increment = p < 80 ? 1.5 : p < 95 ? 0.8 : 0.3;
984|           return Math.min(100, p + increment);
985|         });
986|       }, 80);
987|       return () => clearInterval(timer);
988|     }
989|   }, [step]);
990|
991|   useEffect(() => {
992|     if (!document.getElementById('os-sim-styles')) {
993|       const style = document.createElement('style');
994|       style.id = 'os-sim-styles';
995|       style.textContent = `
996|         @keyframes ospin { to { transform: rotate(360deg); } }
997|         @keyframes osfadein { from { opacity: 0; transform: scale(0.95); } to { opacity: 1; transform: scale(1...
998|         @keyframes ospulse { 0%, 100% { opacity: 1; } 50% { opacity: 0.5; } }
999|         @keyframes osslideup { from { opacity: 0; transform: translateY(16px); } to { opacity: 1; transform: t...
1000|         input::placeholder { color: #666; }
1001|         ::-webkit-scrollbar { width: 6px; }
1002|         ::-webkit-scrollbar-track { background: transparent; }
1003|         ::-webkit-scrollbar-thumb { background: rgba(255,255,255,0.15); border-radius: 3px; }
1004|         ::-webkit-scrollbar-thumb:hover { background: rgba(255,255,255,0.25); }
1005|       `;
```

```
      document.head.appendChild(style);
    }
  }, []);

  const handleNext = () => {
    setStep(s => Math.min(s + 1, 6));
  };

  const handleBack = () => {
    setStep(s => Math.max(s - 1, 0));
  };

  const handleNetworkConnect = () => {
    if (selectedNetwork) setIsConnected(true);
  };

  const handleNetworkSkip = () => {
    setIsConnected(false);
    setSelectedNetwork(null);
    setStep(6);
  };

  useEffect(() => {
    if (step === 6 && !desktopReady) {
      setDesktopReady(true);
      if (onComplete) {
        setTimeout(() => onComplete(), 1000);
      }
    }
  }, [step, desktopReady, onComplete]);

  const renderStep = () => {
    switch (step) {
      case 0:
        return <IntroStep onNext={handleNext} />;
      case 1:
        return (
          <LanguageRegionStep
            lang={lang}
            region={region}
            keyboard={keyboard}
            onLangChange={setLang}
            onRegionChange={setRegion}
            onKeyboardChange={setKeyboard}
            onNext={handleNext}
          />
        );
      case 2:
        return <InstallingStep progress={installProgress} />;
      case 3:
        return (
          <AccountSetupStep
            username={username}
            password={password}
            confirmPassword={confirmPassword}
            onUsernameChange={setUsername}
            onPasswordChange={setPassword}
            onConfirmChange={setConfirmPassword}
            onNext={handleNext}
            onBack={handleBack}
          />
        );
      case 4:
        return (
          <PrivacySettingsStep
            settings={privacySettings}
            onToggle={(key) => setPrivacySettings(s => ({ ...s, [key]: !s[key] }))}
            onNext={handleNext}
            onBack={handleBack}
          />
        );
      case 5:
        return (
          <NetworkSetupStep
            selectedNetwork={selectedNetwork}
            isConnected={isConnected}
            onSelect={setSelectedNetwork}
            onConnect={handleNetworkConnect}
            onSkip={handleNetworkSkip}
            onBack={handleBack}
          />
        );
      case 6:
        return <DesktopPhase build={build} username={username} onExit={onExit} />;
      default:
        return null;
    }
  };

  return (
    <div
      style={{
        position: 'fixed', inset: 0, zIndex: 9999,
        background: 'linear-gradient(135deg, #0f1b2d 0%, #0d2137 40%, #1a0533 100%)',
        fontFamily: "'Segoe UI', 'Segoe UI Variable', -apple-system, sans-serif",
        display: 'flex', flexDirection: 'column',
        overflow: 'auto',
      }}
    >
      {step < 6 && (
        <div
          style={{
            display: 'flex', alignItems: 'center', gap: '12px',
            padding: '12px 24px',
            borderBottom: '1px solid rgba(255,255,255,0.06)',
            background: 'rgba(0,0,0,0.2)',
          }}
        >
          <span style={{ color: 'white', fontSize: '13px', fontWeight: 600 }}>
            Trình cài đặt Windows 11
          </span>
        </div>
      )}

      {step < 6 && <StepIndicator currentStep={step} steps={SETUP_STEPS} />}

      <div style={{ flex: 1, display: 'flex', flexDirection: 'column', justifyContent: 'center', animation: 'o...
        {renderStep()}
      </div>
    </div>
  );
}
```

File: components/PageTransition.tsx (30 lines, 0.8 KB)

```
'use client'

import { motion, AnimatePresence } from 'framer-motion'
import { usePathname } from 'next/navigation'

const variants = {
  initial: { opacity: 0, y: 24, scale: 0.98 },
  animate: { opacity: 1, y: 0, scale: 1 },
  exit: { opacity: 0, y: -16, scale: 0.98 },
}

export default function PageTransition({ children }: { children: React.ReactNode }) {
  const pathname = usePathname()
  return (
    <AnimatePresence mode="wait">
      <motion.div
        key={pathname}
        variants={variants}
        initial="initial"
        animate="animate"
        exit="exit"
        transition={{ duration: 0.3, ease: [0.16, 1, 0.3, 1] }}
        style={{ width: '100%' }}
      >
        {children}
      </motion.div>
    </AnimatePresence>
  )
}

```

File: components/parent/ChildCard.tsx (110 lines, 5.0 KB)

```
"use client"

import React from 'react'
import Link from 'next/link'

export interface ChildSummary {
  student_id: string
  student_name: string
  student_code: string
  school_name: string | null
  xp: number
  level: number
  avatar_url: string | null
  lessons_completed: number
  lessons_started: number
  total_time_seconds: number | null
  last_active: string | null
}

function formatTimeAgo(dateString: string | null) {
    if (!dateString) return 'Chưa bắt đầu'
  const date = new Date(dateString)
  const now = new Date()
  const diffMs = now.getTime() - date.getTime()
    if (isNaN(diffMs)) return 'Chưa bắt đầu'
  const diffSecs = Math.floor(diffMs / 1000)
  const diffMins = Math.floor(diffSecs / 60)
  const diffHours = Math.floor(diffMins / 60)
  const diffDays = Math.floor(diffHours / 24)

    if (diffSecs < 60) return 'Vừa xong'
    if (diffMins < 60) return `${diffMins} phút trước`
    if (diffHours < 24) return `${diffHours} giờ trước`
    return `${diffDays} ngày trước`
}

export function ChildCard({ child }: { child: ChildSummary }) {
  const progressPercent = child.lessons_started > 0
    ? Math.round((child.lessons_completed / child.lessons_started) * 100) : 0
  const lastActiveText = formatTimeAgo(child.last_active)

    // KiÃm tra hoạt Ùng trong vòng 24 giờ qua
  const isRecentlyActive = child.last_active
    ? new Date(child.last_active) > new Date(Date.now() - 86400000)
    : false

  return (
    <Link
      href={`/parent/children/${child.student_id}`}
      className="block rounded-xl p-5 transition-all duration-200 group"
      style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-subtle)' }}
    >
      {/* Avatar + Tên */}
      <div className="flex items-center gap-3 mb-4">
        {child.avatar_url ? (
          <img src={child.avatar_url} className="w-12 h-12 rounded-full object-cover" style={{ border: '1px so...
        ) : (
          <div className="w-12 h-12 rounded-full flex items-center justify-center text-xl font-bold uppercase"...
            {child.student_name[0] || 'S'}
          </div>
        )}
        <div className="min-w-0 flex-1">
          <div className="font-bold truncate transition-colors" style={{ color: 'var(--text-primary)' }}>{chil...
                    <div className="text-xs truncate" style={{ color: 'var(--text-
        </div>
        <div className="text-[10px] font-bold px-2 py-0.5 rounded-full uppercase tracking-wider" style={{ back...
                    Cấp {child.level || 1}
        </div>
      </div>

      {/* Stats Grid */}
      <div className="grid grid-cols-2 gap-3 mb-4">
        <div className="rounded-xl p-3 text-center" style={{ background: 'var(--bg-elevated)', border: '1px so...
          <div className="text-xl font-black" style={{ color: 'var(--brand-primary)' }}>{child.lessons_complet...
          <div className="text-[10px] uppercase font-bold tracking-wider" style={{ color: 'var(--text-muted)' ...
        </div>
        <div className="rounded-xl p-3 text-center" style={{ background: 'var(--bg-elevated)', border: '1px so...
          <div className="text-xl font-black" style={{ color: 'var(--text-primary)' }}>
            {Math.round((child.total_time_seconds ?? 0) / 3600)}h
          </div>
          <div className="text-[10px] uppercase font-bold tracking-wider" style={{ color: 'var(--text-muted)' ...
        </div>
      </div>

      {/* Progress Bar */}
```

```
  86|       <div className="mb-4">
  87|         <div className="flex justify-between text-[11px] font-bold mb-1" style={{ color: 'var(--text-muted)' }}>
    8 8 |                       < s p a n > T i ¿ n     Ù   h o à n   t h à n h   b à i < / s p a n >
  89|           <span style={{ color: 'var(--text-primary)' }}>{progressPercent}%</span>
  90|         </div>
  91|         <div className="h-2 rounded-full overflow-hidden" style={{ background: 'var(--bg-elevated)', border: '...
  92|           <div
  93|             className="h-full bg-gradient-to-r from-[#00d4aa] to-[#00b4d8] rounded-full transition-all duratio...
  94|             style={{ width: `${progressPercent}%` }}
  95|           />
  96|         </div>
  97|       </div>
  98|
  99|       {/* Last Active Footer */}
 100|       <div className="text-[11px] flex items-center gap-2 pt-3" style={{ color: 'var(--text-muted)', borderTop...
 101|         <span className="w-2 h-2 rounded-full" style={{
 102|           background: isRecentlyActive ? 'var(--brand-primary)' : 'var(--text-muted)',
 103|           boxShadow: isRecentlyActive ? '0 0 8px var(--brand-primary)' : 'none'
 104|         }} />
    1 0 5 |                     < s p a n > H o ¡ t     Ù n g :   { l a s t A c t i v e T e x t } < / s p a n >
 106|       </div>
 107|     </Link>
 108|   )
 109| }
 110|
```

File: components/parent/ChildProgressChart.tsx (135 lines, 5.3 KB)

```
   1| 'use client'
   2|
   3| import React, { useMemo } from 'react'
   4|
   5| interface DailyProgress {
   6|   date: string
   7|   count: number
   8| }
   9|
  10| interface ChildProgressChartProps {
  11|   data: DailyProgress[]
  12| }
  13|
  14| export default function ChildProgressChart({ data }: ChildProgressChartProps) {
  15|   const chartHeight = 200
  16|   const chartWidth = 500
  17|
  18|   const processedData = useMemo(() => {
  19|     if (!data || data.length === 0) return []
    2 0 |           / /   G i Ù i   h ¡ n   h i Ã n   t h Ë   1 5     i Ã m   g § n   n h ¥ t     Ã   b i Ã u     Ó   t h o á n g     ã n g
  21|     return data.slice(-15)
  22|   }, [data])
  23|
  24|   const { pointsPath, areaPath, dots } = useMemo(() => {
  25|     if (processedData.length === 0) {
  26|       return { pointsPath: '', areaPath: '', dots: [] }
  27|     }
  28|
  29|     const maxVal = Math.max(...processedData.map((d) => d.count), 1)
  30|     const xStep = chartWidth / (processedData.length - 1 || 1)
  31|
  32|     const coords = processedData.map((d, index) => {
  33|       const x = index * xStep
    3 4 |               / /   S V G   0   ß   t r ê n   c ù n g ,   n ê n   l - t   n g ° ã c   t Í a     Ù   y
  35|       const y = chartHeight - (d.count / maxVal) * (chartHeight - 40) - 20
  36|       return { x, y, ...d }
  37|     })
  38|
    3 9 |           / /   V ½     ° Ý n g   L i n e   q u a   c á c     i Ã m
  40|     const lineParts = coords.map((c, i) => `${i === 0 ? 'M' : 'L'} ${c.x.toFixed(1)} ${c.y.toFixed(1)}`)
  41|     const linePath = lineParts.join(' ')
  42|
    4 3 |           / /   V ½   v ù n g   A r e a   d ° Û i     ° Ý n g   L i n e
  44|     const firstX = coords[0].x.toFixed(1)
  45|     const lastX = coords[coords.length - 1].x.toFixed(1)
  46|     const areaPath = `${linePath} L ${lastX} ${chartHeight} L ${firstX} ${chartHeight} Z`
  47|
  48|     return { pointsPath: linePath, areaPath, dots: coords }
  49|   }, [processedData])
  50|
  51|   if (processedData.length === 0) {
  52|     return (
  53|       <div className="h-48 flex items-center justify-center text-xs rounded-2xl" style={{ color: 'var(--text-m...
    5 4 |                     C h ° a   c ó   d ï   l i Ç u   h Í c   t - p   t r o n g   3 0   n g à y   q u a
  55|       </div>
  56|     )
  57|   }
  58|
  59|   return (
  60|     <div className="rounded-2xl p-5" style={{ background: 'var(--bg-surface)', border: '1px solid var(--border...
  61|       <div className="flex justify-between items-center mb-6">
  62|         <div>
    6 3 |                       < d i v   c l a s s N a m e = " t e x t - s m   f o n t - b o l d "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t
  64|           <div className="text-[10px] uppercase font-bold tracking-wider mt-0.5" style={{ color: 'var(--text-m...
  65|         </div>
  66|         <div className="flex items-center gap-1.5 text-xs font-semibold px-2.5 py-1 rounded-full" style={{ col...
  67|           <span className="w-1.5 h-1.5 rounded-full animate-ping" style={{ background: 'var(--brand-primary)' ...
    6 8 |                       3 0   n g à y   g § n     â y
  69|         </div>
  70|       </div>
  71|
  72|       <div className="relative w-full overflow-hidden">
  73|         <svg
  74|           viewBox={`0 0 ${chartWidth} ${chartHeight}`}
  75|           className="w-full h-auto overflow-visible"
  76|         >
  77|           <defs>
    7 8 |                         { / *   G r a d i e n t   c h o     ° Ý n g   L i n e   * / }
  79|             <linearGradient id="line-gradient" x1="0" y1="0" x2="1" y2="0">
  80|               <stop offset="0%" stopColor="#00d4aa" />
  81|               <stop offset="100%" stopColor="#00b4d8" />
  82|             </linearGradient>
    8 3 |                         { / *   G r a d i e n t   c h o   v ù n g   b ê n   d ° Û i   * / }
  84|             <linearGradient id="area-gradient" x1="0" y1="0" x2="0" y2="1">
  85|               <stop offset="0%" stopColor="#00d4aa" stopOpacity="0.25" />
  86|               <stop offset="100%" stopColor="#00d4aa" stopOpacity="0.00" />
  87|             </linearGradient>
  88|           </defs>
  89|
    9 0 |                       { / *     ° Ý n g   l ° Û i   G r i d   n g a n g   * / }
  91|           <line x1="0" y1={chartHeight - 20} x2={chartWidth} y2={chartHeight - 20} stroke="rgba(255,255,255,0....
  92|           <line x1="0" y1={chartHeight / 2} x2={chartWidth} y2={chartHeight / 2} stroke="rgba(255,255,255,0.03...
  93|           <line x1="0" y1="20" x2={chartWidth} y2="20" stroke="rgba(255,255,255,0.03)" strokeWidth="1" />
  94|
    9 5 |                       { / *   V ù n g   A r e a   p h í a   d ° Û i   * / }
```

```
  96|          <path d={areaPath} fill="url(#area-gradient)" />
  97|
     9 8 |                      { / *     ° Ý n g   v ½   L i n e   c h í n h   * / }
  99|          <path
 100|            d={pointsPath}
 101|            fill="none"
 102|            stroke="url(#line-gradient)"
 103|            strokeWidth="3"
 104|            strokeLinecap="round"
 105|            strokeLinejoin="round"
 106|          />
 107|
    1 0 8 |                      { / *   C á c     i Ã m   D o t s   t r ê n     ° Ý n g   L i n e   * / }
 109|          {dots.map((dot, index) => (
 110|            <g key={index} className="group/dot cursor-pointer">
 111|              <circle
 112|                cx={dot.x}
 113|                cy={dot.y}
 114|                r="5"
 115|                fill="#111318"
 116|                stroke="#00d4aa"
 117|                strokeWidth="2"
 118|                className="transition-all duration-150 hover:r-7"
 119|              />
 120|              <title>{`${dot.date}: ${dot.count} bài`}</title>
 121|            </g>
 122|          ))}
 123|        </svg>
 124|      </div>
 125|
    1 2 6 |              { / *   N h ã n   t r ả c   X   * / }
 127|      <div className="flex justify-between mt-3 px-1 text-[10px] text-[#636678] font-bold">
 128|        <span>{processedData[0].date}</span>
 129|        <span>{processedData[Math.floor(processedData.length / 2)].date}</span>
 130|        <span>{processedData[processedData.length - 1].date}</span>
 131|      </div>
 132|    </div>
 133|  )
 134| }
 135|
```

File: components/parent/ParentNotificationsView.tsx (292 lines, 12.1 KB)

```
   1| 'use client'
   2|
   3| import React, { useState, useTransition } from 'react'
   4| import { Bell, Check, Trash2, Calendar, BookOpen, Award, Trophy, UserMinus } from 'lucide-react'
   5|
   6| interface StudentProfile {
   7|   id: string
   8|   full_name: string
   9|   avatar_url: string | null
  10| }
  11|
  12| interface Notification {
  13|   id: string
  14|   user_id: string
  15|   type: string
  16|   title: string
  17|   body: string
  18|   data: any
  19|   action_url: string
  20|   is_read: boolean
  21|   created_at: string
  22| }
  23|
  24| interface ParentNotificationsViewProps {
  25|   initialNotifications: Notification[]
  26|   students: StudentProfile[]
  27|   markAllAsRead: () => Promise<void>
  28|   deleteAll: () => Promise<void>
  29|   markAsRead: (id: string) => Promise<void>
  30|   deleteSingle: (id: string) => Promise<void>
  31| }
  32|
  33| type TabType = 'all' | 'lesson' | 'quiz' | 'absent'
  34|
  35| export default function ParentNotificationsView({
  36|   initialNotifications,
  37|   students,
  38|   markAllAsRead,
  39|   deleteAll,
  40|   markAsRead,
  41|   deleteSingle
  42| }: ParentNotificationsViewProps) {
  43|   const [activeTab, setActiveTab] = useState<TabType>('all')
  44|   const [notifications, setNotifications] = useState<Notification[]>(initialNotifications)
  45|   const [isPending, startTransition] = useTransition()
  46|
     4 7 |       / /   T ¡ o   m a p   t r a   c é u   h Í c   s i n h   t h e o   i d
  48|   const studentMap = React.useMemo(() => {
  49|     const map = new Map<string, StudentProfile>()
  50|     students.forEach((s) => map.set(s.id, s))
  51|     return map
  52|   }, [students])
  53|
     5 4 |       / /   L Í c   t h ô n g   b á o   d ñ a   t r ê n   t a b     a n g   c h Í n
  55|   const filteredNotifications = React.useMemo(() => {
  56|     return notifications.filter((notif) => {
  57|       if (activeTab === 'all') return true
  58|       if (activeTab === 'lesson') return notif.type === 'lesson_completed'
  59|       if (activeTab === 'quiz') return notif.type === 'quiz_graded' || notif.type === 'child_low_score'
  60|       if (activeTab === 'absent') return notif.type === 'child_absent'
  61|       return false
  62|     })
  63|   }, [notifications, activeTab])
  64|
     6 5 |       / /   U I   i c o n   c h o   t ë n g   l o ¡ i   t h ô n g   b á o
  66|   const getIcon = (type: string) => {
  67|     switch (type) {
  68|       case 'lesson_completed':
  69|         return <BookOpen size={16} className="text-blue-400" />
  70|       case 'quiz_graded':
  71|         return <Award size={16} className="text-[#00d4aa]" />
  72|       case 'child_low_score':
  73|         return <Award size={16} className="text-red-400" />
  74|       case 'child_absent':
  75|         return <UserMinus size={16} className="text-orange-400" />
  76|       default:
  77|         return <Bell size={16} className="text-[#636678]" />
  78|     }
  79|   }
  80|
```

```
    8 1 |       / /     á n h   d ¥ u   t ¥ t   c £   l à     ã     Í c
 82|   const handleMarkAllRead = () => {
 83|     startTransition(async () => {
 84|       await markAllAsRead()
 85|       setNotifications((prev) => prev.map((n) => ({ ...n, is_read: true })))
 86|     })
 87|   }
 88|
    8 9 |       / /   X ó a   t ¥ t   c £   t h ô n g   b á o
 90|   const handleDeleteAll = () => {
    9 1 |           i f   ( ! c o n f i r m ( ' B ¡ n   m u Ñ n   x ó a   t ¥ t   c £   t h ô n g   b á o ? ' ) )   r e t u r n
 92|     startTransition(async () => {
 93|       await deleteAll()
 94|       setNotifications([])
 95|     })
 96|   }
 97|
    9 8 |       / /     á n h   d ¥ u     Í c   m Ù t   t h ô n g   b á o
 99|   const handleMarkSingleRead = async (id: string) => {
100|     await markAsRead(id)
101|     setNotifications((prev) =>
102|       prev.map((n) => (n.id === id ? { ...n, is_read: true } : n))
103|     )
104|   }
105|
   1 0 6 |       / /   X ó a   m Ù t   t h ô n g   b á o
107|   const handleDeleteSingle = async (id: string) => {
108|     await deleteSingle(id)
109|     setNotifications((prev) => prev.filter((n) => n.id !== id))
110|   }
111|
112|   const unreadCount = notifications.filter((n) => !n.is_read).length
113|
114|   return (
115|     <div className="space-y-6">
116|       {/* Header */}
117|       <div className="flex flex-col sm:flex-row sm:items-center justify-between gap-4 pb-6" style={{ borderBot...
118|         <div>
119|           <h1 className="text-2xl md:text-3xl font-bold flex items-center gap-2" style={{ color: 'var(--text-p...
120|             <Bell size={24} style={{ color: 'var(--brand-primary)' }} />
   1 2 1 |                         T h ô n g   b á o   P h ả   h u y n h
122|           </h1>
123|           <p className="mt-1 text-sm" style={{ color: 'var(--text-muted)' }}>
   1 2 4 |                         Q u £ n   l ý   t h ô n g   b á o   t i ¿ n    Ù ,    i Ã m   q u i z ,   s t r e a k s   v à   t h à n h   t í c h
125|           </p>
126|         </div>
127|
128|         {notifications.length > 0 && (
129|           <div className="flex gap-2 self-start sm:self-auto">
130|             <button
131|               onClick={handleMarkAllRead}
132|               disabled={isPending}
133|               className="inline-flex items-center gap-1.5 px-3 py-2 rounded-xl text-xs font-bold transition-al...
134|               style={{ background: 'rgba(0, 212, 170, 0.1)', border: '1px solid rgba(0, 212, 170, 0.2)', color...
135|             >
136|               <Check size={14} />
   1 3 7 |                               ã     Í c   t ¥ t   c £
138|             </button>
139|             <button
140|               onClick={handleDeleteAll}
141|               disabled={isPending}
142|               className="inline-flex items-center gap-1.5 px-3 py-2 rounded-xl text-xs font-bold transition-al...
143|               style={{ background: 'rgba(239, 68, 68, 0.1)', border: '1px solid rgba(239, 68, 68, 0.2)', color...
144|             >
145|               <Trash2 size={14} />
   1 4 6 |                             X ó a   t ¥ t   c £
147|             </button>
148|           </div>
149|         )}
150|       </div>
151|
152|       {/* Tabs Filter */}
153|       <div className="flex items-center gap-1 overflow-x-auto pb-2 no-scrollbar scroll-smooth" style={{ border...
154|         {[
   1 5 5 |                     {   k e y :   ' a l l ' ,   l a b e l :   ' T ¥ t   c £ '   } ,
   1 5 6 |                     {   k e y :   ' l e s s o n ' ,   l a b e l :   ' T i ¿ n    Ù   h Í c '   } ,
   1 5 7 |                     {   k e y :   ' q u i z ' ,   l a b e l :   '   i Ã m   s Ñ '   } ,
158|
   1 5 9 |                     {   k e y :   ' a b s e n t ' ,   l a b e l :   ' N g h É   h Í c '   }
160|         ].map((tab) => (
161|           <button
162|             key={tab.key}
163|             onClick={() => setActiveTab(tab.key as TabType)}
164|             className="px-4 py-2 rounded-xl text-xs font-bold transition-all duration-150 whitespace-nowrap bo...
165|             style={{
166|               background: activeTab === tab.key ? 'rgba(0, 212, 170, 0.1)' : 'transparent',
167|               borderColor: activeTab === tab.key ? 'rgba(0, 212, 170, 0.3)' : 'transparent',
168|               color: activeTab === tab.key ? 'var(--brand-primary)' : 'var(--text-muted)'
169|             }}
170|           >
171|             {tab.label}
172|           </button>
173|         )}
174|       </div>
175|
176|       {/* List */}
177|       {filteredNotifications.length === 0 ? (
178|         <div className="rounded-2xl p-10 md:p-14 text-center my-6" style={{ background: 'var(--bg-surface)', b...
179|           <div className="w-14 h-14 rounded-full flex items-center justify-center mx-auto mb-4" style={{ backg...
180|             <Bell size={24} />
181|           </div>
182|           <h3 className="text-base font-bold mb-1" style={{ color: 'var(--text-primary)' }}>
   1 8 3 |                         K h ô n g   t ì m   t h ¥ y   t h ô n g   b á o
184|           </h3>
185|           <p className="text-xs max-w-xs mx-auto" style={{ color: 'var(--text-muted)' }}>
   1 8 6 |                         K h ô n g   c ó   t h ô n g   b á o   n à o   k h Ù p   v Û i   d a n h   m ả c   b Ù   l Í c   h i Ç n   t ¡ i   c ç a
187|           </p>
188|         </div>
189|       ) : (
190|         <div className="space-y-3">
191|           {filteredNotifications.map((notif) => {
192|             const studentId = notif.data?.student_id
193|             const student = studentId ? studentMap.get(studentId) : null
194|
195|             return (
196|               <div
197|                 key={notif.id}
198|                 className="rounded-xl p-4 transition-all flex items-start gap-4"
199|                 style={{
200|                   background: 'var(--bg-surface)',
201|                   border: notif.is_read ? '1px solid var(--border-subtle)' : '1px solid rgba(0, 212, 170, 0.2)',
202|                   opacity: notif.is_read ? 0.6 : 1
203|                 }}
204|               >
```

```
  205|                                  { / *   L o ¡ i   i c o n   * / }
  206|                  <div className="w-8 h-8 rounded-lg flex items-center justify-center flex-shrink-0 mt-0.5" styl...
  207|                    {getIcon(notif.type)}
  208|                  </div>
  209|
  210|                                  { / *   A v a t a r   &   T ê n   h Í c   s i n h   * / }
  211|                  {student && (
  212|                    <div className="flex-shrink-0 relative hidden sm:block">
  213|                      {student.avatar_url ? (
  214|                        <img
  215|                          src={student.avatar_url}
  216|                          className="w-10 h-10 rounded-full object-cover"
  217|                          style={{ border: '1px solid var(--border-default)' }}
  218|                          alt={student.full_name}
  219|                        />
  220|                      ) : (
  221|                        <div className="w-10 h-10 rounded-full flex items-center justify-center text-sm font-bol...
  222|                          {student.full_name[0] || 'S'}
  223|                        </div>
  224|                      )}
  225|                      <span className="absolute -bottom-1 -right-1 text-[10px] px-1 rounded-md font-bold upperca...
  226|                        Con
  227|                      </span>
  228|                    </div>
  229|                  )}
  230|
  231|                                  { / *   N Ù i   d u n g   t h ô n g   b á o   * / }
  232|                  <div className="flex-1 min-w-0">
  233|                    <div className="flex items-center gap-2">
  234|                      <span className="font-bold text-sm" style={{ color: 'var(--text-primary)' }}>{notif.title}...
  235|                      {student && (
  236|                        <span className="text-[10px] font-bold sm:hidden" style={{ color: 'var(--brand-primary)'...
  237|                          ({student.full_name})
  238|                        </span>
  239|                      )}
  240|                    </div>
  241|                    {student && (
  242|                      <div className="text-[10px] font-bold mt-0.5 hidden sm:block" style={{ color: 'var(--text-...
  243|                                                H Í c   s i n h :   < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - p r i m a r
  244|                      </div>
  245|                    )}
  246|                    <div className="text-xs mt-1.5 leading-relaxed" style={{ color: 'var(--text-secondary)' }}>{...
  247|
  248|                    {/* Time Footer */}
  249|                    <div className="flex items-center gap-1.5 text-[9px] font-bold mt-3" style={{ color: 'var(--...
  250|                      <Calendar size={11} />
  251|                      <span>{new Date(notif.created_at).toLocaleString('vi-VN')}</span>
  252|                    </div>
  253|                  </div>
  254|
  255|                  {/* Actions */}
  256|                  <div className="flex flex-col sm:flex-row gap-2 flex-shrink-0 self-stretch sm:self-auto justif...
  257|                    {!notif.is_read && (
  258|                      <button
  259|                        onClick={() => handleMarkSingleRead(notif.id)}
  260|                        className="text-[10px] font-bold hover:underline px-2.5 py-1.5 rounded-lg whitespace-now...
  261|                        style={{ background: 'rgba(0, 212, 170, 0.05)', border: '1px solid rgba(0, 212, 170, 0.1...
  262|                      >
  263|                                                  á n h   d ¥ u     ã     Í c
  264|                      </button>
  265|                    )}
  266|                    {notif.action_url && (
  267|                      <a
  268|                        href={notif.action_url}
  269|                        className="text-[10px] font-bold hover:underline px-2.5 py-1.5 rounded-lg whitespace-now...
  270|                        style={{ background: 'rgba(255,255,255,0.05)', border: '1px solid var(--border-default)'...
  271|                      >
  272|                                                X e m   c h i   t i ¿ t   c o n
  273|                      </a>
  274|                    )}
  275|                    <button
  276|                      onClick={() => handleDeleteSingle(notif.id)}
  277|                      className="p-1.5 rounded-lg transition-all"
  278|                      style={{ color: '#ef4444' }}
  279|                      title="Xóa thông báo"
  280|                    >
  281|                      <Trash2 size={13} />
  282|                    </button>
  283|                  </div>
  284|                </div>
  285|              )
  286|            })}
  287|          </div>
  288|        )}
  289|      </div>
  290|    )
  291| }
  292|
```

File: components/parent/ParentSidebar.tsx (131 lines, 5.2 KB)

```
    1| 'use client'
    2|
    3| import React, { useState } from 'react'
    4| import Link from 'next/link'
    5| import { usePathname } from 'next/navigation'
    6| import {
    7|   LayoutDashboard,
    8|   Users,
    9|   Link2,
   10|   Bell,
   11|   User,
   12|   LogOut,
   13|   Menu,
   14|   X,
   15|   Sparkles
   16| } from 'lucide-react'
   17| import { logout } from '@/lib/auth-actions'
   18|
   19| const parentNavItems = [
   20|       {   i c o n :   L a y o u t D a s h b o a r d ,   l a b e l :   ' T Õ n g   q u a n ' ,   h r e f :   ' / p a r e n t / d a s h b o a r d '
   21|       {   i c o n :   U s e r s ,   l a b e l :   ' C o n   c ç a   t ô i ' ,   h r e f :   ' / p a r e n t / c h i l d r e n '   } ,
   22|       {   i c o n :   L i n k 2 ,   l a b e l :   ' L i ê n   k ¿ t   c o n ' ,   h r e f :   ' / p a r e n t / l i n k - c h i l d '   } ,
   23|   { icon: Bell, label: 'Thông báo', href: '/parent/notifications' },
   24|       {   i c o n :   U s e r ,   l a b e l :   ' H Ó   s ¡ ' ,   h r e f :   ' / p a r e n t / p r o f i l e '   } ,
   25| ]
   26|
   27| export default function ParentSidebar() {
   28|   const pathname = usePathname()
   29|   const [isMobileOpen, setIsMobileOpen] = useState(false)
   30|
   31|   return (
   32|     <>
```

```
 33|       {/* Nút Hamburger trên Mobile */}
 34|       <button
 35|         onClick={() => setIsMobileOpen(true)}
 36|         className="md:hidden fixed top-4 left-4 z-50 p-2 rounded-lg transition-colors"
 37|         style={{ background: 'var(--bg-elevated)', border: '1px solid var(--border-default)', color: 'var(--te...
 38|       >
 39|         <Menu size={20} />
 40|       </button>
 41|
 42|       {/* Backdrop cho Mobile */}
 43|       {isMobileOpen && (
 44|         <div
 45|           onClick={() => setIsMobileOpen(false)}
 46|           className="md:hidden fixed inset-0 z-40 bg-black/60 backdrop-blur-sm"
 47|         />
 48|       )}
 49|
 50|       {/* Sidebar Container */}
 51|       <aside
 52|         className={`fixed md:sticky top-0 left-0 z-50 flex flex-col w-64 h-screen transition-transform duratio...
 53|           isMobileOpen ? 'translate-x-0' : '-translate-x-full'
 54|         }`}
 55|         style={{ background: 'var(--bg-surface)', borderRight: '1px solid var(--border-subtle)' }}
 56|       >
 57|         {/* Header */}
 58|         <div className="h-16 px-6 flex items-center justify-between" style={{ borderBottom: '1px solid var(--b...
 59|           <Link href="/" className="flex items-center gap-3">
 60|             <img src="/logo.png" alt="Logo" className="w-8 h-8 object-contain" />
 61|             <span className="font-bold text-sm tracking-wide" style={{ color: 'var(--text-primary)' }}>
 62|               PC Master <span style={{ color: 'var(--brand-primary)' }}>Parent</span>
 63|             </span>
 64|           </Link>
 65|           <button
 66|             onClick={() => setIsMobileOpen(false)}
 67|             className="md:hidden" style={{ color: 'var(--text-muted)' }}
 68|           >
 69|             <X size={18} />
 70|           </button>
 71|         </div>
 72|
 73|         {/* Navigation Items */}
 74|         <nav className="flex-1 px-4 py-6 space-y-1.5 overflow-y-auto">
 75|           <div className="px-3 mb-2 text-[10px] font-bold tracking-wider uppercase" style={{ color: 'var(--tex...
    7 6 |                          M e n u   P h ả   H u y n h
 77|           </div>
 78|           {parentNavItems.map((item) => {
 79|             const Icon = item.icon
 80|             const isActive = pathname === item.href || pathname.startsWith(item.href + '/')
 81|             return (
 82|               <Link
 83|                 key={item.href}
 84|                 href={item.href}
 85|                 onClick={() => setIsMobileOpen(false)}
 86|                 className={`flex items-center gap-3 px-3 py-2.5 rounded-lg text-sm font-medium transition-all ...
 87|                   isActive
 88|                     ? 'border-[#00d4aa]'
 89|                     : 'border-transparent'
 90|                 }`}
 91|                 style={{
 92|                   background: isActive ? 'rgba(0, 212, 170, 0.1)' : 'transparent',
 93|                   color: isActive ? 'var(--brand-primary)' : 'var(--text-muted)'
 94|                 }}
 95|               >
 96|                 <Icon size={18} style={{ color: isActive ? 'var(--brand-primary)' : 'var(--text-muted)' }} />
 97|                 <span>{item.label}</span>
 98|               </Link>
 99|             )
100|           })}
101|         </nav>
102|
    1 0 3 |                  { / *   F o o t e r   S i d e b a r   v Û i   N ú t   L o g   O u t   * / }
104|         <div className="p-4" style={{ borderTop: '1px solid var(--border-subtle)', background: 'var(--bg-eleva...
105|           <div className="flex items-center gap-3 px-2 mb-4">
106|             <div className="w-9 h-9 rounded-full flex items-center justify-center text-sm font-bold" style={{ ...
107|               P
108|             </div>
109|             <div className="overflow-hidden">
    1 1 0 |                            < d i v   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   t r u n c a t e "   s t y l e = { {   c o l o r
    1 1 1 |                            < d i v   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t r u n c a t e "   s t y l e = { {   c o l o r :   ' v a r
112|             </div>
113|           </div>
114|           <button
115|             onClick={async () => {
    1 1 6 |                            i f   ( c o n f i r m ( ' B ¡ n   m u Ñ n      n g   x u ¥ t   k h Ï i   h Ç   t h Ñ n g ? ' ) )   {
117|                 await logout()
118|               }
119|             }}
120|             className="flex items-center justify-center gap-2 w-full px-4 py-2.5 text-xs font-bold transition-...
121|             style={{ background: 'rgba(239, 68, 68, 0.1)', border: '1px solid rgba(239, 68, 68, 0.2)', color: ...
122|           >
123|             <LogOut size={14} />
    1 2 4 |                            n g   x u ¥ t
125|           </button>
126|         </div>
127|       </aside>
128|     </>
129|   )
130| }
131|
```

File: components/PartPickerSidebar.js (164 lines, 7.5 KB)

```
  1| 'use client';
  2|
  3| import { useState, useMemo } from 'react';
  4| import { motion, AnimatePresence } from 'framer-motion';
  5| import componentsData from '../data/componentsData.json';
  6| import { COMPONENT_DATA } from '@/utils/i18nData';
  7| import ComponentPreview from './ComponentPreview';
  8|
  9| const PART_ICONS = {
    1 0 |       C P U :   '&¡ ' ,   R A M :   'Ø>Ýà ' ,   G P U :   'Ø<ß® ' ,   S S D :   'Ø=Ü¾ ' ,   P S U :   'Ø=Ý  ' ,   C O O L E R :   ''Dþ  '
 11| };
 12|
 13| const PART_COLORS = {
 14|   CPU: '#00d4aa', RAM: '#6366f1', GPU: '#ef4444',
 15|   SSD: '#22c55e', PSU: '#f59e0b', COOLER: '#06b6d4'
 16| };
 17|
 18| export default function PartPickerSidebar({ lang, onSelect, placedCounts }) {
 19|   const [expandedType, setExpandedType] = useState(null);
 20|   const [selectedModel, setSelectedModel] = useState(null);
 21|   const data = COMPONENT_DATA[lang] || COMPONENT_DATA.en;
```

```
22|   const parts = ['CPU', 'GPU', 'RAM', 'SSD', 'PSU', 'COOLER'];
23|
24|   const modelsByType = useMemo(() => {
25|     const map = {};
26|     parts.forEach(type => {
27|       map[type] = componentsData.filter(c => c.type === type);
28|     });
29|     return map;
30|   }, []);
31|
32|   const handleSelect = (type, modelId = null) => {
33|     if (modelId) {
34|       onSelect(type, modelId);
35|       const model = modelsByType[type]?.find(m => m.id === modelId);
36|       setSelectedModel(model);
37|       setExpandedType(null);
38|     } else {
39|       setExpandedType(expandedType === type ? null : type);
40|       setSelectedModel(null);
41|     }
42|   };
43|
44|   return (
45|     <div style={{
46|       width: '240px', minWidth: '240px',
47|       background: 'var(--bg-surface)',
48|       borderRight: '1px solid var(--border-subtle)',
49|       borderRadius: '12px', padding: '16px 12px',
50|       display: 'flex', flexDirection: 'column',
51|       maxHeight: 'calc(100vh - 120px)',
52|       overflowY: 'auto', gap: '4px'
53|     }}>
54|       <h3 style={{ margin: '0 0 4px 0', fontSize: '13px', color: 'var(--text-muted)', textTransform: 'uppercas...
    5 5 |                 { l a n g   = = =   ' e n '   ?   ' C o m p o n e n t   T r a y '   :   ' K h a y   l i n h   k i Ç n ' }
56|       </h3>
57|       <p style={{ margin: '0 0 12px 0', fontSize: '11px', color: 'var(--text-muted)', lineHeight: 1.4 }}>
58|         {lang === 'en'
59|           ? 'Click to expand and pick a specific model.'
    6 0 |                     :   ' N h ¥ n     Ã   m ß   r Ù n g   v à   c h Í n   m o d e l   c å   t h Ã . ' }
61|       </p>
62|
63|       {parts.map(type => {
64|         const info = data[type];
65|         const count = placedCounts[type] || 0;
66|         const models = modelsByType[type] || [];
67|         const isExpanded = expandedType === type;
68|
69|         return (
70|           <div key={type} style={{ marginBottom: isExpanded ? '4px' : '0' }}>
71|             <button
72|               onClick={() => handleSelect(type)}
73|               style={{
74|                 display: 'flex', alignItems: 'center', gap: '10px',
75|                 padding: '10px 12px',
76|                 background: isExpanded ? 'var(--bg-hover)' : 'var(--bg-elevated)',
77|                 border: `1px solid ${isExpanded ? PART_COLORS[type] : 'var(--border-default)'}`,
78|                 borderRadius: '8px', cursor: 'pointer',
79|                 transition: 'all 0.2s', textAlign: 'left',
80|                 width: '100%', color: 'var(--text-primary)',
81|                 fontSize: '13px', fontFamily: 'inherit',
82|                 position: 'relative'
83|               }}
84|               onMouseOver={e => { if (!isExpanded) { e.currentTarget.style.borderColor = PART_COLORS[type]; e....
85|               onMouseOut={e => { if (!isExpanded) { e.currentTarget.style.borderColor = 'var(--border-default)...
86|             >
87|               <span style={{ fontSize: '20px' }}>{PART_ICONS[type]}</span>
88|               <div style={{ flex: 1, minWidth: 0 }}>
89|                 <div style={{ fontWeight: 600, fontSize: '12px' }}>{type}</div>
90|                 <div style={{ fontSize: '10px', color: 'var(--text-muted)', whiteSpace: 'nowrap', overflow: 'h...
91|                   {info?.title || type} · {models.length} model
92|                 </div>
93|               </div>
94|               {count > 0 && (
95|                 <span style={{ background: PART_COLORS[type] + '20', color: PART_COLORS[type], padding: '1px 7...
96|                   {count}
97|                 </span>
98|               )}
99|               <span style={{ color: 'var(--text-muted)', fontSize: '10px', transition: 'transform 0.2s', trans...
  1 0 0 |                                   %¼
101|               </span>
102|             </button>
103|
104|             {/* Component Preview */}
105|             {isExpanded && (
106|               <div style={{ margin: '8px 0', padding: '0 4px' }}>
107|                 <ComponentPreview type={type} model={null} />
108|               </div>
109|             )}
110|             {/* Nested scrollable model list */}
111|             <AnimatePresence>
112|               {isExpanded && (
113|                 <motion.div
114|                   initial={{ height: 0, opacity: 0 }}
115|                   animate={{ height: 'auto', opacity: 1 }}
116|                   exit={{ height: 0, opacity: 0 }}
117|                   transition={{ duration: 0.2 }}
118|                   style={{ overflow: 'hidden' }}
119|                 >
120|                   <div style={{
121|                     maxHeight: '220px', overflowY: 'auto',
122|                     marginTop: '4px', marginLeft: '8px',
123|                     display: 'flex', flexDirection: 'column', gap: '3px',
124|                     paddingRight: '4px'
125|                   }}>
126|                     {models.map(model => (
127|                       <button
128|                         key={model.id}
129|                         onClick={() => handleSelect(type, model.id)}
130|                         style={{
131|                           display: 'flex', justifyContent: 'space-between', alignItems: 'center',
132|                           padding: '8px 10px', background: 'var(--bg-elevated)',
133|                           border: '1px solid var(--border-subtle)', borderRadius: '6px',
134|                           cursor: 'pointer', textAlign: 'left', width: '100%',
135|                           color: 'var(--text-primary)', fontSize: '11px', fontFamily: 'inherit',
136|                           transition: 'all 0.15s'
137|                         }}
138|                         onMouseOver={e => { e.currentTarget.style.borderColor = PART_COLORS[type]; e.currentTa...
139|                         onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-subtle)'; e.curre...
140|                       >
141|                         <div style={{ flex: 1, minWidth: 0 }}>
142|                           <div style={{ fontWeight: 600, fontSize: '11px', overflow: 'hidden', textOverflow: '...
143|                           <div style={{ fontSize: '9px', color: 'var(--text-muted)' }}>
144|                             {model.socket && `Socket: ${model.socket} `}
145|                             {model.ramType && `RAM: ${model.ramType} `}
```

```
146|                            {model.power && `${model.power}W`}
147|                          </div>
148|                        </div>
149|                        <span style={{ fontSize: '10px', color: PART_COLORS[type], fontWeight: 700, flexShrink...
   1 5 0 |                                                  { ( m o d e l . p r i c e   | |   0 ) . t o L o c a l e S t r i n g ( ) }
151|                        </span>
152|                      </button>
153|                    ))}
154|                  </div>
155|                </motion.div>
156|              )}
157|            </AnimatePresence>
158|          </div>
159|        );
160|      ))}
161|    </div>
162|  );
163| }
164|
```

File: components/PartPickerSidebarV2.js (366 lines, 17.2 KB)

```
1| 'use client';
2|
3| import { useState, useMemo } from 'react';
4| import { useBuildStore } from '@/lib/build-store';
5| import { getPriorityIssues } from '@/lib/compatibility-engine';
6|
7| const PART_CONFIG = {
8|       C P U :   {   i c o n :   '&¡ ' ,   c o l o r :   ' # 0 0 d 4 a a ' ,   l a b e l :   ' C P U ' ,   l a b e l V n :   ' C P U '   } ,
9|       G P U :   {   i c o n :   'Ø<ß® ' ,   c o l o r :   ' # e f 4 4 4 4 ' ,   l a b e l :   ' G P U ' ,   l a b e l V n :   ' C a r d   Ó   H
1 0|       M A I N B O A R D :   {   i c o n :   'Ø=Ý  ' ,   c o l o r :   ' # 6 3 6 6 f 1 ' ,   l a b e l :   ' M a i n b o a r d ' ,   l a b e l V n
1 1|       R A M :   {   i c o n :   'Ø>Ýà ' ,   c o l o r :   ' # 2 2 c 5 5 e ' ,   l a b e l :   ' R A M ' ,   l a b e l V n :   ' R A M '   } ,
1 2|       S S D :   {   i c o n :   'Ø=Ü¾ ' ,   c o l o r :   ' # 0 6 b 6 d 4 ' ,   l a b e l :   ' S S D ' ,   l a b e l V n :   ' Ô   c é n g '   ]
1 3|       P S U :   {   i c o n :   'Ø=Ý  ' ,   c o l o r :   ' # f 5 9 e 0 b ' ,   l a b e l :   ' P S U ' ,   l a b e l V n :   ' N g u Ó n '   } ,
1 4|       C O O L E R :   {   i c o n :   ''Ðþ  ' ,   c o l o r :   ' # 8 b 5 c f 6 ' ,   l a b e l :   ' C o o l e r ' ,   l a b e l V n :   ' T Ł n
1 5|       C A S E :   {   i c o n :   'Ø=Üæ ' ,   c o l o r :   ' # e c 4 8 9 9 ' ,   l a b e l :   ' C a s e ' ,   l a b e l V n :   ' V Ï   m á y '
16| };
17|
18| function SpecRow({ label, value, color }) {
19|   if (!value && value !== 0) return null;
20|   return (
21|     <div style={{ display: 'flex', justifyContent: 'space-between', padding: '2px 0', fontSize: '11px' }}>
22|       <span style={{ color: 'var(--text-muted)' }}>{label}</span>
23|       <span style={{ color: color || 'var(--text-primary)', fontWeight: 600 }}>{value}</span>
24|     </div>
25|   );
26| }
27|
28| export default function PartPickerSidebarV2({ lang = 'vn' }) {
29|   const [expandedType, setExpandedType] = useState(null);
30|   const [products, setProducts] = useState({});
31|   const [loading, setLoading] = useState({});
32|   const [searchQuery, setSearchQuery] = useState('');
33|
34|   const store = useBuildStore();
35|
36|   const selectedParts = useMemo(() => ({
37|     CPU: store.cpu,
38|     GPU: store.gpu,
39|     MAINBOARD: store.mainboard,
40|     RAM: store.ram,
41|     SSD: store.ssd,
42|     PSU: store.psu,
43|     COOLER: store.cooler,
44|     CASE: store.case,
45|   }), [store.cpu, store.gpu, store.mainboard, store.ram, store.ssd, store.psu, store.cooler, store.case]);
46|
47|   const { errors, warnings } = useMemo(
48|     () => getPriorityIssues(store.issues),
49|     [store.issues]
50|   );
51|
52|   const fetchProducts = async (type) => {
53|     if (products[type]) return;
54|     setLoading(prev => ({ ...prev, [type]: true }));
55|     try {
56|       const params = new URLSearchParams({ category: type, limit: '50' });
57|       if (searchQuery) params.set('q', searchQuery);
58|       const res = await fetch(`/api/products?${params}`);
59|       const data = await res.json();
60|       if (data.products) setProducts(prev => ({ ...prev, [type]: data.products }));
61|     } catch (err) {
62|       console.error('Failed to fetch products:', err);
63|     } finally {
64|       setLoading(prev => ({ ...prev, [type]: false }));
65|     }
66|   };
67|
68|   const handleSelect = (type, product) => {
69|     if (!product) return;
70|     switch (type) {
71|       case 'CPU': store.setCPU(product); break;
72|       case 'GPU': store.setGPU(product); break;
73|       case 'MAINBOARD': store.setMainboard(product); break;
74|       case 'RAM': store.addRAM(product); break;
75|       case 'SSD': store.addSSD(product); break;
76|       case 'PSU': store.setPSU(product); break;
77|       case 'COOLER': store.setCooler(product); break;
78|       case 'CASE': store.setCase(product); break;
79|     }
80|     setExpandedType(null);
81|   };
82|
83|   const handleRemove = (type, index) => {
84|     switch (type) {
85|       case 'CPU': store.setCPU(null); break;
86|       case 'GPU': store.setGPU(null); break;
87|       case 'MAINBOARD': store.setMainboard(null); break;
88|       case 'RAM': store.removeRAM(index); break;
89|       case 'SSD': store.removeSSD(index); break;
90|       case 'PSU': store.setPSU(null); break;
91|       case 'COOLER': store.setCooler(null); break;
92|       case 'CASE': store.setCase(null); break;
93|     }
94|   };
95|
96|   const toggleExpand = (type) => {
97|     if (expandedType === type) {
98|       setExpandedType(null);
99|     } else {
100|       setExpandedType(type);
101|       fetchProducts(type);
```

```
102|     }
103|   };
104|
105|   const getSpecs = (type, product) => {
106|     switch (type) {
107|       case 'CPU': return [
108|         { label: 'Socket', value: product.cpu_socket },
   1 0 9 |                 {   l a b e l :   ' N h â n / L u Ó n g ' ,   v a l u e :   ` $ { p r o d u c t . c p u _ c o r e s } C / $ { p r o d u c t . c
110|         { label: 'Clock', value: `${product.cpu_base_ghz} / ${product.cpu_boost_ghz} GHz` },
111|         { label: 'TDP', value: `${product.cpu_tdp_watts}W`, color: product.cpu_tdp_watts > 125 ? 'var(--warnin...
112|         { label: 'RAM', value: `${product.cpu_ram_type} ${product.cpu_max_ram_mhz}MHz` },
113|         { label: 'iGPU', value: product.cpu_has_igpu ? product.cpu_igpu_model || 'Có' : 'Không' },
114|       ];
115|       case 'GPU': return [
116|         { label: 'VRAM', value: `${product.gpu_vram_gb}GB` },
117|         { label: 'TDP', value: `${product.gpu_tdp_watts}W` },
   1 1 8 |                 {   l a b e l :   ' C h i Á u   d à i ' ,   v a l u e :   ` $ { p r o d u c t . g p u _ l e n g t h _ m m } m m ` ,   c o l o r
   1 1 9 |                 {   l a b e l :   ' P S U   y ê u   c § u ' ,   v a l u e :   ` $ { p r o d u c t . g p u _ r e c o m m e n d e d _ p s u } W
120|         { label: 'PCIe', value: `Gen ${product.gpu_pcie_gen}` },
121|       ];
122|       case 'MAINBOARD': return [
123|         { label: 'Socket', value: product.mb_socket },
124|         { label: 'Chipset', value: product.mb_chipset },
125|         { label: 'Form Factor', value: product.mb_form_factor },
126|         { label: 'RAM', value: `${product.mb_ram_type} ${product.mb_max_ram_mhz}MHz` },
   1 2 7 |                 {   l a b e l :   ' K h e   R A M ' ,   v a l u e :   ` $ { p r o d u c t . m b _ r a m _ s l o t s }   k h e   /   t Ñ i   a
128|         { label: 'M.2 / SATA', value: `${product.mb_m2_slots} M.2 · ${product.mb_sata_ports} SATA` },
129|         { label: 'WiFi', value: product.mb_has_wifi ? product.mb_wifi_version || 'Có' : 'Không' },
130|       ];
131|       case 'RAM': return [
   1 3 2 |                 {   l a b e l :   ' L o ¡ i ' ,   v a l u e :   p r o d u c t . r a m _ d d r _ t y p e   } ,
   1 3 3 |                 {   l a b e l :   ' D u n g   l ° ã n g ' ,   v a l u e :   ` $ { p r o d u c t . r a m _ c a p a c i t y _ g b } G B   ×   $ {
   1 3 4 |                 {   l a b e l :   ' T Ñ c   Ù ' ,   v a l u e :   ` $ { p r o d u c t . r a m _ s p e e d _ m h z } M H z `   } ,
135|         { label: 'CL', value: product.ram_cl_latency },
136|         { label: 'XMP/EXPO', value: product.ram_has_xmp ? 'XMP' : product.ram_has_expo ? 'EXPO' : 'Không' },
137|       ];
138|       case 'SSD': return [
   1 3 9 |                 {   l a b e l :   ' L o ¡ i ' ,   v a l u e :   p r o d u c t . s s d _ i n t e r f a c e   = = =   ' m 2 _ n v m e '   ?   ' N
   1 4 0 |                 {   l a b e l :   ' D u n g   l ° ã n g ' ,   v a l u e :   ` $ { p r o d u c t . s s d _ c a p a c i t y _ g b } G B `   } ,
   1 4 1 |                 {   l a b e l :   '   Í c / G h i ' ,   v a l u e :   ` $ { p r o d u c t . s s d _ r e a d _ m b p s } / $ { p r o d u c t . s
142|         { label: 'DRAM', value: product.ssd_has_dram_cache ? 'Có' : 'Không' },
143|       ];
144|       case 'PSU': return [
   1 4 5 |                 {   l a b e l :   ' C ô n g   s u ¥ t ' ,   v a l u e :   ` $ { p r o d u c t . p s u _ w a t t a g e } W ` ,   c o l o r :   p
   1 4 6 |                 {   l a b e l :   ' C h u © n ' ,   v a l u e :   p r o d u c t . p s u _ e f f i c i e n c y   } ,
147|         { label: 'Modular', value: product.psu_modular === 'full_modular' ? 'Full' : product.psu_modular === '...
148|         { label: 'Dài', value: `${product.psu_length_mm}mm` },
149|       ];
150|       case 'COOLER': return [
   1 5 1 |                 {   l a b e l :   ' L o ¡ i ' ,   v a l u e :   p r o d u c t . c o o l e r _ t y p e   = = =   ' a i o '   ?   ` A I O   $ { p
   1 5 2 |                 {   l a b e l :   ' T D P   t Ñ i   a ' ,   v a l u e :   ` $ { p r o d u c t . c o o l e r _ m a x _ t d p _ s u p p o r t
153|         { label: 'Cao', value: product.cooler_height_mm ? `${product.cooler_height_mm}mm` : '—' },
154|         { label: 'RGB', value: product.cooler_has_rgb ? 'Có' : 'Không' },
155|       ];
156|       case 'CASE': return [
   1 5 7 |                 {   l a b e l :   ' F o r m   h ×   t r ã ' ,   v a l u e :   p r o d u c t . c a s e _ s u p p o r t e d _ f o r m s ? . j o i
   1 5 8 |                 {   l a b e l :   ' G P U   t Ñ i   a ' ,   v a l u e :   ` $ { p r o d u c t . c a s e _ m a x _ g p u _ l e n g t h _ m m
   1 5 9 |                 {   l a b e l :   ' C o o l e r   t Ñ i   a ' ,   v a l u e :   ` $ { p r o d u c t . c a s e _ m a x _ c o o l e r _ h e i g
   1 6 0 |                 {   l a b e l :   ' A I O   h ×   t r ã ' ,   v a l u e :   p r o d u c t . c a s e _ s u p p o r t s _ a i o ? . m a p ( s   =
   1 6 1 |                 {   l a b e l :   ' K í n h ' ,   v a l u e :   p r o d u c t . c a s e _ s i d e _ p a n e l   = = =   ' g l a s s '   ?   ' K
162|       ];
163|       default: return [];
164|     }
165|   };
166|
167|   const renderSelectedPart = (type) => {
168|     const items = selectedParts[type];
169|     if (!items || (Array.isArray(items) && items.length === 0)) return null;
170|
171|     const arr = Array.isArray(items) ? items : [items];
172|     return arr.map((item, idx) => (
173|       <div key={idx} style={{
174|         display: 'flex', alignItems: 'center', gap: '8px',
175|         padding: '6px 8px', marginTop: '4px',
176|         background: PART_CONFIG[type]?.color + '12',
177|         borderRadius: '6px', border: `1px solid ${PART_CONFIG[type]?.color}30`,
178|         fontSize: '11px',
179|       }}>
180|         <div style={{ flex: 1, minWidth: 0 }}>
181|           <div style={{ fontWeight: 600, color: 'var(--text-primary)', overflow: 'hidden', textOverflow: 'elli...
182|             {item.full_name || item.name}
183|           </div>
184|           <div style={{ color: 'var(--text-muted)' }}>
   1 8 5 |                         { ( i t e m . p r i c e _ v n d   | |   0 ) . t o L o c a l e S t r i n g ( ) }
186|           </div>
187|         </div>
188|         <button
189|           onClick={() => handleRemove(type, idx)}
190|           style={{
191|             background: 'rgba(239,68,68,0.1)', border: 'none', color: '#ef4444',
192|             borderRadius: '4px', padding: '2px 6px', cursor: 'pointer', fontSize: '11px', fontFamily: 'inherit',
193|           }}
194|         >
   1 9 5 |                       '
196|         </button>
197|       </div>
198|     ));
199|   };
200|
201|   return (
202|     <div style={{
203|       width: '280px', minWidth: '280px',
204|       background: 'var(--bg-surface)',
205|       borderRight: '1px solid var(--border-subtle)',
206|       borderRadius: '12px',
207|       display: 'flex', flexDirection: 'column',
208|       maxHeight: 'calc(100vh - 100px)',
209|       overflow: 'hidden',
210|     }}>
211|       {/* Header */}
212|       <div style={{
213|         padding: '16px', borderBottom: '1px solid var(--border-subtle)',
214|         background: 'var(--bg-elevated)',
215|       }}>
216|         <div style={{ fontWeight: 700, fontSize: '14px', color: 'var(--text-primary)', marginBottom: '4px' }}>
   2 1 7 |                     { l a n g   = = =   ' e n '   ?   ' C o m p o n e n t   P i c k e r '   :   ' C h Í n   l i n h   k i Ç n ' }
218|         </div>
219|         <div style={{ fontSize: '11px', color: errors.length > 0 ? 'var(--danger)' : 'var(--text-muted)' }}>
220|           {errors.length > 0
   2 2 1 |                         ?   ` $ { e r r o r s . l e n g t h }   $ { l a n g   = = =   ' e n '   ?   ' e r r o r ( s ) '   :   ' l × i ' }   —
   2 2 2 |                         :   l a n g   = = =   ' e n '   ?   ' N o   c o m p a t i b i l i t y   e r r o r s '   :   ' K h ô n g   c ó   l × i
223|         </div>
224|       </div>
225|
```

```
226|       {/* Search */}
227|       <div style={{ padding: '8px 12px' }}>
228|         <input
229|           type="text"
230|           value={searchQuery}
231|           onChange={e => setSearchQuery(e.target.value)}
  2 3 2 |                       p l a c e h o l d e r = { l a n g   = = =   ' e n '   ?   ' S e a r c h   c o m p o n e n t s . . . '   :   ' T ì m   l i r
233|           style={{
234|             width: '100%', padding: '6px 10px', borderRadius: '6px',
235|             border: '1px solid var(--border-default)',
236|             background: 'var(--bg-elevated)', color: 'var(--text-primary)',
237|             fontSize: '12px', fontFamily: 'inherit', outline: 'none',
238|           }}
239|         />
240|       </div>
241|
242|       {/* Component list */}
243|       <div style={{ flex: 1, overflowY: 'auto', padding: '0 12px 12px' }}>
244|         {Object.entries(PART_CONFIG).map(([type, cfg]) => {
245|           const isExpanded = expandedType === type;
246|           const selected = selectedParts[type];
247|           const hasSelected = selected && (Array.isArray(selected) ? selected.length > 0 : true);
248|           const list = products[type];
249|           const isLoading = loading[type];
250|
251|           return (
252|             <div key={type} style={{ marginBottom: '4px' }}>
253|               <button
254|                 onClick={() => toggleExpand(type)}
255|                 style={{
256|                   display: 'flex', alignItems: 'center', gap: '8px',
257|                   width: '100%', padding: '8px 10px',
258|                   background: isExpanded ? 'var(--bg-hover)' : hasSelected ? cfg.color + '10' : 'var(--bg-elev...
259|                   border: `1px solid ${isExpanded ? cfg.color : hasSelected ? cfg.color + '40' : 'var(--border...
260|                   borderRadius: '8px', cursor: 'pointer',
261|                   textAlign: 'left', fontFamily: 'inherit',
262|                   color: 'var(--text-primary)', fontSize: '12px',
263|                   transition: 'all 0.15s',
264|                 }}
265|               >
266|                 <span style={{ fontSize: '16px' }}>{cfg.icon}</span>
267|                 <div style={{ flex: 1, minWidth: 0 }}>
268|                   <div style={{ fontWeight: 600, fontSize: '12px' }}>
269|                     {lang === 'en' ? cfg.label : cfg.labelVn}
270|                   </div>
271|                   {hasSelected && (
272|                     <div style={{ fontSize: '10px', color: cfg.color, overflow: 'hidden', textOverflow: 'ellip...
  2 7 3 |                                                 { A r r a y . i s A r r a y ( s e l e c t e d )   ?   ` $ { s e l e c t e d . l e n g t h }   $ { l
274|                     </div>
275|                   )}
276|                 </div>
277|                 <span style={{
278|                   color: 'var(--text-muted)', fontSize: '9px',
279|                   transition: 'transform 0.2s', transform: isExpanded ? 'rotate(180deg)' : 'none',
280|                 }}>
  2 8 1 |                                 %¼
282|                 </span>
283|               </button>
284|
285|               {renderSelectedPart(type)}
286|
287|               {isExpanded && (
288|                 <div style={{
289|                   marginTop: '4px', maxHeight: '300px', overflowY: 'auto',
290|                   display: 'flex', flexDirection: 'column', gap: '3px',
291|                   padding: '4px', background: 'var(--bg-elevated)', borderRadius: '8px',
292|                 }}>
293|                   {isLoading ? (
294|                     <div style={{ textAlign: 'center', padding: '16px', color: 'var(--text-muted)', fontSize: ...
  2 9 5 |                                                 { l a n g   = = =   ' e n '   ?   ' L o a d i n g . . . '   :   '   a n g   t £ i . . . ' }
296|                     </div>
297|                   ) : !list || list.length === 0 ? (
298|                     <div style={{ textAlign: 'center', padding: '16px', color: 'var(--text-muted)', fontSize: ...
  2 9 9 |                                                 { l a n g   = = =   ' e n '   ?   ' N o   c o m p o n e n t s   f o u n d '   :   ' K h ô n g   t i
300|                     </div>
301|                   ) : (
302|                     list.map(product => (
303|                       <button
304|                         key={product.id}
305|                         onClick={() => handleSelect(type, product)}
306|                         style={{
307|                           display: 'flex', flexDirection: 'column', gap: '2px',
308|                           padding: '8px 10px', background: 'var(--bg-surface)',
309|                           border: '1px solid var(--border-subtle)', borderRadius: '6px',
310|                           cursor: 'pointer', textAlign: 'left', fontFamily: 'inherit',
311|                           color: 'var(--text-primary)', fontSize: '11px',
312|                           transition: 'all 0.1s',
313|                         }}
314|                         onMouseOver={e => { e.currentTarget.style.borderColor = cfg.color; e.currentTarget.sty...
315|                         onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-subtle)'; e.curre...
316|                       >
317|                         <div style={{ display: 'flex', justifyContent: 'space-between', alignItems: 'center' }}>
318|                           <span style={{ fontWeight: 600, fontSize: '11px', overflow: 'hidden', textOverflow: ...
319|                             {product.full_name || product.name}
320|                           </span>
321|                           <span style={{ color: cfg.color, fontWeight: 700, fontSize: '10px', flexShrink: 0, m...
  3 2 2 |                                                         { ( p r o d u c t . p r i c e _ v n d   | |   0 ) . t o L o c a l e S t r i n g ( ) }
323|                           </span>
324|                         </div>
325|                         <div style={{ display: 'flex', gap: '6px', flexWrap: 'wrap' }}>
326|                           {getSpecs(type, product).slice(0, 3).map((spec, si) => (
327|                             <span key={si} style={{
328|                               background: 'var(--bg-elevated)', padding: '1px 5px',
329|                               borderRadius: '3px', fontSize: '9px', color: 'var(--text-muted)',
330|                             }}>
331|                               {spec.label}: {spec.value}
332|                             </span>
333|                           ))}
334|                         </div>
335|                       </button>
336|                     ))
337|                   )}
338|                 </div>
339|               )}
340|             </div>
341|           );
342|         })}
343|       </div>
344|
345|       {/* Budget Summary */}
346|       <div style={{
347|         padding: '12px 16px', borderTop: '1px solid var(--border-subtle)',
348|         background: 'var(--bg-elevated)',
349|       }}>
```

```
  350|          <div style={{ display: 'flex', justifyContent: 'space-between', marginBottom: '4px', fontSize: '12px' }}>
     3 5 1 |                        < s p a n   s t y l e = { {   c o l o r :   ' v a r ( - - t e x t - m u t e d ) '   } } > { l a n g   = = =   ' e n '   ?
  352|            <span style={{ fontWeight: 700, color: store.totalPrice > store.budget ? 'var(--danger)' : 'var(--te...
     3 5 3 |                          { ( s t o r e . t o t a l P r i c e   | |   0 ) . t o L o c a l e S t r i n g ( ) }
  354|            </span>
  355|          </div>
  356|          <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: '12px' }}>
  357|            <span style={{ color: 'var(--text-muted)' }}>TDP</span>
  358|            <span style={{ fontWeight: 600, color: 'var(--text-primary)' }}>
  359|              {store.totalTdp}W
  360|            </span>
  361|          </div>
  362|        </div>
  363|      </div>
  364|    );
  365| }
  366|
```

File: components/PcCase.tsx (272 lines, 8.7 KB)

```
==========================================================================================
    1| 'use client';
    2|
    3| import { useRef, useMemo } from 'react';
    4| import { useFrame } from '@react-three/fiber';
    5| import { RoundedBox } from '@react-three/drei';
    6| import * as THREE from 'three';
    7| import { useAssemblyStore } from '@/lib/useStore';
    8|
    9| function GlassPanel({ position, size }: { position: [number, number, number]; size: [number, number] }) {
   10|   return (
   11|     <mesh position={position}>
   12|       <planeGeometry args={size} />
   13|       <meshPhysicalMaterial
   14|         color="#88ccff"
   15|         metalness={0.3}
   16|         roughness={0.05}
   17|         transparent
   18|         opacity={0.18}
   19|         envMapIntensity={1.5}
   20|         side={THREE.DoubleSide}
   21|       />
   22|     </mesh>
   23|   );
   24| }
   25|
   26| function CaseFan({ position, fanSpeed, rgbActive }: {
   27|   position: [number, number, number];
   28|   fanSpeed: number;
   29|   rgbActive: boolean;
   30| }) {
   31|   const bladeRef = useRef<THREE.Group>(null);
   32|   const hue = useMemo(() => Math.floor(Math.random() * 360), []);
   33|   const color1 = `hsl(${hue}, 100%, 60%)`;
   34|   const color2 = `hsl(${(hue + 60) % 360}, 100%, 60%)`;
   35|
   36|   useFrame((_, delta) => {
   37|     if (bladeRef.current && fanSpeed > 0) {
   38|       bladeRef.current.rotation.z += delta * fanSpeed * 25;
   39|     }
   40|   });
   41|
   42|   const ringColor = rgbActive ? color1 : '#445588';
   43|   const ringIntensity = rgbActive ? 1 : 0;
   44|
   45|   return (
   46|     <group position={position}>
   47|       <mesh>
   48|         <torusGeometry args={[0.14, 0.015, 8, 28]} />
   49|         <meshPhysicalMaterial
   50|           color={ringColor}
   51|           emissive={ringColor}
   52|           emissiveIntensity={ringIntensity}
   53|           metalness={0.5}
   54|           roughness={0.3}
   55|           transparent
   56|           opacity={rgbActive ? 1 : 0.4}
   57|         />
   58|       </mesh>
   59|       <group ref={bladeRef} position={[0, 0, 0]}>
   60|         {Array.from({ length: 7 }).map((_, i) => {
   61|           const angle = (i / 7) * Math.PI * 2;
   62|           return (
   63|             <mesh
   64|               key={i}
   65|               position={[Math.sin(angle) * 0.09, Math.cos(angle) * 0.09, 0]}
   66|               rotation={[0, 0, angle + Math.PI / 2]}
   67|             >
   68|               <planeGeometry args={[0.04, 0.18]} />
   69|               <meshPhysicalMaterial
   70|                 color={rgbActive ? '#667799' : '#445566'}
   71|                 metalness={0.6}
   72|                 roughness={0.3}
   73|                 transparent
   74|                 opacity={0.85}
   75|                 side={THREE.DoubleSide}
   76|               />
   77|             </mesh>
   78|           );
   79|         })}
   80|         <mesh>
   81|           <cylinderGeometry args={[0.025, 0.025, 0.008, 12]} />
   82|           <meshStandardMaterial color="#667799" metalness={0.5} roughness={0.3} />
   83|         </mesh>
   84|       </group>
   85|       {rgbActive && (
   86|         <>
   87|           <pointLight position={[0, 0, 0]} intensity={0.3} color={color1} distance={0.8} />
   88|           <pointLight position={[0, 0, 0]} intensity={0.15} color={color2} distance={0.5} />
   89|         </>
   90|       )}
   91|     </group>
   92|   );
   93| }
   94|
   95| function MotherboardTray() {
   96|   return (
   97|     <group position={[0, 0.015, 0]}>
   98|       <RoundedBox args={[2.2, 0.008, 1.8]} radius={0.005}>
   99|         <meshPhysicalMaterial
  100|           color="#1a3a2a"
  101|           roughness={0.8}
  102|           metalness={0.2}
  103|           envMapIntensity={0.4}
```

```
        />
      </RoundedBox>
      <mesh position={[0.5, 0.002, 0.35]}>
        <RoundedBox args={[0.5, 0.004, 0.5]} radius={0.005}>
          <meshStandardMaterial color="#c0c0c0" metalness={0.6} roughness={0.3} />
        </RoundedBox>
      </mesh>
      <mesh position={[-0.6, 0.002, 0.35]}>
        <RoundedBox args={[0.18, 0.004, 0.9]} radius={0.004}>
          <meshStandardMaterial color="#334455" roughness={0.7} />
        </RoundedBox>
      </mesh>
      <mesh position={[0, 0.002, -0.4]}>
        <RoundedBox args={[1.2, 0.004, 0.04]} radius={0.003}>
          <meshStandardMaterial color="#556677" roughness={0.5} metalness={0.3} />
        </RoundedBox>
      </mesh>
      <mesh position={[0.7, 0.002, -0.5]}>
        <RoundedBox args={[0.04, 0.004, 0.04]} radius={0.003}>
          <meshStandardMaterial color="#d0d0d0" metalness={0.7} roughness={0.2} />
        </RoundedBox>
      </mesh>
      <mesh position={[-0.2, 0.003, -0.6]}>
        <cylinderGeometry args={[0.06, 0.06, 0.004, 16]} />
        <meshStandardMaterial color="#d0d0d0" metalness={0.7} roughness={0.2} />
      </mesh>
      <mesh position={[0.3, 0.003, -0.6]}>
        <cylinderGeometry args={[0.06, 0.06, 0.004, 16]} />
        <meshStandardMaterial color="#d0d0d0" metalness={0.7} roughness={0.2} />
      </mesh>
      {Array.from({ length: 6 }).map((_, i) => {
        const x = -0.9 + (i % 3) * 0.9;
        const z = -0.7 + Math.floor(i / 3) * 1.4;
        return (
          <mesh key={i} position={[x, -0.002, z]}>
          <cylinderGeometry args={[0.012, 0.015, 0.006, 8]} />
          <meshStandardMaterial color="#aaaacc" metalness={0.7} roughness={0.2} />
        </mesh>
        );
      })}
      <mesh position={[0.5, 0.003, 0.35]}>
        <RoundedBox args={[0.35, 0.002, 0.35]} radius={0.003}>
          <meshStandardMaterial color="#999" metalness={0.4} roughness={0.4} />
        </RoundedBox>
      </mesh>
    </group>
  );
}

export default function PcCase() {
  const bootStatus = useAssemblyStore((s) => s.bootStatus);
  const fanSpeed = useAssemblyStore((s) => s.fanSpeed);
  const rgbActive = useAssemblyStore((s) => s.rgbActive);
  const isDefaultRgb = bootStatus === 'idle';

  const glowColor = useMemo(() => {
    if (bootStatus === 'success') return '#00ffcc';
    if (bootStatus === 'failed') return '#ff4466';
    return '#4488ff';
  }, [bootStatus]);

  const glowIntensity = useMemo(() => {
    if (bootStatus === 'success') return 1;
    if (bootStatus === 'failed') return 0.6;
    return 0.2;
  }, [bootStatus]);

  const caseColor = '#2a3a5c';
  const caseMetalness = 0.7;
  const caseRoughness = 0.25;

  return (
    <group position={[0, 0.35, 0]}>
      <RoundedBox args={[2.6, 1.3, 2.0]} radius={0.02}>
        <meshPhysicalMaterial
          color={caseColor}
          metalness={caseMetalness}
          roughness={caseRoughness}
          envMapIntensity={0.8}
        />
      </RoundedBox>

      <mesh position={[0, 0.66, 0]}>
        <RoundedBox args={[2.62, 0.015, 2.02]} radius={0.005}>
          <meshPhysicalMaterial color="#3a4a6c" metalness={0.7} roughness={0.2} />
        </RoundedBox>
      </mesh>

      <mesh position={[0, -0.66, 0]}>
        <RoundedBox args={[2.62, 0.015, 2.02]} radius={0.005}>
          <meshPhysicalMaterial color="#1a2a4a" metalness={0.5} roughness={0.3} />
        </RoundedBox>
      </mesh>

      <mesh position={[1.31, 0, 0]}>
        <planeGeometry args={[2.02, 1.3]} />
        <meshPhysicalMaterial
          color="#2a3a5c"
          metalness={0.6}
          roughness={0.3}
          side={THREE.DoubleSide}
        />
      </mesh>

      <GlassPanel position={[-1.305, 0, 0]} size={[1.98, 1.26] as [number, number]} />

      <mesh position={[0, 0, 1.01]}>
        <planeGeometry args={[2.5, 1.15]} />
        <meshPhysicalMaterial
          color="#3a4a6c"
          metalness={0.7}
          roughness={0.2}
          side={THREE.DoubleSide}
        />
      </mesh>

      <mesh position={[0, 0, -1.01]}>
        <planeGeometry args={[2.5, 1.15]} />
        <meshPhysicalMaterial
          color="#1a2a4a"
          metalness={0.4}
          roughness={0.5}
          side={THREE.DoubleSide}
        />
```

```
      </mesh>

      <mesh position={[0, 0.04, 1.015]}>
        <planeGeometry args={[0.35, 0.025]} />
        <meshPhysicalMaterial
          color={glowColor}
          transparent
          opacity={glowIntensity}
          emissive={glowColor}
          emissiveIntensity={glowIntensity * 3}
        />
      </mesh>

      <mesh position={[0, 0, 1.015]}>
        <planeGeometry args={[0.12, 0.012]} />
        <meshPhysicalMaterial
          color={glowColor}
          transparent
          opacity={glowIntensity * 0.5}
          emissive={glowColor}
          emissiveIntensity={glowIntensity}
        />
      </mesh>

      <pointLight position={[0, 0.3, 0.8]} intensity={glowIntensity} color={glowColor} distance={2.5} decay={0...

      <CaseFan position={[-0.7, 0.4, 1.01]} fanSpeed={fanSpeed || (isDefaultRgb ? 0.3 : 0)} rgbActive={rgbActi...
      <CaseFan position={[0.7, 0.4, 1.01]} fanSpeed={fanSpeed || (isDefaultRgb ? 0.3 : 0)} rgbActive={rgbActiv...
      <CaseFan position={[-0.7, -0.3, 1.01]} fanSpeed={fanSpeed || (isDefaultRgb ? 0.3 : 0)} rgbActive={rgbAct...
      <CaseFan position={[0.7, -0.3, 1.01]} fanSpeed={fanSpeed || (isDefaultRgb ? 0.3 : 0)} rgbActive={rgbActi...

      <MotherboardTray />

      <mesh position={[0, 0.2, 1.015]} rotation={[0, 0, 0]}>
        <boxGeometry args={[0.08, 0.01, 0.01]} />
        <meshPhysicalMaterial
          color="#ffffff"
          emissive={glowColor}
          emissiveIntensity={glowIntensity * 2}
        />
      </mesh>
    </group>
  );
}

```

File: components/PdfViewer.tsx (125 lines, 4.9 KB)

```
'use client'

import React, { useState, useCallback } from 'react'
import { ChevronLeft, ChevronRight, ZoomIn, ZoomOut, Loader2 } from 'lucide-react'

export default function PdfViewer({ url, title }: { url: string; title?: string }) {
  const [page, setPage] = useState(1)
  const [totalPages, setTotalPages] = useState(0)
  const [loading, setLoading] = useState(true)
  const [scale, setScale] = useState(1)

  if (!url) return null

  const isGoogleDrive = url.includes('drive.google.com')
  const isPdf = url.toLowerCase().endsWith('.pdf')

  let embedUrl = url
  if (isGoogleDrive) {
    const id = url.match(/\/d\/(.+?)\/(?:view|preview)/)?.[1] || url.match(/id=(.+?)(&|$)/)?.[1]
    if (id) {
      embedUrl = `https://docs.google.com/gview?url=https://drive.google.com/uc?export=download&id=${id}&embed...
    }
  }

  if (isGoogleDrive || !isPdf) {
    return (
      <div style={{ borderRadius: '12px', overflow: 'hidden', border: '1px solid var(--border-subtle)' }}>
        <iframe
          src={embedUrl}
          style={{ width: '100%', height: '80vh', border: 'none' }}
          title={title || 'PDF Viewer'}
          loading="lazy"
          allowFullScreen
        />
      </div>
    )
  }

  return (
    <div className="pdf-viewer" style={{
      borderRadius: '12px', overflow: 'hidden',
      border: '1px solid var(--border-subtle)',
      background: 'var(--bg-elevated)'
    }}>
      <div style={{
        display: 'flex', alignItems: 'center', justifyContent: 'space-between',
        padding: '8px 16px', background: 'var(--bg-surface)',
        borderBottom: '1px solid var(--border-subtle)'
      }}>
        <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
          <button
            onClick={() => setPage(p => Math.max(1, p - 1))}
            disabled={page <= 1}
            style={{
              padding: '6px 10px', borderRadius: '6px', border: '1px solid var(--border-default)',
              background: 'var(--bg-elevated)', cursor: page <= 1 ? 'not-allowed' : 'pointer',
              color: page <= 1 ? 'var(--text-muted)' : 'var(--text-primary)', opacity: page <= 1 ? 0.4 : 1
            }}
          >
            <ChevronLeft size={16} />
          </button>
          <span style={{ fontSize: '13px', fontWeight: 600, color: 'var(--text-primary)' }}>
            Trang {page} / {totalPages || '--'}
          </span>
          <button
            onClick={() => setPage(p => Math.min(totalPages, p + 1))}
            disabled={page >= totalPages}
            style={{
              padding: '6px 10px', borderRadius: '6px', border: '1px solid var(--border-default)',
              background: 'var(--bg-elevated)', cursor: page >= totalPages ? 'not-allowed' : 'pointer',
              color: page >= totalPages ? 'var(--text-muted)' : 'var(--text-primary)', opacity: page >= totalP...
            }}
          >
            <ChevronRight size={16} />
          </button>
```

```
  76|         </div>
  77|         <div style={{ display: 'flex', alignItems: 'center', gap: '8px' }}>
  78|           <button
  79|             onClick={() => setScale(s => Math.max(0.5, s - 0.25))}
  80|             style={{ padding: '6px 8px', borderRadius: '6px', border: 'none', background: 'transparent', curso...
  81|           >
  82|             <ZoomOut size={16} />
  83|           </button>
  84|           <span style={{ fontSize: '12px', color: 'var(--text-muted)', fontWeight: 600 }}>{Math.round(scale * ...
  85|           <button
  86|             onClick={() => setScale(s => Math.min(2, s + 0.25))}
  87|             style={{ padding: '6px 8px', borderRadius: '6px', border: 'none', background: 'transparent', curso...
  88|           >
  89|             <ZoomIn size={16} />
  90|           </button>
  91|         </div>
  92|       </div>
  93|       <div style={{
  94|         position: 'relative', width: '100%', minHeight: '300px',
  95|         display: 'flex', justifyContent: 'center', alignItems: 'flex-start',
  96|         padding: '16px', overflow: 'auto',
  97|         background: 'var(--bg-base)'
  98|       }}>
  99|         {loading && (
 100|           <div style={{
 101|             position: 'absolute', top: '50%', left: '50%', transform: 'translate(-50%, -50%)',
 102|             display: 'flex', flexDirection: 'column', alignItems: 'center', gap: '8px',
 103|             color: 'var(--text-muted)'
 104|           }}>
 105|             <Loader2 size={24} style={{ animation: 'spin 1s linear infinite' }} />
    1 0 6 |                         < s p a n   s t y l e = { {   f o n t S i z e :   ' 1 2 p x '   } } >   a n g   t £ i   P D F . . . < / s p a n >
 107|           </div>
 108|         )}
 109|         <iframe
 110|           src={`${embedUrl}#page=${page}`}
 111|           style={{
 112|             width: '100%', maxWidth: '800px', height: '70vh', border: 'none',
 113|             borderRadius: '8px', opacity: loading ? 0 : 1,
 114|             transition: 'opacity 0.3s'
 115|           }}
 116|           onLoad={() => setLoading(false)}
 117|           title={title || 'PDF'}
 118|           loading="lazy"
 119|         />
 120|       </div>
 121|       <style>{`@keyframes spin { to { transform: rotate(360deg) } }`}</style>
 122|     </div>
 123|   )
 124| }
 125|
```

File: components/price-compare/ChatInput.tsx (48 lines, 1.7 KB)

```
   1| 'use client'
   2|
   3| import { useState } from 'react'
   4| import { Send, Loader2 } from 'lucide-react'
   5|
   6| interface ChatInputProps {
   7|   onSend: (query: string) => void
   8|   loading: boolean
   9| }
  10|
  11| export default function ChatInput({ onSend, loading }: ChatInputProps) {
  12|   const [value, setValue] = useState('')
  13|
  14|   function handleSubmit() {
  15|     if (!value.trim() || loading) return
  16|     onSend(value.trim())
  17|     setValue('')
  18|   }
  19|
  20|   return (
  21|     <div style={{ display: 'flex', gap: '8px', padding: '12px', borderRadius: '16px', background: 'var(--bg-el...
  22|       <input
  23|         value={value}
  24|         onChange={e => setValue(e.target.value)}
  25|         onKeyDown={e => e.key === 'Enter' && handleSubmit()}
    2 6 |                   p l a c e h o l d e r = " N h - p   t ê n   l i n h   k i Ç n   ( v í   d ầ :   S o   s á n h   g i á   C P U   i 5   1 2 4 0 0
  27|         disabled={loading}
  28|         style={{
  29|           flex: 1, padding: '12px 16px', borderRadius: '12px', border: 'none',
  30|           background: 'var(--bg-surface)', color: 'var(--text-primary)',
  31|           fontSize: '14px', outline: 'none', fontFamily: 'inherit'
  32|         }}
  33|       />
  34|       <button onClick={handleSubmit} disabled={loading || !value.trim()}
  35|         style={{
  36|           padding: '12px 20px', borderRadius: '12px', border: 'none',
  37|           background: loading ? 'var(--text-muted)' : 'var(--brand-primary)',
  38|           color: '#000', cursor: loading ? 'not-allowed' : 'pointer',
  39|           fontWeight: 700, fontSize: '14px', display: 'flex', alignItems: 'center', gap: '6px',
  40|           fontFamily: 'inherit'
  41|         }}>
  42|         {loading ? <Loader2 size={16} style={{ animation: 'spin 1s linear infinite' }} /> : <Send size={16} />}
    4 3 |                   { l o a d i n g   ?   '   a n g   t r a . . . '   :   ' T r a   c é u ' }
  44|       </button>
  45|     </div>
  46|   )
  47| }
  48|
```

File: components/price-compare/ChatMessage.tsx (88 lines, 3.0 KB)

```
   1| 'use client'
   2|
   3| import { AlertTriangle } from 'lucide-react'
   4| import ComponentCard from './ComponentCard'
   5| import PriceTable from './PriceTable'
   6|
   7| interface PriceInfo {
   8|   site: string
   9|   price: string
  10|   link: string
  11|   rating: number
  12| }
  13|
  14| interface Recommended {
  15|   site: string
  16|   price: string
  17|   link: string
```

```
 18| }
 19|
 20| interface Component {
 21|   id: string
 22|   exact_name: string
 23|   estimated_price: string
 24|   image_url: string
 25| }
 26|
 27| interface ChatMessageProps {
 28|   role: 'user' | 'assistant'
 29|   content: string
 30|   components?: Component[]
 31|   prices?: PriceInfo[]
 32|   recommended?: Recommended
 33|   onComponentClick?: (component: Component) => void
 34|   error?: boolean
 35| }
 36|
 37| export default function ChatMessage({ role, content, components, prices, recommended, onComponentClick, error ...
 38|   const isUser = role === 'user'
 39|
 40|   if (error) {
 41|     return (
 42|       <div style={{ display: 'flex', gap: '12px', padding: '16px', borderRadius: '14px', background: 'rgba(239...
 43|         <AlertTriangle size={20} style={{ color: '#ef4444', flexShrink: 0, marginTop: '2px' }} />
 44|         <div
     4 5 |                       < d i v   s t y l e = { {   f o n t S i z e :   ' 1 4 p x ' ,   f o n t W e i g h t :   6 0 0 ,   c o l o r :   ' # e f 4 4
 46|           <p style={{ fontSize: '13px', color: 'var(--text-muted)', margin: 0, lineHeight: '1.5' }}>{content}</p>
 47|         </div>
 48|       </div>
 49|     )
 50|   }
 51|
 52|   return (
 53|     <div style={{
 54|       display: 'flex', flexDirection: 'column', gap: '12px',
 55|       padding: isUser ? '12px 16px' : '16px',
 56|       borderRadius: '14px',
 57|       background: isUser ? 'var(--bg-surface)' : 'transparent',
 58|       border: isUser ? '1px solid var(--border-default)' : 'none',
 59|       maxWidth: isUser ? '80%' : '100%',
 60|       alignSelf: isUser ? 'flex-end' : 'flex-start'
 61|     }}>
 62|       {!isUser && (
 63|         <div style={{ fontSize: '12px', fontWeight: 700, color: 'var(--brand-primary)', marginBottom: '4px', d...
 64|           <span style={{ width: '20px', height: '20px', borderRadius: '6px', background: 'var(--brand-primary)...
 65|           Chuyên gia PC
 66|         </div>
 67|       )}
 68|       <p style={{ fontSize: '14px', color: 'var(--text-primary)', margin: 0, lineHeight: '1.6', whiteSpace: 'p...
 69|       {components && components.length > 0 && (
 70|         <div style={{ display: 'grid', gridTemplateColumns: `repeat(${Math.min(components.length, 3)}, 1fr)`, ...
 71|           {components.map((comp) => (
 72|             <ComponentCard
 73|               key={comp.id}
 74|               exact_name={comp.exact_name}
 75|               estimated_price={comp.estimated_price}
 76|               image_url={comp.image_url}
 77|               onClick={() => onComponentClick?.(comp)}
 78|             />
 79|           ))}
 80|         </div>
 81|       )}
 82|       {prices && prices.length > 0 && recommended && (
 83|         <PriceTable prices={prices} recommended={recommended} />
 84|       )}
 85|     </div>
 86|   )
 87| }
 88|
```

File: components/price-compare/ComponentCard.tsx (49 lines, 2.1 KB)

```
  1| 'use client'
  2|
  3| import { ImageIcon } from 'lucide-react'
  4|
  5| interface ComponentCardProps {
  6|   exact_name: string
  7|   estimated_price: string
  8|   image_url: string
  9|   onClick: () => void
 10| }
 11|
 12| export default function ComponentCard({ exact_name, estimated_price, image_url, onClick }: ComponentCardProps) {
 13|   return (
 14|     <div onClick={onClick}
 15|       style={{
 16|         padding: '16px', borderRadius: '14px', cursor: 'pointer',
 17|         background: 'var(--bg-elevated)', border: '1px solid var(--border-default)',
 18|         color: 'var(--text-primary)', transition: 'all 0.2s'
 19|       }}
 20|       onMouseOver={e => { e.currentTarget.style.borderColor = 'var(--brand-primary)'; e.currentTarget.style.tr...
 21|       onMouseOut={e => { e.currentTarget.style.borderColor = 'var(--border-default)'; e.currentTarget.style.tr...
 22|       <div style={{
 23|         width: '100%', height: '100px', borderRadius: '10px', marginBottom: '10px',
 24|         background: 'var(--bg-base)', display: 'flex', alignItems: 'center', justifyContent: 'center',
 25|         overflow: 'hidden'
 26|       }}>
 27|         <img
 28|           src={image_url}
 29|           alt={exact_name}
 30|           style={{ width: '100%', height: '100%', objectFit: 'cover' }}
 31|           onError={(e: any) => {
 32|             e.target.style.display = 'none'
 33|             e.target.parentElement.innerHTML = '<div style="display:flex;align-items:center;justify-content:ce...
 34|           }}
 35|         />
 36|       </div>
 37|       <div style={{ fontSize: '13px', fontWeight: 700, marginBottom: '4px', lineHeight: '1.3', display: '-webk...
 38|         {exact_name}
 39|       </div>
 40|       <div style={{ fontSize: '16px', fontWeight: 800, color: 'var(--brand-primary)' }}>
 41|         {estimated_price}
 42|       </div>
 43|       <div style={{ marginTop: '8px', fontSize: '11px', color: 'var(--text-muted)', display: 'flex', alignItem...
     4 4 |                   < I m a g e I c o n   s i z e = { 1 2 }   / >   B ¥ m     Á   x e m   £ n h
 45|       </div>
 46|     </div>
 47|   )
 48| }
 49|
```

File: components/price-compare/ImageModal.tsx (41 lines, 1.5 KB)

```
'use client'

import { X } from 'lucide-react'

interface ImageModalProps {
  component: { exact_name: string; image_url: string } | null
  onClose: () => void
}

export default function ImageModal({ component, onClose }: ImageModalProps) {
  if (!component) return null

  return (
    <div className="fixed inset-0 z-[9999] flex items-center justify-center p-4"
      onClick={onClose}
      style={{ background: 'rgba(0,0,0,0.75)' }}>
      <div className="relative max-w-2xl w-full rounded-3xl overflow-hidden shadow-2xl"
        onClick={e => e.stopPropagation()}
        style={{ background: 'var(--bg-surface)', border: '1px solid var(--border-default)' }}>
        <div className="flex items-center justify-between p-4 border-b" style={{ borderColor: 'var(--border-de...
          <h3 className="font-bold text-sm truncate" style={{ color: 'var(--text-primary)' }}>{component.exact...
          <button onClick={onClose}
            className="p-2 rounded-xl transition-colors" style={{ color: 'var(--text-muted)' }}>
            <X size={20} />
          </button>
        </div>
        <div className="relative w-full" style={{ height: '400px' }}>
          <img
            src={component.image_url}
            alt={component.exact_name}
            style={{ width: '100%', height: '100%', objectFit: 'contain' }}
            onError={(e: any) => {
              e.target.src = 'https://images.unsplash.com/photo-1591799264318-7e6ef8ddb7ea?w=500&q=80'
            }}
          />
        </div>
      </div>
    </div>
  )
}

```

File: components/price-compare/PriceTable.tsx (304 lines, 9.7 KB)

```
'use client'

import { useEffect } from 'react'
import { motion } from 'framer-motion'
import { CheckCircle, ExternalLink, Star, RefreshCw } from 'lucide-react'

interface PriceInfo {
  site: string
  price: string
  link: string
  rating: number
}

interface Recommended {
  site: string
  price: string
  link: string
}

interface PriceTableProps {
  prices: PriceInfo[]
  recommended: Recommended
  onRefresh?: () => void
  isUpdating?: boolean
}

const SITE_COLORS: Record<string, { bg: string; text: string; label: string }> = {
  'GearVN': { bg: '#fff3e0', text: '#e65100', label: 'GearVN' },
  'Phong Vi': { bg: '#e3f2fd', text: '#0d47a1', label: 'Phong Vi' },
  'An Phát': { bg: '#ffebee', text: '#b71c1c', label: 'An Phát' },
  'Hoàng Hà': { bg: '#e8f5e9', text: '#1b5e20', label: 'Hoàng Hà' },
  'FPT Shop': { bg: '#fff8e1', text: '#f57f17', label: 'FPT Shop' },
}

export default function PriceTable({ prices, recommended, onRefresh, isUpdating }: PriceTableProps) {
  const getNumericPrice = (priceStr: string): number => {
    const num = priceStr.replace(/[^0-9]/g, '')
    return parseInt(num, 10) || 1
  }

  const numericPrices = prices.map(p => getNumericPrice(p.price))
  const maxPrice = Math.max(...numericPrices)
  const minPrice = Math.min(...numericPrices)
  const totalPrice = numericPrices.reduce((a, b) => a + b, 0)
  const avgPrice = Math.round(totalPrice / numericPrices.length)

  useEffect(() => {
    if (!onRefresh) return
    const interval = setInterval(() => {
      onRefresh()
    }, 30000)
    return () => clearInterval(interval)
  }, [onRefresh])

  return (
    <motion.div
      initial={{ opacity: 0, y: 10 }}
      animate={{ opacity: 1, y: 0 }}
      style={{
        marginTop: '16px',
        borderRadius: '16px',
        overflow: 'hidden',
        border: '1px solid var(--border-default)',
        background: 'var(--bg-elevated)',
      }}
    >
      <div style={{
        padding: '12px 16px',
        background: 'var(--bg-surface)',
        borderBottom: '1px solid var(--border-default)',
        fontSize: '13px',
        fontWeight: 700,
        color: 'var(--text-primary)',
        display: 'flex',
```

```
 75|         alignItems: 'center',
 76|         gap: '8px',
 77|       }}>
    7 8 |                 < E x t e r n a l L i n k   s i z e = { 1 6 }   / >   S o   s á n h   g i á   t ë   c á c   t r a n g   t h ° ¡ n g   m ¡ i
 79|       </div>
 80|
 81|       <div style={{ padding: '12px' }}>
 82|         {prices.map((item, i) => {
 83|           const numericPrice = getNumericPrice(item.price)
 84|           const barWidth = (numericPrice / maxPrice) * 100
 85|           const isBest = numericPrice === minPrice
 86|           const siteStyle = SITE_COLORS[item.site] || { bg: '#f5f5f5', text: '#333', label: item.site }
 87|
 88|           return (
 89|             <motion.div
 90|               key={item.site}
 91|               initial={{ opacity: 0, x: -10 }}
 92|               animate={{ opacity: 1, x: 0 }}
 93|               transition={{ delay: i * 0.1 }}
 94|               style={{
 95|                 padding: '10px 12px',
 96|                 borderRadius: '12px',
 97|                 marginBottom: '8px',
 98|                 background: isBest ? 'rgba(34,197,94,0.08)' : 'transparent',
 99|                 border: isBest ? '1px solid rgba(34,197,94,0.3)' : '1px solid transparent',
100|                 position: 'relative',
101|               }}
102|             >
103|               {isBest && (
104|                 <div style={{
105|                   position: 'absolute',
106|                   top: '-8px',
107|                   right: '12px',
108|                   background: '#22c55e',
109|                   color: '#fff',
110|                   fontSize: '10px',
111|                   fontWeight: 800,
112|                   padding: '2px 8px',
113|                   borderRadius: '8px',
114|                   display: 'flex',
115|                   alignItems: 'center',
116|                   gap: '4px',
117|                 }}>
   1 1 8 |                                   < C h e c k C i r c l e   s i z e = { 1 0 }   / >   G i á   t Ñ t   n h ¥ t
119|                 </div>
120|               )}
121|
122|               <div style={{ display: 'flex', alignItems: 'center', gap: '12px', marginBottom: '8px' }}>
123|                 <a
124|                   href={item.link}
125|                   target="_blank"
126|                   rel="noopener noreferrer"
127|                   style={{
128|                     textDecoration: 'none',
129|                     padding: '4px 12px',
130|                     borderRadius: '8px',
131|                     fontSize: '12px',
132|                     fontWeight: 700,
133|                     background: siteStyle.bg,
134|                     color: siteStyle.text,
135|                     whiteSpace: 'nowrap',
136|                     flexShrink: 0,
137|                   }}
138|                 >
139|                   {siteStyle.label}
140|                 </a>
141|
142|                 <div style={{
143|                   fontSize: '16px',
144|                   fontWeight: 800,
145|                   color: '#22c55e',
146|                   flexShrink: 0,
147|                 }}>
148|                   {item.price}
149|                 </div>
150|
151|                 <div style={{
152|                   display: 'flex',
153|                   alignItems: 'center',
154|                   gap: '4px',
155|                   fontSize: '11px',
156|                   color: 'var(--text-muted)',
157|                   marginLeft: 'auto',
158|                 }}>
159|                   <Star size={12} style={{ color: '#f59e0b', fill: '#f59e0b' }} />
160|                   {item.rating}
161|                 </div>
162|               </div>
163|
164|               <div style={{
165|                 height: '6px',
166|                 borderRadius: '3px',
167|                 background: 'var(--bg-base)',
168|                 overflow: 'hidden',
169|               }}>
170|                 <motion.div
171|                   initial={{ width: 0 }}
172|                   animate={{ width: `${barWidth}%` }}
173|                   transition={{ duration: 0.5, delay: i * 0.1 }}
174|                   style={{
175|                     height: '100%',
176|                     borderRadius: '3px',
177|                     background: isBest
178|                       ? 'linear-gradient(90deg, #22c55e, #16a34a)'
179|                       : 'linear-gradient(90deg, var(--brand-primary), var(--brand-primary))',
180|                     opacity: isBest ? 1 : 0.4,
181|                   }}
182|                 />
183|               </div>
184|
185|               <a
186|                 href={item.link}
187|                 target="_blank"
188|                 rel="noopener noreferrer"
189|                 style={{
190|                   display: 'inline-flex',
191|                   alignItems: 'center',
192|                   gap: '4px',
193|                   marginTop: '6px',
194|                   fontSize: '11px',
195|                   color: 'var(--brand-primary)',
196|                   textDecoration: 'none',
197|                 }}
198|               >
```

```
  199|                                <ExternalLink size={10} />  Mß trang
  200|              </a>
  201|            </motion.div>
  202|          )
  203|        })}
  204|      </div>
  205|
  206|      {/* Average Price Bar */}
  207|      <div style={{
  208|        padding: '10px 16px',
  209|        borderTop: '1px solid var(--border-default)',
  210|        borderBottom: '1px solid var(--border-default)',
  211|        background: 'rgba(34,197,94,0.04)',
  212|        display: 'flex',
  213|        alignItems: 'center',
  214|        justifyContent: 'space-between',
  215|        gap: '8px',
  216|        fontSize: '13px',
  217|      }}>
  218|        <span style={{ color: 'var(--text-muted)' }}>
  219|          Giá trung bình:{' '}
  220|          <strong style={{ color: '#22c55e', fontSize: '15px' }}>
  221|                          {avgPrice.toLocaleString('vi-VN')} «
  222|          </strong>
  223|        </span>
  224|        <span style={{ color: var(--text-muted)' }}>
  225|                        Tổng giá: {'  '}
  226|          <strong style={{ color: '#22c55e', fontSize: '15px' }}>
  227|                          {totalPrice.toLocaleString('vi-VN')} «
  228|          </strong>
  229|        </span>
  230|        {onRefresh && (
  231|          <motion.button
  232|            whileHover={{ scale: 1.05 }}
  233|            whileTap={{ scale: 0.95 }}
  234|            onClick={onRefresh}
  235|            disabled={isUpdating}
  236|            style={{
  237|              display: 'inline-flex',
  238|              alignItems: 'center',
  239|              gap: '6px',
  240|              padding: '6px 16px',
  241|              borderRadius: '8px',
  242|              border: 'none',
  243|              background: isUpdating ? 'rgba(34,197,94,0.4)' : '#22c55e',
  244|              color: '#fff',
  245|              fontSize: '12px',
  246|              fontWeight: 700,
  247|              cursor: isUpdating ? 'not-allowed' : 'pointer',
  248|              fontFamily: 'inherit',
  249|              transition: 'all 0.2s',
  250|            }}
  251|          >
  252|            <RefreshCw size={14} style={{ animation: isUpdating ? 'spin 1s linear infinite' : 'none' }} />
  253|                          {isUpdating ? 'Đang cập nhật...' : 'Thay thế'}
  254|          </motion.button>
  255|        )}
  256|      </div>
  257|
  258|      {recommended && (
  259|        <div style={{
  260|          padding: '12px 16px',
  261|          borderTop: '1px solid var(--border-default)',
  262|          background: 'rgba(34,197,94,0.05)',
  263|          display: 'flex',
  264|          alignItems: 'center',
  265|          gap: '8px',
  266|          fontSize: '13px',
  267|        }}>
  268|          <CheckCircle size={16} style={{ color: '#22c55e', flexShrink: 0 }} />
  269|          <span style={{ color: 'var(--text-muted)' }}>
  270|            <strong style={{ color: 'var(--text-primary)' }}>Khuyên dùng:</strong>{' '}
  271|                          Mua tại <strong style={{ color: '#22c55e' }}>{recommended.price}</strong>
  272|          </span>
  273|          <a
  274|            href={recommended.link}
  275|            target="_blank"
  276|            rel="noopener noreferrer"
  277|            style={{
  278|              marginLeft: 'auto',
  279|              padding: '4px 12px',
  280|              borderRadius: '8px',
  281|              background: 'var(--brand-primary)',
  282|              color: '#000',
  283|              fontSize: '11px',
  284|              fontWeight: 700,
  285|              textDecoration: 'none',
  286|              whiteSpace: 'nowrap',
  287|            }}
  288|          >
  289|                          ¿n trang
  290|          </a>
  291|        </div>
  292|      )}
  293|
  294|      <style jsx>{`
  295|        @keyframes spin {
  296|          from { transform: rotate(0deg); }
  297|          to { transform: rotate(360deg); }
  298|        }
  299|      `}</style>
  300|    </motion.div>
  301|  )
  302| }
  303|
  304|
```

File: components/profile/AvatarUpload.tsx (95 lines, 3.2 KB)

```
==========================================================================================
    1| 'use client'
    2|
    3| import React, { useState } from 'react'
    4| import { createBrowserClient } from '@supabase/ssr'
    5| import { User, Camera, Loader } from 'lucide-react'
    6| import { toast } from 'react-hot-toast'
    7|
    8| interface Props {
    9|   userId: string
   10|   currentAvatarUrl?: string
   11|   onUploadSuccess: (url: string) => void
   12| }
   13|
   14| export function AvatarUpload({ userId, currentAvatarUrl, onUploadSuccess }: Props) {
```

```
  15|   const [uploading, setUploading] = useState(false)
  16|   const supabase = createBrowserClient(
  17|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
  18|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
  19|   )
  20|
  21|   const handleFileChange = async (e: React.ChangeEvent<HTMLInputElement>) => {
  22|     const file = e.target.files?.[0]
  23|     if (!file) return
  24|
  25|     if (!file.type.startsWith('image/')) {
    2 6 |               t o a s t . e r r o r ( ' C h É   c h ¥ p   n h - n   £ n h    ¡ i   d i Ç n    Ë n h   d ¡ n g   £ n h   ( J P E G / P N G / G I
  27|       return
  28|     }
  29|     if (file.size > 2 * 1024 * 1024) {
    3 0 |               t o a s t . e r r o r ( ' K í c h   t h ° Û c   £ n h   t Ñ i    a   2 M B . ' )
  31|       return
  32|     }
  33|
  34|     setUploading(true)
  35|     try {
  36|       const ext = file.name.split('.').pop()
  37|       const path = `${userId}/avatar-${Date.now()}.${ext}`
  38|
  39|       const { error: uploadError } = await supabase.storage
  40|         .from('avatars')
  41|         .upload(path, file, { upsert: true })
  42|
  43|       if (uploadError) throw uploadError
  44|
  45|       const { data } = supabase.storage.from('avatars').getPublicUrl(path)
  46|       const publicUrl = data.publicUrl
  47|
  48|       const { error: dbError } = await supabase
  49|         .from('profiles')
  50|         .update({ avatar_url: publicUrl })
  51|         .eq('id', userId)
  52|
  53|       if (dbError) throw dbError
  54|
  55|       onUploadSuccess(publicUrl)
    5 6 |               t o a s t . s u c c e s s ( ' C - p   n h - t   £ n h    ¡ i   d i Ç n   t h à n h   c ô n g ! ' )
  57|     } catch (err: any) {
    5 8 |               t o a s t . e r r o r ( e r r . m e s s a g e   | |   ' L × i   k h i   t £ i   £ n h   l ê n . ' )
  59|     } finally {
  60|       setUploading(false)
  61|     }
  62|   }
  63|
  64|   return (
  65|     <div className="flex flex-col items-center gap-4">
  66|       <div className="relative group">
  67|         <div className="w-24 h-24 rounded-full overflow-hidden flex items-center justify-center" style={{ bord...
  68|           {currentAvatarUrl ? (
  69|             <img
  70|               src={currentAvatarUrl}
  71|               alt="Avatar"
  72|               className="w-full h-full object-cover"
  73|               referrerPolicy="no-referrer"
  74|             />
  75|           ) : (
  76|             <User size={40} style={{ color: 'var(--text-muted)' }} />
  77|           )}
  78|         </div>
  79|
  80|         <label className="absolute bottom-0 right-0 p-2 rounded-full cursor-pointer hover:opacity-90 transitio...
  81|           {uploading ? <Loader size={14} className="animate-spin" /> : <Camera size={14} />}
  82|           <input
  83|             type="file"
  84|             accept="image/*"
  85|             onChange={handleFileChange}
  86|             disabled={uploading}
  87|             className="hidden"
  88|           />
  89|         </label>
  90|       </div>
    9 1 |               < s p a n   c l a s s N a m e = " t e x t - [ 1 0 p x ]   f o n t - b o l d "   s t y l e = { {   c o l o r :   ' v a r ( - - t e x
  92|     </div>
  93|   )
  94| }
  95|
```

File: components/profile/PreferencesForm.tsx (129 lines, 5.1 KB)

```
   1| 'use client'
   2|
   3| import React, { useState } from 'react'
   4| import { updatePreferences } from '@/actions/profile'
   5| import { toast } from 'react-hot-toast'
   6|
   7| interface Props {
   8|   preferences: {
   9|     email_notifications: boolean
  10|     push_notifications: boolean
  11|     weekly_digest: boolean
  12|     theme: 'dark' | 'light' | 'system'
  13|     language: 'vi' | 'en'
  14|   }
  15| }
  16|
  17| export function PreferencesForm({ preferences }: Props) {
  18|   const [emailNotif, setEmailNotif] = useState(preferences.email_notifications)
  19|   const [pushNotif, setPushNotif] = useState(preferences.push_notifications)
  20|   const [weeklyDigest, setWeeklyDigest] = useState(preferences.weekly_digest)
  21|   const [theme, setTheme] = useState<'dark' | 'light' | 'system'>(preferences.theme || 'dark')
  22|   const [language, setLanguage] = useState<'vi' | 'en'>(preferences.language || 'vi')
  23|   const [saving, setSaving] = useState(false)
  24|
  25|   const handleSubmit = async (e: React.FormEvent) => {
  26|     e.preventDefault()
  27|     setSaving(true)
  28|     try {
  29|       await updatePreferences({
  30|         email_notifications: emailNotif,
  31|         push_notifications: pushNotif,
  32|         weekly_digest: weeklyDigest,
  33|         theme,
  34|         language
  35|       })
    3 6 |               t o a s t . s u c c e s s ( '   ã   l ° u   c ¥ u   h ì n h   c à i    · t ! ' )
  37|     } catch (err: any) {
    3 8 |               t o a s t . e r r o r ( ' L × i   k h i   l ° u   c à i    · t . ' )
  39|     } finally {
```

```
  40|      setSaving(false)
  41|    }
  42|  }
  43|
  44|  return (
  45|    <form onSubmit={handleSubmit} className="space-y-6">
  46|
  47|      {/* Notifications toggles */}
  48|      <div className="space-y-4">
    4 9 |                  < h 4   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c a s e   t r a c k i n
  50|
  51|        <label className="flex items-center justify-between p-3 bg-[#1e202f]/30 border border-gray-850 rounded...
  52|          <div>
  53|            <p className="text-xs font-semibold text-white">Thông báo qua Email</p>
    5 4 |                          < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0 " > N h - n   t h ô n g   b á o   c h ¥ m
  55|          </div>
  56|          <input
  57|            type="checkbox"
  58|            checked={emailNotif}
  59|            onChange={(e) => setEmailNotif(e.target.checked)}
  60|            className="w-4 h-4 rounded accent-[#00d4aa]"
  61|          />
  62|        </label>
  63|
  64|        <label className="flex items-center justify-between p-3 bg-[#1e202f]/30 border border-gray-850 rounded...
  65|          <div>
    6 6 |                          < p   c l a s s N a m e = " t e x t - x s   f o n t - s e m i b o l d   t e x t - w h i t e " > T h ô n g   b á o   @
    6 7 |                          < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0 " > H i Ã n   t h Ë   t h ô n g   b á o
  68|          </div>
  69|          <input
  70|            type="checkbox"
  71|            checked={pushNotif}
  72|            onChange={(e) => setPushNotif(e.target.checked)}
  73|            className="w-4 h-4 rounded accent-[#00d4aa]"
  74|          />
  75|        </label>
  76|
  77|        <label className="flex items-center justify-between p-3 bg-[#1e202f]/30 border border-gray-850 rounded...
  78|          <div>
    7 9 |                          < p   c l a s s N a m e = " t e x t - x s   f o n t - s e m i b o l d   t e x t - w h i t e " > B á o   c á o   h Í c
    8 0 |                          < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0 " > N h - n   b á o   c á o   t ó m   t
  81|          </div>
  82|          <input
  83|            type="checkbox"
  84|            checked={weeklyDigest}
  85|            onChange={(e) => setWeeklyDigest(e.target.checked)}
  86|            className="w-4 h-4 rounded accent-[#00d4aa]"
  87|          />
  88|        </label>
  89|      </div>
  90|
  91|      {/* Theme and Language grid */}
  92|      <div className="grid grid-cols-1 sm:grid-cols-2 gap-4">
  93|        <div>
    9 4 |                      < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  95|          <select
  96|            value={theme}
  97|            onChange={(e) => setTheme(e.target.value as any)}
  98|            className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
  99|          >
    1 0 0 |                          < o p t i o n   v a l u e = " d a r k " >Ø<ß   D a r k   M o d e < / o p t i o n >
    1 0 1 |                          < o p t i o n   v a l u e = " l i g h t " >& þ   L i g h t   M o d e < / o p t i o n >
    1 0 2 |                          < o p t i o n   v a l u e = " s y s t e m " >Ø=Ý¥þ   S y s t e m   D e f a u l t < / o p t i o n >
 103|          </select>
 104|        </div>
 105|
 106|        <div>
    1 0 7 |                      < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
 108|          <select
 109|            value={language}
 110|            onChange={(e) => setLanguage(e.target.value as any)}
 111|            className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
 112|          >
    1 1 3 |                          < o p t i o n   v a l u e = " v i " >Ø<ÝüØ<Ýó   T i ¿ n g   V i Ç t < / o p t i o n >
    1 1 4 |                          < o p t i o n   v a l u e = " e n " >Ø<ÝüØ<Ýø   E n g l i s h < / o p t i o n >
 115|          </select>
 116|        </div>
 117|      </div>
 118|
 119|      <button
 120|        type="submit"
 121|        disabled={saving}
 122|        className="w-full py-3 bg-[#00d4aa] text-[#0d0e13] font-bold text-xs rounded-xl hover:opacity-90 trans...
 123|      >
    1 2 4 |                  { s a v i n g   ?   '   a n g   l ° u . . . '   :   ' L ° u   c ¥ u   h ì n h ' }
 125|      </button>
 126|    </form>
 127|  )
 128| }
 129|
```

File: components/profile/profile/AvatarUpload.tsx (100 lines, 3.2 KB)

```
   1| 'use client'
   2|
   3| import React, { useState } from 'react'
   4| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
   5| import { User, Camera, Loader } from 'lucide-react'
   6| import { toast } from 'react-hot-toast'
   7|
   8| interface Props {
   9|   userId: string
  10|   currentAvatarUrl?: string
  11|   onUploadSuccess: (url: string) => void
  12| }
  13|
  14| export function AvatarUpload({ userId, currentAvatarUrl, onUploadSuccess }: Props) {
  15|   const [uploading, setUploading] = useState(false)
  16|   const supabase = createClientComponentClient()
  17|
  18|   const handleFileChange = async (e: React.ChangeEvent<HTMLInputElement>) => {
  19|     const file = e.target.files?.[0]
  20|     if (!file) return
  21|
  22|     // 1. Client-side Validation (Rule 3)
  23|     if (!file.type.startsWith('image/')) {
    2 4 |                  t o a s t . e r r o r ( ' C h É   c h ¥ p   n h - n   £ n h   ¡ i   d i Ç n   Ë n h   d ¡ n g   £ n h   ( J P E G / P N G / G I
  25|       return
  26|     }
  27|     if (file.size > 2 * 1024 * 1024) {
    2 8 |                  t o a s t . e r r o r ( ' K í c h   t h ° Û c   £ n h   t Ñ i   a   2 M B . ' )
  29|       return
  30|     }
```

```
  31|
  32|     setUploading(true)
  33|     try {
  34|       const ext = file.name.split('.').pop()
  35|       const path = `${userId}/avatar-${Date.now()}.${ext}`
  36|
  37|       // 2. Upload to storage bucket 'avatars'
  38|       const { error: uploadError } = await supabase.storage
  39|         .from('avatars')
  40|         .upload(path, file, { upsert: true })
  41|
  42|       if (uploadError) throw uploadError
  43|
  44|       // 3. Get Public URL
  45|       const { data } = supabase.storage.from('avatars').getPublicUrl(path)
  46|       const publicUrl = data.publicUrl
  47|
  48|       // 4. Update Profile Table
  49|       const { error: dbError } = await supabase
  50|         .from('profiles')
  51|         .update({ avatar_url: publicUrl })
  52|         .eq('id', userId)
  53|
  54|       if (dbError) throw dbError
  55|
  56|       onUploadSuccess(publicUrl)
    5 7 |             t o a s t . s u c c e s s ( ' C - p   n h - t   £ n h    ¡ i   d i Ç n   t h à n h   c ô n g ! ' )
  58|     } catch (err: any) {
    5 9 |             t o a s t . e r r o r ( e r r . m e s s a g e   | |   ' L × i   k h i   t £ i   £ n h   l ê n . ' )
  60|     } finally {
  61|       setUploading(false)
  62|     }
  63|   }
  64|
  65|   return (
  66|     <div className="flex flex-col items-center gap-4">
  67|       <div className="relative group">
  68|         <div className="w-24 h-24 rounded-full overflow-hidden border-2 border-gray-800 bg-[#1e202f]/50 flex i...
  69|           {currentAvatarUrl ? (
  70|             <img
  71|               src={currentAvatarUrl}
  72|               alt="Avatar"
  73|               className="w-full h-full object-cover"
  74|               referrerPolicy="no-referrer" // Rule 3
  75|             />
  76|           ) : (
  77|             <User size={40} className="text-gray-600" />
  78|           )}
  79|         </div>
  80|
  81|         {/* Floating Upload Trigger */}
  82|         <label className="
  83|           absolute bottom-0 right-0 p-2 bg-[#00d4aa] text-[#0d0e13] rounded-full cursor-pointer
  84|           hover:opacity-90 transition-opacity shadow-lg flex items-center justify-center
  85|         ">
  86|           {uploading ? <Loader size={14} className="animate-spin" /> : <Camera size={14} />}
  87|           <input
  88|             type="file"
  89|             accept="image/*"
  90|             onChange={handleFileChange}
  91|             disabled={uploading}
  92|             className="hidden"
  93|           />
  94|         </label>
  95|       </div>
    9 6 |             < s p a n   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0   f o n t - b o l d " > C h ¥ p   n h - n   J P
  97|     </div>
  98|   )
  99| }
 100|
```

File: components/profile/profile/PreferencesForm.tsx (129 lines, 5.1 KB)

```
==========================================================================================
   1| 'use client'
   2|
   3| import React, { useState } from 'react'
   4| import { updatePreferences } from '@/actions/profile'
   5| import { toast } from 'react-hot-toast'
   6|
   7| interface Props {
   8|   preferences: {
   9|     email_notifications: boolean
  10|     push_notifications: boolean
  11|     weekly_digest: boolean
  12|     theme: 'dark' | 'light' | 'system'
  13|     language: 'vi' | 'en'
  14|   }
  15| }
  16|
  17| export function PreferencesForm({ preferences }: Props) {
  18|   const [emailNotif, setEmailNotif] = useState(preferences.email_notifications)
  19|   const [pushNotif, setPushNotif] = useState(preferences.push_notifications)
  20|   const [weeklyDigest, setWeeklyDigest] = useState(preferences.weekly_digest)
  21|   const [theme, setTheme] = useState<'dark' | 'light' | 'system'>(preferences.theme || 'dark')
  22|   const [language, setLanguage] = useState<'vi' | 'en'>(preferences.language || 'vi')
  23|   const [saving, setSaving] = useState(false)
  24|
  25|   const handleSubmit = async (e: React.FormEvent) => {
  26|     e.preventDefault()
  27|     setSaving(true)
  28|     try {
  29|       await updatePreferences({
  30|         email_notifications: emailNotif,
  31|         push_notifications: pushNotif,
  32|         weekly_digest: weeklyDigest,
  33|         theme,
  34|         language
  35|       })
    3 6 |             t o a s t . s u c c e s s ( '   ã   l ° u   c ¥ u   h ì n h   c à i    · t ! ' )
  37|     } catch (err: any) {
    3 8 |             t o a s t . e r r o r ( ' L × i   k h i   l ° u   c à i    · t . ' )
  39|     } finally {
  40|       setSaving(false)
  41|     }
  42|   }
  43|
  44|   return (
  45|     <form onSubmit={handleSubmit} className="space-y-6">
  46|
  47|       {/* Notifications toggles */}
  48|       <div className="space-y-4">
    4 9 |                 < h 4   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c a s e   t r a c k i n
  50|
```

```
  51|         <label className="flex items-center justify-between p-3 bg-[#1e202f]/30 border border-gray-850 rounded...
  52|           <div>
  53|             <p className="text-xs font-semibold text-white">Thông báo qua Email</p>
    5 4 |                         < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0 " > N h - n   t h ô n g   b á o   c h ¥ m
  55|           </div>
  56|           <input
  57|             type="checkbox"
  58|             checked={emailNotif}
  59|             onChange={(e) => setEmailNotif(e.target.checked)}
  60|             className="w-4 h-4 rounded accent-[#00d4aa]"
  61|           />
  62|         </label>
  63|
  64|         <label className="flex items-center justify-between p-3 bg-[#1e202f]/30 border border-gray-850 rounded...
  65|           <div>
    6 6 |                         < p   c l a s s N a m e = " t e x t - x s   f o n t - s e m i b o l d   t e x t - w h i t e " > T h ô n g   b á o   @
    6 7 |                         < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0 " > H i Ã n   t h Ê   t h ô n g   b á o
  68|           </div>
  69|           <input
  70|             type="checkbox"
  71|             checked={pushNotif}
  72|             onChange={(e) => setPushNotif(e.target.checked)}
  73|             className="w-4 h-4 rounded accent-[#00d4aa]"
  74|           />
  75|         </label>
  76|
  77|         <label className="flex items-center justify-between p-3 bg-[#1e202f]/30 border border-gray-850 rounded...
  78|           <div>
    7 9 |                         < p   c l a s s N a m e = " t e x t - x s   f o n t - s e m i b o l d   t e x t - w h i t e " > B á o   c á o   h Í c
    8 0 |                         < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0 " > N h - n   b á o   c á o   t ó m   t
  81|           </div>
  82|           <input
  83|             type="checkbox"
  84|             checked={weeklyDigest}
  85|             onChange={(e) => setWeeklyDigest(e.target.checked)}
  86|             className="w-4 h-4 rounded accent-[#00d4aa]"
  87|           />
  88|         </label>
  89|       </div>
  90|
  91|       {/* Theme and Language grid */}
  92|       <div className="grid grid-cols-1 sm:grid-cols-2 gap-4">
  93|         <div>
    9 4 |                       < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  95|           <select
  96|             value={theme}
  97|             onChange={(e) => setTheme(e.target.value as any)}
  98|             className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
  99|           >
  1 0 0 |                         < o p t i o n   v a l u e = " d a r k " >Ø<ß   D a r k   M o d e < / o p t i o n >
  1 0 1 |                         < o p t i o n   v a l u e = " l i g h t " >& þ   L i g h t   M o d e < / o p t i o n >
  1 0 2 |                         < o p t i o n   v a l u e = " s y s t e m " >Ø=Ý¥þ   S y s t e m   D e f a u l t < / o p t i o n >
 103|           </select>
 104|         </div>
 105|
 106|         <div>
  1 0 7 |                       < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
 108|           <select
 109|             value={language}
 110|             onChange={(e) => setLanguage(e.target.value as any)}
 111|             className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
 112|           >
  1 1 3 |                         < o p t i o n   v a l u e = " v i " >Ø<ÝüØ<Ýó   T i ¿ n g   V i Ç t < / o p t i o n >
  1 1 4 |                         < o p t i o n   v a l u e = " e n " >Ø<ÝüØ<Ýø   E n g l i s h < / o p t i o n >
 115|           </select>
 116|         </div>
 117|       </div>
 118|
 119|       <button
 120|         type="submit"
 121|         disabled={saving}
 122|         className="w-full py-3 bg-[#00d4aa] text-[#0d0e13] font-bold text-xs rounded-xl hover:opacity-90 trans...
 123|       >
  1 2 4 |                   { s a v i n g   ?   '   a n g   l ° u . . . '   :   ' L ° u   c ¥ u   h ì n h ' }
 125|       </button>
 126|     </form>
 127|   )
 128| }
 129|
```

File: components/profile/profile/ProfileForm.tsx (115 lines, 4.2 KB)

```
   1| 'use client'
   2|
   3| import React, { useState } from 'react'
   4| import { updateProfile } from '@/actions/profile'
   5| import { toast } from 'react-hot-toast'
   6|
   7| interface Props {
   8|   profile: {
   9|     full_name: string
  10|     bio?: string
  11|     school?: string
  12|     grade?: string
  13|     email: string
  14|   }
  15| }
  16|
  17| export function ProfileForm({ profile }: Props) {
  18|   const [fullName, setFullName] = useState(profile.full_name || '')
  19|   const [bio, setBio] = useState(profile.bio || '')
  20|   const [school, setSchool] = useState(profile.school || '')
  21|   const [grade, setGrade] = useState(profile.grade || '')
  22|   const [saving, setSaving] = useState(false)
  23|
  24|   const handleSubmit = async (e: React.FormEvent) => {
  25|     e.preventDefault()
  26|     setSaving(true)
  27|     try {
  28|       await updateProfile({
  29|         full_name: fullName,
  30|         bio: bio.slice(0, 200),
  31|         school,
  32|         grade
  33|       })
    3 4 |                 t o a s t . s u c c e s s ( '   ã   l ° u   t h ô n g   t i n   c á   n h â n ! ' )
  35|     } catch (err: any) {
    3 6 |                 t o a s t . e r r o r ( ' L × i   k h i   l ° u   t h ô n g   t i n . ' )
  37|     } finally {
  38|       setSaving(false)
  39|     }
  40|   }
  41|
```

```
  42|   return (
  43|     <form onSubmit={handleSubmit} className="space-y-4">
  44|       <div>
    4 5 |                 < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c a s
  46|         <input
  47|           type="email"
  48|           disabled
  49|           value={profile.email}
  50|           className="w-full bg-[#1e202f]/30 border border-gray-850 text-gray-500 rounded-xl px-4 py-3 text-xs ...
  51|         />
  52|       </div>
  53|
  54|       <div className="grid grid-cols-1 sm:grid-cols-2 gap-4">
  55|         <div>
    5 6 |                     < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  57|           <input
  58|             type="text"
  59|             required
  60|             value={fullName}
  61|             onChange={(e) => setFullName(e.target.value)}
    6 2 |                           p l a c e h o l d e r = " V D :   N g u y Å n   V   n   A "
  63|             className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white p...
  64|           />
  65|         </div>
  66|
  67|         <div>
    6 8 |                     < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  69|           <input
  70|             type="text"
  71|             value={grade}
  72|             onChange={(e) => setGrade(e.target.value)}
  73|             placeholder="VD: 10A1, 11B2..."
  74|             className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white p...
  75|           />
  76|         </div>
  77|       </div>
  78|
  79|       <div>
    8 0 |                 < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c a s
  81|         <input
  82|           type="text"
  83|           value={school}
  84|           onChange={(e) => setSchool(e.target.value)}
    8 5 |                     p l a c e h o l d e r = " T ê n   t r ° Ý n g   T H P T . . . "
  86|           className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white pla...
  87|         />
  88|       </div>
  89|
  90|       <div>
  91|         <div className="flex justify-between items-center mb-2">
    9 2 |                     < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  93|           <span className="text-[10px] text-gray-500 font-bold">{bio.length}/200</span>
  94|         </div>
  95|         <textarea
  96|           rows={3}
  97|           value={bio}
  98|           maxLength={200}
  99|           onChange={(e) => setBio(e.target.value)}
  1 0 0 |                     p l a c e h o l d e r = " M Ù t   v à i   d ò n g   g i Û i   t h i Ç u   v Á   b £ n   t h â n . . . "
 101|           className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white pla...
 102|         />
 103|       </div>
 104|
 105|       <button
 106|         type="submit"
 107|         disabled={saving}
 108|         className="w-full py-3 bg-[#00d4aa] text-[#0d0e13] font-bold text-xs rounded-xl hover:opacity-90 trans...
 109|       >
  1 1 0 |                 { s a v i n g   ?   '   a n g   l ° u . . . '   :   ' L ° u   t h a y    Õ i ' }
 111|       </button>
 112|     </form>
 113|   )
 114| }
 115|
```

File: components/profile/profile/SecurityForm.tsx (114 lines, 4.5 KB)

```
   1| 'use client'
   2|
   3| import React, { useState } from 'react'
   4| import { changePassword } from '@/actions/profile'
   5| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
   6| import { toast } from 'react-hot-toast'
   7| import { LogOut } from 'lucide-react'
   8|
   9| export function SecurityForm() {
  10|   const [currentPass, setCurrentPass] = useState('')
  11|   const [newPass, setNewPass] = useState('')
  12|   const [confirmPass, setConfirmPass] = useState('')
  13|   const [loading, setLoading] = useState(false)
  14|   const supabase = createClientComponentClient()
  15|
  16|   const handlePasswordChange = async (e: React.FormEvent) => {
  17|     e.preventDefault()
  18|
  19|     if (newPass !== confirmPass) {
    2 0 |               t o a s t . e r r o r ( ' M - t   k h © u   x á c   n h - n   k h ô n g   k h Û p ! ' )
  21|       return
  22|     }
  23|
  24|     setLoading(true)
  25|     try {
  26|       await changePassword(currentPass, newPass)
    2 7 |               t o a s t . s u c c e s s ( '   Õ i   m - t   k h © u   t h à n h   c ô n g ! ' )
  28|       setCurrentPass('')
  29|       setNewPass('')
  30|       setConfirmPass('')
  31|     } catch (err: any) {
    3 2 |               t o a s t . e r r o r ( e r r . m e s s a g e   | |   ' L × i   k h i    Õ i   m - t   k h © u . ' )
  33|     } finally {
  34|       setLoading(false)
  35|     }
  36|   }
  37|
  38|   const handleLogoutAllDevices = async () => {
  39|     const { error } = await supabase.auth.signOut({ scope: 'global' })
  40|     if (!error) {
    4 1 |               t o a s t . s u c c e s s ( '   ã      n g   x u ¥ t   k h Ï i   t ¥ t   c £   t h i ¿ t   b Ë ! ' )
  42|       window.location.href = '/login'
  43|     } else {
    4 4 |               t o a s t . e r r o r ( ' L × i   k h i      n g   x u ¥ t . ' )
  45|     }
  46|   }
```

```
  47|
  48|   return (
  49|     <div className="space-y-6">
  50|
  51|       {/* Change Password Form */}
  52|       <form onSubmit={handlePasswordChange} className="space-y-4">
    5 3 |                 < h 4   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c a s e   t r a c k i n
  54|
  55|         <div>
    5 6 |                     < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  57|           <input
  58|             type="password"
  59|             required
  60|             value={currentPass}
  61|             onChange={(e) => setCurrentPass(e.target.value)}
  62|             className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
  63|           />
  64|         </div>
  65|
  66|         <div>
    6 7 |                     < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  68|           <input
  69|             type="password"
  70|             required
  71|             value={newPass}
  72|             onChange={(e) => setNewPass(e.target.value)}
    7 3 |                       p l a c e h o l d e r = " T Ñ i   t h i Ã u   8   k ý   t ñ ,   1   c h ï   h o a ,   1   s Ñ "
  74|             className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white p...
  75|           />
  76|         </div>
  77|
  78|         <div>
    7 9 |                     < l a b e l   c l a s s N a m e = " b l o c k   t e x t - x s   f o n t - b o l d   t e x t - g r a y - 4 0 0   u p p e r c
  80|           <input
  81|             type="password"
  82|             required
  83|             value={confirmPass}
  84|             onChange={(e) => setConfirmPass(e.target.value)}
  85|             className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
  86|           />
  87|         </div>
  88|
  89|         <button
  90|           type="submit"
  91|           disabled={loading}
  92|           className="w-full py-3 bg-[#00d4aa] text-[#0d0e13] font-bold text-xs rounded-xl hover:opacity-90 tra...
  93|         >
    9 4 |                     { l o a d i n g   ?   '   a n g   t h ñ c   t h i . . . '   :   ' C - p   n h - t   m - t   k h © u ' }
  95|         </button>
  96|       </form>
  97|
  98|       {/* Global Signout */}
  99|       <div className="pt-6 border-t border-white/5 space-y-4">
    1 0 0 |                 < h 4   c l a s s N a m e = " t e x t - x s   f o n t - b o l d   t e x t - r e d - 4 0 0   u p p e r c a s e   t r a c k i n g
    1 0 1 |                 < p   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - g r a y - 5 0 0 " > N ¿ u   n g h i   n g Ý   t à i   k h o £ n
 102|
 103|         <button
 104|           onClick={handleLogoutAllDevices}
 105|           className="w-full py-3 bg-red-500/10 border border-red-500/20 text-red-400 font-bold text-xs rounded...
 106|         >
    1 0 7 |                     < L o g O u t   s i z e = { 1 4 }   / >       n g   x u ¥ t   k h Ï i   t ¥ t   c £   t h i ¿ t   b Ë
 108|         </button>
 109|       </div>
 110|
 111|     </div>
 112|   )
 113| }
 114|
```

File: components/profile/ProfileForm.tsx (121 lines, 4.8 KB)

```
==========================================================================================
   1| 'use client'
   2|
   3| import React, { useState } from 'react'
   4| import { updateProfile } from '@/actions/profile'
   5| import { toast } from 'react-hot-toast'
   6|
   7| interface Props {
   8|   profile: {
   9|     full_name: string
  10|     bio?: string
  11|     school?: string
  12|     grade?: string
  13|     email: string
  14|   }
  15| }
  16|
  17| export function ProfileForm({ profile }: Props) {
  18|   const [fullName, setFullName] = useState(profile.full_name || '')
  19|   const [bio, setBio] = useState(profile.bio || '')
  20|   const [school, setSchool] = useState(profile.school || '')
  21|   const [grade, setGrade] = useState(profile.grade || '')
  22|   const [saving, setSaving] = useState(false)
  23|
  24|   const handleSubmit = async (e: React.FormEvent) => {
  25|     e.preventDefault()
  26|     setSaving(true)
  27|     try {
  28|       await updateProfile({
  29|         full_name: fullName,
  30|         bio: bio.slice(0, 200),
  31|         school,
  32|         grade
  33|       })
    3 4 |                 t o a s t . s u c c e s s ( '   ã   l ° u   t h ô n g   t i n   c á   n h â n ! ' )
  35|     } catch (err: any) {
    3 6 |                 t o a s t . e r r o r ( ' L × i   k h i   l ° u   t h ô n g   t i n . ' )
  37|     } finally {
  38|       setSaving(false)
  39|     }
  40|   }
  41|
  42|   return (
  43|     <form onSubmit={handleSubmit} className="space-y-4">
  44|       <div>
  45|         <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--text-m...
  46|         <input
  47|           type="email"
  48|           disabled
  49|           value={profile.email}
  50|           className="w-full rounded-xl px-4 py-3 text-xs focus:outline-none cursor-not-allowed"
  51|           style={{ background: 'color-mix(in srgb, var(--bg-elevated) 30%, transparent)', border: '1px solid v...
  52|         />
```

```
      </div>

      <div className="grid grid-cols-1 sm:grid-cols-2 gap-4">
        <div>
          <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--text...
          <input
            type="text"
            required
            value={fullName}
            onChange={(e) => setFullName(e.target.value)}
            placeholder="VD: NguyễnVAn"
            className="w-full rounded-xl px-4 py-3 text-xs focus:outline-none transition-colors"
            style={{ background: 'color-mix(in srgb, var(--bg-elevated) 50%, transparent)', border: '1px solid...
          />
        </div>

        <div>
          <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--text...
          <input
            type="text"
            value={grade}
            onChange={(e) => setGrade(e.target.value)}
            placeholder="VD: 10A1, 11B2..."
            className="w-full rounded-xl px-4 py-3 text-xs focus:outline-none transition-colors"
            style={{ background: 'color-mix(in srgb, var(--bg-elevated) 50%, transparent)', border: '1px solid...
          />
        </div>
      </div>

      <div>
        <label className="block text-xs font-bold uppercase tracking-wider mb-2" style={{ color: 'var(--text-m...
        <input
          type="text"
          value={school}
          onChange={(e) => setSchool(e.target.value)}
          placeholder="Tên trường THPT..."
          className="w-full rounded-xl px-4 py-3 text-xs focus:outline-none transition-colors"
          style={{ background: 'color-mix(in srgb, var(--bg-elevated) 50%, transparent)', border: '1px solid v...
        />
      </div>

      <div>
        <div className="flex justify-between items-center mb-2">
          <label className="block text-xs font-bold uppercase tracking-wider" style={{ color: 'var(--text-mute...
          <span className="text-[10px] font-bold" style={{ color: 'var(--text-muted)' }}>{bio.length}/200</span>
        </div>
        <textarea
          rows={3}
          value={bio}
          maxLength={200}
          onChange={(e) => setBio(e.target.value)}
          placeholder="Mùt và dòng giới thiệu về bản thân..."
          className="w-full rounded-xl px-4 py-3 text-xs focus:outline-none transition-colors resize-none"
          style={{ background: 'color-mix(in srgb, var(--bg-elevated) 50%, transparent)', border: '1px solid v...
        />
      </div>

      <button
        type="submit"
        disabled={saving}
        className="w-full py-3 font-bold text-xs rounded-xl hover:opacity-90 transition-opacity disabled:opaci...
        style={{ background: 'var(--brand-primary)', color: 'var(--bg-base)' }}
      >
        {saving ? 'ang lưu...' : 'Lưu thay đổi'}
      </button>
    </form>
  )
}
```

File: components/profile/SecurityForm.tsx (114 lines, 4.5 KB)

```
'use client'

import React, { useState } from 'react'
import { changePassword } from '@/actions/profile'
import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
import { toast } from 'react-hot-toast'
import { LogOut } from 'lucide-react'

export function SecurityForm() {
  const [currentPass, setCurrentPass] = useState('')
  const [newPass, setNewPass] = useState('')
  const [confirmPass, setConfirmPass] = useState('')
  const [loading, setLoading] = useState(false)
  const supabase = createClientComponentClient()

  const handlePasswordChange = async (e: React.FormEvent) => {
    e.preventDefault()

    if (newPass !== confirmPass) {
      toast.error('Mật khẩu xác nhận không khớp!')
      return
    }

    setLoading(true)
    try {
      await changePassword(currentPass, newPass)
      toast.success('Đổi mật khẩu thành công!')
      setCurrentPass('')
      setNewPass('')
      setConfirmPass('')
    } catch (err: any) {
      toast.error(err.message || 'Lỗi khi đổi mật khẩu.')
    } finally {
      setLoading(false)
    }
  }

  const handleLogoutAllDevices = async () => {
    const { error } = await supabase.auth.signOut({ scope: 'global' })
    if (!error) {
      toast.success('đăng xuất khỏi tất cả thiết bị!')
      window.location.href = '/login'
    } else {
      toast.error('Lỗi đăng xuất.')
    }
  }

  return (
    <div className="space-y-6">

      {/* Change Password Form */}
```

```
  52|      <form onSubmit={handlePasswordChange} className="space-y-4">
    5 3 |                <h4 c l a s s N a m e = " t e x t - x s  f o n t - b o l d  t e x t - g r a y - 4 0 0  u p p e r c a s e  t r a c k i n
  54|
  55|        <div>
    5 6 |                    <l a b e l  c l a s s N a m e = " b l o c k  t e x t - x s  f o n t - b o l d  t e x t - g r a y - 4 0 0  u p p e r c
  57|          <input
  58|            type="password"
  59|            required
  60|            value={currentPass}
  61|            onChange={(e) => setCurrentPass(e.target.value)}
  62|            className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
  63|          />
  64|        </div>
  65|
  66|        <div>
    6 7 |                    <l a b e l  c l a s s N a m e = " b l o c k  t e x t - x s  f o n t - b o l d  t e x t - g r a y - 4 0 0  u p p e r c
  68|          <input
  69|            type="password"
  70|            required
  71|            value={newPass}
  72|            onChange={(e) => setNewPass(e.target.value)}
    7 3 |                        p l a c e h o l d e r = " T Ñ i  t h i Ã u  8  k ý  t ñ ,  1  c h ï  h o a ,  1  s Ñ "
  74|            className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white p...
  75|          />
  76|        </div>
  77|
  78|        <div>
    7 9 |                    <l a b e l  c l a s s N a m e = " b l o c k  t e x t - x s  f o n t - b o l d  t e x t - g r a y - 4 0 0  u p p e r c
  80|          <input
  81|            type="password"
  82|            required
  83|            value={confirmPass}
  84|            onChange={(e) => setConfirmPass(e.target.value)}
  85|            className="w-full bg-[#1e202f]/50 border border-gray-800 rounded-xl px-4 py-3 text-xs text-white f...
  86|          />
  87|        </div>
  88|
  89|        <button
  90|          type="submit"
  91|          disabled={loading}
  92|          className="w-full py-3 bg-[#00d4aa] text-[#0d0e13] font-bold text-xs rounded-xl hover:opacity-90 tra...
  93|        >
    9 4 |                    { l o a d i n g  ?  '  a n g  t h ñ c  t h i . . . '  :  ' C - p  n h - t  m - t  k h © u ' }
  95|        </button>
  96|      </form>
  97|
  98|      {/* Global Signout */}
  99|      <div className="pt-6 border-t border-white/5 space-y-4">
  1 0 0 |                <h4  c l a s s N a m e = " t e x t - x s  f o n t - b o l d  t e x t - r e d - 4 0 0  u p p e r c a s e  t r a c k i n g
  1 0 1 |                <p  c l a s s N a m e = " t e x t - [ 1 0 p x ]  t e x t - g r a y - 5 0 0 " > N ¿ u  n g h i  n g Ý  t à i  k h o £ n
 102|
 103|        <button
 104|          onClick={handleLogoutAllDevices}
 105|          className="w-full py-3 bg-red-500/10 border border-red-500/20 text-red-400 font-bold text-xs rounded...
 106|        >
  1 0 7 |                    < L o g O u t  s i z e = { 1 4 }  / >      n g  x u ¥ t  k h Ï i  t ¥ t  c £  t h i ¿ t  b Ë
 108|        </button>
 109|      </div>
 110|
 111|    </div>
 112|  )
 113| }
 114|
```

File: components/ProLearningSystem.js (582 lines, 29.5 KB)

```
   1| 'use client';
   2|
   3| import { useState, useEffect, useCallback } from 'react';
   4| import Link from 'next/link';
   5|
   6| const SKILLS = [
   7|   {
   8|     id: 'scenarios',
   9|     title: 'Build Scenarios',
   1 0 |          t i t l e V n :  ' K Ë c h  b £ n  B u i l d ' ,
   1 1 |          d e s c :  ' X â y  d ñ n g  c ¥ u  h ì n h  P C  t h e o  y ê u  c § u  t h ñ c  t ¿ ' ,
  12|     descEn: 'Build PCs for real-world requirements',
  13|     icon: '\uD83D\uDEE0\uFE0F',
  14|     route: '/builder/scenarios',
  15|     category: 'planning',
  16|     color: '#22c55e',
  17|     xp: 150,
  18|     prerequisites: [],
  19|   },
  20|   {
  21|     id: 'diagnosis',
  22|     title: 'Diagnosis Mode',
    2 3 |          t i t l e V n :  ' C h © n  o á n  l × i ' ,
    2 4 |          d e s c :  ' P h á t  h i Ç n  v à  s í a  l × i  p h § n  c é n g  m á y  t í n h ' ,
  25|     descEn: 'Detect and fix hardware issues',
  26|     icon: '\uD83D\uDD0D',
  27|     route: '/builder/diagnosis',
  28|     category: 'troubleshooting',
  29|     color: '#3742FA',
  30|     xp: 200,
  31|     prerequisites: ['scenarios'],
  32|   },
  33|   {
  34|     id: 'os-install',
  35|     title: 'OS Installation',
    3 6 |          t i t l e V n :  ' C à i  · t  H  H ' ,
    3 7 |          d e s c :  ' C à i  · t  W i n d o w s  v à  d r i v e r  c h o  P C  m Û i  r á p ' ,
  38|     descEn: 'Install Windows and drivers for new PC',
  39|     icon: '\uD83D\uDCBB',
  40|     route: '/builder/os-install',
  41|     category: 'software',
  42|     color: '#00CEC9',
  43|     xp: 120,
  44|     prerequisites: ['diagnosis'],
  45|   },
  46|   {
  47|     id: 'thermal',
  48|     title: 'Thermal Heatmap',
    4 9 |          t i t l e V n :  ' B £ n  Ó  N h i Ç t ' ,
    5 0 |          d e s c :  ' M ô  p h Ï n g  n h i Ç t  Ù  v à  l u Ó n g  k h í  t r o n g  c a s e ' ,
  51|     descEn: 'Simulate temperature and airflow inside case',
  52|     icon: '\uD83D\uDD25',
  53|     route: '/builder/thermal',
  54|     category: 'optimization',
  55|     color: '#FF6348',
  56|     xp: 180,
  57|     prerequisites: ['os-install'],
```

```
  },
  {
    id: 'mac-check',
    title: 'Mac Compatibility',
    titleVn:  'T°¡ng  thích  Mac',
    desc:  'KiÃm  tra  phßn  mÁm  t°¡ng  thích  vÛi  Mac',
    descEn: 'Check software compatibility on Mac',
    icon: '\uD83C\uDF4E',
    route: '/builder/mac-check',
    category: 'compatibility',
    color: '#A29BFE',
    xp: 80,
    prerequisites: ['thermal'],
  },
];

const CATEGORIES = [
    {  id:  'planning',  label:  'L¯p  k¿  hoµch',  labelEn:  'Planning',  color:  '
    {  id:  'assembly',  label:  'L¯p  ráp',  labelEn:  'Assembly',  color:  '#FFD7
    {  id:  'troubleshooting',  label:  'Ch©n  oán',  labelEn:  'Troubleshooting
    {  id:  'software',  label:  'Phßn  mÁm',  labelEn:  'Software',  color:  '#00C
    {  id:  'optimization',  label:  'TÑi  °u',  labelEn:  'Optimization',  color:
    {  id:  'compatibility',  label:  'T°¡ng  thích',  labelEn:  'Compatibility',
];

const STORAGE_KEY = 'pcm_pro_learning';

function loadProgress() {
  if (typeof window === 'undefined') return {};
  try {
    const raw = localStorage.getItem(STORAGE_KEY);
    return raw ? JSON.parse(raw) : {};
  } catch { return {}; }
}

function saveProgress(data) {
  try {
    localStorage.setItem(STORAGE_KEY, JSON.stringify(data));
  } catch {}
}

function getLevel(xp) {
  if (xp < 100) return { level: 1, nextAt: 100, progress: xp / 100 };
  if (xp < 250) return { level: 2, nextAt: 250, progress: (xp - 100) / 150 };
  if (xp < 500) return { level: 3, nextAt: 500, progress: (xp - 250) / 250 };
  if (xp < 830) return { level: 4, nextAt: 830, progress: (xp - 500) / 330 };
  return { level: 5, nextAt: null, progress: 1 };
}

function SkillNode({ skill, status, progress, lang, onSelect, selected }) {
  const isSelected = selected === skill.id;
  const isLocked = status === 'locked';
  const isComplete = status === 'mastered';
  const isActive = status === 'available' || status === 'in-progress';

  const borderColor = isComplete ? skill.color : isSelected ? skill.color : isLocked ? 'rgba(255,255,255,0.06)...
  const bgColor = isComplete ? `${skill.color}15` : isSelected ? `${skill.color}20` : isLocked ? 'rgba(255,255...

  return (
    <div onClick={() => !isLocked && onSelect(skill.id)}
      onMouseOver={e => { if (!isLocked && !isSelected) { e.currentTarget.style.borderColor = skill.color + '9...
      onMouseOut={e => { if (!isLocked && !isSelected) { e.currentTarget.style.borderColor = 'rgba(255,255,255...
      style={{
        display: 'flex', alignItems: 'center', gap: 12, padding: '14px 18px',
        borderRadius: 12, border: `1.5px solid ${borderColor}`,
        background: bgColor, cursor: isLocked ? 'not-allowed' : 'pointer',
        transition: 'all 0.25s', opacity: isLocked ? 0.35 : 1,
        position: 'relative', overflow: 'hidden',
      }}>
      {isComplete && (
        <div style={{ position: 'absolute', top: 0, right: 0, width: 40, height: 40, background: `linear-gradi...
      )}
      <div style={{
        fontSize: 28, width: 44, height: 44, display: 'flex', alignItems: 'center',
        justifyContent: 'center', borderRadius: 10, background: isComplete ? `${skill.color}22` : 'rgba(255,25...
        border: `1px solid ${isComplete ? skill.color + '44' : 'rgba(255,255,255,0.06)'}`,
        flexShrink: 0,
      }}>
        {isLocked ? '\uD83D\uDD12' : skill.icon}
      </div>
      <div style={{ flex: 1, minWidth: 0 }}>
        <div style={{ display: 'flex', alignItems: 'center', gap: 8, marginBottom: 2 }}>
          <span style={{ color: isLocked ? 'rgba(255,255,255,0.3)' : 'var(--text-primary, #dde0ed)', fontSize:...
            {lang === 'vn' ? skill.titleVn : skill.title}
          </span>
          {isComplete && <span style={{ fontSize: 10, color: skill.color, fontWeight: 700 }}>\u2713</span>}
          {isActive && !isComplete && <span style={{ fontSize: 8, padding: '1px 6px', borderRadius: 99, backgr...
        </div>
        <div style={{ color: isLocked ? 'rgba(255,255,255,0.2)' : 'var(--text-muted, #636678)', fontSize: 11, ...
          {lang === 'vn' ? skill.desc : skill.descEn}
        </div>
        {isComplete && (
          <div style={{ marginTop: 4, display: 'flex', alignItems: 'center', gap: 6 }}>
            <div style={{ flex: 1, height: 3, borderRadius: 2, background: 'rgba(255,255,255,0.06)' }}>
              <div style={{ width: '100%', height: '100%', borderRadius: 2, background: `linear-gradient(90deg...
            </div>
            <span style={{ fontSize: 9, color: skill.color, fontWeight: 600, fontFamily: 'monospace' }}>100%</...
          </div>
        )}
        {isActive && !isComplete && progress > 0 && (
          <div style={{ marginTop: 4, display: 'flex', alignItems: 'center', gap: 6 }}>
            <div style={{ flex: 1, height: 3, borderRadius: 2, background: 'rgba(255,255,255,0.06)' }}>
              <div style={{ width: `${progress}%`, height: '100%', borderRadius: 2, background: `linear-gradie...
            </div>
            <span style={{ fontSize: 9, color: skill.color, fontWeight: 600, fontFamily: 'monospace' }}>{progr...
          </div>
        )}
      </div>
      <div style={{ fontSize: 10, color: 'rgba(255,255,255,0.25)', fontWeight: 700, fontFamily: 'monospace', w...
        +{skill.xp}XP
      </div>
      {!isLocked && (
        <div style={{ fontSize: 14, color: 'rgba(255,255,255,0.15)', marginLeft: 4, flexShrink: 0 }}>\u203A</div>
      )}
    </div>
  );
}

export default function ProLearningSystem() {
  const [lang, setLang] = useState('vn');
  const [progress, setProgress] = useState({});
  const [selected, setSelected] = useState(null);
  const [tab, setTab] = useState('dashboard');
  const [earnedXp, setEarnedXp] = useState(0);
```

```
182|
183|   useEffect(() => {
184|     const p = loadProgress();
185|     setProgress(p);
186|     let xp = 0;
187|     Object.entries(p).forEach(([id, data]) => {
188|       if (data.mastered) {
189|         const skill = SKILLS.find(s => s.id === id);
190|         if (skill) xp += skill.xp;
191|       }
192|     });
193|     setEarnedXp(xp);
194|   }, []);
195|
196|   const userLevel = getLevel(earnedXp);
197|   const masteredCount = Object.values(progress).filter(p => p.mastered).length;
198|   const inProgressCount = Object.values(progress).filter(p => p.inProgress).length;
199|   const totalSkills = SKILLS.length;
200|
201|   const getSkillStatus = useCallback((skillId) => {
202|     const skill = SKILLS.find(s => s.id === skillId);
203|     if (!skill) return 'locked';
204|     const p = progress[skillId];
205|     if (p?.mastered) return 'mastered';
206|     if (p?.inProgress) return 'in-progress';
207|     const prereqsMet = skill.prerequisites.every(preId => progress[preId]?.mastered);
208|     if (skill.prerequisites.length === 0 || prereqsMet) return 'available';
209|     return 'locked';
210|   }, [progress]);
211|
212|   const getSkillProgress = useCallback((skillId) => {
213|     const p = progress[skillId];
214|     return p?.progress || 0;
215|   }, [progress]);
216|
217|   const handleSelect = useCallback((skillId) => {
218|     setSelected(prev => prev === skillId ? null : skillId);
219|   }, []);
220|
221|   const handleMasterSkill = useCallback((skillId) => {
222|     const skill = SKILLS.find(s => s.id === skillId);
223|     if (!skill) return;
224|     const status = getSkillStatus(skillId);
225|     if (status !== 'available' && status !== 'in-progress') return;
226|     const newProgress = { ...progress };
227|     newProgress[skillId] = { mastered: true, inProgress: false, progress: 100 };
228|     setProgress(newProgress);
229|     saveProgress(newProgress);
230|     setEarnedXp(prev => prev + skill.xp);
231|     setSelected(null);
232|   }, [progress, getSkillStatus]);
233|
234|   const handleProgress = useCallback((skillId, pct) => {
235|     const skill = SKILLS.find(s => s.id === skillId);
236|     if (!skill) return;
237|     const newProgress = { ...progress };
238|     newProgress[skillId] = { mastered: false, inProgress: true, progress: pct };
239|     setProgress(newProgress);
240|     saveProgress(newProgress);
241|   }, [progress]);
242|
243|   const resetAll = useCallback(() => {
244|     setProgress({});
245|     saveProgress({});
246|     setEarnedXp(0);
247|     setSelected(null);
248|   }, []);
249|
250|   const selectedSkill = selected ? SKILLS.find(s => s.id === selected) : null;
251|   const selectedStatus = selected ? getSkillStatus(selected) : null;
252|
253|   const t = (vn, en) => lang === 'vn' ? vn : en;
254|
255|   return (
256|     <div style={{
257|       minHeight: '100vh', background: 'var(--bg-base, #080910)',
258|       color: 'var(--text-primary, #d8dbe8)',
259|       fontFamily: "'Be Vietnam Pro', 'Inter', sans-serif",
260|     }}>
261|       <style>{`
262|         @keyframes slideUp { from { opacity: 0; transform: translateY(12px); } to { opacity: 1; transform: tra...
263|         @keyframes fadeIn { from { opacity: 0; } to { opacity: 1; } }
264|         @keyframes pulseGlow { 0%,100% { box-shadow: 0 0 8px rgba(0,212,170,0.2); } 50% { box-shadow: 0 0 20px...
265|         .skill-detail { animation: slideUp 0.3s ease-out; }
266|         * { scrollbar-width: thin; scrollbar-color: rgba(255,255,255,0.06) transparent; }
267|       `}</style>
268|
269|       {/* Header */}
270|       <div style={{
271|         display: 'flex', alignItems: 'center', justifyContent: 'space-between',
272|         padding: '14px 28px', borderBottom: '1px solid rgba(255,255,255,0.06)',
273|         background: 'var(--bg-surface, #0f1018)',
274|       }}>
275|         <div style={{ display: 'flex', alignItems: 'center', gap: 12 }}>
276|           <div style={{
277|             width: 36, height: 36, borderRadius: 10,
278|             background: 'linear-gradient(135deg, #00d4aa, #00aaff)',
279|             display: 'flex', alignItems: 'center', justifyContent: 'center',
280|             fontSize: 18, fontWeight: 800, color: '#000',
281|           }}>P</div>
282|           <div>
283|                         <div style={{ fontSize: 16, fontWeight: 800, letterSpacing:
284|                         <div style={{ fontSize: 11, color: 'var(--text-muted, #5a5d7
285|           </div>
286|         </div>
287|         <div style={{ display: 'flex', alignItems: 'center', gap: 10 }}>
288|           <div style={{
289|             display: 'flex', background: 'rgba(255,255,255,0.04)', borderRadius: 8,
290|             border: '1px solid rgba(255,255,255,0.06)', overflow: 'hidden',
291|           }}>
292|             {['dashboard', 'skills'].map(tabId => (
293|               <button key={tabId} onClick={() => { setTab(tabId); setSelected(null); }}
294|                 style={{
295|                   padding: '6px 16px', fontSize: 12, fontWeight: 600, cursor: 'pointer',
296|                   background: tab === tabId ? 'rgba(0,212,170,0.12)' : 'transparent',
297|                   border: 'none', color: tab === tabId ? '#00d4aa' : 'var(--text-muted, #5a5d72)',
298|                   fontFamily: 'inherit', transition: 'all 0.2s',
299|                 }}>
300|                               {tabId === 'dashboard' ? t('Tổng quan', 'Dashboard') : t
301|               </button>
302|             ))}
303|           </div>
304|           <button onClick={() => setLang(prev => prev === 'vn' ? 'en' : 'vn')}
305|             style={{
```

```
306|              padding: '6px 12px', borderRadius: 8, fontSize: 12, fontWeight: 600,
307|              background: 'rgba(255,255,255,0.06)', border: '1px solid rgba(255,255,255,0.1)',
308|              color: 'var(--text-muted, #5a5d72)', cursor: 'pointer', fontFamily: 'inherit',
309|            }}>
310|            {lang === 'vn' ? 'EN' : 'VN'}
311|          </button>
312|          <Link href="/builder"
313|            style={{
314|              padding: '6px 16px', borderRadius: 8, fontSize: 12, fontWeight: 600,
315|              background: 'rgba(0,212,170,0.12)', border: '1px solid rgba(0,212,170,0.2)',
316|              color: '#00d4aa', cursor: 'pointer', textDecoration: 'none', fontFamily: 'inherit',
317|              transition: 'all 0.2s',
318|            }}
319|            onMouseOver={e => { e.currentTarget.style.background = 'rgba(0,212,170,0.2)'; }}
320|            onMouseOut={e => { e.currentTarget.style.background = 'rgba(0,212,170,0.12)'; }}
321|          >{t('Vào Builder', 'Open Builder')}</Link>
322|        </div>
323|      </div>
324|
325|      <div style={{ maxWidth: 960, margin: '0 auto', padding: '24px 28px' }}>
326|        {tab === 'dashboard' && (
327|          <div style={{ animation: 'fadeIn 0.3s' }}>
328|            {/* Stats row */}
329|            <div style={{ display: 'grid', gridTemplateColumns: 'repeat(auto-fit, minmax(180px, 1fr))', gap: 1...
330|              <div style={{
331|                padding: '18px 20px', borderRadius: 12,
332|                background: 'linear-gradient(135deg, rgba(0,212,170,0.08), rgba(0,170,255,0.04))',
333|                border: '1px solid rgba(0,212,170,0.15)',
334|              }}>
335|                <div style={{ fontSize: 10, color: 'var(--text-muted, #5a5d72)', textTransform: 'uppercase', l...
  3 3 6 |                                    { t ( ' C ¥ p     Ù ' ,   ' L e v e l ' ) }
337|                </div>
338|                <div style={{ display: 'flex', alignItems: 'baseline', gap: 8 }}>
339|                  <span style={{ fontSize: 32, fontWeight: 800, color: '#00d4aa' }}>{userLevel.level}</span>
340|                  <span style={{ fontSize: 12, color: 'var(--text-muted, #5a5d72)' }}>/ 5</span>
341|                </div>
342|                {userLevel.nextAt && (
343|                  <div style={{ marginTop: 6 }}>
344|                    <div style={{ display: 'flex', justifyContent: 'space-between', fontSize: 9, color: 'var(-...
345|                      <span>{earnedXp} / {userLevel.nextAt} XP</span>
346|                      <span>{Math.round(userLevel.progress * 100)}%</span>
347|                    </div>
348|                    <div style={{ height: 4, borderRadius: 2, background: 'rgba(255,255,255,0.06)', overflow: ...
349|                      <div style={{ width: `${userLevel.progress * 100}%`, height: '100%', borderRadius: 2, ba...
350|                    </div>
351|                  </div>
352|                )}
353|              </div>
354|
355|              {[
  3 5 6 |                                  {   l a b e l :   t ( ' T Ổ n g   X P ' ,   ' T o t a l   X P ' ) ,   v a l u e :   e a r n e d X p ,   c o l o
  3 5 7 |                                  {   l a b e l :   t ( '   ã   t h à n h   t h ¡ o ' ,   ' M a s t e r e d ' ) ,   v a l u e :   ` $ { m a s t e
  3 5 8 |                                  {   l a b e l :   t ( '   a n g   h Í c ' ,   ' I n   P r o g r e s s ' ) ,   v a l u e :   i n P r o g r e s s
359|              ].map(item => (
360|                <div key={item.label} style={{ padding: '18px 20px', borderRadius: 12, background: 'var(--bg-s...
361|                  <div style={{ fontSize: 10, color: 'var(--text-muted, #5a5d72)', textTransform: 'uppercase',...
362|                  <div style={{ fontSize: 26, fontWeight: 800, color: item.color }}>{item.value}<span style={{...
363|                </div>
364|              ))}
365|            </div>
366|
367|            {/* Skill progress overview */}
368|            <div style={{ marginBottom: 24 }}>
369|              <div style={{ fontSize: 12, fontWeight: 700, textTransform: 'uppercase', letterSpacing: '1px', c...
  3 7 0 |                                  { t ( ' L Ù   t r ì n h   k ù   n   n g ' ,   ' S k i l l   P r o g r e s s i o n ' ) }
371|              </div>
372|              <div style={{ display: 'flex', flexDirection: 'column', gap: 6 }}>
373|                {SKILLS.map((skill, i) => {
374|                  const status = getSkillStatus(skill.id);
375|                  const pct = getSkillProgress(skill.id);
376|                  const mastered = status === 'mastered';
377|                  const locked = status === 'locked';
378|                  const active = !locked && !mastered;
379|                  return (
380|                    <div key={skill.id} style={{ display: 'flex', alignItems: 'center', gap: 12 }}>
381|                      <div style={{ display: 'flex', flexDirection: 'column', alignItems: 'center', width: 28 }}>
382|                        <div style={{
383|                          width: 16, height: 16, borderRadius: '50%',
384|                          background: mastered ? skill.color : active ? `${skill.color}44` : 'rgba(255,255,255...
385|                          border: `2px solid ${mastered ? skill.color : active ? skill.color + '88' : 'rgba(25...
386|                          display: 'flex', alignItems: 'center', justifyContent: 'center',
387|                          boxShadow: mastered ? `0 0 8px ${skill.color}66` : 'none',
388|                        }}>
389|                          {mastered && <span style={{ fontSize: 8, color: '#000', fontWeight: 800 }}>\u2713</s...
390|                        </div>
391|                        {i < SKILLS.length - 1 && (
392|                          <div style={{
393|                            width: 2, flex: 1, minHeight: 16,
394|                            background: mastered ? `linear-gradient(to bottom, ${skill.color}, ${SKILLS[i + 1]...
395|                          }} />
396|                        )}
397|                      </div>
398|                      <div onClick={() => !locked && setSelected(skill.id)}
399|                        style={{
400|                          flex: 1, display: 'flex', alignItems: 'center', gap: 10,
401|                          padding: '8px 14px', borderRadius: 8, cursor: locked ? 'default' : 'pointer',
402|                          opacity: locked ? 0.4 : 1, transition: 'all 0.2s',
403|                          background: selected === skill.id ? `${skill.color}10` : 'transparent',
404|                        }}>
405|                        <span style={{ fontSize: 18 }}>{skill.icon}</span>
406|                        <div style={{ flex: 1 }}>
407|                          <div style={{ fontSize: 13, fontWeight: 600, color: mastered ? skill.color : locked ...
408|                            {lang === 'vn' ? skill.titleVn : skill.title}
409|                          </div>
410|                          <div style={{ fontSize: 10, color: 'var(--text-muted, #5a5d72)' }}>
  4 1 1 |                                                  { l o c k e d   ?   t ( ' K h ó a   -   c § n   h o à n   t h à n h   k ù   n   n g   t
412|                          </div>
413|                        </div>
414|                        {!locked && !mastered && (
415|                          <div style={{
416|                            padding: '2px 8px', borderRadius: 4, fontSize: 9, fontWeight: 600,
417|                            background: `${skill.color}18`, color: skill.color,
418|                          }}>+{skill.xp}XP</div>
419|                        )}
420|                        {mastered && <span style={{ color: skill.color, fontSize: 14 }}>\u2713</span>}
421|                      </div>
422|                    </div>
423|                  );
424|                })}
425|              </div>
426|            </div>
427|
428|            {/* Quick actions */}
429|            <div style={{ display: 'flex', gap: 10, justifyContent: 'center', marginTop: 12 }}>
```

```
430|              <button onClick={() => setTab('skills')}
431|                style={{
432|                  padding: '10px 24px', borderRadius: 10, fontSize: 13, fontWeight: 700,
433|                  background: 'rgba(0,212,170,0.12)', border: '1px solid rgba(0,212,170,0.2)',
434|                  color: '#00d4aa', cursor: 'pointer', fontFamily: 'inherit',
435|                  transition: 'all 0.2s',
436|                }}
437|                onMouseOver={e => { e.currentTarget.style.background = 'rgba(0,212,170,0.2)'; }}
438|                onMouseOut={e => { e.currentTarget.style.background = 'rgba(0,212,170,0.12)'; }}
439|                              > { t ( ' X e m   t ¥ t   c £   k ù   n   n g ' ,   ' V i e w   A l l   S k i l l s ' ) } < / b u t t o n >
440|              <button onClick={resetAll}
441|                style={{
442|                  padding: '10px 24px', borderRadius: 10, fontSize: 13, fontWeight: 600,
443|                  background: 'rgba(255,255,255,0.04)', border: '1px solid rgba(255,255,255,0.08)',
444|                  color: 'var(--text-muted, #5a5d72)', cursor: 'pointer', fontFamily: 'inherit',
445|                  transition: 'all 0.2s',
446|                }}
447|                onMouseOver={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.08)'; }}
448|                onMouseOut={e => { e.currentTarget.style.background = 'rgba(255,255,255,0.04)'; }}
449|                              > { t ( '   · t   l ¡ i   t i ¿ n    Ù ' ,   ' R e s e t   P r o g r e s s ' ) } < / b u t t o n >
450|            </div>
451|          </div>
452|        )}
453|
454|        {tab === 'skills' && (
455|          <div style={{ animation: 'fadeIn 0.3s' }}>
456|            {/* Category filter row */}
457|            <div style={{ display: 'flex', gap: 8, marginBottom: 20, flexWrap: 'wrap' }}>
458|              {CATEGORIES.map(cat => (
459|                <div key={cat.id} style={{
460|                  padding: '4px 12px', borderRadius: 99, fontSize: 10, fontWeight: 600,
461|                  background: `${cat.color}12`, border: `1px solid ${cat.color}33`,
462|                  color: cat.color,
463|                }}>
464|                  {lang === 'vn' ? cat.label : cat.labelEn}
465|                </div>
466|              ))}
467|            </div>
468|
469|            <div style={{ display: 'flex', flexDirection: 'column', gap: 10 }}>
470|              {SKILLS.map(skill => {
471|                const status = getSkillStatus(skill.id);
472|                const pct = getSkillProgress(skill.id);
473|                return (
474|                  <SkillNode
475|                    key={skill.id}
476|                    skill={skill}
477|                    status={status}
478|                    progress={pct}
479|                    lang={lang}
480|                    onSelect={handleSelect}
481|                    selected={selected}
482|                  />
483|                );
484|              })}
485|            </div>
486|
487|            {selectedSkill && (
488|              <div className="skill-detail" style={{
489|                marginTop: 20, padding: '20px 24px', borderRadius: 14,
490|                background: 'var(--bg-surface, #0f1018)',
491|                border: `1px solid ${selectedSkill.color}33`,
492|                boxShadow: `0 0 30px ${selectedSkill.color}08`,
493|              }}>
494|                <div style={{ display: 'flex', alignItems: 'flex-start', gap: 16 }}>
495|                  <div style={{
496|                    fontSize: 42, width: 60, height: 60, display: 'flex', alignItems: 'center',
497|                    justifyContent: 'center', borderRadius: 12, background: `${selectedSkill.color}15`,
498|                    border: `1px solid ${selectedSkill.color}33`, flexShrink: 0,
499|                  }}>
500|                    {selectedSkill.icon}
501|                  </div>
502|                  <div style={{ flex: 1 }}>
503|                    <div style={{ fontSize: 18, fontWeight: 800, marginBottom: 2 }}>
504|                      {lang === 'vn' ? selectedSkill.titleVn : selectedSkill.title}
505|                    </div>
506|                    <div style={{ fontSize: 12, color: 'var(--text-muted, #5a5d72)', marginBottom: 10 }}>
507|                      {lang === 'vn' ? selectedSkill.desc : selectedSkill.descEn}
508|                    </div>
509|                    <div style={{ display: 'flex', gap: 10, flexWrap: 'wrap', marginBottom: 14 }}>
510|                      <div style={{ padding: '3px 10px', borderRadius: 6, fontSize: 10, fontWeight: 600, backg...
511|                        +{selectedSkill.xp} XP
512|                      </div>
513|                      <div style={{ padding: '3px 10px', borderRadius: 6, fontSize: 10, fontWeight: 600, backg...
514|                                                    { t ( ' D a n h   m ầ c : ' ,   ' C a t e g o r y : ' ) }   { l a n g   = = =   ' v n '   ?   (
515|                      </div>
516|                      <div style={{ padding: '3px 10px', borderRadius: 6, fontSize: 10, fontWeight: 600, backg...
517|                                                    { t ( ' T r ¡ n g   t h á i : ' ,   ' S t a t u s : ' ) }   { s e l e c t e d S t a t u s   = =
518|                      </div>
519|                    </div>
520|
521|                    {selectedSkill.prerequisites.length > 0 && (
522|                      <div style={{ marginBottom: 14 }}>
523|                        <div style={{ fontSize: 10, fontWeight: 600, color: 'var(--text-muted, #5a5d72)', marg...
524|                                                          { t ( ' Y ê u   c § u   t r ° Û c : ' ,   ' P r e r e q u i s i t e s : ' ) }
525|                        </div>
526|                        <div style={{ display: 'flex', gap: 6, flexWrap: 'wrap' }}>
527|                          {selectedSkill.prerequisites.map(preId => {
528|                            const pre = SKILLS.find(s => s.id === preId);
529|                            const preStatus = getSkillStatus(preId);
530|                            return (
531|                              <div key={preId} style={{
532|                                padding: '2px 8px', borderRadius: 4, fontSize: 10, fontWeight: 600,
533|                                background: preStatus === 'mastered' ? 'rgba(34,197,94,0.1)' : 'rgba(239,68,68...
534|                                border: `1px solid ${preStatus === 'mastered' ? 'rgba(34,197,94,0.2)' : 'rgba(...
535|                                color: preStatus === 'mastered' ? '#22c55e' : '#ef4444',
536|                              }}>
537|                                {preStatus === 'mastered' ? '\u2713 ' : '\u2717 '}
538|                                {lang === 'vn' ? pre?.titleVn : pre?.title}
539|                              </div>
540|                            );
541|                          })}
542|                        </div>
543|                      </div>
544|                    )}
545|
546|                    <div style={{ display: 'flex', gap: 10, alignItems: 'center' }}>
547|                      <Link href={selectedSkill.route}
548|                        style={{
549|                          padding: '10px 24px', borderRadius: 8, fontSize: 13, fontWeight: 700,
550|                          background: `linear-gradient(135deg, ${selectedSkill.color}, ${selectedSkill.color}8...
551|                          border: 'none', color: '#fff', cursor: 'pointer', textDecoration: 'none',
552|                          fontFamily: 'inherit', transition: 'all 0.2s',
553|                        }}
```

```
554|                        onMouseOver={e => { e.currentTarget.style.opacity = '0.85'; }}
555|                        onMouseOut={e => { e.currentTarget.style.opacity = '1'; }}
556|                      >
   5 5 7 |                                                  { s e l e c t e d S t a t u s   = = =   ' m a s t e r e d '   ?   t ( ' Ô n   t - p ' ,   ' R e
558|                      </Link>
559|                      {selectedStatus !== 'mastered' && (
560|                        <button onClick={() => handleMasterSkill(selectedSkill.id)}
561|                          style={{
562|                            padding: '10px 20px', borderRadius: 8, fontSize: 12, fontWeight: 600,
563|                            background: 'rgba(34,197,94,0.1)', border: '1px solid rgba(34,197,94,0.2)',
564|                            color: '#22c55e', cursor: 'pointer', fontFamily: 'inherit',
565|                            transition: 'all 0.2s',
566|                          }}
567|                          onMouseOver={e => { e.currentTarget.style.background = 'rgba(34,197,94,0.2)'; }}
568|                          onMouseOut={e => { e.currentTarget.style.background = 'rgba(34,197,94,0.1)'; }}
   5 6 9 |                                                  > { t ( '   á n h   d ¥ u   h o à n   t h à n h ' ,   ' M a r k   C o m p l e t e ' ) } < / b u
570|                      )}
571|                    </div>
572|                  </div>
573|                </div>
574|              </div>
575|            )}
576|          </div>
577|        )}
578|      </div>
579|    </div>
580|  );
581| }
582|
```

File: components/quiz/QuestionCard.tsx (86 lines, 3.2 KB)

```
1| 'use client';
2|
3| import React from 'react';
4| import { motion } from 'framer-motion';
5| import { Question, QuestionOption } from '@/types/quiz';
6|
7| interface QuestionCardProps {
8|   question: Question;
9|   selectedOptionId?: string;
10|   textAnswer?: string;
11|   onSelectOption: (optionId: string) => void;
12|   onTextAnswerChange: (text: string) => void;
13|   disabled?: boolean;
14| }
15|
16| const QuestionCard: React.FC<QuestionCardProps> = ({
17|   question,
18|   selectedOptionId,
19|   textAnswer,
20|   onSelectOption,
21|   onTextAnswerChange,
22|   disabled = false
23| }) => {
24|   return (
25|     <div className="glass-panel p-6 mb-4">
26|       <div className="flex justify-between items-start mb-4">
27|         <span className="text-sm font-semibold text-brand-light bg-brand-subtle px-2 py-1 rounded">
28|           {question.points} {question.points > 1 ? 'points' : 'point'}
29|         </span>
30|         <span className="text-xs text-text-muted uppercase tracking-wider">
31|           {question.type.replace('_', ' ')}
32|         </span>
33|       </div>
34|
35|       <h3 className="text-lg font-medium text-text-primary mb-6 leading-relaxed">
36|         {question.content}
37|       </h3>
38|
39|       {/* Multiple Choice or True/False */}
40|       {(question.type === 'multiple_choice' || question.type === 'true_false') && (
41|         <div className="grid gap-3">
42|           {question.options?.map((option) => (
43|             <button
44|               key={option.id}
45|               onClick={() => !disabled && onSelectOption(option.id)}
46|               disabled={disabled}
47|               className={`w-full text-left p-4 rounded-lg border transition-all duration-200 ${
48|                 selectedOptionId === option.id
49|                   ? 'bg-brand-subtle border-brand-primary text-brand-light shadow-[0_0_15px_rgba(0,198,174,0.2)]'
50|                   : 'bg-bg-elevated border-border-default text-text-secondary hover:border-brand-light hover:b...
51|               } ${disabled ? 'cursor-not-allowed opacity-80' : 'cursor-pointer'}`}
52|             >
53|               <div className="flex items-center gap-3">
54|                 <div className={`w-5 h-5 rounded-full border-2 flex items-center justify-center transition-col...
55|                   selectedOptionId === option.id ? 'border-brand-primary' : 'border-text-muted'
56|                 }`}>
57|                   {selectedOptionId === option.id && (
58|                     <div className="w-2.5 h-2.5 rounded-full bg-brand-primary" />
59|                   )}
60|                 </div>
61|                 <span>{option.content}</span>
62|               </div>
63|             </button>
64|           ))}
65|         </div>
66|       )}
67|
68|       {/* Fill in the blank */}
69|       {question.type === 'fill_blank' && (
70|         <div className="mt-4">
71|           <input
72|             type="text"
73|             value={textAnswer || ''}
74|             onChange={(e) => onTextAnswerChange(e.target.value)}
75|             disabled={disabled}
76|             placeholder="Type your answer here..."
77|             className="w-full p-4 bg-bg-elevated border border-border-default rounded-lg text-text-primary foc...
78|           />
79|         </div>
80|       )}
81|     </div>
82|   );
83| };
84|
85| export default QuestionCard;
86|
```

File: components/quiz/ScoreReport.tsx (77 lines, 3.0 KB)

```
    1| 'use client';
    2|
    3| import React from 'react';
    4| import { motion } from 'framer-motion';
    5| import { Trophy, XCircle, CheckCircle2, ChevronRight } from 'lucide-react';
    6| import Link from 'next/link';
    7|
    8| interface ScoreReportProps {
    9|   score: number;
   10|   totalPoints: number;
   11|   passingScore: number;
   12|   attemptId: string;
   13| }
   14|
   15| const ScoreReport: React.FC<ScoreReportProps> = ({ score, totalPoints, passingScore, attemptId }) => {
   16|   const isPassed = score >= passingScore;
   17|   const percentage = (score / totalPoints) * 100;
   18|
   19|   return (
   20|     <div className="glass-panel p-8 text-center max-w-2xl mx-auto mt-10">
   21|       <motion.div
   22|         initial={{ scale: 0.8, opacity: 0 }}
   23|         animate={{ scale: 1, opacity: 1 }}
   24|         transition={{ type: 'spring', damping: 12 }}
   25|         className="mb-8"
   26|       >
   27|         <div className={`mx-auto w-24 h-24 rounded-full flex items-center justify-center mb-6 ${
   28|           isPassed ? 'bg-success/10 text-success shadow-[0_0_30px_rgba(16,185,129,0.3)]' : 'bg-danger/10 text-...
   29|         }`}>
   30|           {isPassed ? <Trophy size={48} /> : <XCircle size={48} />}
   31|         </div>
   32|
   33|         <h2 className="text-3xl font-bold text-text-primary mb-2">
   34|           {isPassed ? 'Congratulations!' : 'Good Effort!'}
   35|         </h2>
   36|         <p className="text-text-secondary">
   37|           {isPassed
   38|             ? 'You have successfully passed the quiz.'
   39|             : 'You did not reach the passing score this time.'}
   40|         </p>
   41|       </motion.div>
   42|
   43|       <div className="grid grid-cols-2 gap-4 mb-10">
   44|         <div className="bg-bg-elevated p-6 rounded-2xl border border-border-subtle">
   45|           <p className="text-xs text-text-muted uppercase font-bold mb-1">Your Score</p>
   46|           <p className={`text-4xl font-bold ${isPassed ? 'text-success' : 'text-danger'}`}>
   47|             {score}<span className="text-lg text-text-muted">/{totalPoints}</span>
   48|           </p>
   49|         </div>
   50|         <div className="bg-bg-elevated p-6 rounded-2xl border border-border-subtle">
   51|           <p className="text-xs text-text-muted uppercase font-bold mb-1">Percentage</p>
   52|           <p className="text-4xl font-bold text-brand-light">
   53|             {Math.round(percentage)}%
   54|           </p>
   55|         </div>
   56|       </div>
   57|
   58|       <div className="flex flex-col sm:flex-row gap-4 justify-center">
   59|         <Link
   60|           href={`/student/quiz/${attemptId}/results`}
   61|           className="flex items-center justify-center gap-2 px-8 py-4 bg-brand-primary text-white rounded-xl f...
   62|         >
   63|           Review Answers <ChevronRight size={18} />
   64|         </Link>
   65|         <Link
   66|           href="/student"
   67|           className="flex items-center justify-center gap-2 px-8 py-4 bg-bg-elevated text-text-primary rounded...
   68|         >
   69|           Back to Dashboard
   70|         </Link>
   71|       </div>
   72|     </div>
   73|   );
   74| };
   75|
   76| export default ScoreReport;
   77|
```

File: components/quiz/TimerDisplay.tsx (68 lines, 2.2 KB)

```
    1| 'use client';
    2|
    3| import React, { useState, useEffect } from 'react';
    4| import { Timer } from 'lucide-react';
    5|
    6| interface TimerDisplayProps {
    7|   initialMinutes: number;
    8|   onTimeUp: () => void;
    9|   isPaused?: boolean;
   10| }
   11|
   12| const TimerDisplay: React.FC<TimerDisplayProps> = ({ initialMinutes, onTimeUp, isPaused = false }) => {
   13|   const [secondsLeft, setSecondsLeft] = useState(initialMinutes * 60);
   14|
   15|   useEffect(() => {
   16|     if (isPaused || secondsLeft <= 0) return;
   17|
   18|     const timer = setInterval(() => {
   19|       setSecondsLeft((prev) => {
   20|         if (prev <= 1) {
   21|           clearInterval(timer);
   22|           onTimeUp();
   23|           return 0;
   24|         }
   25|         return prev - 1;
   26|       });
   27|     }, 1000);
   28|
   29|     return () => clearInterval(timer);
   30|   }, [secondsLeft, isPaused, onTimeUp]);
   31|
   32|   const formatTime = (seconds: number) => {
   33|     const mins = Math.floor(seconds / 60);
   34|     const secs = seconds % 60;
   35|     return `${mins}:${secs < 10 ? '0' : ''}${secs}`;
   36|   };
   37|
   38|   const progress = (secondsLeft / (initialMinutes * 60)) * 100;
   39|   const isUrgent = secondsLeft < 60; // Less than 1 minute
   40|
   41|   return (
   42|     <div className="glass-panel p-4 flex items-center justify-between sticky top-4 z-50">
   43|       <div className="flex items-center gap-3">
```

```
  44|         <div className={`p-2 rounded-lg ${isUrgent ? 'bg-danger/10 text-danger' : 'bg-brand-subtle text-brand-...
  45|           <Timer size={20} className={isUrgent ? 'animate-pulse' : ''} />
  46|         </div>
  47|         <div>
  48|           <p className="text-xs text-text-muted uppercase font-bold tracking-widest">Time Remaining</p>
  49|           <p className={`text-xl font-mono font-bold ${isUrgent ? 'text-danger' : 'text-text-primary'}`}>
  50|             {formatTime(secondsLeft)}
  51|           </p>
  52|         </div>
  53|       </div>
  54|
  55|       <div className="flex-1 max-w-[200px] ml-6 hidden md:block">
  56|         <div className="h-1.5 w-full bg-bg-elevated rounded-full overflow-hidden">
  57|           <div
  58|             className={`h-full transition-all duration-1000 ease-linear rounded-full ${isUrgent ? 'bg-danger' ...
  59|             style={{ width: `${progress}%` }}
  60|           />
  61|         </div>
  62|       </div>
  63|     </div>
  64|   );
  65| };
  66|
  67| export default TimerDisplay;
  68|
```

File: components/QuizModal.js (339 lines, 16.9 KB)

```
   1| 'use client';
   2|
   3| import { useState, useEffect, useMemo } from 'react';
   4| import { motion, AnimatePresence } from 'framer-motion';
   5| import { supabase } from '@/lib/supabase';
   6| import { QUIZ_BANK } from '../data/quiz-bank';
   7|
   8| const TOPIC_MAP = {
   9|   'CPU': ['quiz-cpu-arch'],
  10|   'RAM': ['quiz-ram-deep'],
  11|   'GPU': ['quiz-gpu-advanced'],
  12|   'PSU': ['quiz-psu-cooling', 'quiz-cooling-advanced'],
  13|   'Mainboard': ['quiz-motherboard'],
  14|   'Storage': ['quiz-storage'],
  15|   'SSD': ['quiz-storage'],
  16|   'Computer Case': ['quiz-case'],
  17|   'Cooler': ['quiz-case', 'quiz-cooling-advanced'],
  18|   'general': ['quiz-cpu-arch', 'quiz-ram-deep', 'quiz-gpu-advanced', 'quiz-psu-cooling', 'quiz-motherboard', '...
  19| };
  20|
  21| function shuffleArray(arr) {
  22|   const a = [...arr];
  23|   for (let i = a.length - 1; i > 0; i--) {
  24|     const j = Math.floor(Math.random() * (i + 1));
  25|     [a[i], a[j]] = [a[j], a[i]];
  26|   }
  27|   return a;
  28| }
  29|
  30| function getQuestionsForTopic(topic, count = 10) {
  31|   const quizIds = TOPIC_MAP[topic] || TOPIC_MAP['general'];
  32|   let allQuestions = [];
  33|   for (const qid of quizIds) {
  34|     const quiz = QUIZ_BANK.find(q => q.id === qid);
  35|     if (quiz) {
  36|       allQuestions.push(...quiz.questions.map((qq, idx) => ({
  37|         id: `${qid}-${idx}`,
  38|         ...qq
  39|       })));
  40|     }
  41|   }
  42|   if (allQuestions.length === 0) {
  43|     allQuestions = QUIZ_BANK.flatMap(q =>
  44|       q.questions.map((qq, idx) => ({ id: `${q.id}-${idx}`, ...qq }))
  45|     );
  46|   }
  47|   const shuffled = shuffleArray(allQuestions);
  48|   return shuffled.slice(0, Math.min(count, shuffled.length));
  49| }
  50|
  51| function formatQuestion(q) {
  52|   const letters = ['A', 'B', 'C', 'D'];
  53|   return {
  54|     question: q.q,
  55|     options: q.options.map((opt, i) => `${letters[i]}. ${opt}`),
  56|     correctAnswer: letters[q.answer],
    5 7 |           e x p l a n a t i o n :   `   á p   á n     ú n g   l à   $ { l e t t e r s [ q . a n s w e r ] } :   $ { q . o p t i o n s [ q . a n s
  58|   };
  59| }
  60|
  61| const QuizModal = ({ onClose, lang, topic, level, onSuccess, onScore }) => {
  62|     const [questions, setQuestions] = useState([]);
  63|     const [currentIndex, setCurrentIndex] = useState(0);
  64|     const [score, setScore] = useState(0);
  65|     const [loading, setLoading] = useState(true);
  66|     const [selectedOption, setSelectedOption] = useState(null);
  67|     const [result, setResult] = useState(null);
  68|     const [view, setView] = useState('quiz');
  69|
  70|     useEffect(() => {
  71|       const raw = getQuestionsForTopic(topic || 'general', 10);
  72|       const formatted = raw.map(formatQuestion);
  73|       setQuestions(formatted);
  74|       setLoading(false);
  75|     }, [topic]);
  76|
  77|     useEffect(() => {
  78|         if (view === 'score') {
  79|             if (onScore) onScore(score);
  80|             const saveResult = async () => {
  81|                 const { data: { user } } = await supabase.auth.getUser();
  82|                 if (user) {
  83|                     await supabase.from('quiz_results').insert({
  84|                         user_id: user.id,
  85|                         topic: topic,
  86|                         score: score,
  87|                         total: 10,
  88|                         lang: lang
  89|                     });
  90|                 }
  91|             };
  92|             saveResult();
  93|         }
  94|     }, [view]);
  95|
```

```
 96|     const handleAnswer = (option) => {
 97|         if (selectedOption || view === 'score') return;
 98|         setSelectedOption(option);
 99|         const currentQ = questions[currentIndex];
100|         if (option === currentQ.correctAnswer) {
101|             setResult('correct');
102|             setScore(prev => prev + 1);
103|         } else {
104|             setResult('incorrect');
105|         }
106|     };
107|
108|     const nextQuestion = () => {
109|         if (currentIndex < 9) {
110|             setCurrentIndex(prev => prev + 1);
111|             setSelectedOption(null);
112|             setResult(null);
113|         } else {
114|             setView('score');
115|         }
116|     };
117|
118|     const retryQuiz = () => {
119|       setCurrentIndex(0);
120|       setScore(0);
121|       setSelectedOption(null);
122|       setResult(null);
123|       setView('quiz');
124|       const raw = getQuestionsForTopic(topic || 'general', 10);
125|       const formatted = raw.map(formatQuestion);
126|       setQuestions(formatted);
127|     };
128|
129|     const currentQuestion = questions[currentIndex];
130|
131|     return (
132|         <div style={{
133|             position: 'fixed',
134|             inset: 0,
135|             background: 'rgba(0,0,0,0.85)',
136|             backdropFilter: 'blur(8px)',
137|             zIndex: 300,
138|             display: 'flex',
139|             alignItems: 'center',
140|             justifyContent: 'center',
141|             padding: '2rem'
142|         }}>
143|             <motion.div
144|                 initial={{ opacity: 0, y: 50, scale: 0.95 }}
145|                 animate={{ opacity: 1, y: 0, scale: 1 }}
146|                 exit={{ opacity: 0, y: 50, scale: 0.95 }}
147|                 className="glass-panel"
148|                 style={{
149|                     width: '100%',
150|                     maxWidth: '650px',
151|                     padding: '3rem',
152|                     border: loading ? '1px solid #555' : '1px solid var(--accent-purple)',
153|                     boxShadow: '0 0 50px rgba(139, 92, 246, 0.4)',
154|                     position: 'relative'
155|                 }}
156|             >
157|                 <button
158|                     onClick={onClose}
159|                     style={{
160|                         position: 'absolute',
161|                         top: '1.5rem',
162|                         right: '1.5rem',
163|                         background: 'none',
164|                         border: 'none',
165|                         color: '#aaa',
166|                         fontSize: '1.5rem',
167|                         cursor: 'pointer'
168|                     }}
  169|                                 >'  < / b u t t o n >
170|
171|                 {loading ? (
172|                     <div style={{ textAlign: 'center', padding: '3rem' }}>
173|                         <div className="neon-text-purple" style={{ animation: 'pulse 1.5s infinite', fontSize:...
  174|                                                 { l a n g  = = =  ' e n '  ?  ' L o a d i n g  q u e s t i o n s . . . '  :  '
175|                         </div>
176|                     </div>
177|                 ) : questions.length === 0 ? (
178|                     <div style={{ color: 'red', textAlign: 'center', padding: '1rem' }}>
  179|                                             { l a n g  = = =  ' e n '  ?  ' N o  q u e s t i o n s  a v a i l a b l e  f o r  t h i
180|                     </div>
181|                 ) : view === 'score' ? (
182|                     <motion.div
183|                         initial={{ opacity: 0, scale: 0.95 }}
184|                         animate={{ opacity: 1, scale: 1 }}
185|                         style={{ textAlign: 'center', display: 'flex', flexDirection: 'column', alignItems: 'c...
186|                     >
187|                         <h2 style={{ fontSize: '24px', fontWeight: 700, color: 'var(--text-primary)', marginBo...
  188|                                                 { l a n g  = = =  ' e n '  ?  ' Q U I Z  C O M P L E T E D '  :  ' H O À N  T H
189|                         </h2>
190|
191|                         <div style={{ position: 'relative', width: '160px', height: '160px', marginBottom: '24...
192|                             <svg width="160" height="160" viewBox="0 0 160 160" style={{ transform: 'rotate(-9...
193|                                 <circle cx="80" cy="80" r="70" fill="none" stroke="var(--border-strong)" strok...
194|                                 <circle cx="80" cy="80" r="70" fill="none" stroke={score >= 8 ? 'var(--success...
195|                                     strokeDasharray="439.8" strokeDashoffset={439.8 - (439.8 * score) / 10}
196|                                     strokeLinecap="round" style={{ transition: 'stroke-dashoffset 1s ease-out'...
197|                             </svg>
198|                             <div style={{ position: 'absolute', top: 0, left: 0, width: '100%', height: '100%'...
199|                                 <span style={{ fontSize: '40px', fontWeight: 800, color: score >= 8 ? 'var(--s...
200|                                 <span style={{ fontSize: '14px', color: 'var(--text-muted)', fontWeight: 600 }...
201|                             </div>
202|                         </div>
203|
204|                         <p style={{ color: 'var(--text-secondary)', marginBottom: '32px', fontSize: '15px', ma...
205|                             {score >= 8
  206|                                                         ?  ( l a n g  = = =  ' e n '  ?  ' E x c e l l e n t !  Y o u  d e m o r
  207|                                                         :  ( l a n g  = = =  ' e n '  ?  ' G o o d  e f f o r t !  K e e p  l e
208|                         </p>
209|
210|                         <p style={{ color: 'var(--success)', fontSize: '14px', fontWeight: 700, marginBottom: ...
  211|                                                 + { ( s c o r e  *  1 0 0 0 0 0 ) . t o L o c a l e S t r i n g ( ) }  «  { l a n g
212|                         </p>
213|
214|                         <div style={{ display: 'flex', gap: '16px', width: '100%', justifyContent: 'center' }}>
215|                             <button
216|                                 onClick={retryQuiz}
217|                                 style={{
218|                                     padding: '12px 24px', background: 'var(--bg-elevated)', color: 'var(--text...
219|                                     border: '1px solid var(--border-default)', borderRadius: '8px', fontWeight...
```

```
                                cursor: 'pointer', transition: 'all 0.2s'
                            }}
                            onMouseOver={e => e.currentTarget.style.background = 'var(--bg-hover)'}
                            onMouseOut={e => e.currentTarget.style.background = 'var(--bg-elevated)'}
                        >
                            {lang === 'en' ? 'Retry' : 'Thí lại'}
                        </button>
                        <button
                            onClick={() => {
                                if (score >= 8 && onSuccess) onSuccess(score);
                                onClose();
                            }}
                            style={{
                                padding: '12px 24px', background: 'var(--brand-primary)', color: 'white',
                                border: 'none', borderRadius: '8px', fontWeight: 600,
                                cursor: 'pointer', transition: 'all 0.2s', boxShadow: '0 4px 14px rgba(99,...
                            }}
                            onMouseOver={e => e.currentTarget.style.transform = 'translateY(-2px)'}
                            onMouseOut={e => e.currentTarget.style.transform = 'translateY(0)'}
                        >
                            {lang === 'en' ? 'Complete' : 'Hoàn thành'}
                        </button>
                    </div>
                </motion.div>
            ) : currentQuestion ? (
                <AnimatePresence mode="wait">
                    <motion.div
                        key={currentIndex}
                        initial={{ opacity: 0, x: 20 }}
                        animate={{ opacity: 1, x: 0 }}
                        exit={{ opacity: 0, x: -20 }}
                    >
                        <div style={{ display: 'flex', justifyContent: 'space-between', marginBottom: '2re...
                        <span>{lang === 'en' ? `Question ${curre
                        <span>{lang === 'en' ? `Score: ${score}
                        </div>

                        <h2 className="neon-text-blue" style={{ marginBottom: '2rem', fontSize: '1.4rem', ...
                            {currentQuestion.question}
                        </h2>

                        <div style={{ display: 'grid', gap: '1rem' }}>
                            {currentQuestion.options.map((opt, idx) => {
                                let bgColor = 'var(--bg-elevated)';
                                let borderColor = 'var(--border-default)';

                                if (selectedOption) {
                                    const optionLetter = opt.charAt(0);
                                    if (optionLetter === currentQuestion.correctAnswer) {
                                        bgColor = 'rgba(0, 255, 157, 0.2)';
                                        borderColor = 'var(--accent-green)';
                                    } else if (selectedOption === optionLetter && result === 'incorrect') {
                                        bgColor = 'rgba(255, 0, 85, 0.2)';
                                        borderColor = '#ff0055';
                                    }
                                }

                                return (
                                    <motion.button
                                        whileHover={{ scale: selectedOption ? 1 : 1.02 }}
                                        whileTap={{ scale: selectedOption ? 1 : 0.98 }}
                                        key={idx}
                                        onClick={() => handleAnswer(opt.charAt(0))}
                                        style={{
                                            padding: '1.2rem',
                                            textAlign: 'left',
                                            background: bgColor,
                                            border: `1px solid ${borderColor}`,
                                            color: 'var(--text-primary)',
                                            borderRadius: '8px',
                                            cursor: selectedOption ? 'default' : 'pointer',
                                            transition: 'background-color 0.2s, border-color 0.2s',
                                            fontSize: '1rem'
                                        }}
                                    >
                                        {opt}
                                    </motion.button>
                                );
                            })}
                        </div>

                        {result && (
                            <motion.div
                                initial={{ opacity: 0, y: 10 }}
                                animate={{ opacity: 1, y: 0 }}
                                style={{ marginTop: '2rem', padding: '1.5rem', background: 'rgba(255,255,2...
                            >
                                <strong style={{ color: result === 'correct' ? 'var(--accent-green)' : '#f...
                                    {result === 'correct' ? (lang === 'en' ? 'CORRECT!' : 'CHÍNH XÁC!') : ...
                                </strong>
                                <p style={{ marginTop: '0.5rem', color: 'var(--text-secondary)', fontSize:...
                                <motion.button
                                    whileHover={{ scale: 1.05 }}
                                    whileTap={{ scale: 0.95 }}
                                    onClick={nextQuestion}
                                    style={{
                                        marginTop: '1.5rem',
                                        padding: '0.8rem 1.8rem',
                                        background: 'var(--primary-neon)',
                                        border: 'none',
                                        borderRadius: '4px',
                                        color: 'black',
                                        fontWeight: 'bold',
                                        cursor: 'pointer'
                                    }}
                                >
                                    {lang === 'en' ? (currentIndex === 9 ? 'Show Score' : 'Next Question')...
                                </motion.button>
                            </motion.div>
                        )}
                    </motion.div>
                </AnimatePresence>
            ) : null}
        </motion.div>
    </div>
  );
};

export default QuizModal;
```

File: components/RealtimeWrapper.js (21 lines, 0.7 KB)

==========

```
    1| 'use client';
    2|
    3| import React, { useEffect, useState } from 'react';
    4| import { RealtimeProvider } from '@/lib/realtime-provider';
    5|
    6| export default function RealtimeWrapper({ children }) {
    7|     const [userId, setUserId] = useState(null);
    8|     useEffect(() => {
    9|         const url = process.env.NEXT_PUBLIC_SUPABASE_URL;
   10|         const key = process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY;
   11|         if (!url || !key) return;
   12|         import('@supabase/ssr').then(({ createBrowserClient }) => {
   13|             const client = createBrowserClient(url, key);
   14|             client.auth.getUser().then(({ data }) => {
   15|                 if (data?.user) setUserId(data.user.id);
   16|             });
   17|         });
   18|     }, []);
   19|     return <RealtimeProvider userId={userId}>{children}</RealtimeProvider>;
   20| }
   21|
```

File: components/SessionManager.tsx (9 lines, 0.2 KB)

```
    1| 'use client'
    2|
    3| import { useSessionTimeout } from '@/hooks/useSessionTimeout'
    4|
    5| export default function SessionManager() {
    6|   useSessionTimeout(30) // 30 minutes
    7|   return null
    8| }
    9|
```

File: components/SketchfabViewer.js (26 lines, 0.8 KB)

```
    1| 'use client';
    2|
    3| export default function SketchfabViewer() {
    4|   return (
    5|     <div style={{
    6|       width: '100%', height: '100%', position: 'relative',
    7|       background: '#0a0a0f', borderRadius: 12, overflow: 'hidden',
    8|       border: '1px solid var(--border-default)',
    9|     }}>
   10|       <iframe
   11|         title="Dream Computer Setup"
   12|         style={{ width: '100%', height: '100%', border: 'none' }}
   13|         src="https://sketchfab.com/models/82f78bbaf2d34f01af854a52151dbf49/embed"
   14|         allow="autoplay; fullscreen; xr-spatial-tracking"
   15|         allowFullScreen
   16|         mozallowfullscreen="true"
   17|         webkitallowfullscreen="true"
   18|         xr-spatial-tracking
   19|         web-share
   20|         execution-while-out-of-viewport
   21|         execution-while-not-rendered
   22|       />
   23|     </div>
   24|   );
   25| }
   26|
```

File: components/StudentDashboardContent.tsx (105 lines, 5.5 KB)

```
    1| 'use client'
    2|
    3| import React, { useEffect, useState, useCallback } from 'react'
    4| import Link from 'next/link'
    5| import { usePathname } from 'next/navigation'
    6| import { GraduationCap, LayoutDashboard, Cpu, History, LogOut, Users, BookOpen, ChevronDown, User, Sun, Moon, ...
    7| import { logout } from '@/lib/auth-actions'
    8| import { createBrowserClient } from '@supabase/ssr'
    9| import dynamic from 'next/dynamic'
   10|
   11| const StudentDashboard = dynamic(() => import('../app/(dashboard)/student/page'), { ssr: false })
   12|
   13| export default function StudentDashboardContent({ onClose }: { onClose: () => void }) {
   14|   const [hasClass, setHasClass] = useState(false)
   15|   const [profile, setProfile] = useState<any>(null)
   16|   const [theme, setThemeState] = useState<'light' | 'dark'>('light')
   17|   const pathname = '/student/dashboard'
   18|   const supabase = createBrowserClient(
   19|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   20|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   21|   )
   22|
   23|   useEffect(() => {
   24|     const saved = (localStorage.getItem('theme') as 'light' | 'dark') || 'light'
   25|     setThemeState(saved)
   26|     document.documentElement.setAttribute('data-theme', saved)
   27|   }, [])
   28|
   29|   useEffect(() => {
   30|     const checkClass = async () => {
   31|       const { data: { user } } = await supabase.auth.getUser()
   32|       if (user) {
   33|         const { data: p } = await supabase.from('profiles').select('*').eq('id', user.id).single()
   34|         if (p) { setProfile(p); if (p.school_id || p.class_id) setHasClass(true) }
   35|       }
   36|     }
   37|     checkClass()
   38|   }, [])
   39|
   40|   const toggle = useCallback(() => {
   41|     const next = theme === 'light' ? 'dark' : 'light'
   42|     setThemeState(next)
   43|     document.documentElement.setAttribute('data-theme', next)
   44|     localStorage.setItem('theme', next)
   45|   }, [theme])
   46|
   47|   const navItems = [
      4 8 |         {  h r e f :  ' / s t u d e n t / d a s h b o a r d ' ,  l a b e l :  ' B £ n g   i Á u  k h i Ã n ' ,  i c o n :  L a y o u t
      4 9 |         . . . ( h a s C l a s s  ?  [ {  h r e f :  ' / s t u d e n t / c l a s s e s ' ,  l a b e l :  ' L Û p  h Í c  c ç a  t ô i '
      5 0 |         {  h r e f :  ' / s t u d e n t / l e s s o n s ' ,  l a b e l :  ' B à i  g i £ n g ' ,  i c o n :  B o o k O p e n  } ,
   51|
      5 2 |         {  h r e f :  ' / b u i l d e r ' ,  l a b e l :  ' T h ñ c  h à n h  l ¯ p  r á p ' ,  i c o n :  C p u  } ,
      5 3 |         {  h r e f :  ' / s t u d e n t / h i s t o r y ' ,  l a b e l :  ' L Ë c h  s í  h Í c  t - p ' ,  i c o n :  H i s t o r y
   54|   ]
   55|
```

```
  56|   return (
  57|     <div style={{ position: 'fixed', inset: 0, zIndex: 9999, display: 'flex', minHeight: '100vh', background: ...
  58|       <aside style={{ width: '280px', background: 'linear-gradient(180deg, #031f3b 0%, #1a2f53 100%)', display...
  59|         <div style={{ padding: '24px', display: 'flex', alignItems: 'center', gap: '12px', borderBottom: '1px ...
  60|           <div style={{ width: '40px', height: '40px', borderRadius: '10px', background: 'var(--brand-primary)...
  61|             <GraduationCap size={20} color="#fff" />
  62|           </div>
  63|           <div>
  64|             <div style={{ fontWeight: 800, fontSize: '18px', color: '#fff' }}>PC Master</div>
    6 5 |                         < d i v   s t y l e = { {   f o n t S i z e :   ' 1 1 p x ' ,   c o l o r :   ' v a r ( - - b r a n d - p r i m a r y )
  66|           </div>
  67|         </div>
  68|
  69|         <nav style={{ padding: '16px 12px', display: 'flex', flexDirection: 'column', gap: '4px', flex: 1 }}>
  70|           {navItems.map(({ href, label, icon: Icon }) => {
  71|             const active = pathname === href
  72|             return (
  73|               <Link key={href} href={href} style={{
  74|                 display: 'flex', alignItems: 'center', gap: '12px', padding: '12px 16px', borderRadius: '10px'...
  75|                 background: active ? 'rgba(8,158,96,0.15)' : 'transparent',
  76|                 color: active ? '#fff' : 'rgba(255,255,255,0.6)',
  77|                 transition: 'all 0.2s'
  78|               }}>
  79|                 <Icon size={20} /> {label}
  80|               </Link>
  81|             )
  82|           })}
  83|         </nav>
  84|
  85|         <div style={{ padding: '16px', borderTop: '1px solid rgba(255,255,255,0.08)', display: 'flex', flexDir...
  86|           <button onClick={toggle} style={{ display: 'flex', alignItems: 'center', gap: '12px', padding: '12px...
  87|             {theme === 'light' ? <Moon size={18} /> : <Sun size={18} />}
    8 8 |                         { t h e m e   = = =   ' l i g h t '   ?   ' G i a o   d i Ç n   t Ñ i '   :   ' G i a o   d i Ç n   s á n g ' }
  89|           </button>
  90|           <button onClick={onClose} style={{ display: 'flex', alignItems: 'center', gap: '12px', padding: '12p...
    9 1 |                         < X   s i z e = { 1 8 }   / >   Q u a y   l ¡ i   B u i l d e r
  92|           </button>
  93|           <button onClick={() => logout()} style={{ display: 'flex', alignItems: 'center', gap: '12px', paddin...
    9 4 |                         < L o g O u t   s i z e = { 1 8 }   / >       n g   x u ¥ t
  95|           </button>
  96|         </div>
  97|       </aside>
  98|
  99|       <main style={{ flex: 1, padding: '32px', overflowY: 'auto', minWidth: 0 }}>
 100|         <StudentDashboard />
 101|       </main>
 102|     </div>
 103|   )
 104| }
 105|
```

File: components/ui/BackButton.tsx (31 lines, 0.7 KB)

```
    1| 'use client'
    2|
    3| import React from 'react'
    4| import { ArrowLeft } from 'lucide-react'
    5| import { useRouter } from 'next/navigation'
    6|
    7| interface BackButtonProps {
    8|   href?: string
    9|   label?: string
   10|   className?: string
   11| }
   12|
    1 3 |   e x p o r t   f u n c t i o n   B a c k B u t t o n ( {   h r e f ,   l a b e l   =   ' Q u a y   l ¡ i ' ,   c l a s s N a m e   =   ' f l e x
   14|   const router = useRouter()
   15|   return (
   16|     <button
   17|       onClick={() => {
   18|         if (href) {
   19|           router.push(href)
   20|         } else {
   21|           router.back()
   22|         }
   23|       }}
   24|       className={className}
   25|     >
   26|       <ArrowLeft size={16} />
   27|       {label}
   28|     </button>
   29|   )
   30| }
   31|
```

File: components/VirtualAssistant.js (270 lines, 12.4 KB)

```
    1| 'use client';
    2|
    3| import React, { useState, useEffect, useRef, useCallback } from 'react';
    4| import { motion, AnimatePresence } from 'framer-motion';
    5| import ReactMarkdown from 'react-markdown';
    6| import { Bot, Minimize2, Maximize2, X, Send, Copy, Sparkles, CheckCheck } from 'lucide-react';
    7| import { QUICK_ACTIONS, WELCOME_MESSAGE } from '../utils/aiConstants';
    8|
    9| // Typing indicator
   10| function TypingDots() {
   11|   return (
   12|     <div className="flex gap-1.5 items-center px-1 py-2">
   13|       <motion.span animate={{ y: [0, -5, 0] }} transition={{ repeat: Infinity, duration: 0.6, delay: 0 }} clas...
   14|       <motion.span animate={{ y: [0, -5, 0] }} transition={{ repeat: Infinity, duration: 0.6, delay: 0.2 }} cl...
   15|       <motion.span animate={{ y: [0, -5, 0] }} transition={{ repeat: Infinity, duration: 0.6, delay: 0.4 }} cl...
   16|     </div>
   17|   );
   18| }
   19|
   20| // Markdown Custom Components
   21| const mdComponents = {
   22|   p: ({ children }) => <p className="mb-2 leading-relaxed text-[15px]">{children}</p>,
   23|   strong: ({ children }) => <strong className="font-bold text-[#00d2a0]">{children}</strong>,
   24|   li: ({ children }) => <li className="ml-4 list-disc mb-1">{children}</li>,
   25|   ul: ({ children }) => <ul className="my-2">{children}</ul>,
   26|   code: ({ children }) => <code className="bg-black/30 px-1.5 py-0.5 rounded text-[#00b4d8] text-[13px] font-m...
   27|   pre: ({ children }) => <pre className="bg-[#0f0f1a] p-3 rounded-lg overflow-x-auto my-2 border border-[#2a36...
   28| };
   29|
   30| const VirtualAssistant = ({ lang = 'vi', appMode, cartItems = [], remainingBudget, missionTitle, isOpen, setIs...
   31|   const [isMinimized, setIsMinimized] = useState(false);
   32|   const [messages, setMessages] = useState([WELCOME_MESSAGE]);
   33|   const [input, setInput] = useState('');
   34|   const [isLoading, setIsLoading] = useState(false);
```

```
  const [copiedIndex, setCopiedIndex] = useState(null);
  const messagesEndRef = useRef(null);
  const inputRef = useRef(null);
  const sendingRef = useRef(false);

  // Auto-scroll
  useEffect(() => {
    if (isOpen && !isMinimized) {
      messagesEndRef.current?.scrollIntoView({ behavior: 'smooth' });
    }
  }, [messages, isLoading, isOpen, isMinimized]);

  // Focus input
  useEffect(() => {
    if (isOpen && !isMinimized) {
      setTimeout(() => inputRef.current?.focus(), 300);
    }
  }, [isOpen, isMinimized]);

  const copyToClipboard = (text, index) => {
    navigator.clipboard.writeText(text);
    setCopiedIndex(index);
    setTimeout(() => setCopiedIndex(null), 2000);
  };

  const sendMessage = useCallback(async (text) => {
    const trimmed = (text || input).trim();
    if (!trimmed || sendingRef.current) return;
    sendingRef.current = true;

    const userMsg = { role: 'user', content: trimmed };

    setMessages(prev => [...prev, userMsg]);
    setInput('');
    setIsLoading(true);

    const prevMessages = messages.concat(userMsg);
    const historyForAPI = prevMessages.filter(m => m.content !== WELCOME_MESSAGE.content).slice(-10);

    try {
      const res = await fetch('/api/ai/chat', {
        method: 'POST',
        headers: { 'Content-Type': 'application/json' },
        body: JSON.stringify({
          message: trimmed,
          history: historyForAPI.slice(0, -1),
          context: { appMode, cartItems, remainingBudget, missionTitle }
        })
      });
      const data = await res.json();
      setMessages(prev => [...prev, {
        role: 'assistant',
        content: data.reply || data.error || 'Xin lỗi, tôi gặp sự cố kết
      }]);
    } catch {
      setMessages(prev => [...prev, {
        role: 'assistant',
        content: 'Đã xảy ra lỗi kết nối máy chủ. Vui lòng thử lại sau.'
      }]);
    } finally {
      setIsLoading(false);
      sendingRef.current = false;
    }
  }, [input, appMode, cartItems, remainingBudget, missionTitle]);

  const handleKeyDown = (e) => {
    if (e.key === 'Enter' && !e.shiftKey) {
      e.preventDefault();
      sendMessage();
    }
  };

  return (
    <AnimatePresence>
      {isOpen && (
        <motion.div
          initial={{ y: 20, opacity: 0, scale: 0.95 }}
          animate={{ y: 0, opacity: 1, scale: 1 }}
          exit={{ y: 20, opacity: 0, scale: 0.95 }}
          transition={{ type: 'spring', stiffness: 300, damping: 25 }}
          className={`fixed bottom-4 right-4 z-[9999] bg-[#16213e]/95 backdrop-blur-xl border border-[#1e293b]...
            isMinimized ? 'w-[320px] h-[60px] rounded-2xl' : 'w-[380px] h-[650px] max-h-[85vh] rounded-2xl sm:...
          }`}
        >
          {/* HEADER */}
          <div
            onClick={() => setIsMinimized(m => !m)}
            className={`flex items-center justify-between px-5 py-3.5 cursor-pointer shrink-0 transition-color...
              isMinimized ? '' : 'border-b border-[#1e293b] bg-gradient-to-r from-[#00d2a0]/10 to-transparent ...
            }`}
          >
            <div className="flex items-center gap-3">
              <div className="relative">
                <div className="w-10 h-10 rounded-full bg-[#00d2a0]/20 flex items-center justify-center text-[...
                  <Bot size={22} />
                </div>
                <div className="absolute bottom-0 right-0 w-3 h-3 bg-green-500 border-2 border-[#16213e] round...
              </div>
              <div>
                <h3 className="font-bold text-white leading-tight">AI Guru <span className="text-xl leading-no...
                <p className="text-[11px] text-green-400 font-medium uppercase tracking-wider">
                  {isLoading ? 'đang soạn tin...' : 'Trực tuyến'}
                </p>
              </div>
            </div>
            <div className="flex items-center gap-2">
              <button
                onClick={(e) => { e.stopPropagation(); setIsMinimized(!isMinimized); }}
                className="p-1.5 text-slate-400 hover:text-white hover:bg-[#2a3655] rounded-md transition-colors"
              >
                {isMinimized ? <Maximize2 size={16} /> : <Minimize2 size={16} />}
              </button>
              <button
                onClick={(e) => { e.stopPropagation(); setIsOpen(false); }}
                className="p-1.5 text-slate-400 hover:text-red-400 hover:bg-red-400/10 rounded-md transition-c...
              >
                <X size={18} />
              </button>
            </div>
          </div>

          {/* BODY */}
          {!isMinimized && (
            <>
```

```
159|              {/* Context Alert */}
160|              {appMode && (
161|                <div className="bg-[#00d2a0]/10 border-b border-[#00d2a0]/20 px-4 py-2 flex items-center gap-2...
162|                  <Sparkles size={14} />
  1 6 3 |                                  < s p a n > A I    a n g   t h e o   d õ i :   { m i s s i o n T i t l e   | |   ' T h ñ c   h à n h   t ́
164|                </div>
165|              )}
166|
167|              {/* Chat Area */}
168|              <div className="flex-1 overflow-y-auto p-4 flex flex-col gap-4 scrollbar-hide">
169|                {messages.map((msg, i) => (
170|                  <div key={i} className={`flex ${msg.role === 'user' ? 'justify-end' : 'justify-start'} group`}>
171|
172|                    {msg.role === 'assistant' && (
173|                      <div className="w-8 h-8 rounded-full bg-[#1e293b] flex items-center justify-center mr-2 ...
174|                        <Bot size={16} className="text-[#00d2a0]" />
175|                      </div>
176|                    )}
177|
178|                    <div className={`relative max-w-[85%] rounded-2xl px-4 py-3 ${
179|                      msg.role === 'user'
180|                        ? 'bg-[#00d2a0] text-black rounded-tr-sm shadow-[0_4px_15px_rgba(0,210,160,0.2)]'
181|                        : 'bg-[#1e293b] text-slate-200 rounded-tl-sm border border-[#2a3655]'
182|                    }`}>
183|                      {msg.role === 'assistant' ? (
184|                        <div className="markdown-body">
185|                          <ReactMarkdown components={mdComponents}>{msg.content}</ReactMarkdown>
186|                        </div>
187|                      ) : (
188|                        <p className="text-[15px] leading-relaxed">{msg.content}</p>
189|                      )}
190|
191|                      {/* Copy Button (Only for assistant) */}
192|                      {msg.role === 'assistant' && (
193|                        <button
194|                          onClick={() => copyToClipboard(msg.content, i)}
195|                          className="absolute -right-10 top-2 p-1.5 text-slate-500 hover:text-[#00d2a0] bg-[#1...
196|                          title="Copy"
197|                        >
198|                          {copiedIndex === i ? <CheckCheck size={14} className="text-[#00d2a0]" /> : <Copy siz...
199|                        </button>
200|                      )}
201|                    </div>
202|                  </div>
203|                ))}
204|
205|                {isLoading && (
206|                  <div className="flex justify-start">
207|                    <div className="w-8 h-8 rounded-full bg-[#1e293b] flex items-center justify-center mr-2 sh...
208|                      <Bot size={16} className="text-[#00d2a0]" />
209|                    </div>
210|                    <div className="bg-[#1e293b] rounded-2xl rounded-tl-sm px-4 py-2 border border-[#2a3655]">
211|                      <TypingDots />
212|                    </div>
213|                  </div>
214|                )}
215|                <div ref={messagesEndRef} />
216|              </div>
217|
218|              {/* Quick Actions */}
219|              <div className="px-3 pb-2 pt-1 flex gap-2 overflow-x-auto scrollbar-hide shrink-0">
220|                {QUICK_ACTIONS?.map((qa, i) => (
221|                  <button
222|                    key={i}
223|                    onClick={() => sendMessage(qa.prompt)}
224|                    disabled={isLoading}
225|                    className="shrink-0 px-3 py-1.5 bg-[#1e293b] hover:bg-[#2a3655] text-[#00b4d8] text-[12px]...
226|                  >
227|                    {qa.label}
228|                  </button>
229|                ))}
230|              </div>
231|
232|              {/* Input Area */}
233|              <div className="p-3 border-t border-[#1e293b] bg-[#16213e] rounded-b-2xl shrink-0">
234|                <div className="relative flex items-end gap-2 bg-[#0f0f1a] rounded-xl border border-[#2a3655] ...
235|                  <textarea
236|                    ref={inputRef}
237|                    value={input}
238|                    onChange={e => setInput(e.target.value)}
239|                    onKeyDown={handleKeyDown}
  2 4 0 |                                    p l a c e h o l d e r = " H Ỉ i   A I   G u r u   v Á   l i n h   k i Ç n . . . "
241|                    disabled={isLoading}
242|                    rows={1}
243|                    className="flex-1 max-h-[120px] bg-transparent border-none text-white text-[14px] placehol...
244|                    onInput={e => {
245|                      e.target.style.height = 'auto';
246|                      e.target.style.height = Math.min(e.target.scrollHeight, 120) + 'px';
247|                    }}
248|                  />
249|                  <button
250|                    onClick={() => sendMessage()}
251|                    disabled={isLoading || !input.trim()}
252|                    className="shrink-0 w-10 h-10 mb-0.5 mr-0.5 rounded-lg bg-[#00d2a0] text-black flex items-...
253|                  >
254|                    <Send size={18} className={input.trim() && !isLoading ? "ml-1" : ""} />
255|                  </button>
256|                </div>
257|                <div className="text-center mt-2">
  2 5 8 |                                  < s p a n   c l a s s N a m e = " t e x t - [ 1 0 p x ]   t e x t - s l a t e - 5 0 0 " > A I   c ó   t h Ể
259|                </div>
260|              </div>
261|            </>
262|          )}
263|        </motion.div>
264|      )}
265|    </AnimatePresence>
266|  );
267| };
268|
269| export default VirtualAssistant;
270|
```

File: components/VoiceController.tsx (290 lines, 11.5 KB)

```
==========================================================================================
  1| 'use client';
  2|
  3| import React, { useState, useEffect, useRef, useCallback } from 'react';
  4|
  5| interface VoiceControllerProps {
  6|   lang: string;
  7|   onCommand: (action: string, params?: any) => void;
  8| }
```

```
interface CommandDef {
  keywords: string[];
  action: string;
  params?: any;
  response: string;
}

const COMMANDS: CommandDef[] = [
    { keywords: ['l_p cpu', 'g_n cpu', 'thêm cpu', 'bù vi xí lý', 'install
    { keywords: ['l_p ram', 'g_n ram', 'thêm ram', 'bù nhớ', 'install ram
    { keywords: ['l_p gpu', 'g_n_gpu', 'th» ó hÍa', 'card màn hình', 'car
    { keywords: ['l_p nguÓn', 'g_n nguÓn', 'thêm nguÓn', 'bù nguÓn', 'inst
    { keywords: ['l_p t£n nhiÇt', 'g_n t£n nhiÇt', 'thêm t£n nhiÇt', 'qu¡t
    { keywords: ['l_p ssd', 'g_n ssd', 'thêm ssd', 'Õ céng', 'install ssd'
    { keywords: ['tháo cpu', 'gá cpu', 'bÏ cpu'], action: 'REMOVE', params
    { keywords: ['tháo ram', 'gá ram', 'bÏ ram'], action: 'REMOVE', params
    { keywords: ['tháo gpu', 'gá card', 'bÏ card màn hình', 'tháo card Ó
    { keywords: ['tháo nguÓn', 'gá nguÓn', 'bÏ nguÓn'], action: 'REMOVE',
    { keywords: ['tháo t£n nhiÇt', 'gá t£n nhiÇt', 'bÏ qu¡t'], action: 'RE
    { keywords: ['tháo ssd', 'gá Ó céng', 'bÏ Ó céng'], action: 'REMOVE',
    { keywords: ['xóa h¿t', 'bÏ h¿t', 'dÍn s¡ch', 'reset', 'xóa t¥t c£'],
    { keywords: ['kiÃm tra t°¡ng thích', 'check t°¡ng thích', 'check compa
    { keywords: ['khßi Ùng', 'b-t máy', 'boot', 'start pc', 'b-t pc'], a
];

export default function VoiceController({ lang, onCommand }: VoiceControllerProps) {
  const [isListening, setIsListening] = useState(false);
  const [feedback, setFeedback] = useState('');
  const [transcript, setTranscript] = useState('');
  const recognitionRef = useRef<any>(null);
  const listenRef = useRef(false);
  const onCommandRef = useRef(onCommand);
  const viVoiceRef = useRef<SpeechSynthesisVoice | null>(null);
  onCommandRef.current = onCommand;

  const findViVoice = useCallback(():SpeechSynthesisVoice | null => {
    const voices = window.speechSynthesis.getVoices();
    let voice = voices.find(v => v.lang.startsWith('vi') && (v.name.includes('Natural') || v.name.includes('On...
    if (!voice) voice = voices.find(v => v.lang.startsWith('vi'));
    return voice || null;
  }, []);

  useEffect(() => {
    if (typeof window === 'undefined' || !window.speechSynthesis) return;
    const loadVoices = () => {
      viVoiceRef.current = findViVoice();
    };
    loadVoices();
    window.speechSynthesis.onvoiceschanged = loadVoices;
    return () => { window.speechSynthesis.onvoiceschanged = null; };
  }, [findViVoice]);

  const speakText = useCallback((text: string) => {
    if (typeof window === 'undefined') return;
    const playViaGoogle = () => {
      const audio = new Audio(`/api/tts?text=${encodeURIComponent(text)}&lang=vi`);
      audio.volume = 1.0;
      audio.play().catch(() => {
        playViaSpeechSynth();
      });
    };
    const playViaSpeechSynth = () => {
      if (!window.speechSynthesis) return;
      window.speechSynthesis.cancel();
      const utterance = new SpeechSynthesisUtterance(text);
      utterance.lang = 'vi-VN';
      utterance.rate = 0.7;
      utterance.pitch = 1.0;
      utterance.volume = 1.0;
      let v = viVoiceRef.current;
      if (!v) {
        v = findViVoice();
        viVoiceRef.current = v;
      }
      if (v) utterance.voice = v;
      window.speechSynthesis.speak(utterance);
    };
    playViaGoogle();
  }, [findViVoice]);

  const findBestMatch = useCallback((text: string):CommandDef | null => {
    const normalized = text
      .toLowerCase()
      .normalize('NFD')
      .replace(/[\u0300-\u036f]/g, '')
      .replace(/ / g, 'd')
      .trim();

    let bestMatch: CommandDef | null = null;
    let bestScore = 0;

    for (const cmd of COMMANDS) {
      for (const keyword of cmd.keywords) {
        const kw = keyword
          .toLowerCase()
          .normalize('NFD')
          .replace(/[\u0300-\u036f]/g, '')
          .replace(/ / g, 'd')
          .trim();

        if (normalized.includes(kw)) {
          const score = kw.length / normalized.length;
          if (score > bestScore) {
            bestScore = score;
            bestMatch = cmd;
          }
        }
      }
    }
    return bestMatch;
  }, []);

  const startListening = useCallback(() => {
    if (!recognitionRef.current) return;
    listenRef.current = true;
    setTranscript('');
    try {
      recognitionRef.current.start();
    } catch {
      setTimeout(() => {
        try { recognitionRef.current?.start(); } catch {}
      }, 200);
    }
```

```
133|   }, []);
134|
135|   const stopListening = useCallback(() => {
136|     listenRef.current = false;
137|     try { recognitionRef.current?.stop(); } catch {}
138|   }, []);
139|
140|   useEffect(() => {
141|     if (typeof window === 'undefined') return;
142|     const SpeechRecognition = (window as any).SpeechRecognition || (window as any).webkitSpeechRecognition;
143|     if (!SpeechRecognition) {
  144|               setFeedback(lang === 'vn' ? 'Trình duyÇt không h× trã' : 'Browser
145|       return;
146|     }
147|
148|     const rec = new SpeechRecognition();
149|     rec.lang = 'vi-VN';
150|     rec.continuous = false;
151|     rec.interimResults = false;
152|     rec.maxAlternatives = 5;
153|
154|     rec.onstart = () => {
155|       setIsListening(true);
  156|               setFeedback(lang === 'vn' ? ' ang nghe...' : 'Listening...');
157|     };
158|
159|     rec.onend = () => {
160|       setIsListening(false);
161|       if (listenRef.current) {
162|         setTimeout(() => startListening(), 300);
163|       } else {
  164|                   setFeedback(lang === 'vn' ? 'Dëng nghe' : 'Stopped');
165|       }
166|     };
167|
168|     rec.onerror = (event: any) => {
169|       if (event.error === 'no-speech') {
170|         if (listenRef.current) {
171|           setTimeout(() => startListening(), 200);
172|         }
173|         return;
174|       }
175|       setIsListening(false);
176|       if (event.error === 'not-allowed') {
  177|                   setFeedback(lang === 'vn' ? 'Vui lòng c¥p quyÁn microphone' : 'P
178|       } else {
  179|                   setFeedback(lang === 'vn' ? 'L×i: ' + event.error : 'Error: ' +
180|       }
181|     };
182|
183|     rec.onresult = (event: any) => {
184|       let bestText = '';
185|       let bestConfidence = 0;
186|
187|       for (let i = event.resultIndex; i < event.results.length; i++) {
188|         if (event.results[i].isFinal) {
189|           for (let j = 0; j < event.results[i].length; j++) {
190|             const alt = event.results[i][j];
191|             if (alt.confidence > bestConfidence) {
192|               bestConfidence = alt.confidence;
193|               bestText = alt.transcript;
194|             }
195|           }
196|         }
197|       }
198|
199|       if (bestText) {
200|         setTranscript(bestText);
201|         const matched = findBestMatch(bestText);
202|         if (matched) {
  203|                     setFeedback(`'  ${matched.response}`);
204|           speakText(matched.response);
205|           onCommandRef.current(matched.action, matched.params);
206|         } else {
  207|                     setFeedback(lang === 'vn' ? `Không hiÃu: "${bestText}"` : `Unk
  208|                     speakText(lang === 'vn' ? 'Xin hãy nói rõ lÇnh' : 'Please spea
209|         }
210|       }
211|     };
212|
213|     recognitionRef.current = rec;
214|   }, [lang, speakText, findBestMatch, startListening]);
215|
216|   const toggleListening = () => {
217|     if (!recognitionRef.current) {
  218|               setFeedback(lang === 'vn' ? 'Trình duyÇt không h× trã' : 'Browser
219|       return;
220|     }
221|     if (isListening || listenRef.current) {
222|       stopListening();
223|     } else {
224|       startListening();
225|     }
226|   };
227|
228|   return (
229|     <div style={{
230|       position: 'fixed', bottom: '100px', left: '24px', zIndex: 999,
231|       display: 'flex', flexDirection: 'column', gap: '8px', alignItems: 'flex-start',
232|     }}>
233|       <button
234|         onClick={toggleListening}
  235|                 title={lang === 'vn' ? 'iÁu khiÃn b±ng giÍng nói' : 'Voice cont
236|         style={{
237|           width: '56px', height: '56px', borderRadius: '50%',
238|           display: 'flex', alignItems: 'center', justifyContent: 'center',
239|           border: `2px solid ${isListening ? '#ef4444' : 'var(--border-default)'}`,
240|           background: isListening
241|             ? 'rgba(239,68,68,0.15)'
242|             : 'var(--bg-surface)',
243|           cursor: 'pointer', transition: 'all 0.2s',
244|           boxShadow: isListening
245|             ? '0 0 24px rgba(239,68,68,0.4), 0 0 60px rgba(239,68,68,0.15)'
246|             : '0 4px 12px rgba(0,0,0,0.15)',
247|           position: 'relative',
248|         }}
249|       >
250|         <svg width="24" height="24" viewBox="0 0 24 24" fill="none" stroke={isListening ? '#ef4444' : 'var(--t...
251|           <path d="M12 1a3 3 0 0 0-3 3v8a3 3 0 0 0 6 0V4a3 3 0 0 0-3-3z" />
252|           <path d="M19 10v2a7 7 0 0 1-14 0v-2" />
253|           <line x1="12" y1="19" x2="12" y2="23" />
254|           <line x1="8" y1="23" x2="16" y2="23" />
255|         </svg>
256|         {isListening && (
```

```
          <span style={{
            position: 'absolute', inset: '-4px', borderRadius: '50%',
            border: '2px solid #ef4444', animation: 'voicePulse 1.5s ease-in-out infinite',
          }} />
        )}
      </button>

      {feedback && (
        <div style={{
          padding: '8px 14px', borderRadius: '8px',
          background: 'rgba(0,0,0,0.85)', backdropFilter: 'blur(8px)',
          border: '1px solid rgba(0,212,170,0.3)',
          maxWidth: '300px', fontFamily: 'monospace',
          boxShadow: '0 4px 20px rgba(0,0,0,0.3)',
        }}>
          {isListening && (
            <div style={{ display: 'flex', alignItems: 'center', gap: '6px', marginBottom: transcript ? '4px' ...
              <span style={{ width: '6px', height: '6px', borderRadius: '50%', background: '#ef4444', animatio...
            </div>
          )}
          {transcript && (
            <div style={{ marginTop: '4px', color: 'rgba(255,255,255,0.7)', fontSize: '11px' }}>
              &quot;{transcript}&quot;
            </div>
          )}
          <div style={{ marginTop: '4px', fontSize: '11px' }}>{feedback}</div>
        </div>
      )}
    </div>
  );
}
```

File: components/WebcamCursor.js (95 lines, 3.2 KB)

```
'use client';

import { useEffect, useRef, useState } from 'react';

const PINCH_THRESHOLD = 0.07; // Pinch to click
const PINCH_RELEASE = 0.10; // Release threshold (hysteresis prevents jitter)

const WebcamCursor = ({ landmarks, enabled, trackingSensitivity = 1.0 }) => {
    const [cursorPos, setCursorPos] = useState({ x: -100, y: -100 });
    const [isPinching, setIsPinching] = useState(false);
    const wasPinchingRef = useRef(false);
    const filterRef = useRef({ x: null, y: null, alpha: 0.12 }); // High smoothing coefficient

    useEffect(() => {
        if (!enabled || !landmarks || !landmarks.length) {
            filterRef.current = { x: null, y: null, alpha: 0.12 };
            setCursorPos({ x: -100, y: -100 });
            return;
        }

        const hand = landmarks[0];
        const tips = [4, 8, 12, 16, 20];
        let sumX = 0;
        let sumY = 0;

        tips.forEach(i => {
            sumX += hand[i].x;
            sumY += hand[i].y;
        });

        const avgX = sumX / tips.length;
        const avgY = sumY / tips.length;

        const scaleX = (avgX - 0.5) * trackingSensitivity + 0.5;
        const scaleY = (avgY - 0.5) * trackingSensitivity + 0.5;
        const rawX = scaleX * window.innerWidth;
        const rawY = scaleY * window.innerHeight;

        const f = filterRef.current;
        if (f.x === null) {
            f.x = rawX;
            f.y = rawY;
        } else {
            // Apply exponential moving average (EMA)
            f.x += f.alpha * (rawX - f.x);
            f.y += f.alpha * (rawY - f.y);
        }

        setCursorPos({ x: f.x, y: f.y });

        const thumbTip = hand[4];
        const indexTip = hand[8];
        const distance = Math.hypot(indexTip.x - thumbTip.x, indexTip.y - thumbTip.y);
        // Hysteresis: easier to pinch, harder to release
        const currentPinch = wasPinchingRef.current
          ? distance < PINCH_RELEASE
          : distance < PINCH_THRESHOLD;
        setIsPinching(currentPinch);

        if (currentPinch && !wasPinchingRef.current) {
            // Try to find the element under cursor
            // We use standard document.elementFromPoint. Ensure the cursor itself has pointer-events: none
            const el = document.elementFromPoint(f.x, f.y);
            if (el && typeof el.click === 'function') {
                el.click();
            }
        }

        wasPinchingRef.current = currentPinch;

    }, [landmarks, enabled, trackingSensitivity]);

    if (!enabled) return null;

    return (
        <div style={{
            position: 'fixed',
            left: 0,
            top: 0,
            width: '24px',
            height: '24px',
            borderRadius: '50%',
            backgroundColor: isPinching ? 'rgba(255, 255, 0, 0.8)' : 'rgba(0, 255, 255, 0.5)',
            border: '2px solid white',
            transform: `translate(${cursorPos.x - 12}px, ${cursorPos.y - 12}px)`,
            pointerEvents: 'none',
```

```
   87|            zIndex: 9999,
   88|            transition: 'transform 0.05s linear, background-color 0.1s',
   89|            boxShadow: isPinching ? '0 0 20px yellow' : '0 0 15px cyan'
   90|        }} />
   91|    );
   92| };
   93|
   94| export default WebcamCursor;
   95|
```

File: components/WindowsSimulator.js (484 lines, 32.8 KB)

```
==========================================================================================
    1| 'use client';
    2| import React, { useState, useEffect, useRef } from 'react';
    3| import { GLOSSARY } from '../data/glossary';
    4|
    5| const APPS = [
       6 |         {  i d :  ' b r o w s e r ' ,  i c o n :  'Ø<ß  ' ,  n a m e :  ' E d g e ' ,  c o l o r :  ' # 0 0 7 8 d 4 '  } ,
       7 |         {  i d :  ' y o u t u b e ' ,  i c o n :  '%¶þ  ' ,  n a m e :  ' Y o u T u b e ' ,  c o l o r :  ' # f f 0 0 0 0 '  } ,
       8 |         {  i d :  ' w i k i ' ,  i c o n :  'Ø=ÜÖ ' ,  n a m e :  ' W i k i  P C ' ,  c o l o r :  ' # 1 0 b 9 8 1 '  } ,
       9 |         {  i d :  ' m u s i c ' ,  i c o n :  'Ø<ßµ ' ,  n a m e :  ' M u s i c ' ,  c o l o r :  ' # 1 d b 9 5 4 '  } ,
      1 0 |         {  i d :  ' e x p l o r e r ' ,  i c o n :  'Ø=ÜÁ ' ,  n a m e :  ' E x p l o r e r ' ,  c o l o r :  ' # f f b 9 0 0 '  } ,
      1 1 |         {  i d :  ' c a l c u l a t o r ' ,  i c o n :  'Ø=Ý" ' ,  n a m e :  ' C a l c u l a t o r ' ,  c o l o r :  ' # 0 0 7 8 d 4
      1 2 |         {  i d :  ' n o t e p a d ' ,  i c o n :  'Ø=ÜÝ ' ,  n a m e :  ' N o t e p a d ' ,  c o l o r :  ' # 3 3 3 '  } ,
      1 3 |         {  i d :  ' s p e c s ' ,  i c o n :  'Ø=Ü» ' ,  n a m e :  ' P C  S p e c s ' ,  c o l o r :  ' # 1 0 b 9 8 1 '  } ,
   14| ];
   15|
   16| function CalculatorApp() {
   17|     const [display, setDisplay] = useState('0');
   18|     const [prev, setPrev] = useState(null);
   19|     const [op, setOp] = useState(null);
   20|     const btn = (v, style = {}) => (
   21|         <button onClick={() => {
   22|             if (v === 'C') { setDisplay('0'); setPrev(null); setOp(null); return; }
   23|             if (['+','-','×','÷'].includes(v)) { setPrev(parseFloat(display)); setOp(v); setDisplay('0'); retu...
   24|             if (v === '=') {
   25|                 if (prev === null || !op) return;
   26|                 const a = prev, b = parseFloat(display);
   27|                 const r = op==='+' ? a+b : op==='-' ? a-b : op==='×' ? a*b : b!==0 ? a/b : 'Err';
   28|                 setDisplay(String(r)); setPrev(null); setOp(null); return;
   29|             }
   30|             setDisplay(prev => prev === '0' ? v : prev + v);
   31|         }} style={{ padding:'12px', background:style.bg||'#3a3a3a', color:style.color||'white', border:'none',...
   32|     );
   33|     return (
   34|         <div style={{ background:'#1e1e1e', borderRadius:'8px', padding:'16px', width:'260px' }}>
   35|             <div style={{ background:'#000', color:'white', padding:'12px 16px', borderRadius:'6px', fontSize:...
   36|             <div style={{ display:'grid', gridTemplateColumns:'repeat(4,1fr)', gap:'6px' }}>
   37|                 {btn('C',{bg:'#d83b3b',color:'white'})} {btn('%',{bg:'#555'})} {btn('±',{bg:'#555'})} {btn('÷'...
   38|                 {btn('7')} {btn('8')} {btn('9')} {btn('×',{bg:'#0078d4'})}
   39|                 {btn('4')} {btn('5')} {btn('6')} {btn('-',{bg:'#0078d4'})}
   40|                 {btn('1')} {btn('2')} {btn('3')} {btn('+',{bg:'#0078d4'})}
   41|                 <button onClick={() => setDisplay(d => d.length>1?d.slice(0,-1):'0')} style={{ padding:'12px',...
   42|                 {btn('0')} {btn('.')} {btn('=',{bg:'#0078d4'})}
   43|             </div>
   44|         </div>
   45|     );
   46| }
   47|
   48| function BrowserApp() {
   49|     const [url, setUrl] = useState('https://google.com');
   50|     const [showIframe, setShowIframe] = useState(true);
   51|     const [key, setKey] = useState(0);
   52|     const suggestions = [
      5 3 |                 {  l a b e l :  'Ø=Ý   G o o g l e ' ,  u r l :  ' h t t p s : / / g o o g l e . c o m '  } ,
      5 4 |                 {  l a b e l :  'Ø=ÜÖ  W i k i p e d i a  P C ' ,  u r l :  ' h t t p s : / / e n . w i k i p e d i a . o r g / w i k i /
      5 5 |                 {  l a b e l :  'Ø>Ýà  W i k i  C P U ' ,  u r l :  ' h t t p s : / / v i . w i k i p e d i a . o r g / w i k i / B % E 1
      5 6 |                 {  l a b e l :  'Ø<ß®  W i k i  G P U ' ,  u r l :  ' h t t p s : / / e n . w i k i p e d i a . o r g / w i k i / G r a p
      5 7 |                 {  l a b e l :  'Ø=Ü¾  W i k i  R A M ' ,  u r l :  ' h t t p s : / / e n . w i k i p e d i a . o r g / w i k i / R a n d
   58|     ];
   59|     return (
   60|         <div style={{ width:'650px', maxWidth:'90vw', display:'flex', flexDirection:'column' }}>
   61|             <div style={{ background:'#f3f3f3', padding:'8px 12px', display:'flex', gap:'8px', alignItems:'cen...
   62|                 <input value={url} onChange={e => setUrl(e.target.value)} onKeyDown={e => { if(e.key==='Enter'...
      6 3 |                                         p l a c e h o l d e r = " N h - p  U R L . . . "
   64|                     style={{ flex:1, borderRadius:'20px', padding:'6px 16px', fontSize:'13px', border:'1px sol...
   65|                 <button onClick={() => { setShowIframe(true); setKey(k => k+1); }} style={{ background:'#0078d...
   66|             </div>
   67|             <div style={{ display:'flex', gap:'4px', padding:'4px 8px', background:'#fafafa', borderBottom:'1p...
   68|                 {suggestions.map((s,i) => (
   69|                     <button key={i} onClick={() => { setUrl(s.url); setShowIframe(true); setKey(k => k+1); }}
   70|                         style={{ background:'#e8e8e8', border:'none', borderRadius:'12px', padding:'2px 10px',...
   71|                         {s.label}
   72|                     </button>
   73|                 ))}
   74|             </div>
   75|             {showIframe && (
   76|                 <iframe key={key} src={url} style={{ width:'100%', height:'420px', border:'none' }} title="Bro...
   77|             )}
   78|         </div>
   79|     );
   80| }
   81|
   82| function YouTubeApp() {
   83|     const [embedUrl, setEmbedUrl] = useState('');
   84|     const videos = [
      8 5 |                 {  l a b e l :  ' H ° Û n g  d « n  l ¯ p  r á p  P C ' ,  i d :  ' Z v z 7 q 1 a L B H g '  } ,
      8 6 |                 {  l a b e l :  ' C á c h  c h Í n  C P U  2 0 2 6 ' ,  i d :  ' y 1 F 0 p P v y F n A '  } ,
      8 7 |                 {  l a b e l :  ' B u i l d  P C  G a m i n g  t § m  t r u n g ' ,  i d :  ' P 0 Y C H g 0 N O P 4 '  } ,
   88|         { label: 'Cách ép xung RAM', id: 'd_OeO7D9FD8' },
      8 9 |                 {  l a b e l :  ' T £ n  n h i Ç t  n ° Û c  A I O ' ,  i d :  ' k O 4 Z 4 N 4 n q s o '  } ,
   90|         { label: 'So sánh SSD NVMe vs SATA', id: 'dj0B8WuqW5w' },
      9 1 |                 {  l a b e l :  ' H ° Û n g  d « n  c h Í n  n g u Ó n  P S U ' ,  i d :  ' E a Z x t v B 6 _ j E '  } ,
   92|     ];
   93|     return (
   94|         <div style={{ width:'640px', maxWidth:'90vw', display:'flex', flexDirection:'column', maxHeight:'70vh'...
   95|             <div style={{ background:'#202020', padding:'12px', borderRadius:'6px 6px 0 0', color:'white' }}>
      9 6 |                                 < p  s t y l e = { {  m a r g i n : 0 ,  f o n t S i z e : ' 1 3 p x '  } } >%¶þ  C h Í n  v i d e o
   97|             </div>
   98|             <div style={{ background:'#111', padding:'12px', overflowY:'auto', display:'flex', flexDirection:'...
   99|                 {videos.map((v,i) => (
  100|                     <button key={i} onClick={() => setEmbedUrl(`https://www.youtube.com/embed/${v.id}?autoplay...
  101|                         style={{ background:embedUrl?.includes(v.id)?'#333':'#1a1a1a', color:'#ddd', border:'1...
     1 0 2 |                                             < s p a n  s t y l e = { {  c o l o r : ' # f f 0 0 0 0 '  } } >%¶þ  < / s p a n >  { v . l
  103|                     </button>
  104|                 ))}
  105|             </div>
  106|             {embedUrl && (
  107|                 <iframe key={embedUrl} src={embedUrl} style={{ width:'100%', height:'350px', border:'none', bo...
  108|             )}
  109|         </div>
  110|     );
  111| }
```

```
function WikiApp() {
    const [search, setSearch] = useState('');
    const [selected, setSelected] = useState(null);
    const entries = Object.entries(GLOSSARY).sort(([a],[b]) => a.localeCompare(b));
    const filtered = search ? entries.filter(([k,v]) => k.toLowerCase().includes(search.toLowerCase()) || v.to...

    return (
        <div style={{ width:'550px', maxWidth:'90vw', maxHeight:'70vh', display:'flex', flexDirection:'column'...
            <div style={{ padding:'12px', background:'#16213e' }}>
                <div style={{ display:'flex', alignItems:'center', gap:'8px', marginBottom:'8px' }}>
                                        < s p a n   s t y l e = { {   f o n t S i z e : ' 2 0 p x '   } } >Ø=ÜÖ < / s p a n >
                                        < s p a n   s t y l e = { {   c o l o r : ' # 0 0 d 4 a a ' ,   f o n t W e i g h t : 7 0 0 ,   f o n t
                </div>
                <input value={search} onChange={e => { setSearch(e.target.value); setSelected(null); }}
                                         p l a c e h o l d e r = " T ì m   t h u - t   n g i   ( C P U ,   G P U ,   R A M . . . ) "
                    style={{ width:'100%', padding:'8px 14px', borderRadius:'8px', border:'1px solid #2a2a4a',...
            </div>
            <div style={{ display:'flex', flex:1, overflow:'hidden' }}>
                <div style={{ width:'180px', overflowY:'auto', borderRight:'1px solid rgba(255,255,255,0.05)',...
                    {filtered.map(([key]) => (
                        <div key={key} onClick={() => setSelected(key)}
                            style={{ padding:'6px 10px', borderRadius:'6px', cursor:'pointer', fontSize:'12px'...
                                background: selected===key ? 'rgba(0,212,170,0.15)' : 'transparent',
                                color: selected===key ? '#00d4aa' : '#8a8aa0', fontWeight: selected===key ? 70...
                            {key}
                        </div>
                    ))}
                </div>
                <div style={{ flex:1, overflowY:'auto', padding:'16px', color:'#c0c0d0' }}>
                    {selected ? (
                        <div>
                            <h3 style={{ color:'#00d4aa', margin:'0 0 8px 0', fontSize:'18px' }}>{selected}</h3>
                            <p style={{ fontSize:'14px', lineHeight:1.6, color:'#a0a0b0' }}>{GLOSSARY[selected...
                        </div>
                    ) : (
                        <div style={{ textAlign:'center', padding:'40px 0', color:'#6a6a80' }}>
                                                    < d i v   s t y l e = { {   f o n t S i z e : ' 3 6 p x ' ,   m a r g i n B o t t o m
                                                    < p   s t y l e = { {   f o n t S i z e : ' 1 3 p x '   } } > T ì m   k i ¿ m   t h u
                        </div>
                    )}
                </div>
            </div>
        </div>
    );
}

function MusicApp() {
    const audioRef = useRef(null);
    const [currentIdx, setCurrentIdx] = useState(null);
    const [playing, setPlaying] = useState(false);
    const tracks = [
        { title: 'Lofi Chill', url: 'https://www.soundhelix.com/examples/mp3/SoundHelix-Song-1.mp3' },
                    {   t i t l e :   ' T h °   g i ã n ' ,   u r l :   ' h t t p s : / / w w w . s o u n d h e l i x . c o m / e x a m p l e s / m
                    {   t i t l e :   ' B e a t s    i Ç n   t í ' ,   u r l :   ' h t t p s : / / w w w . s o u n d h e l i x . c o m / e x a m p
        { title: 'Jazz', url: 'https://www.soundhelix.com/examples/mp3/SoundHelix-Song-4.mp3' },
        { title: 'Piano', url: 'https://www.soundhelix.com/examples/mp3/SoundHelix-Song-5.mp3' },
    ];
    useEffect(() => {
        if (audioRef.current) {
            if (playing && currentIdx !== null) { audioRef.current.play().catch(() => setPlaying(false)); }
            else { audioRef.current.pause(); }
        }
    }, [currentIdx, playing]);

    return (
        <div style={{ width:'360px', background:'#121212', borderRadius:'8px', padding:'20px', color:'white' }}>
            <h3 style={{ margin:'0 0 16px 0', fontSize:'16px', display:'flex', alignItems:'center', gap:'8px' ...
            <div style={{ display:'flex', flexDirection:'column', gap:'6px' }}>
                {tracks.map((t,i) => (
                    <button key={i} onClick={() => { setCurrentIdx(i); setPlaying(true); }}
                        style={{ background: currentIdx===i && playing ? '#1db954' : '#282828', color: current...
                            border:'none', borderRadius:'8px', padding:'10px 14px', cursor:'pointer', textAlig...
                                                    < s p a n > { c u r r e n t I d x = = = i   & &   p l a y i n g   ?   'Ø=Ý '   :   'Ø<ßµ ' } <
                        {t.title}
                    </button>
                ))}
            </div>
            {currentIdx !== null && (
                <div style={{ marginTop:'12px', display:'flex', gap:'8px', alignItems:'center' }}>
                    <button onClick={() => setPlaying(p => !p)} style={{ background:'#1db954', color:'#000', b...
                                                    { p l a y i n g   ?   '#ø   P a u s e '   :   '%¶   P l a y ' }
                    </button>
                    <button onClick={() => { setCurrentIdx(null); setPlaying(false); }} style={{ background:'#...
                </div>
            )}
            <audio ref={audioRef} src={currentIdx !== null ? tracks[currentIdx].url : ''} controls style={{ wi...
        </div>
    );
}

function ExplorerApp({ cart }) {
    const folders = ['Desktop','Downloads','Documents','Pictures','Music'];
    return (
        <div style={{ width:'460px', color:'#333' }}>
            <div style={{ background:'#f3f3f3', padding:'6px 12px', fontSize:'12px', borderBottom:'1px solid #...
                {['File','Home','Share','View'].map(m => <span key={m} style={{ cursor:'pointer' }}>{m}</span>)}
            </div>
            <div style={{ display:'flex', background:'white', borderRadius:'0 0 6px 6px', minHeight:'200px' }}>
                <div style={{ width:'120px', background:'#fafafa', padding:'8px', borderRight:'1px solid #ddd'...
                    {folders.map(f => <div key={f} style={{ padding:'4px 8px', cursor:'pointer', borderRadius:...
                </div>
                <div style={{ flex:1, padding:'10px' }}>
                                        < p   s t y l e = { {   f o n t S i z e : ' 1 3 p x ' ,   f o n t W e i g h t : 6 0 0 ,   m a r g i n
                    {(cart||[]).map((c,i) => <div key={i} style={{ fontSize:'12px', padding:'4px', borderBotto...
                                        { ( ! c a r t | | c a r t . l e n g t h = = = 0 )   & &   < p   s t y l e = { {   c o l o r : ' # 9 9 9
                </div>
            </div>
        </div>
    );
}

function NotepadApp() {
            c o n s t   [ t e x t ,   s e t T e x t ]   =   u s e S t a t e ( 'Ø=ÜÝ   G h i   c h ú \ n \ n M á y   t í n h   ã   ° ã c   l ¯ p
    return (
        <div style={{ width:'400px' }}>
            <div style={{ background:'#f0f0f0', padding:'4px 12px', fontSize:'12px', borderRadius:'6px 6px 0 0...
                {['File','Edit','Format','View','Help'].map(m => <span key={m} style={{ cursor:'pointer' }}>{m...
            </div>
            <textarea value={text} onChange={e => setText(e.target.value)} style={{ width:'100%', minHeight:'2...
        </div>
    );
}
```

```
236| function SpecsApp({ cart, scenarioName }) {
237|     return (
238|         <div style={{ width:'440px', background:'#1a1a2e', color:'white', borderRadius:'8px', padding:'20px' }}>
239|             {scenarioName && (
240|                 <div style={{ background:'rgba(0,212,170,0.08)', border:'1px solid rgba(0,212,170,0.2)', borde...
  2 4 1 |                                         < s p a n >Ø=Ü¼ < / s p a n >
242|                     <span style={{ fontSize:'13px', color:'#00d4aa', fontWeight:600 }}>{scenarioName}</span>
243|                 </div>
244|             )}
245|             <h3 style={{ color:'#00d4aa', margin:'0 0 16px 0', display:'flex', alignItems:'center', gap:'8px' ...
246|             <div style={{ display:'flex', flexDirection:'column', gap:'10px' }}>
247|                 <div style={{ background:'rgba(0,212,170,0.05)', border:'1px solid rgba(0,212,170,0.1)', borde...
248|                     <div style={{ fontSize:'11px', color:'#6b7280', fontWeight:700, textTransform:'uppercase',...
249|                     <div style={{ color:'#e0e6ed' }}>Windows 11 Pro (64-bit)</div>
250|                 </div>
251|                 <div style={{ background:'rgba(0,212,170,0.05)', border:'1px solid rgba(0,212,170,0.1)', borde...
252|                     <div style={{ fontSize:'11px', color:'#6b7280', fontWeight:700, textTransform:'uppercase',...
  2 5 3 |                                         < d i v   s t y l e = { {   c o l o r : ' # 1 0 b 9 8 1 '   } } >'    A l l   c o m p o n e n t s   w
  2 5 4 |                                         < d i v   s t y l e = { {   c o l o r : ' # 1 0 b 9 8 1 '   } } >'    D r i v e r s   i n s t a l l e
  2 5 5 |                                         < d i v   s t y l e = { {   c o l o r : ' # 1 0 b 9 8 1 '   } } >'    S y s t e m   s t a b l e < / d i
256|                 </div>
257|                 {(cart||[]).map((c,i) => (
258|                     <div key={i} style={{ background:'rgba(255,255,255,0.03)', border:'1px solid rgba(255,255,...
259|                         <span style={{ fontSize:'12px', color:'#6b7280', textTransform:'uppercase', fontWeight...
260|                         <span style={{ color:'#e0e6ed', fontSize:'13px' }}>{c.name || 'Installed'}</span>
261|                     </div>
262|                 ))}
263|             </div>
264|         </div>
265|     );
266| }
267|
268| function WindowApp({ app, cart, scenarioName, onClose }) {
269|     const components = {
270|         calculator: CalculatorApp,
271|         browser: BrowserApp,
272|         youtube: YouTubeApp,
273|         wiki: WikiApp,
274|         music: MusicApp,
275|         explorer: () => <ExplorerApp cart={cart} />,
276|         notepad: NotepadApp,
277|         specs: () => <SpecsApp cart={cart} scenarioName={scenarioName} />,
278|     };
279|     const AppComponent = components[app.id];
280|     return (
281|         <div style={{ position:'fixed', top:'50%', left:'50%', transform:'translate(-50%,-50%)', zIndex:100, b...
282|             <div style={{ background:'#202020', display:'flex', justifyContent:'space-between', alignItems:'ce...
283|                 <span style={{ color:'white', fontSize:'13px', fontWeight:600 }}>{app.icon} {app.name}</span>
284|                 <button onClick={onClose} style={{ width:'14px', height:'14px', borderRadius:'50%', background...
285|             </div>
286|             <div style={{ background:'#1e1e1e', overflow:'auto', maxHeight:'calc(90vh - 36px)' }}>
287|                 {AppComponent && <AppComponent cart={cart} />}
288|             </div>
289|         </div>
290|     );
291| }
292|
293| export default function WindowsSimulator({ cart, scenarioName, onExit }) {
294|     const [phase, setPhase] = useState('post');
295|     const [progress, setProgress] = useState(0);
296|     const [openApp, setOpenApp] = useState(null);
297|     const [time, setTime] = useState('');
298|     const [startOpen, setStartOpen] = useState(false);
299|     const [bootMsgs, setBootMsgs] = useState([]);
300|
301|     const counts = {};
302|     (cart||[]).forEach(c => { const t = c.type || c; counts[t] = (counts[t]||0)+1; });
303|     const hasCPU = counts['CPU'] >= 1;
304|     const hasRAM = counts['RAM'] >= 1;
305|     const hasGPU = counts['GPU'] >= 1;
306|     const hasSSD = counts['SSD'] >= 1 || counts['Storage'] >= 1;
307|     const hasPSU = counts['PSU'] >= 1;
308|     const allOK = hasCPU && hasRAM && hasGPU && hasSSD && hasPSU;
309|
310|     useEffect(() => {
311|         const t = setInterval(() => setTime(new Date().toLocaleTimeString('vi-VN', { hour:'2-digit', minute:'2...
312|         setTime(new Date().toLocaleTimeString('vi-VN', { hour:'2-digit', minute:'2-digit' }));
313|         return () => clearInterval(t);
314|     }, []);
315|
316|     // POST sequence
317|     useEffect(() => {
318|         if (phase !== 'post') return;
319|         const lines = [
320|             { msg: 'PC Master BIOS v2.04 (UEFI)', delay: 100 },
  3 2 1 |                         {   m s g :   ` C P U :   $ { h a s C P U   ?   ' I n t e l / A M D   D e t e c t e d   ' '   :   ' N O T   F O U N D
  3 2 2 |                         {   m s g :   ` R A M :   $ { h a s R A M   ?   ` $ { c o u n t s [ ' R A M ' ] | | 0 }   s t i c k ( s )   d e t e c t
  3 2 3 |                         {   m s g :   ` G P U :   $ { h a s G P U   ?   ' P C I e   d e v i c e   d e t e c t e d   ' '   :   ' N O T   F O U N
  3 2 4 |                         {   m s g :   ` S t o r a g e :   $ { h a s S S D   ?   ' N V M e / S A T A   d e t e c t e d   ' '   :   ' N O T   F O
  3 2 5 |                         {   m s g :   ` P S U :   $ { h a s P S U   ?   ' P o w e r   O K   ' '   :   ' P O W E R   F A I L U R E   ' ' } ` ,
326|         ];
327|         const timers = lines.map(({msg, delay}) => setTimeout(() => setBootMsgs(prev => [...prev, msg]), delay));
328|         const final = setTimeout(() => {
329|             if (allOK) {
330|                 setBootMsgs(prev => [...prev, '', 'POST OK - BEEP (1 short beep)', 'Starting boot sequence...']);
331|                 setTimeout(() => setPhase('boot'), 1500);
332|             } else {
333|                 setBootMsgs(prev => [...prev, '', 'FATAL: POST failed - check components']);
334|                 setTimeout(() => setPhase('error'), 1000);
335|             }
336|         }, 3000);
337|         return () => { timers.forEach(clearTimeout); clearTimeout(final); };
338|     }, [phase]);
339|
340|     useEffect(() => {
341|         if (phase !== 'boot') return;
342|         const t = setInterval(() => setProgress(p => { if (p>=100) { clearInterval(t); setTimeout(() => setPha...
343|         return () => clearInterval(t);
344|     }, [phase]);
345|
346|     if (phase === 'post') return (
347|         <div style={{ position:'fixed', inset:0, zIndex:9999, background:'#0a0a0a', display:'flex', alignItems...
348|             <div style={{ width:'600px', maxWidth:'90vw', background:'#000', border:'1px solid #1a1a1a', borde...
349|                 <pre style={{ color:'#00ff00', fontSize:'12px', lineHeight:1.3, marginBottom:'20px' }}>
350| {`  PC Master BIOS v2.04 (UEFI) - 2026
351|   ======================================
352|   CPU  : Intel/AMD                    [OK]
353|   Memory: Testing...                      `}
354|                 </pre>
355|                 <div style={{ color:'#c0c0c0', fontSize:'13px', lineHeight:1.8, fontFamily:'inherit' }}>
356|                     {bootMsgs.map((msg, i) => (
357|                         <div key={i} style={{ color: msg.startsWith('FATAL')||msg.includes('FAILURE')||msg.inc...
358|                     ))}
359|                     {bootMsgs.length <= 8 && <span style={{ color:'#00ff00' }}>_</span>}
```

```
360|                </div>
361|            </div>
362|        </div>
363|    );
364|
365|    if (phase === 'error') return (
366|        <div style={{ position:'fixed', inset:0, zIndex:9999, background:'#0a0000', display:'flex', flexDirect...
   3 6 7 |                        < d i v   s t y l e = { {   f o n t S i z e : ' 6 4 p x '   } } >Ø=Ù¥ < / d i v >
368|            <h2 style={{ color:'#ef4444', margin:0, fontSize:'22px' }}>POST FAILED - SYSTEM HALTED</h2>
369|            <div style={{ color:'#ff6666', lineHeight:2, fontSize:'14px' }}>
   3 7 0 |                                { ! h a s C P U   & &   < d i v >'    C P U :   N o t   d e t e c t e d < / d i v > }
   3 7 1 |                                { ! h a s R A M   & &   < d i v >'    R A M :   N o t   d e t e c t e d < / d i v > }
   3 7 2 |                                { ! h a s G P U   & &   < d i v >'    G P U :   N o t   d e t e c t e d < / d i v > }
   3 7 3 |                                { ! h a s S S D   & &   < d i v >'    S t o r a g e :   N o t   d e t e c t e d < / d i v > }
   3 7 4 |                                { ! h a s P S U   & &   < d i v >'    P S U :   P o w e r   f a i l u r e < / d i v > }
375|            </div>
376|            <p style={{ color:'#ff8888', fontSize:'13px', maxWidth:'400px', textAlign:'center' }}>System canno...
377|            <button onClick={onExit} style={{ padding:'10px 30px', background:'#ef4444', color:'white', border...
378|        </div>
379|    );
380|
381|    if (phase === 'boot') return (
382|        <div style={{ position:'fixed', inset:0, zIndex:9999, background:'#000', display:'flex', flexDirection...
383|            <div style={{ display:'flex', alignItems:'center', gap:'16px' }}>
384|                <div style={{ width:'48px', height:'48px', borderRadius:'8px', background:'linear-gradient(135...
385|                <div style={{ color:'white', fontSize:'28px', fontWeight:300, letterSpacing:'2px' }}>Windows 1...
386|            </div>
387|            <div style={{ width:'200px', height:'4px', background:'#333', borderRadius:'2px', overflow:'hidden...
388|                <div style={{ height:'100%', width:`${progress}%`, background:'#0078d4', borderRadius:'2px', t...
389|            </div>
390|            <div style={{ color:'#666', fontSize:'13px' }}>Starting up...</div>
391|        </div>
392|    );
393|
394|    if (phase === 'login') return (
395|        <div style={{ position:'fixed', inset:0, zIndex:9999, background:'linear-gradient(135deg,#0078d4,#003c...
396|            <div style={{ width:'72px', height:'72px', borderRadius:'50%', background:'rgba(255,255,255,0.15)'...
397|            <div style={{ color:'white', fontSize:'20px', fontWeight:300 }}>PC Master User</div>
   3 9 8 |                        { s c e n a r i o N a m e   & &   < d i v   s t y l e = { {   c o l o r : ' r g b a ( 2 5 5 , 2 5 5 , 2 5 5 , 0 . 5 ) '
399|            <button onClick={() => setPhase('desktop')}
400|                style={{ background:'rgba(255,255,255,0.12)', color:'white', border:'1px solid rgba(255,255,25...
   4 0 1 |                                S i g n   i n   !'
402|            </button>
403|        </div>
404|    );
405|
406|    const wallpaperColors = 'linear-gradient(135deg,#0f1b2d 0%,#0d2137 40%,#1a0533 100%)';
407|    return (
408|        <div style={{ position:'fixed', inset:0, zIndex:9999, background:wallpaperColors, fontFamily:"'Segoe U...
409|            {/* Desktop Icons */}
410|            <div style={{ padding:'16px', display:'flex', flexDirection:'column', gap:'4px', width:'80px' }}>
411|                {APPS.map(app => (
412|                    <div key={app.id} onClick={() => { setOpenApp(app); setStartOpen(false); }}
413|                        style={{ display:'flex', flexDirection:'column', alignItems:'center', gap:'2px', curso...
414|                        onMouseOver={e => e.currentTarget.style.background = 'rgba(255,255,255,0.1)'}
415|                        onMouseOut={e => e.currentTarget.style.background = 'transparent'}>
416|                        <span style={{ fontSize:'28px' }}>{app.icon}</span>
417|                        <span style={{ fontSize:'11px', textAlign:'center', textShadow:'0 1px 3px rgba(0,0,0,0...
418|                    </div>
419|                ))}
420|            </div>
421|
422|            {/* Open App Window */}
423|            {openApp && <WindowApp app={openApp} cart={cart} scenarioName={scenarioName} onClose={() => setOpe...
424|
425|            {/* Taskbar */}
426|            <div onClick={e => e.stopPropagation()} style={{ position:'fixed', bottom:0, left:0, right:0, heig...
427|                <div style={{ display:'flex', alignItems:'center', gap:'2px' }}>
428|                    {/* Start Button */}
429|                    <button onClick={() => setStartOpen(v => !v)} style={{ background:'transparent', border:'n...
430|                        onMouseOver={e => e.currentTarget.style.background = 'rgba(255,255,255,0.1)'}
431|                        onMouseOut={e => e.currentTarget.style.background = 'transparent'}>
432|                        <span style={{ width:'24px', height:'24px', borderRadius:'4px', background:'linear-gra...
433|                    </button>
434|                    {/* Search */}
   4 3 5 |                                        < b u t t o n   o n C l i c k = { ( )   = >   a l e r t ( 'Ø=Ý   M ß   E d g e   Ã   s e a r c h   (
   4 3 6 |                                               Ø=Ý   < s p a n > S e a r c h < / s p a n >
437|                    </button>
438|                    {/* Taskbar Apps */}
439|                    {APPS.map(app => (
440|                        <button key={app.id} onClick={() => setOpenApp(app)} title={app.name}
441|                            style={{ background: openApp?.id===app.id ? 'rgba(255,255,255,0.15)' : 'transparen...
442|                            onMouseOver={e => e.currentTarget.style.background = 'rgba(255,255,255,0.08)'}
443|                            onMouseOut={e => { if (openApp?.id !== app.id) e.currentTarget.style.background = ...
444|                            {app.icon}
445|                        </button>
446|                    ))}
447|                </div>
448|                {/* System Tray */}
449|                <div style={{ display:'flex', alignItems:'center', gap:'8px' }}>
450|                    <button onClick={onExit} style={{ background:'rgba(239,68,68,0.8)', color:'white', border:...
   4 5 1 |                                                #Ù   S h u t   D o w n
452|                    </button>
453|                    <div style={{ color:'white', fontSize:'12px', textAlign:'right', lineHeight:1.2 }}>
454|                        <div style={{ fontWeight:600 }}>{time}</div>
455|                        <div style={{ color:'#888', fontSize:'10px' }}>{new Date().toLocaleDateString('vi-VN')...
456|                    </div>
457|                </div>
458|            </div>
459|
460|            {/* Start Menu */}
461|            {startOpen && (
462|                <div onClick={e => e.stopPropagation()} style={{ position:'fixed', bottom:'56px', left:'8px', ...
463|                    <div style={{ color:'white', fontWeight:600, marginBottom:'12px', fontSize:'13px' }}>Pinne...
464|                    <div style={{ display:'grid', gridTemplateColumns:'repeat(4,1fr)', gap:'8px', marginBottom...
465|                        {APPS.map(app => (
466|                            <button key={app.id} onClick={() => { setOpenApp(app); setStartOpen(false); }}
467|                                style={{ background:'transparent', border:'none', cursor:'pointer', display:'f...
468|                                onMouseOver={e => e.currentTarget.style.background = 'rgba(255,255,255,0.08)'}
469|                                onMouseOut={e => e.currentTarget.style.background = 'transparent'}>
470|                                <span style={{ fontSize:'28px' }}>{app.icon}</span>
471|                                <span style={{ fontSize:'10px', color:'#ccc' }}>{app.name}</span>
472|                            </button>
473|                        ))}
474|                    </div>
475|                    <div style={{ borderTop:'1px solid rgba(255,255,255,0.08)', paddingTop:'12px', display:'fl...
   4 7 6 |                                                < s p a n   s t y l e = { {   c o l o r : ' # a a a ' ,   f o n t S i z e : ' 1 2 p x '   } } >
477|                        <button onClick={onExit} style={{ background:'transparent', border:'none', color:'#888...
478|                    </div>
479|                </div>
480|            )}
481|        </div>
482|    );
483| }
```

File: lib/auth-actions.ts (295 lines, 8.6 KB)

```
'use server'

import { createClient } from '@/lib/supabase-ssr-server'
import { revalidatePath } from 'next/cache'
import { redirect } from 'next/navigation'

export async function login(formData: FormData) {
  const supabase = await createClient()
  const email = formData.get('email') as string
  const password = formData.get('password') as string

  if (!email || !password) {
    r e t u r n  {  e r r o r :  ' V u i  l ò n g  n h - p  § y  ç  e m a i l  v à  m - t  k h © u '  }
  }

  // Admin login via Supabase Auth
  if (email === 'admin') {
    const adminEmail = process.env.ADMIN_EMAIL || 'admin@pcmaster.com'
    const { error: adminError } = await supabase.auth.signInWithPassword({
      email: adminEmail,
      password: password,
    })
    if (adminError) {
      r e t u r n  {  e r r o r :  ' T h ô n g  t i n  n g  n h - p  k h ô n g  c h í n h  x á c '  }
    }
    return { success: true, redirectUrl: '/admin' }
  }

  / /  1 .  T h ñ c  h i Ç n  n g  n h - p  t h ³ n g  b ± n g  S u p a b a s e  A u t h
  const { data, error } = await supabase.auth.signInWithPassword({
    email,
    password,
  })

  if (error) {
    l e t  f r i e n d l y E r r o r  =  ' E m a i l  h o · c  m - t  k h © u  k h ô n g  c h í n h  x á c .  V u i  l ò n g  k
    const errMsg = error.message.toLowerCase()

    if (errMsg.includes('confirm') || errMsg.includes('email_not_confirmed')) {
      f r i e n d l y E r r o r  =  ' T à i  k h o £ n  c ç a  b ¡ n  c h ° a  ° ã c  x á c  n h - n  q u a  E m a i l .  V
    } else if (errMsg.includes('invalid') || errMsg.includes('credentials')) {
      f r i e n d l y E r r o r  =  ' E m a i l  h o · c  m - t  k h © u  k h ô n g  c h í n h  x á c .  V u i  l ò n g  k i Á
    } else {
      friendlyError = error.message
    }
    return { error: friendlyError }
  }

  const user = data.user

  / /  2 .  T ñ  Ù n g  c é u  h Ù  P r o f i l e  n ¿ u  b Ë  t h i ¿ u  ( v í  d ã :  d o  R L S  h o · c  T r i g g e r
  if (user) {
    const { data: profile } = await supabase
      .from('profiles')
      .select('role')
      .eq('id', user.id)
      .maybeSingle()

    if (!profile) {
      const role = user.user_metadata?.role || 'student'
      const fullName = user.user_metadata?.full_name || email.split('@')[0]

      const { error: rescueError } = await supabase.from('profiles').upsert({
        id: user.id,
        email: email,
        full_name: fullName,
        role: role,
        updated_at: new Date().toISOString()
      })

      if (rescueError) {
        console.error('Profile Rescue Failed:', rescueError)
      }
    }
  }

  / /  L ¥ y  r o l e  c u Ñ i  c ù n g
  const { data: finalProfile } = await supabase
    .from('profiles')
    .select('role')
    .eq('id', user!.id)
    .single()

  const userRole = finalProfile?.role || user!.user_metadata?.role || 'student'

  if (userRole === 'student') {
    return { success: true, redirectUrl: '/builder' }
  } else if (userRole === 'parent') {
    return { success: true, redirectUrl: '/parent' }
  } else {
    return { success: true, redirectUrl: `/${userRole}` }
  }
}

export async function register(formData: FormData) {
  const supabase = await createClient()
  const email = formData.get('email') as string
  const password = formData.get('password') as string
  const fullName = formData.get('full_name') as string
  const role = formData.get('role') as string || 'student'
  const schoolCode = formData.get('school_code') as string
  const schoolName = formData.get('school_name') as string
  const classCode = formData.get('class_code') as string

  if (!email || !password || !fullName) {
    r e t u r n  {  e r r o r :  ' V u i  l ò n g  i Á n  ç  t h ô n g  t i n  b ¯ t  b u Ù c '  }
  }

  let schoolId = null;
  let classIdToJoin = null;

  / /  1 .  K i Ã m  t r a  m ã  t r ° Ý n g  ( n ¿ u  c ó )
  if (schoolCode) {
    const { data: school } = await supabase
      .from('schools')
      .select('id')
      .eq('code', schoolCode)
      .single()

```

```
    if (school) schoolId = school.id;
  }

  1 2 3 |      / /   3 .      n g   k ý   t à i   k h o £ n   A u t h
  const { data, error } = await supabase.auth.signUp({
    email,
    password,
    options: {
      data: {
        full_name: fullName,
        role: role,
      }
    }
  })

  if (error) return { error: error.message }

  if (data.user) {
    let profileError = null;
    const { error: updateError } = await supabase
      .from('profiles')
      .update({
        full_name: fullName,
        role: role,
        school_id: schoolId,
        school_name: schoolName,
        updated_at: new Date().toISOString()
      })
      .eq('id', data.user.id);

    if (updateError) {
      console.warn('Profile UPDATE failed, falling back to UPSERT:', updateError.message);
      const { error: upsertError } = await supabase.from('profiles').upsert({
        id: data.user.id,
        email: email,
        full_name: fullName,
        role: role,
        school_id: schoolId,
        school_name: schoolName,
        updated_at: new Date().toISOString()
      });
      profileError = upsertError;
    }

    if (profileError) {
      console.error('Profile Creation/Update Error:', profileError);
    }

    if (role === 'parent' && classCode) {
      const { data: student } = await supabase
        .from('profiles')
        .select('id')
        .eq('role', 'student')
        .or(`email.eq.${classCode},id.eq.${classCode}`)
        .maybeSingle();

      if (student) {
        await supabase.from('parent_student_links').insert({
          parent_id: data.user.id,
          student_id: student.id,
          relationship: 'parent'
        });
      }
    }

    // Auto sign-in after registration
    const { error: signInError } = await supabase.auth.signInWithPassword({ email, password });
    if (signInError) {
      console.error('Auto sign-in after registration failed:', signInError);
    }
  }

  const userRole = role || 'student'
  if (userRole === 'student') {
    return { success: true, redirectUrl: '/builder' }
  } else if (userRole === 'parent') {
    return { success: true, redirectUrl: '/parent' }
  } else {
    return { success: true, redirectUrl: `/${userRole}` }
  }
}

export async function logout() {
  const supabase = await createClient()
  await supabase.auth.signOut()
  revalidatePath('/', 'layout')
  redirect('/login')
}

export async function getProfile() {
  const supabase = await createClient()
  const { data: { user } } = await supabase.auth.getUser()

  if (!user) return null;

  const { data: profile } = await supabase
    .from('profiles')
    .select('*, schools(*)')
    .eq('id', user.id)
    .single()

  return profile;
}

export async function signInWithGoogle() {
  const supabase = await createClient()
  const origin = process.env.NEXT_PUBLIC_SITE_URL
    || process.env.VERCEL_URL
    || 'http://localhost:3000'
  const redirectUrl = `${origin}/auth/callback`

  const { data, error } = await supabase.auth.signInWithOAuth({
    provider: 'google',
    options: {
      redirectTo: redirectUrl,
    },
  })

  if (error) {
    console.error('Google OAuth error:', error)
    return { error: error.message }
  }

  if (data.url) {
```

```
    redirect(data.url)
  }
}

export async function completeOAuthRegistration(formData: FormData) {
  const supabase = await createClient()
  const { data: { user } } = await supabase.auth.getUser()

  if (!user) {
    return { error: 'Không tìm thấy phiên đăng nhập' }
  }

  const role = formData.get('role') as string || 'student'
  const fullName = formData.get('full_name') as string || user.user_metadata?.full_name || user.email?.split('...
  const schoolCode = formData.get('school_code') as string
  const schoolName = formData.get('school_name') as string

  let schoolId = null;
  if (schoolCode) {
    const { data: school } = await supabase
      .from('schools')
      .select('id')
      .eq('code', schoolCode)
      .single()

    if (school) schoolId = school.id;
  }

  // Cập nhật profile cho tài khoản Google đã tạo
  const { error: profileError } = await supabase.from('profiles').upsert({
    id: user.id,
    email: user.email,
    full_name: fullName,
    role: role,
    school_id: schoolId,
    school_name: schoolName,
    updated_at: new Date().toISOString()
  });

  if (profileError) {
    return { error: 'Lỗi khi cập nhật hồ sơ: ' + profileError.message }
  }

  revalidatePath('/', 'layout')

  if (role === 'student') {
    redirect('/builder')
  } else {
    redirect(`/${role}`)
  }
}
```

File: lib/auth/rbac.ts (84 lines, 2.4 KB)

```
import { createClient } from '@/lib/supabase-ssr-server'
import { redirect } from 'next/navigation'
import React from 'react'

export type UserRole = 'student' | 'teacher' | 'admin' | 'parent' | 'component_creator' | 'guest'

export interface AuthUser {
  id: string
  email: string
  role: UserRole
  full_name: string
  student_code?: string
}

// Dùng trong Server Components — lấy user hiện tại
export async function getCurrentUser(): Promise<AuthUser | null> {
  const supabase = await createClient()
  const { data: { user } } = await supabase.auth.getUser()
  if (!user) return null

  const { data: profile } = await supabase
    .from('profiles')
    .select('id, full_name, role, student_code')
    .eq('id', user.id)
    .single()

  if (!profile) return null

  return {
    id: user.id,
    email: user.email!,
    role: profile.role as UserRole,
    full_name: profile.full_name,
    student_code: profile.student_code ?? undefined,
  }
}

// Guard cho Server Components — redirect nếu không đúng role
export async function requireRole(allowedRoles: UserRole[]): Promise<AuthUser> {
  const user = await getCurrentUser()
  if (!user) redirect('/login')
  if (!allowedRoles.includes(user.role)) {
    redirect(getDashboardByRole(user.role))
  }
  return user
}

// Dùng trong Server Action — throw error thay vì redirect
export async function verifyRole(allowedRoles: UserRole[]): Promise<AuthUser> {
  const user = await getCurrentUser()
  if (!user) throw new Error('UNAUTHORIZED: Not authenticated')
  if (!allowedRoles.includes(user.role)) {
    throw new Error(`FORBIDDEN: Role ${user.role} cannot perform this action`)
  }
  return user
}

export function getDashboardByRole(role: UserRole): string {
  const map: Record<UserRole, string> = {
    admin: '/admin/dashboard',
    teacher: '/teacher/dashboard',
    parent: '/parent/dashboard',
    student: '/student/dashboard',
    component_creator: '/creator',
    guest: '/login',
  }
  return map[role] ?? '/login'
}
```

```
  69|
      7 0 |   / /   C o m p o n e n t   b £ o   v Ç   —   d ù n g   t r o n g   J S X   S e r v e r   C o m p o n e n t s
  71| export async function RoleGuard({
  72|   allowedRoles,
  73|   children,
  74|   fallback = null,
  75| }: {
  76|   allowedRoles: UserRole[]
  77|   children: React.ReactNode
  78|   fallback?: React.ReactNode
  79| }) {
  80|   const user = await getCurrentUser()
  81|   if (!user || !allowedRoles.includes(user.role)) return fallback
  82|   return children
  83| }
  84|
```

File: lib/build-store.ts (204 lines, 6.8 KB)

```
   1| import { create } from 'zustand';
   2| import {
   3|   type CPUProduct,
   4|   type GPUProduct,
   5|   type MainboardProduct,
   6|   type RAMProduct,
   7|   type PSUProduct,
   8|   type CaseProduct,
   9|   type CoolerProduct,
  10|   type SSDProduct,
  11|   type AnyProduct,
  12|   type CompatibilityIssue,
  13|   type BuildScenario,
  14| } from '@/types/pc-components';
  15| import {
  16|   checkCompatibility,
  17|   calculateCompatibilityScore,
  18|   calculateTotalTdp,
  19|   calculateTotalPrice,
  20|   estimatePerformance,
  21| } from './compatibility-engine';
  22|
  23| interface BuildState {
  24|   cpu: CPUProduct | null;
  25|   gpu: GPUProduct | null;
  26|   mainboard: MainboardProduct | null;
  27|   ram: RAMProduct[];
  28|   psu: PSUProduct | null;
  29|   case: CaseProduct | null;
  30|   cooler: CoolerProduct | null;
  31|   ssd: SSDProduct[];
  32|   buildName: string;
  33|   activeScenario: BuildScenario | null;
  34|   budget: number;
  35|
  36|   issues: CompatibilityIssue[];
  37|   score: number;
  38|   totalTdp: number;
  39|   totalPrice: number;
  40|   performance: { gaming: number; productivity: number; workstation: number; value: number };
  41|
  42|   setCPU: (cpu: CPUProduct | null) => void;
  43|   setGPU: (gpu: GPUProduct | null) => void;
  44|   setMainboard: (mb: MainboardProduct | null) => void;
  45|   addRAM: (ram: RAMProduct) => void;
  46|   removeRAM: (index: number) => void;
  47|   setPSU: (psu: PSUProduct | null) => void;
  48|   setCase: (c: CaseProduct | null) => void;
  49|   setCooler: (cooler: CoolerProduct | null) => void;
  50|   addSSD: (ssd: SSDProduct) => void;
  51|   removeSSD: (index: number) => void;
  52|   clearAll: () => void;
  53|   setBuildName: (name: string) => void;
  54|   setActiveScenario: (s: BuildScenario | null) => void;
  55|   setBudget: (b: number) => void;
  56|   recalculate: () => void;
  57|   loadBuild: (build: Partial<BuildState>) => void;
  58|   saveToSupabase: () => Promise<string | null>;
  59|   loadFromSupabase: (id: string) => Promise<void>;
  60| }
  61|
  62| export const useBuildStore = create<BuildState>((set, get) => ({
  63|   cpu: null,
  64|   gpu: null,
  65|   mainboard: null,
  66|   ram: [],
  67|   psu: null,
  68|   case: null,
  69|   cooler: null,
  70|   ssd: [],
      7 1 |       b u i l d N a m e :   ' B u i l d   m Û i ' ,
  72|   activeScenario: null,
  73|   budget: 15000000,
  74|
  75|   issues: [],
  76|   score: 0,
  77|   totalTdp: 0,
  78|   totalPrice: 0,
  79|   performance: { gaming: 0, productivity: 0, workstation: 0, value: 0 },
  80|
  81|   setCPU: (cpu) => { set({ cpu }); get().recalculate(); },
  82|   setGPU: (gpu) => { set({ gpu }); get().recalculate(); },
  83|   setMainboard: (mainboard) => { set({ mainboard }); get().recalculate(); },
  84|   addRAM: (ram) => { set((s) => ({ ram: [...s.ram, ram] })); get().recalculate(); },
  85|   removeRAM: (index) => { set((s) => ({ ram: s.ram.filter((_, i) => i !== index) })); get().recalculate(); },
  86|   setPSU: (psu) => { set({ psu }); get().recalculate(); },
  87|   setCase: (c) => { set({ case: c }); get().recalculate(); },
  88|   setCooler: (cooler) => { set({ cooler }); get().recalculate(); },
  89|   addSSD: (ssd) => { set((s) => ({ ssd: [...s.ssd, ssd] })); get().recalculate(); },
  90|   removeSSD: (index) => { set((s) => ({ ssd: s.ssd.filter((_, i) => i !== index) })); get().recalculate(); },
  91|   clearAll: () => set({
  92|     cpu: null, gpu: null, mainboard: null, ram: [], psu: null,
  93|     case: null, cooler: null, ssd: [], issues: [], score: 0,
  94|     totalTdp: 0, totalPrice: 0, performance: { gaming: 0, productivity: 0, workstation: 0, value: 0 }
  95|   }),
  96|   setBuildName: (buildName) => set({ buildName }),
  97|   setActiveScenario: (activeScenario) => set({ activeScenario }),
  98|   setBudget: (budget) => set({ budget }),
  99|
 100|   recalculate: () => {
 101|     const state = get();
 102|     const allComponents: AnyProduct[] = [
 103|       state.cpu, state.gpu, state.mainboard, state.psu, state.case, state.cooler,
 104|       ...state.ram, ...state.ssd
```

```
    ].filter(Boolean) as AnyProduct[];

    const issues = checkCompatibility({
      cpu: state.cpu, gpu: state.gpu, mainboard: state.mainboard,
      ram: state.ram, psu: state.psu, case: state.case,
      cooler: state.cooler, ssd: state.ssd,
    });

    const score = calculateCompatibilityScore(issues);
    const totalTdp = calculateTotalTdp({ cpu: state.cpu, gpu: state.gpu });
    const totalPrice = calculateTotalPrice(allComponents);
    const performance = estimatePerformance({ cpu: state.cpu, gpu: state.gpu, ram: state.ram });

    set({ issues, score, totalTdp, totalPrice, performance });
  },

  loadBuild: (build) => {
    set({
      cpu: build.cpu ?? null,
      gpu: build.gpu ?? null,
      mainboard: build.mainboard ?? null,
      ram: build.ram ?? [],
      psu: build.psu ?? null,
      case: build.case ?? null,
      cooler: build.cooler ?? null,
      ssd: build.ssd ?? [],
      buildName: build.buildName ?? 'Build mÛi',
    });
    get().recalculate();
  },

  saveToSupabase: async () => {
    const state = get();
    try {
      const { createClient } = await import('@/lib/supabase-client');
      const supabase = createClient();
      const { data: { user } } = await supabase.auth.getUser();
      if (!user) return null;

      const buildData = {
        user_id: user.id,
        name: state.buildName,
        cpu_id: state.cpu?.id || null,
        gpu_id: state.gpu?.id || null,
        mainboard_id: state.mainboard?.id || null,
        ram_ids: state.ram.map(r => r.id),
        psu_id: state.psu?.id || null,
        case_id: state.case?.id || null,
        cooler_id: state.cooler?.id || null,
        ssd_ids: state.ssd.map(s => s.id),
        compatibility_score: state.score,
        total_tdp: state.totalTdp,
        total_price: state.totalPrice,
      };

      const { data, error } = await supabase
        .from('saved_builds')
        .upsert(buildData)
        .select('id')
        .single();

      if (error) throw error;
      return data?.id || null;
    } catch (err) {
      console.error('Failed to save build:', err);
      return null;
    }
  },

  loadFromSupabase: async (id: string) => {
    try {
      const { createClient } = await import('@/lib/supabase-client');
      const supabase = createClient();
      const { data, error } = await supabase
        .from('saved_builds')
        .select('*, cpu:products!cpu_id(*), gpu:products!gpu_id(*), mainboard:products!mainboard_id(*), ram:pr...
        .eq('id', id)
        .single();

      if (error) throw error;
      if (!data) return;

      set({
        buildName: data.name,
        cpu: data.cpu as CPUProduct,
        gpu: data.gpu as GPUProduct,
        mainboard: data.mainboard as MainboardProduct,
        ram: (data.ram || []) as RAMProduct[],
        psu: data.psu as PSUProduct,
        case: data.case as CaseProduct,
        cooler: data.cooler as CoolerProduct,
        ssd: (data.ssd || []) as SSDProduct[],
      });
      get().recalculate();
    } catch (err) {
      console.error('Failed to load build:', err);
    }
  },
}));
```

File: lib/certificates.ts (235 lines, 7.2 KB)

```
'use server'

import { createClient } from '@/lib/supabase-ssr-server'
import { PDFDocument, StandardFonts, rgb } from 'pdf-lib'
import QRCode from 'qrcode'

export async function issueCertificate(userId: string, pathId: string) {
  const supabase = await createClient()

  // 1. Check if certificate already exists
  const { data: existing } = await supabase
    .from('certificates')
    .select('id, pdf_url')
    .eq('student_id', userId)
    .eq('path_id', pathId)
    .maybeSingle()

  if (existing) return existing

  // 2. Validate all lessons completed
```

```
21|   const { data: pathItems } = await supabase
22|     .from('path_items')
23|     .select('id, item_id, item_type')
24|     .eq('path_id', pathId)
25|
26|   const lessons = (pathItems || []).filter(i => i.item_type === 'lesson')
27|   const { data: progress } = await supabase
28|     .from('lesson_progress')
29|     .select('lesson_id')
30|     .eq('student_id', userId)
31|     .eq('status', 'completed')
32|
33|   const completedLessonIds = (progress || []).map(p => p.lesson_id)
34|   const allCompleted = lessons.every(l => completedLessonIds.includes(l.item_id))
35|
36|   if (!allCompleted) {
37|     throw new Error('Bạn chưa hoàn thành tất cả bài học của thiết.')
38|   }
39|
40|   // 3. Snapshot student and course information
41|   const { data: profile } = await supabase
42|     .from('profiles')
43|     .select('full_name')
44|     .eq('id', userId)
45|     .single()
46|
47|   const { data: path } = await supabase
48|     .from('learning_paths')
49|     .select('title')
50|     .eq('id', pathId)
51|     .single()
52|
53|   // Calculate final score based on student's quizzes in this path
54|   const quizzes = (pathItems || []).filter(i => i.item_type === 'quiz')
55|   let totalScore = 0
56|   if (quizzes.length > 0) {
57|     const quizIds = quizzes.map(q => q.item_id)
58|     const { data: attempts } = await supabase
59|       .from('quiz_attempts')
60|       .select('score')
61|       .eq('student_id', userId)
62|       .eq('status', 'submitted')
63|       .in('quiz_id', quizIds)
64|
65|     const sum = (attempts || []).reduce((acc, a) => acc + (a.score || 0), 0)
66|     totalScore = sum / (quizzes.length || 1)
67|   } else {
68|     totalScore = 100
69|   }
70|
71|   // Generate certificate number
72|   const chars = 'ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789'
73|   let randomPart = ''
74|   for (let i = 0; i < 5; i++) {
75|     randomPart += chars.charAt(Math.floor(Math.random() * chars.length))
76|   }
77|   const certNumber = `PCM-2026-${randomPart}`
78|   const verifyUrl = `${process.env.NEXT_PUBLIC_SITE_URL || 'https://localhost:3000'}/verify/${certNumber}`
79|
80|   // Create certificate record
81|   const { data: cert, error: insertErr } = await supabase
82|     .from('certificates')
83|     .insert({
84|       student_id: userId,
85|       path_id: pathId,
86|       certificate_number: certNumber,
87|       student_name: profile?.full_name || 'Học_viên PC Master',
88|       course_title: path?.title || 'Lùtrình Lập rápPC Master',
89|       final_score: totalScore,
90|       verify_url: verifyUrl,
91|       completion_date: new Date().toISOString().split('T')[0]
92|     })
93|     .select()
94|     .single()
95|
96|   if (insertErr || !cert) throw insertErr
97|
98|   // 4. Node.js Direct PDF Generation Fallback (Ensures it works immediately!)
99|   try {
100|     const pdfDoc = await PDFDocument.create()
101|     const page = pdfDoc.addPage([842, 595]) // A4 Landscape
102|
103|     const fontBold = await pdfDoc.embedFont(StandardFonts.HelveticaBold)
104|     const fontRegular = await pdfDoc.embedFont(StandardFonts.Helvetica)
105|
106|     // Background
107|     page.drawRectangle({
108|       x: 0, y: 0, width: 842, height: 595,
109|       color: rgb(0.05, 0.06, 0.075) // #0d0e13
110|     })
111|
112|     // Glowing border
113|     page.drawRectangle({
114|       x: 20, y: 20, width: 802, height: 555,
115|       borderColor: rgb(0, 0.83, 0.67), // #00d4aa
116|       borderWidth: 2
117|     })
118|
119|     // Content text drawing
120|     page.drawText('CHUNG NHAN HOAN THANH', {
121|       x: 250, y: 460, size: 28, font: fontBold,
122|       color: rgb(0, 0.83, 0.67)
123|     })
124|
125|     page.drawText('Chung chi nay duoc trao cho', {
126|       x: 330, y: 400, size: 14, font: fontRegular,
127|       color: rgb(0.6, 0.6, 0.6)
128|     })
129|
130|     page.drawText(cert.student_name, {
131|       x: 260, y: 340, size: 36, font: fontBold,
132|       color: rgb(0.87, 0.88, 0.93)
133|     })
134|
135|     page.drawText('Vi da hoan thanh xuat sac khoa hoc', {
136|       x: 320, y: 290, size: 12, font: fontRegular,
137|       color: rgb(0.6, 0.6, 0.6)
138|     })
139|
140|     page.drawText(cert.course_title, {
141|       x: 260, y: 240, size: 20, font: fontBold,
142|       color: rgb(0, 0.83, 0.67)
143|     })
144|
```

```
145|     page.drawText(`Diem so: ${cert.final_score}% | Ngay cap: ${cert.completion_date}`, {
146|       x: 280, y: 180, size: 11, font: fontRegular,
147|       color: rgb(0.5, 0.5, 0.5)
148|     })
149|
150|     page.drawText(`Ma so chung chi: ${cert.certificate_number}`, {
151|       x: 300, y: 140, size: 11, font: fontRegular,
152|       color: rgb(0.5, 0.5, 0.5)
153|     })
154|
155|     // Generate QR Code verify url
156|     const qrDataUrl = await QRCode.toDataURL(verifyUrl)
157|     const qrImageBytes = Uint8Array.from(atob(qrDataUrl.split(',')[1]), c => c.charCodeAt(0))
158|     const qrImage = await pdfDoc.embedPng(qrImageBytes)
159|
160|     page.drawImage(qrImage, {
161|       x: 690, y: 40, width: 90, height: 90
162|     })
163|
164|     const pdfBytes = await pdfDoc.save()
165|
166|     // Upload to Supabase Storage Bucket 'certificates'
167|     const { error: uploadErr } = await supabase.storage
168|       .from('certificates')
169|       .upload(`${cert.id}.pdf`, pdfBytes, {
170|         contentType: 'application/pdf',
171|         upsert: true
172|       })
173|
174|     if (uploadErr) throw uploadErr
175|
176|     const publicUrl = supabase.storage
177|       .from('certificates').getPublicUrl(`${cert.id}.pdf`).data.publicUrl
178|
179|     // Update pdf_url in DB
180|     await supabase
181|       .from('certificates')
182|       .update({ pdf_url: publicUrl })
183|       .eq('id', cert.id)
184|
185|     return { id: cert.id, pdf_url: publicUrl }
186|   } catch (err) {
187|     console.error("PDF Generation error:", err)
188|     return cert
189|   }
190| }
191|
192| export async function issueCustomCertificate(data: {
193|   studentId: string;
194|   courseTitle: string;
195|   finalScore: number;
196|   stickerUrl: string;
197|   completionDate: string;
198| }) {
199|   const supabase = await createClient()
200|
201|   // Generate certificate number
202|   const chars = 'ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789'
203|   let randomPart = ''
204|   for (let i = 0; i < 5; i++) {
205|     randomPart += chars.charAt(Math.floor(Math.random() * chars.length))
206|   }
207|   const certNumber = `PCM-2026-${randomPart}`
208|   const verifyUrl = `${process.env.NEXT_PUBLIC_SITE_URL || 'https://localhost:3000'}/verify/${certNumber}`
209|
210|   // Get student profile info
211|   const { data: profile } = await supabase
212|     .from('profiles')
213|     .select('full_name')
214|     .eq('id', data.studentId)
215|     .single()
216|
217|   const { data: cert, error: insertErr } = await supabase
218|     .from('certificates')
219|     .insert({
220|       student_id: data.studentId,
221|       certificate_number: certNumber,
222|       student_name: profile?.full_name || 'Hí c viên PC Master',
223|       course_title: data.courseTitle,
224|       final_score: data.finalScore,
225|       pdf_url: data.stickerUrl, // Lº u £nh dán/sticker vào trºÝng pdf_u
226|       verify_url: verifyUrl,
227|       completion_date: data.completionDate || new Date().toISOString().split('T')[0]
228|     })
229|     .select()
230|     .single()
231|
232|   if (insertErr || !cert) throw insertErr
233|   return cert
234| }
235|
```

File: lib/compatibility-engine.ts (325 lines, 12.8 KB)

```
==========================================================================================
  1| import {
  2|   type AnyProduct,
  3|   type CPUProduct,
  4|   type GPUProduct,
  5|   type MainboardProduct,
  6|   type PSUProduct,
  7|   type CaseProduct,
  8|   type CoolerProduct,
  9|   type RAMProduct,
 10|   type SSDProduct,
 11|   type Build,
 12|   type CompatibilityIssue,
 13|   type CompatibilityIssueType,
 14|   type Severity,
 15| } from '@/types/pc-components';
 16|
 17| function issue(
 18|   severity: Severity,
 19|   check_type: CompatibilityIssueType,
 20|   message: string,
 21|   fix: string
 22| ): CompatibilityIssue {
 23|   return { severity, check_type, message, fix };
 24| }
 25|
 26| export function checkCompatibility(build: {
 27|   cpu: CPUProduct | null;
 28|   gpu: GPUProduct | null;
 29|   mainboard: MainboardProduct | null;
```

```
  ram: RAMProduct[];
  psu: PSUProduct | null;
  case: CaseProduct | null;
  cooler: CoolerProduct | null;
  ssd: SSDProduct[];
}): CompatibilityIssue[] {
  const issues: CompatibilityIssue[] = [];
  const { cpu, gpu, mainboard, ram, psu, case: case_, cooler, ssd } = build;

  if (!cpu) return issues;
  if (!mainboard) return issues;

  // 1. Socket check
  if (cpu.cpu_socket !== mainboard.mb_socket) {
    issues.push(issue(
      'error', 'socket_mismatch',
            `CPU socket ${cpu.cpu_socket} không tương thích với Mainboard soc
            `Chỉn Mainboard ${cpu.cpu_socket} hoặc CPU ${mainboard.mb_socket}
    ));
  }

  // 2. RAM type CPU vs Mainboard
  if (cpu.cpu_ram_type !== mainboard.mb_ram_type) {
    issues.push(issue(
      'error', 'ram_type_mismatch',
            `CPU hỗ trợ ${cpu.cpu_ram_type} nhưng Mainboard hỗ trợ ${mainboar
            `Chỉn CPU ${mainboard.mb_ram_type} hoặc Mainboard ${cpu.cpu_ram_ty
    ));
  }

  // 3. RAM quantity vs slots
  if (ram.length > mainboard.mb_ram_slots) {
    issues.push(issue(
      'error', 'too_many_ram',
            `Có ${ram.length} thanh RAM nhưng Mainboard chỉ có ${mainboard.mb_
            `Giảm xuống ${mainboard.mb_ram_slots} thanh hoặc nâng cấp Mainboar
    ));
  }

  // 4. RAM type match
  if (ram.length > 0 && mainboard) {
    const mismatchedRam = ram.some(r => r.ram_ddr_type !== mainboard.mb_ram_type);
    if (mismatchedRam) {
      issues.push(issue(
        'error', 'ram_type_mismatch',
                `Loại RAM không khớp với Mainboard (yêu cầu ${mainboard.mb_ram_t
                `Chỉn RAM ${mainboard.mb_ram_type}`
      ));
    }
  }

  // 5. GPU checks
  if (gpu) {
    let totalTdp = (cpu.cpu_tdp_watts || 0) + (gpu.gpu_tdp_watts || 0);

    // GPU length vs case
    if (case_ && gpu.gpu_length_mm > case_.case_max_gpu_length_mm) {
      issues.push(issue(
        'error', 'gpu_too_long',
                `GPU ${gpu.full_name} (dài ${gpu.gpu_length_mm}mm) quá dài cho G
                `Chỉn GPU ngắn hơn ${case_.case_max_gpu_length_mm}mm hoặc Case l
      ));
    }

    // PSU check
    if (psu) {
      const safeWattage = psu.psu_wattage * 0.8;
      if (totalTdp > safeWattage) {
        issues.push(issue(
          'error', 'psu_insufficient',
                    `Tổng TDP ${totalTdp}W vượt quá 80% công suất PSU (${safeWatta
                    `Nâng PSU lên ít nhất ${Math.ceil(totalTdp * 1.25)}W`
        ));
      }

      if (gpu.gpu_recommended_psu > psu.psu_wattage) {
        issues.push(issue(
          'warning', 'psu_insufficient',
                    `GPU ${gpu.full_name} khuyến nghị PSU tối thiểu ${gpu.gpu_reco
          `Nâng PSU lên ${gpu.gpu_recommended_psu}W`
        ));
      }

      // GPU power connectors vs PSU
      for (const conn of gpu.gpu_power_connectors) {
        const psuMatch = psu.psu_connectors.find(
          c => c.type.toLowerCase().includes(conn.type.toLowerCase().replace('pin', '').trim())
        );
        if (!psuMatch || psuMatch.qty < conn.qty) {
          issues.push(issue(
            'warning', 'psu_insufficient',
                        `GPU cần ${conn.qty}x ${conn.type} nhưng PSU không ç`,
                        `Chỉn PSU có ç §u cấp nguồn cho GPU`
          ));
        }
      }
    }

    // No iGPU + No display
    if (!cpu.cpu_has_igpu && !gpu) {
      issues.push(issue(
        'warning', 'no_display_output',
                `CPU ${cpu.full_name} không có iGPU và chưa chỉn GPU rỗi — sẽ kh
                'Thêm GPU rỗi hoặc chỉn CPU có iGPU (non-F)'
      ));
    }

    // Bottleneck estimation
    if (gpu.gpu_benchmark_1080p && cpu.cpu_cinebench_r23_multi) {
      const gpuPower = gpu.gpu_benchmark_1080p;
      const cpuPower = cpu.cpu_cinebench_r23_multi;
      if (cpuPower > 0 && gpuPower > 0) {
        const ratio = gpuPower / cpuPower;
        if (ratio > 2.5) {
          issues.push(issue(
            'warning', 'bottleneck',
                        `GPU mạnh hơn CPU đáng kể (tỉ lệ ${ratio.toFixed(1)}x) — CPU
                        'Cân nhắc CPU mạnh hơn hoặc GPU thấp hơn'
          ));
        } else if (ratio < 0.4) {
          issues.push(issue(
            'warning', 'bottleneck',
                        `CPU quá mạnh so với GPU (tỉ lệ ${ratio.toFixed(1)}x) — GPU
                        'Cân nhắc GPU mạnh hơn hoặc CPU thấp hơn'
```

```
154|          ));
155|        }
156|      }
157|    }
158|  } else if (!cpu.cpu_has_igpu) {
159|    issues.push(issue(
160|      'warning', 'no_display_output',
  1 6 1 |              `CPU ${cpu.full_name} không có iGPU và chỉ chỉ GPU rời`,
  1 6 2 |              'Thêm GPU rời hoặc chỉ CPU có iGPU (non-F)'
163|    ));
164|  }
165|
166|  // 6. Cooler checks
167|  if (cooler) {
168|    if (cooler.cooler_max_tdp_support < (cpu.cpu_tdp_watts || 0) * 0.9) {
169|      issues.push(issue(
170|        'warning', 'cooler_insufficient',
  1 7 1 |              `CPU TDP ${cpu.cpu_tdp_watts}W gần bằng giới hạn tản nhiệt của C
  1 7 2 |              'Cân nhắc nâng cấp cooler (AIO hoặc khí hiệu năng cao)'
173|      ));
174|    }
175|
176|    if (case_ && cooler.cooler_height_mm > case_.case_max_cooler_height_mm) {
177|      issues.push(issue(
178|        'error', 'cooler_too_tall',
  1 7 9 |              `Cooler cao ${cooler.cooler_height_mm}mm quá cao cho Case (chỉ h
  1 8 0 |              `Chỉn cooler thấp hơn ${case_.case_max_cooler_height_mm}mm hoặc
181|      ));
182|    }
183|
184|    if (!cooler.cooler_supported_sockets.includes(cpu.cpu_socket)) {
185|      issues.push(issue(
186|        'error', 'cooler_socket_mismatch',
  1 8 7 |              `Cooler không hỗ trợ socket ${cpu.cpu_socket}`,
  1 8 8 |              `Chỉn cooler hỗ trợ socket ${cpu.cpu_socket}`
189|      ));
190|    }
191|  }
192|
193|  // 7. Form factor check
194|  if (case_ && mainboard) {
195|    if (!case_.case_supported_forms.includes(mainboard.mb_form_factor)) {
196|      issues.push(issue(
197|        'error', 'form_factor_mismatch',
  1 9 8 |              `Mainboard ${mainboard.mb_form_factor} không vừa Case (hỗ trợ: $
  1 9 9 |              `Chỉn Mainboard ${case_.case_supported_forms[0] || 'ATX'} hoặc C
200|      ));
201|    }
202|  }
203|
204|  // 8. SSD M.2 slot count
205|  const m2Ssds = ssd.filter(s => s.ssd_interface === 'm2_nvme' || s.ssd_interface === 'm2_sata');
206|  if (m2Ssds.length > (mainboard.mb_m2_slots || 0)) {
207|    issues.push(issue(
208|      'warning', 'not_enough_m2_slots',
  2 0 9 |              `Có ${m2Ssds.length} SSD M.2 nhưng Mainboard chỉ có ${mainboard.mb
  2 1 0 |              `Dùng SSD SATA cho các Ô còn lại hoặc nâng cấp Mainboard`
211|    ));
212|  }
213|
214|  // 9. PSU length vs case
215|  if (psu && case_ && psu.psu_length_mm > case_.case_max_psu_length_mm) {
216|    issues.push(issue(
217|      'error', 'psu_insufficient',
  2 1 8 |              `PSU dài ${psu.psu_length_mm}mm quá dài cho Case (hỗ trợ tối a ${
  2 1 9 |              `Chỉn PSU ngắn hơn ${case_.case_max_psu_length_mm}mm`
220|    ));
221|  }
222|
223|  return issues;
224| }
225|
226| export function calculateCompatibilityScore(issues: CompatibilityIssue[]): number {
227|   if (issues.length === 0) return 100;
228|
229|   let score = 100;
230|   for (const issue of issues) {
231|     if (issue.severity === 'error') score -= 25;
232|     else if (issue.severity === 'warning') score -= 10;
233|     else score -= 5;
234|   }
235|   return Math.max(0, score);
236| }
237|
238| export function calculateTotalTdp(build: {
239|   cpu: CPUProduct | null;
240|   gpu: GPUProduct | null;
241| }): number {
242|   let tdp = 0;
243|   if (build.cpu) tdp += build.cpu.cpu_tdp_watts;
244|   if (build.gpu) tdp += build.gpu.gpu_tdp_watts;
245|   return tdp;
246| }
247|
248| export function calculateTotalPrice(components: AnyProduct[]): number {
249|   return components.reduce((sum, c) => sum + (c.price_vnd || 0), 0);
250| }
251|
252| export function getPriorityIssues(issues: CompatibilityIssue[]): {
253|   errors: CompatibilityIssue[];
254|   warnings: CompatibilityIssue[];
255|   info: CompatibilityIssue[];
256| } {
257|   return {
258|     errors: issues.filter(i => i.severity === 'error'),
259|     warnings: issues.filter(i => i.severity === 'warning'),
260|     info: issues.filter(i => i.severity === 'info'),
261|   };
262| }
263|
264| export function estimatePerformance(build: {
265|   cpu: CPUProduct | null;
266|   gpu: GPUProduct | null;
267|   ram: RAMProduct[];
268| }): {
269|   gaming: number;
270|   productivity: number;
271|   workstation: number;
272|   value: number;
273| } {
274|   const cpuPower = build.cpu?.cpu_cinebench_r23_multi || 0;
275|   const gpuPower = build.gpu?.gpu_benchmark_1080p || 0;
276|   const ramSpeed = build.ram.reduce((s, r) => s + (r.ram_speed_mhz || 0), 0) / Math.max(build.ram.length, 1);
277|   const hasGpu = !!build.gpu;
```

```
  278|   const totalPrice = calculateTotalPrice([
  279|     build.cpu, build.gpu, ...build.ram
  280|   ].filter(Boolean) as AnyProduct[]);
  281|
  282|   const gaming = hasGpu
  283|     ? Math.round((gpuPower * 0.7 + cpuPower * 0.3) / 100)
  284|     : Math.round((cpuPower * 0.3) / 100);
  285|
  286|   const productivity = Math.round((cpuPower * 0.6 + ramSpeed * 0.4) / 100);
  287|   const workstation = Math.round((cpuPower * 0.5 + gpuPower * 0.3 + ramSpeed * 0.2) / 100);
  288|   const value = totalPrice > 0
  289|     ? Math.round(((gaming + productivity + workstation) / 3) * 10000000 / totalPrice * 100)
  290|     : 0;
  291|
  292|   return {
  293|     gaming: Math.min(100, Math.max(0, gaming)),
  294|     productivity: Math.min(100, Math.max(0, productivity)),
  295|     workstation: Math.min(100, Math.max(0, workstation)),
  296|     value: Math.min(100, Math.max(0, value)),
  297|   };
  298| }
  299|
  300| export function getComponentRecommendations(
  301|   budget: number,
  302|   useCase: 'gaming' | 'productivity' | 'workstation' | 'budget'
  303| ): Partial<Build> {
  304|   const recommendations: Record<string, Partial<Build>> = {
  305|     budget: {
  306|       cpu: { full_name: 'Intel Core i3-12100F', cpu_socket: 'LGA1700', cpu_cores: 4, cpu_threads: 8, cpu_base_...
  307|       gpu: { full_name: 'NVIDIA GTX 1650', gpu_vram_gb: 4, gpu_tdp_watts: 75, gpu_length_mm: 170, gpu_benchmar...
  308|     },
  309|     gaming: {
  310|       cpu: { full_name: 'AMD Ryzen 5 7600', cpu_socket: 'AM5', cpu_cores: 6, cpu_threads: 12, cpu_base_ghz: 3....
  311|       gpu: { full_name: 'NVIDIA RTX 4060', gpu_vram_gb: 8, gpu_tdp_watts: 115, gpu_length_mm: 240, gpu_benchma...
  312|     },
  313|     productivity: {
  314|       cpu: { full_name: 'Intel Core i7-13700K', cpu_socket: 'LGA1700', cpu_cores: 16, cpu_threads: 24, cpu_bas...
  315|       gpu: { full_name: 'NVIDIA RTX 4060 Ti', gpu_vram_gb: 16, gpu_tdp_watts: 160, gpu_length_mm: 268, gpu_ben...
  316|     },
  317|     workstation: {
  318|       cpu: { full_name: 'AMD Ryzen 9 7950X', cpu_socket: 'AM5', cpu_cores: 16, cpu_threads: 32, cpu_base_ghz: ...
  319|       gpu: { full_name: 'NVIDIA RTX 4080 Super', gpu_vram_gb: 16, gpu_tdp_watts: 320, gpu_length_mm: 310, gpu_...
  320|     },
  321|   };
  322|
  323|   return recommendations[useCase] || recommendations.budget;
  324| }
  325|
```

File: lib/exam-actions.ts (85 lines, 2.9 KB)

```
    1| 'use server'
    2|
    3| import { createClient } from '@/lib/supabase-ssr-server'
    4| import { redirect } from 'next/navigation'
    5| import { revalidatePath } from 'next/cache'
    6|
    7| export async function startExamAttempt(examId: string) {
    8|   const supabase = await createClient()
    9|   const { data: { user } } = await supabase.auth.getUser()
   10|   if (!user) return { error: 'Unauthorized' }
   11|
   12|   const { data, error } = await supabase
   13|     .from('exam_attempts')
   14|     .insert({
   15|       user_id: user.id,
   16|       exam_id: examId,
   17|       status: 'in_progress',
   18|       started_at: new Date().toISOString()
   19|     })
   20|     .select()
   21|     .single()
   22|
   23|   if (error) return { error: error.message }
   24|   return { attemptId: data.id }
   25| }
   26|
   27| export async function submitExamAttempt(attemptId: string, answers: any, score: number, timeSpent: number) {
   28|   const supabase = await createClient()
   29|   const { data: { user } } = await supabase.auth.getUser()
   30|   if (!user) return { error: 'Unauthorized' }
   31|
   32|   // 1. Save answers and calculate final score
   33|   const { error } = await supabase
   34|     .from('exam_attempts')
   35|     .update({
   36|       score: score,
   37|       status: score >= 50 ? 'passed' : 'failed',
   38|       completed_at: new Date().toISOString(),
   39|       time_spent: timeSpent,
   40|       // answers: answers // Assuming there's a JSON column for this
   41|     })
   42|     .eq('id', attemptId)
   43|
   44|   if (error) return { error: error.message }
   45|
   46|   // 2. Add XP to profile
   47|   const { data: profile } = await supabase.from('profiles').select('xp, level').eq('id', user.id).single()
   48|   const currentXp = (profile?.xp || 0) + score
   49|   const now = new Date().toISOString()
   50|
   51|   const { data: levelDefs } = await supabase
   52|     .from('level_definitions')
   53|     .select('level')
   54|     .lte('xp_required', currentXp)
   55|     .order('xp_required', { ascending: false })
   56|     .limit(1)
   57|   const newLevel = (levelDefs?.[0] as any)?.level || 1
   58|
   59|   await supabase.from('profiles').update({ xp: currentXp, level: newLevel, updated_at: now }).eq('id', user.id)
   60|
   61|   await supabase.from('leaderboard_cache').upsert({
   62|     user_id: user.id, total_xp: currentXp, level: newLevel, updated_at: now,
   63|   }, { onConflict: 'user_id' })
   64|
   65|   await supabase.from('learning_stats').update({ total_xp: currentXp, updated_at: now }).eq('user_id', user.id)
   66|
   67|   await supabase.from('xp_transactions').insert({
   68|     user_id: user.id, amount: score, reason: 'Hoàn thành bài thi', reference_type: 'exam_completed', reference...
   69|   })
   70|
   71|   if (newLevel > (profile?.level || 1)) {
   72|     const { data: levelDef } = await supabase.from('level_definitions').select('title, icon').eq('level', newL...
```

```
   73|     if (levelDef) {
   74|       await supabase.from('notifications').insert({
      7 5 |                 u s e r _ i d :  u s e r . i d ,  t y p e :  ' s u c c e s s ' ,  t i t l e :  ' L ê n  C ¥ p ! ' ,
      7 6 |                 b o d y :  ` C h ú c  m ë n g !  B ¡ n  ã  ¡ t  c ¥ p  $ { n e w L e v e l } :  $ { ( l e v e l D e f  a s  a n y
   77|         data: { level: newLevel, icon: (levelDef as any).icon },
   78|       })
   79|     }
   80|   }
   81|
   82|   revalidatePath('/student')
   83|   return { success: true }
   84| }
   85|
```

File: lib/grading/auto-grade.ts (107 lines, 3.4 KB)

```
    1| export interface PCConfig {
    2|   components: string[];
    3|   total_price: number;
    4|   total_tdp: number;
    5|   ram_gb: number;
    6|   cpu?: string;
    7|   gpu?: string;
    8| }
    9|
   10| export interface AssignmentRequirements {
   11|   budget_max?: number;
   12|   tdp_max?: number;
   13|   min_ram_gb?: number;
   14|   required_components?: string[];
   15|   performance_min?: number;
   16| }
   17|
   18| export interface GradingResult {
   19|   score: number;
   20|   breakdown: {
   21|     criterion: string;
   22|     passed: boolean;
   23|     points: number;
   24|     feedback: string;
   25|   }[];
   26| }
   27|
   28| export function autoGrade(submission: PCConfig, requirements: AssignmentRequirements, maxScore: number = 100):...
   29|   const breakdown = [];
   30|   let score = 0;
   31|
   32|   // 1. Budget check (30 points)
   33|   if (requirements.budget_max) {
   34|     const passed = submission.total_price <= requirements.budget_max;
   35|     const points = passed ? 30 : 0;
   36|     score += points;
   37|     breakdown.push({
   38|       criterion: 'Ngân sách',
   39|       passed,
   40|       points,
   41|       feedback: passed
      4 2 |                 ?  ` ¡ t :  T r o n g  n g â n  s á c h  ( C ¥ u  h ì n h :  $ { s u b m i s s i o n . t o t a l _ p r i c e . t o L
      4 3 |                 :  ` C h º a  ¡ t :  V º ã t  n g â n  s á c h  $ { ( s u b m i s s i o n . t o t a l _ p r i c e  -  r e q u i r e m
   44|     });
   45|   }
   46|
   47|   // 2. TDP check (20 points)
   48|   if (requirements.tdp_max) {
   49|     const passed = submission.total_tdp <= requirements.tdp_max;
   50|     const points = passed ? 20 : 0;
   51|     score += points;
   52|     breakdown.push({
      5 3 |                c r i t e r i o n :  ' T i ê u  t h â  i Ç n  ( T D P ) ' ,
   54|       passed,
   55|       points,
   56|       feedback: passed
      5 7 |                 ?  ` ¡ t :  T D P  h ã p  l ý  ( $ { s u b m i s s i o n . t o t a l _ t d p } W ) `
      5 8 |                 :  ` C h º a  ¡ t :  T D P  q u á  c a o  ( $ { s u b m i s s i o n . t o t a l _ t d p } W ,  y ê u  c § u  <  $ {
   59|     });
   60|   }
   61|
   62|   // 3. RAM check (15 points)
   63|   if (requirements.min_ram_gb) {
   64|     const passed = submission.ram_gb >= requirements.min_ram_gb;
   65|     const points = passed ? 15 : 0;
   66|     score += points;
   67|     breakdown.push({
      6 8 |                c r i t e r i o n :  ' D u n g  l º ã n g  R A M ' ,
   69|       passed,
   70|       points,
   71|       feedback: passed
      7 2 |                 ?  ` ¡ t :  R A M  á p  é n g  ç  ( $ { s u b m i s s i o n . r a m _ g b } G B ) `
      7 3 |                 :  ` C h º a  ¡ t :  T h i ¿ u  R A M  ( $ { s u b m i s s i o n . r a m _ g b } G B ,  y ê u  c § u  > =  $ { r e c
   74|     });
   75|   }
   76|
   77|   // 4. Required components check (35 points)
   78|   if (requirements.required_components && requirements.required_components.length > 0) {
   79|     const missing = requirements.required_components.filter(c => !submission.components.some(sc => sc.includes...
   80|     const passed = missing.length === 0;
   81|     const points = passed ? 35 : 0;
   82|     score += points;
   83|     breakdown.push({
      8 4 |                c r i t e r i o n :  ' L i n h  k i Ç n  b ¯ t  b u Ù c ' ,
   85|       passed,
   86|       points,
   87|       feedback: passed
      8 8 |                 ?  ` ¡ t :  C ó  ç  c á c  l i n h  k i Ç n  y ê u  c § u . `
      8 9 |                 :  ` C h º a  ¡ t :  T h i ¿ u  l i n h  k i Ç n  ( $ { m i s s i n g . j o i n ( ' ,  ' ) } ) `
   90|     });
   91|   }
   92|
   93|   // Normalize score to maxScore (default 100) if not all criteria are present
   94|   const totalPossible = breakdown.reduce((acc, curr) => acc + (curr.points > 0 || !curr.passed ? (curr.criteri...
   95|
   96|   const normalizedScore = totalPossible > 0 ? Math.round((score / totalPossible) * maxScore) : maxScore;
   97|
   98|   return {
   99|     score: normalizedScore,
  100|     breakdown
  101|   };
  102| }
  103|
  104| export function formatVND(amount: number) {
  105|   return new Intl.NumberFormat('vi-VN', { style: 'currency', currency: 'VND' }).format(amount);
  106| }
  107|
```

File: lib/guru-state.tsx (64 lines, 1.9 KB)

```
    1| 'use client';
    2|
    3| import { createContext, useContext, useState, useCallback, ReactNode } from 'react';
    4|
    5| interface GuruState {
    6|   message: string;
    7|   trigger: number;
    8|   silentMessage: string;
    9|   silentTrigger: number;
   10|   lang: string;
   11|   openTrigger: number;
   12|   setMessage: (msg: string) => void;
   13|   setSilentMessage: (msg: string) => void;
   14|   setLang: (l: string) => void;
   15|   incrementTrigger: () => void;
   16|   incrementSilentTrigger: () => void;
   17|   openChat: () => void;
   18| }
   19|
   20| const GuruContext = createContext<GuruState | null>(null);
   21|
   22| export function GuruProvider({ children }: { children: ReactNode }) {
   23|   const [message, setMessageState] = useState('');
   24|   const [trigger, setTrigger] = useState(0);
   25|   const [silentMessage, setSilentMessageState] = useState('');
   26|   const [silentTrigger, setSilentTrigger] = useState(0);
   27|   const [lang, setLangState] = useState('vn');
   28|   const [openTrigger, setOpenTrigger] = useState(0);
   29|
   30|   const setMessage = useCallback((msg: string) => {
   31|     setMessageState(msg);
   32|     setTrigger(t => t + 1);
   33|   }, []);
   34|
   35|   const setSilentMessage = useCallback((msg: string) => {
   36|     setSilentMessageState(msg);
   37|     setSilentTrigger(t => t + 1);
   38|   }, []);
   39|
   40|   const setLang = useCallback((l: string) => {
   41|     setLangState(l);
   42|   }, []);
   43|
   44|   const incrementTrigger = useCallback(() => setTrigger(t => t + 1), []);
   45|   const incrementSilentTrigger = useCallback(() => setSilentTrigger(t => t + 1), []);
   46|   const openChat = useCallback(() => setOpenTrigger(t => t + 1), []);
   47|
   48|   return (
   49|     <GuruContext.Provider value={{
   50|       message, trigger, silentMessage, silentTrigger, lang, openTrigger,
   51|       setMessage, setSilentMessage, setLang,
   52|       incrementTrigger, incrementSilentTrigger, openChat
   53|     }}>
   54|       {children}
   55|     </GuruContext.Provider>
   56|   );
   57| }
   58|
   59| export function useGuru(): GuruState {
   60|   const ctx = useContext(GuruContext);
   61|   if (!ctx) throw new Error('useGuru must be used within GuruProvider');
   62|   return ctx;
   63| }
   64|
```

File: lib/learning-actions.ts (100 lines, 2.5 KB)

```
    1| 'use server'
    2|
    3| import { createServerClient } from '@supabase/ssr'
    4| import { cookies } from 'next/headers'
    5| import { redirect } from 'next/navigation'
    6|
    7|
    8| export async function completeLessonAction(lessonId: string) {
    9|   const cookieStore = await cookies()
   10|   const supabase = createServerClient(
   11|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   12|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
   13|     {
   14|       cookies: {
   15|         get(name: string) {
   16|           return cookieStore.get(name)?.value
   17|         },
   18|       },
   19|     }
   20|   )
   21|
   22|   const { data: { user } } = await supabase.auth.getUser()
   23|   if (!user) throw new Error('Unauthorized')
   24|
   25|   await supabase
   26|     .from('lesson_progress')
   27|     .upsert({
   28|       student_id: user.id,
   29|       lesson_id: lessonId,
   30|       status: 'completed',
   31|       completion_percentage: 100,
   32|       completed_at: new Date().toISOString()
   33|     }, { onConflict: 'student_id,lesson_id' })
   34|
   35|   // Redirect to dashboard or next lesson
   36|   redirect('/student')
   37| }
   38|
   39| export async function startBuilderSession(lessonId?: string) {
   40|   const cookieStore = await cookies()
   41|   const supabase = createServerClient(
   42|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   43|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
   44|     {
   45|       cookies: {
   46|         get(name: string) {
   47|           return cookieStore.get(name)?.value
   48|         },
   49|       },
   50|     }
   51|   )
```

```
  52|
  53|   const { data: { user } } = await supabase.auth.getUser()
  54|   if (!user) return null
  55|
  56|   const { data } = await supabase
  57|     .from('builder_sessions')
  58|     .insert({
  59|       student_id: user.id,
  60|       lesson_id: lessonId || null,
  61|       started_at: new Date().toISOString()
  62|     })
  63|     .select('id')
  64|     .single()
  65|
  66|   return data?.id
  67| }
  68|
  69| export async function endBuilderSession(sessionId: string, data: { components_used: any, tdp_calculated: numbe...
  70|   if (!sessionId) return
  71|   const cookieStore = await cookies()
  72|   const supabase = createServerClient(
  73|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
  74|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
  75|     {
  76|       cookies: {
  77|         get(name: string) {
  78|           return cookieStore.get(name)?.value
  79|         },
  80|       },
  81|     }
  82|   )
  83|
  84|   const { data: { user } } = await supabase.auth.getUser()
  85|
  86|   await supabase
  87|     .from('builder_sessions')
  88|     .update({
  89|       ended_at: new Date().toISOString(),
  90|       components_used: data.components_used,
  91|       tdp_calculated: data.tdp_calculated,
  92|       compatibility_score: data.compatibility_score
  93|     })
  94|     .eq('id', sessionId)
  95|
  96|   if (user) {
  97|     // Session ended
  98|   }
  99| }
 100|
```

File: lib/lesson-actions.ts (123 lines, 4.3 KB)

```
   1| 'use server'
   2|
   3| import { createClient } from '@/lib/supabase-ssr-server'
   4| import { revalidatePath } from 'next/cache'
   5|
   6| async function addXpAndLevel(userId: string, xp: number, type?: string, refId?: string, desc?: string) {
   7|   try {
   8|     const supabase = await createClient()
   9|     const now = new Date().toISOString()
  10|     const today = now.slice(0, 10)
  11|
  12|     const { data: profile } = await supabase.from('profiles').select('xp, level').eq('id', userId).single()
  13|     const currentXp = (profile?.xp || 0) + xp
  14|
  15|     const { data: levelDefs } = await supabase
  16|       .from('level_definitions')
  17|       .select('level')
  18|       .lte('xp_required', currentXp)
  19|       .order('xp_required', { ascending: false })
  20|       .limit(1)
  21|     const newLevel = (levelDefs?.[0] as any)?.level || 1
  22|
  23|     await supabase.from('profiles').update({ xp: currentXp, level: newLevel, updated_at: now }).eq('id', userId)
  24|
  25|     await supabase.from('leaderboard_cache').upsert({
  26|       user_id: userId, total_xp: currentXp, level: newLevel, updated_at: now,
  27|     }, { onConflict: 'user_id' })
  28|
  29|     await supabase.from('learning_stats').update({ total_xp: currentXp, updated_at: now }).eq('user_id', userId)
  30|
  31|     if (type) {
  32|       await supabase.from('xp_transactions').insert({
  33|         user_id: userId, amount: xp, reason: desc || type, reference_type: type, reference_id: refId,
  34|       })
  35|     }
  36|
  37|     if (newLevel > (profile?.level || 1)) {
  38|       const { data: levelDef } = await supabase.from('level_definitions').select('*').eq('level', newLevel).si...
  39|       if (levelDef) {
  40|         await supabase.from('notifications').insert({
     4 1 |                     u s e r _ i d :   u s e r I d ,   t y p e :   ' s u c c e s s ' ,   t i t l e :   ' L ê n   C ¥ p ! ' ,
     4 2 |                     b o d y :   ` C h ú c   m ë n g !   B ¡ n   ã   ¡ t   c ¥ p   $ { n e w L e v e l } :   $ { ( l e v e l D e f   a s   a
  43|           data: { level: newLevel, icon: (levelDef as any).icon },
  44|         })
  45|       }
  46|     }
  47|
  48|     return { success: true, xp: currentXp, level: newLevel }
  49|   } catch (e) {
  50|     console.error('addXpAndLevel error:', e)
  51|     return { success: false, error: String(e) }
  52|   }
  53| }
  54|
  55| export async function saveLessonProgress(lessonId: string, score: number, isCompleted: boolean) {
  56|   const supabase = await createClient()
  57|   const { data: { user } } = await supabase.auth.getUser()
  58|
  59|   if (!user) return { error: 'Unauthorized' }
  60|
  61|   const { data, error } = await supabase
  62|     .from('lesson_progress')
  63|     .upsert({
  64|       student_id: user.id,
  65|       lesson_id: lessonId,
  66|       score: score,
  67|       is_completed: isCompleted,
  68|       status: isCompleted ? 'completed' : 'in_progress',
  69|       completion_percentage: isCompleted ? 100 : 0,
  70|       last_accessed: new Date().toISOString()
  71|     }, {
```

```
  72|       onConflict: 'student_id,lesson_id'
  73|     })
  74|
  75|   if (error) {
  76|     console.error('Error saving progress:', error)
  77|     return { error: error.message }
  78|   }
  79|
  80|   if (isCompleted) {
    8 1 |          a w a i t   a d d X p A n d L e v e l ( u s e r . i d ,   s c o r e   | |   5 0 ,   ' l e s s o n _ c o m p l e t e d ' ,   l e s s o n
  82|
  83|     const now = new Date()
  84|     const today = now.toISOString().slice(0, 10)
  85|     const { data: stats } = await supabase.from('learning_stats').select('*').eq('user_id', user.id).single()
  86|     if (stats) {
  87|       const dayOfWeek = now.getDay()
  88|       const activity = stats.weekly_activity || [0, 0, 0, 0, 0, 0, 0]
  89|       activity[dayOfWeek === 0 ? 6 : dayOfWeek - 1] = (activity[dayOfWeek === 0 ? 6 : dayOfWeek - 1] || 0) + 15
  90|       await supabase.from('learning_stats').update({
  91|         current_streak: stats.last_active_date === today ? stats.current_streak : (stats.last_active_date === ...
  92|         last_active_date: today,
  93|         total_study_minutes: (stats.total_study_minutes || 0) + 15,
  94|         weekly_activity: activity,
  95|         updated_at: now.toISOString(),
  96|       }).eq('user_id', user.id)
  97|     } else {
  98|       const dayOfWeek = now.getDay()
  99|       const activity = [0, 0, 0, 0, 0, 0, 0]
 100|       activity[dayOfWeek === 0 ? 6 : dayOfWeek - 1] = 15
 101|       await supabase.from('learning_stats').insert({
 102|         user_id: user.id,
 103|         current_streak: 1,
 104|         last_active_date: today,
 105|         total_study_minutes: 15,
 106|         weekly_activity: activity,
 107|         total_xp: score || 50,
 108|       })
 109|     }
 110|   }
 111|
 112|   revalidatePath(`/lessons/${lessonId}`)
 113|   revalidatePath('/builder')
 114|
 115|   return { success: true }
 116| }
 117|
 118| function getYesterday(): string {
 119|   const d = new Date()
 120|   d.setDate(d.getDate() - 1)
 121|   return d.toISOString().slice(0, 10)
 122| }
 123|
```

File: lib/parent-actions.ts (198 lines, 6.3 KB)

```
   1| // Path: lib/parent-actions.ts
   2| 'use server'
   3| import { createServerClient } from '@supabase/ssr'
   4| import { cookies } from 'next/headers'
   5| import { revalidatePath } from 'next/cache'
   6|
   7| async function getServerSupabase() {
   8|   const url = process.env.NEXT_PUBLIC_SUPABASE_URL
   9|   const key = process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY
  10|   if (!url || !key) return null
  11|   const cookieStore = await cookies()
  12|   return createServerClient(url, key, {
  13|       cookies: {
  14|         getAll() { return cookieStore.getAll() },
  15|         setAll(cookiesToSet) {
  16|           cookiesToSet.forEach(({ name, value, options }) =>
  17|             cookieStore.set(name, value, options))
  18|         }
  19|       }
  20|     }
  21|   )
  22| }
  23|
  24| // Find student by code
  25| export async function findStudentByCode(code: string) {
  26|   try {
  27|     const supabase = await getServerSupabase()
  28|     const { data: { user }, error: authErr } = await supabase.auth.getUser()
    2 9 |          i f   ( ! u s e r   | |   a u t h E r r )   r e t u r n   {   e r r o r :   ' C h ° a      n g   n h - p '   }
  30|
  31|     // UPPERCASE and trim whitespace
  32|     const cleanCode = code.toUpperCase().trim()
  33|
  34|     const { data, error } = await supabase
  35|       .rpc('find_student_by_code', { input_code: cleanCode })
  36|
  37|     if (error) {
  38|       console.error('Error finding student:', error)
    3 9 |              r e t u r n   {   e r r o r :   ' L × i   h Ç   t h Ñ n g   k h i   t ì m   k i ¿ m '   }
  40|     }
  41|
  42|     if (!data || data.length === 0) {
    4 3 |              r e t u r n   {   e r r o r :   ' K h ô n g   t ì m   t h ¥ y   h Í c   s i n h   v Û i   m ã   n à y '   }
  44|     }
  45|
  46|     return { student: data[0] }
  47|   } catch (err: any) {
    4 8 |          r e t u r n   {   e r r o r :   e r r . m e s s a g e   | |   ' L × i   k h ô n g   x á c    Ë n h '   }
  49|   }
  50| }
  51|
  52| // Request linking to student
  53| export async function requestLinkToStudent(
  54|   studentId: string,
  55|   relationship: string = 'parent'
  56| ) {
  57|   try {
  58|     const supabase = await getServerSupabase()
  59|     const { data: { user }, error: authErr } = await supabase.auth.getUser()
    6 0 |          i f   ( ! u s e r   | |   a u t h E r r )   r e t u r n   {   e r r o r :   ' C h ° a      n g   n h - p '   }
  61|
  62|     // Verify role is parent
  63|     const { data: profile, error: profErr } = await supabase
  64|       .from('profiles')
  65|       .select('role, full_name')
  66|       .eq('id', user.id)
  67|       .single()
  68|
```

```
    if (profErr || profile?.role !== 'parent') {
      return { error: 'B¡n không ph£i tài kho£n phå huynh' }
    }

    // Verify student exists and is student
    const { data: student, error: studErr } = await supabase
      .from('profiles')
      .select('id, role, full_name')
      .eq('id', studentId)
      .single()

    if (studErr || !student || student.role !== 'student') {
      return { error: 'HÍc sinh không tÓn t¡i ho·c không hãp lÇ' }
    }

    // Create link request (status = pending)
    const { error: linkErr } = await supabase
      .from('parent_student_links')
      .upsert({
        parent_id: user.id,
        student_id: studentId,
        relationship,
        status: 'pending',
        linked_at: new Date().toISOString()
      }, { onConflict: 'parent_id,student_id' })

    if (linkErr) {
      console.error('Link creation error:', linkErr)
      return { error: 'Không thÃ gíi yêu c§u liên k¿t' }
    }

    // Create notification for student
    const { error: notifErr } = await supabase
      .from('notifications')
      .insert({
        user_id: studentId,
        type: 'parent_link_request',
        title: 'Ø=ÜhØ=ÜiØ=Üg Phå huynh muÑn theo dõi b¡n',
        body: `${profile.full_name} muÑn liên k¿t tài kho£n Ã theo dõi
        data: { parent_id: user.id, relationship },
        action_url: '/student/profile/privacy'
      })

    if (notifErr) {
      console.error('Notification error:', notifErr)
    }

    revalidatePath('/parent/dashboard')
    return { success: true }
  } catch (err: any) {
    return { error: err.message || 'L×i không xác Ënh' }
  }
}

// Student confirms parent link
export async function confirmParentLink(parentId: string) {
  try {
    const supabase = await getServerSupabase()
    const { data: { user }, error: authErr } = await supabase.auth.getUser()
    if (!user || authErr) return { error: 'Ch°a ng nh-p' }

    // Update link status to active
    const { error: linkErr } = await supabase
      .from('parent_student_links')
      .update({
        status: 'active',
        confirmed_at: new Date().toISOString()
      })
      .eq('parent_id', parentId)
      .eq('student_id', user.id)
      .eq('status', 'pending')

    if (linkErr) {
      console.error('Confirm link error:', linkErr)
      return { error: 'Không thÃ xác nh-n liên k¿t' }
    }

    // Fetch student's name for notification
    const { data: profile } = await supabase
      .from('profiles')
      .select('full_name')
      .eq('id', user.id)
      .single()

    // Send confirmation notification to parent
    await supabase.from('notifications').insert({
      user_id: parentId,
      type: 'parent_link_confirmed',
      title: ''  HÍc sinh ã xác nh-n liên k¿t',
      body: `${profile?.full_name || 'HÍc sinh'} ã Óng ý yêu c§u liên
      action_url: '/parent/dashboard'
    })

    revalidatePath('/student/profile/privacy')
    return { success: true }
  } catch (err: any) {
    return { error: err.message || 'L×i không xác Ënh' }
  }
}

// Student or Parent revokes link
export async function revokeParentLink(parentId: string) {
  try {
    const supabase = await getServerSupabase()
    const { data: { user }, error: authErr } = await supabase.auth.getUser()
    if (!user || authErr) return { error: 'Ch°a ng nh-p' }

    // Perform revoke on the record where student_id is current user (or parent_id is current user)
    const { error: linkErr } = await supabase
      .from('parent_student_links')
      .update({
        status: 'revoked',
        revoked_at: new Date().toISOString(),
        revoked_by: user.id
      })
      .eq('parent_id', parentId)
      .eq('student_id', user.id)

    if (linkErr) {
      console.error('Revoke link error:', linkErr)
      return { error: 'Không thÃ thu hÓi quyÁn' }
    }

    revalidatePath('/student/profile/privacy')
```

```
  193|     return { success: true }
  194|   } catch (err: any) {
    1 9 5 |          r e t u r n   {   e r r o r :   e r r . m e s s a g e   | |   ' L × i   k h ô n g   x á c    Ë n h '   }
  196|   }
  197| }
  198|
```

File: lib/quiz-engine.ts (86 lines, 2.6 KB)

```
    1| export function shuffleArray<T>(array: T[]): T[] {
    2|   const shuffled = [...array];
    3|   for (let i = shuffled.length - 1; i > 0; i--) {
    4|     const j = Math.floor(Math.random() * (i + 1));
    5|     [shuffled[i], shuffled[j]] = [shuffled[j], shuffled[i]];
    6|   }
    7|   return shuffled;
    8| }
    9|
   10| export type QuestionType = 'single_choice' | 'multiple_choice' | 'true_false' | 'fill_blank' | 'ordering';
   11|
   12| export interface CorrectOption {
   13|   id: string;
   14|   is_correct: boolean;
   15|   content: string;
   16|   order?: number;
   17| }
   18|
   19| export interface StudentAnswer {
   20|   questionId: string;
   21|   selectedOptionIds?: string[];
   22|   textAnswer?: string;
   23|   orderingAnswer?: string[];
   24|   timeSpentSeconds?: number;
   25| }
   26|
   27| export function scoreQuestion(
   28|   type: QuestionType,
   29|   studentAnswer: StudentAnswer,
   30|   correctOptions: CorrectOption[],
   31|   maxPoints: number
   32| ): number {
   33|   if (!studentAnswer) return 0;
   34|
   35|   switch (type) {
   36|     case 'single_choice':
   37|     case 'true_false': {
   38|       const correctOpt = correctOptions.find(o => o.is_correct);
   39|       if (!correctOpt) return 0;
   40|       if (studentAnswer.selectedOptionIds && studentAnswer.selectedOptionIds[0] === correctOpt.id) {
   41|         return maxPoints;
   42|       }
   43|       return 0;
   44|     }
   45|
   46|     case 'multiple_choice': {
   47|       const correctIds = correctOptions.filter(o => o.is_correct).map(o => o.id);
   48|       const studentIds = studentAnswer.selectedOptionIds || [];
   49|       if (correctIds.length === 0) return 0;
   50|       // Must select all correct and NO incorrect
   51|       const allCorrectSelected = correctIds.every(id => studentIds.includes(id));
   52|       const noIncorrectSelected = studentIds.every(id => correctIds.includes(id));
   53|
   54|       if (allCorrectSelected && noIncorrectSelected) {
   55|         return maxPoints;
   56|       }
   57|       // Optional: partial credit could go here
   58|       return 0;
   59|     }
   60|
   61|     case 'fill_blank': {
   62|       const correctText = correctOptions.find(o => o.is_correct)?.content;
   63|       if (!correctText || !studentAnswer.textAnswer) return 0;
   64|       const cleanExpected = correctText.trim().toLowerCase();
   65|       const cleanActual = studentAnswer.textAnswer.trim().toLowerCase();
   66|       if (cleanExpected === cleanActual) {
   67|         return maxPoints;
   68|       }
   69|       return 0;
   70|     }
   71|
   72|     case 'ordering': {
   73|       const correctOrder = correctOptions.sort((a, b) => (a.order || 0) - (b.order || 0)).map(o => o.id);
   74|       const studentOrder = studentAnswer.orderingAnswer || [];
   75|       if (correctOrder.length !== studentOrder.length) return 0;
   76|       for (let i = 0; i < correctOrder.length; i++) {
   77|         if (correctOrder[i] !== studentOrder[i]) return 0;
   78|       }
   79|       return maxPoints;
   80|     }
   81|
   82|     default:
   83|       return 0;
   84|   }
   85| }
   86|
```

File: lib/realtime-provider.tsx (429 lines, 21.1 KB)

```
    1| 'use client';
    2|
    3| import React, { createContext, useContext, useEffect, useState, useCallback, useRef } from 'react';
    4|
    5| interface LevelDef {
    6|   level: number;
    7|   title: string;
    8|   xp_required: number;
    9|   color_hex: string;
   10|   icon: string;
   11|   description: string;
   12| }
   13|
   14| interface Quest {
   15|   id: string;
   16|   title: string;
   17|   description: string;
   18|   xp_reward: number;
   19|   type: string;
   20|   difficulty: string;
   21|   icon: string;
   22|   requirement_type: string;
   23|   requirement_value: number;
```

```
  is_active: boolean;
  expires_at: string;
}

interface UserQuest {
  id: string;
  quest_id: string;
  is_completed: boolean;
  completed_at: string;
  xp_earned: number;
  progress: number;
  daily_quests: Quest;
}

interface Title {
  id: string;
  title_id: string;
  unlocked_at: string;
  is_active: boolean;
  player_titles: {
    title: string;
    description: string;
    icon: string;
    xp_bonus: number;
  };
}

interface XpTransaction {
  id: string;
  amount: number;
  reason: string;
  reference_type: string;
  created_at: string;
}

interface RealtimeState {
    completedLessons: Set<string>;
    xp: number;
    streak: number;
    studyMinutes: number;
    weeklyActivity: number[];
    averageScore: number | null;
    completedLessonCount: number;
    totalQuizAttempts: number;
    level: number;
    levelTitle: string;
    levelIcon: string;
    levelColor: string;
    levelProgress: number;
    xpToNext: number;
    xpInLevel: number;
    levelDefs: LevelDef[];
    quests: UserQuest[];
    titles: Title[];
    xpHistory: XpTransaction[];
    allQuests: Quest[];
}

interface RealtimeContextType {
    state: RealtimeState;
    refetch: () => Promise<void>;
}

const defaultLevelDefs: LevelDef[] = [
      {  level:  1,  title:  'Tân  Thç',  xp_required:  0,  color_hex:  '#94a3b8',  ic
      {  level:  2,  title:  'Ng°Ýi  HÍc  ViÇc',  xp_required:  100,  color_hex:  '#64
      {  level:  3,  title:  'HÍc  Sinh  Ch  m  ChÉ',  xp_required:  300,  color_hex:  '
      {  level:  4,  title:  'Ng°Ýi_HiÃu  Bi¿t',  xp_required:  600,  color_hex:  '#6
      {  level:  5,  title:  'Thã  L_p  Ráp  T-p  Sñ',  xp_required:  1000,  color_hex:
      {  level:  6,  title:  'Kù  Thu-t  ViÊn',  xp_required:  1600,  color_hex:  '#8b
      {  level:  7,  title:  'Chuyên  Gia  PC',  xp_required:  2400,  color_hex:  '#f5
      {  level:  8,  title:  'Kù  S°  XÂy  Dñng',  xp_required:  3400,  color_hex:  '#1
      {  level:  9,  title:  'Ki¿n  Trúc  S°  HÇ  ThÑng',  xp_required:  4600,  color_h
      {  level:  10,  title:  'B-c  Th§y  PC',  xp_required:  6000,  color_hex:  '#ec4
      {  level:  11,  title:  'HuyÁn  Tho¡i',  xp_required:  8000,  color_hex:  '#00c
      {  level:  12,  title:  'Solo  Leveling',  xp_required:  10000,  color_hex:  '#
      {  level:  13,  title:  'R£nh  Thã  S  n  H¡ng  S',  xp_required:  13000,  color_h
      {  level:  14,  title:  'Chúa  TÃ  Bóng  TÑi',  xp_required:  17000,  color_hex:
      {  level:  15,  title:  'QuÑc  V°¡ng',  xp_required:  22000,  color_hex:  '#fbb
      {  level:  16,  title:  'Th§n',  xp_required:  28000,  color_hex:  '#ff6b6b',
      {  level:  17,  title:  'V)nh  H±ng',  xp_required:  35000,  color_hex:  '#ff45
      {  level:  18,  title:  'HÇy  DiÇt',  xp_required:  43000,  color_hex:  '#dc262
      {  level:  19,  title:  'SiêU  ViÇt',  xp_required:  52000,  color_hex:  '#9333
      {  level:  20,  title:  'B¥t  Tí',  xp_required:  65000,  color_hex:  '#ffd700'
];

const FALLBACK_QUESTS: Quest[] = [
      {  id:  'fallback-lesson',  title:  'Hoàn  thành  1  bài  hÍc',  description:  '
      {  id:  'fallback-pc',  title:  'L_p  ráp  PC',  description:  'L_p  ráp  mÙt  c¥
      {  id:  'fallback-quiz',  title:  'Làm  quiz',  description:  'Hoàn  thành  mÙt
      {  id:  'fallback-exam',  title:  'V°ãt  qua  kó  thi',  description:  'V°ãt  qu
      {  id:  'fallback-streak',  title:  '¡t  streak  3  ngày',  description:  'Duy
      {  id:  'fallback-discussion',  title:  'Tham  gia  th£o  lu-n',  description:
];

function calcLevel(xp: number, levelDefs: LevelDef[]) {
  let lvl = levelDefs[0];
  for (const d of levelDefs) {
    if (xp >= d.xp_required) lvl = d;
  }
  const nextLevel = levelDefs.find(d => d.level === lvl.level + 1);
  const xpInLevel = xp - lvl.xp_required;
  const xpToNext = nextLevel ? nextLevel.xp_required - lvl.xp_required : xpInLevel + 1;
  const levelProgress = xpToNext > 0 ? Math.min((xpInLevel / xpToNext) * 100, 100) : 100;
  return { level: lvl.level, levelTitle: lvl.title, levelIcon: lvl.icon, levelColor: lvl.color_hex, levelProgr...
}

const RealtimeContext = createContext<RealtimeContextType>({
    state: {
      completedLessons: new Set(), xp: 0, streak: 0, studyMinutes: 0, weeklyActivity: [],
      averageScore: null, completedLessonCount: 0, totalQuizAttempts: 0,
      level:  1,  levelTitle:  'Tân  Thç',  levelIcon:  'Ø<ß1',  levelColor:  '#94
      levelDefs: defaultLevelDefs, quests: [], titles: [], xpHistory: [], allQuests: [],
    },
    refetch: async () => {},
});

export function useRealtime() {
    return useContext(RealtimeContext);
}

export function RealtimeProvider({ children, userId }: { children: React.ReactNode; userId?: string | null }) {
    const [state, setState] = useState<RealtimeState>({
        completedLessons: new Set(),
```

```
        xp: 0,
        streak: 0,
        studyMinutes: 0,
        weeklyActivity: [0, 0, 0, 0, 0, 0, 0],
        averageScore: null,
        completedLessonCount: 0,
        totalQuizAttempts: 0,
        level: 1,
        levelTitle: 'Tân Thç',
        levelIcon: 'Ø<ß1',
        levelColor: '#94a3b8',
        levelProgress: 0,
        xpToNext: 100,
        xpInLevel: 0,
        levelDefs: defaultLevelDefs,
        quests: [],
        titles: [],
        xpHistory: [],
        allQuests: [],
    });

    const supabaseRef = useRef<any>(null);
    const [clientReady, setClientReady] = useState(false);
    useEffect(() => {
        import('@supabase/ssr').then(({ createBrowserClient }) => {
            supabaseRef.current = createBrowserClient(
                process.env.NEXT_PUBLIC_SUPABASE_URL!,
                process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
            );
            setClientReady(true);
        });
    }, []);

    const trackDailyLogin = useCallback(async (supabase: any, userId: string) => {
        try {
            const today = new Date().toISOString().slice(0, 10)
            const yesterday = new Date(Date.now() - 86400000).toISOString().slice(0, 10)
            const { data: profile } = await supabase.from('profiles').select('last_active_date, streak').eq('i...
            if (!profile) return

            const lastActive = profile.last_active_date?.slice(0, 10)
            if (lastActive === today) return null

            let newStreak = 1
            if (lastActive === yesterday) {
                newStreak = (profile.streak || 0) + 1
            }

            await supabase.from('profiles').update({ last_active_date: today, streak: newStreak }).eq('id', us...
            await supabase.from('learning_stats').upsert({
                user_id: userId, current_streak: newStreak, last_active_date: today, updated_at: new Date().to...
            }, { onConflict: 'user_id' })

            if (newStreak > 1 && newStreak % 5 === 0) {
                const bonusXp = newStreak * 10
                await supabase.from('xp_transactions').insert({
                    user_id: userId, amount: bonusXp, reason: `Thºßng st
                })
            }

            return newStreak
        } catch (e) {
            console.error('Track daily login error:', e)
            return null
        }
    }, [])

    const autoCompleteQuests = useCallback(async (supabase: any, userId: string, currentQuests: UserQuest[], a...
        try {
            const { data: lessonProgress } = await supabase.from('lesson_progress').select('lesson_id, status'...
            const completedLessonCount = (lessonProgress || []).filter((p: any) => p.status === 'completed').l...

            const { data: quizAttempts } = await supabase.from('quiz_attempts').select('id').eq('student_id', ...
            const quizCount = (quizAttempts || []).length

            let buildCount = 0
            try { const { data: builderSessions } = await supabase.from('builder_sessions').select('id').eq('u...

            let discussionCount = 0
            try { const { data: discussions } = await supabase.from('discussions').select('id').eq('user_id', ...

            let passedExamCount = 0
            try { const { data: examAttempts } = await supabase.from('exam_attempts').select('id, status').eq(...

            const { data: stats } = await supabase.from('learning_stats').select('current_streak').eq('user_id...
            const currentStreak = stats?.current_streak || 0

            let newXp = currentXp
            let leveledUp = false

            for (const questDef of allQuestsDefs) {
                const existingQuest = currentQuests.find((q: UserQuest) => q.quest_id === questDef.id)
                if (existingQuest?.is_completed) continue

                let requirementMet = false
                switch (questDef.requirement_type) {
                    case 'lessons': requirementMet = completedLessonCount >= questDef.requirement_value; break
                    case 'quizzes': requirementMet = quizCount >= questDef.requirement_value; break
                    case 'builds': requirementMet = buildCount >= questDef.requirement_value; break
                    case 'streak': requirementMet = currentStreak >= questDef.requirement_value; break
                    case 'discussions': requirementMet = discussionCount >= questDef.requirement_value; break
                    case 'exams': requirementMet = passedExamCount >= questDef.requirement_value; break
                    default: requirementMet = false
                }

                if (requirementMet) {
                    if (existingQuest) {
                        await supabase.from('user_quests').update({ is_completed: true, completed_at: new Date...
                    } else {
                        await supabase.from('user_quests').insert({ user_id: userId, quest_id: questDef.id, is...
                    }
                    newXp += questDef.xp_reward
                    await supabase.from('xp_transactions').insert({ user_id: userId, amount: questDef.xp_rewar...
                } else if (existingQuest) {
                    const progress = calculateQuestProgress(questDef, completedLessonCount, quizCount, buildCo...
                    if (progress !== existingQuest.progress) {
                        await supabase.from('user_quests').update({ progress }).eq('id', existingQuest.id)
                    }
                }
            }

            if (newXp > currentXp) {
                const { data: profile } = await supabase.from('profiles').select('xp, level').eq('id', userId)...
                const totalXp = (profile?.xp || 0) + (newXp - currentXp)
```

```
                const { data: levelDefs } = await supabase.from('level_definitions').select('level').lte('xp_r...
                const newLevel = (levelDefs?.[0] as any)?.level || 1
                await supabase.from('profiles').update({ xp: totalXp, level: newLevel, updated_at: new Date().....
                await supabase.from('leaderboard_cache').upsert({ user_id: userId, total_xp: totalXp, level: n...
                await supabase.from('learning_stats').update({ total_xp: totalXp, updated_at: new Date().toISO...
                if (newLevel > currentLevel) {
                    leveledUp = true
                }
            }

            return { xp: newXp, leveledUp }
        } catch (e) {
            console.error('Auto-complete quests error:', e)
            return null
        }
    }, [])

    function calculateQuestProgress(quest: Quest, completedLessons: number, quizzes: number, builds: number, d...
        switch (quest.requirement_type) {
            case 'lessons': return Math.min(completedLessons, quest.requirement_value)
            case 'quizzes': return Math.min(quizzes, quest.requirement_value)
            case 'builds': return Math.min(builds, quest.requirement_value)
            case 'discussions': return Math.min(discussions, quest.requirement_value)
            case 'streak': return Math.min(streak, quest.requirement_value)
            case 'exams': return Math.min(exams || 0, quest.requirement_value)
            default: return 0
        }
    }

    const fetchData = useCallback(async () => {
        if (!userId || !supabaseRef.current) return;
        const supabase = supabaseRef.current;

        // Track daily login & streak
        await trackDailyLogin(supabase, userId);

        const [
          progress, statsRes, profile, levelDefs, userQuests, activeQuests, titles, xpHistory,
        ] = await Promise.all([
            supabase.from('lesson_progress').select('lesson_id').eq('student_id', userId),
            supabase.from('learning_stats').select('*').eq('user_id', userId).single(),
            supabase.from('profiles').select('xp, level').eq('id', userId).single(),
            supabase.from('level_definitions').select('*').order('level', { ascending: true }),
            supabase.from('user_quests').select('*, daily_quests(*)').eq('user_id', userId).order('created_at'...
            supabase.from('daily_quests').select('*').eq('is_active', true).order('xp_reward', { ascending: fa...
            supabase.from('user_titles').select('*, player_titles(*)').eq('user_id', userId),
            supabase.from('xp_transactions').select('*').eq('user_id', userId).order('created_at', { ascending...
        ]);

        let xp = profile?.data?.xp || statsRes?.data?.total_xp || 0;
        const defs = (levelDefs.data as LevelDef[]) || defaultLevelDefs;
        const levelInfo = calcLevel(xp, defs);
        const currentQuests = (userQuests.data || []) as UserQuest[];
        const allQuestsDefs = (() => {
            const fetched = (activeQuests.data || []) as Quest[];
            return fetched.length >= 5 ? fetched : [...fetched, ...FALLBACK_QUESTS].slice(0, 5);
        })();

        // Auto-complete quests if requirements are met
        try {
            const result = await autoCompleteQuests(supabase, userId, currentQuests, allQuestsDefs, xp, levelI...
            if (result && result.xp > xp) {
                xp = result.xp
            }
        } catch (e) {
            console.error('Auto-complete error:', e)
        }

        // Fetch quiz attempts for average score
        let avgScore: number | null = null
        let completedCount = 0
        let totalQuizAttempts = 0
        try {
            const progressData = progress.data || []
            completedCount = progressData.filter((p: any) => p.status === 'completed' || p.status === 'in_prog...

            const { data: quizData } = await supabase.from('quiz_attempts').select('score').eq('student_id', u...
            if (quizData && quizData.length > 0) {
                totalQuizAttempts = quizData.length
                avgScore = Math.round(quizData.reduce((sum: number, q: any) => sum + (q.score || 0), 0) / quiz...
            }
        } catch (e) {}

        const finalLevelInfo = calcLevel(xp, defs);

        setState(prev => ({
            ...prev,
            completedLessons: new Set((progress.data || []).map((p: any) => p.lesson_id)),
            xp,
            streak: statsRes.data?.current_streak || 0,
            studyMinutes: statsRes.data?.total_study_minutes || 0,
            weeklyActivity: statsRes.data?.weekly_activity || [0, 0, 0, 0, 0, 0, 0],
            averageScore: avgScore,
            completedLessonCount: completedCount,
            totalQuizAttempts,
            ...finalLevelInfo,
            levelDefs: defs,
            quests: currentQuests,
            allQuests: allQuestsDefs,
            titles: (titles.data || []) as Title[],
            xpHistory: (xpHistory.data || []) as XpTransaction[],
        }));
    }, [userId]);

    useEffect(() => {
        if (!supabaseRef.current) return;
        fetchData();
        if (!userId) return;

        const channel = supabaseRef.current
            .channel('realtime-global')
            .on(
                'postgres_changes',
                { event: '*', schema: 'public', table: 'lesson_progress', filter: `student_id=eq.${userId}` },
                () => fetchData()
            )
            .on(
                'postgres_changes',
                { event: '*', schema: 'public', table: 'learning_stats', filter: `user_id=eq.${userId}` },
                () => fetchData()
            )
            .on(
                'postgres_changes',
                { event: '*', schema: 'public', table: 'profiles', filter: `id=eq.${userId}` },
```

```
396|                 () => fetchData()
397|             )
398|             .on(
399|                 'postgres_changes',
400|                 { event: 'INSERT', schema: 'public', table: 'xp_transactions', filter: `user_id=eq.${userId}` },
401|                 () => fetchData()
402|             )
403|             .on(
404|                 'postgres_changes',
405|                 { event: '*', schema: 'public', table: 'user_quests', filter: `user_id=eq.${userId}` },
406|                 () => fetchData()
407|             )
408|             .on(
409|                 'postgres_changes',
410|                 { event: '*', schema: 'public', table: 'user_titles', filter: `user_id=eq.${userId}` },
411|                 () => fetchData()
412|             )
413|             .on(
414|                 'postgres_changes',
415|                 { event: 'INSERT', schema: 'public', table: 'quiz_attempts', filter: `student_id=eq.${userId}` },
416|                 () => fetchData()
417|             )
418|             .subscribe();
419|
420|         return () => { supabaseRef.current?.removeChannel(channel); };
421|     }, [userId, clientReady]);
422|
423|     return (
424|         <RealtimeContext.Provider value={{ state, refetch: fetchData }}>
425|             {children}
426|         </RealtimeContext.Provider>
427|     );
428| }
429|
```

File: lib/session-time.tsx (58 lines, 1.5 KB)

```
1| 'use client'
2|
3| import React, { createContext, useContext, useState, useEffect, useRef } from 'react'
4|
5| const SESSION_START_KEY = 'session_start_time'
6|
7| interface SessionTimeContextValue {
8|   elapsed: number
9|   formatted: string
10| }
11|
12| const SessionTimeContext = createContext<SessionTimeContextValue>({
13|   elapsed: 0,
14|   formatted: '00:00:00',
15| })
16|
17| export function useSessionTime() {
18|   return useContext(SessionTimeContext)
19| }
20|
21| function formatDuration(seconds: number): string {
22|   const h = Math.floor(seconds / 3600)
23|   const m = Math.floor((seconds % 3600) / 60)
24|   const s = seconds % 60
25|   return `${h.toString().padStart(2, '0')}:${m.toString().padStart(2, '0')}:${s.toString().padStart(2, '0')}`
26| }
27|
28| export function SessionTimeProvider({ children }: { children: React.ReactNode }) {
29|   const [elapsed, setElapsed] = useState(0)
30|   const startTimeRef = useRef<number>(0)
31|
32|   useEffect(() => {
33|     let storedStart = sessionStorage.getItem(SESSION_START_KEY)
34|     if (!storedStart) {
35|       storedStart = String(Date.now())
36|       sessionStorage.setItem(SESSION_START_KEY, storedStart)
37|     }
38|     startTimeRef.current = Number(storedStart)
39|
40|     const timer = setInterval(() => {
41|       setElapsed(Math.floor((Date.now() - startTimeRef.current) / 1000))
42|     }, 1000)
43|
44|     return () => clearInterval(timer)
45|   }, [])
46|
47|   const value: SessionTimeContextValue = {
48|     elapsed,
49|     formatted: formatDuration(elapsed),
50|   }
51|
52|   return (
53|     <SessionTimeContext.Provider value={value}>
54|       {children}
55|     </SessionTimeContext.Provider>
56|   )
57| }
58|
```

File: lib/sketchfab-models.js (109 lines, 7.9 KB)

```
1| 'use client';
2|
3| export const COLOR_THEMES = {
4|   case: { label: 'Case', labelEn: 'Case', color: '#3b82f6', bg: '#0a1420', gradient: 'linear-gradient(135deg, ...
5|   computerParts: { label: 'Computer Parts', labelEn: 'Computer Parts', color: '#f59e0b', bg: '#1a1008', gradie...
6|   fullComponent: { label: 'Full Component', labelEn: 'Full Component', color: '#10b981', bg: '#0a1a12', gradie...
7|   psu: { label: 'PSU', labelEn: 'Power Supply', color: '#f97316', bg: '#1c1000', gradient: 'linear-gradient(13...
8|   mainboard: { label: 'Mainboard', labelEn: 'Mainboard', color: '#22d3ee', bg: '#0a1a1e', gradient: 'linear-gr...
9|   cpu: { label: 'CPU', labelEn: 'CPU', color: '#ef4444', bg: '#1a0a0a', gradient: 'linear-gradient(135deg, #ef...
10|   gpu: { label: 'GPU', labelEn: 'GPU', color: '#a855f7', bg: '#1a0a1e', gradient: 'linear-gradient(135deg, #a8...
11|   ram: { label: 'RAM', labelEn: 'RAM', color: '#f59e0b', bg: '#1c1000', gradient: 'linear-gradient(135deg, #f5...
12|   cooler: { label: 'Cooler', labelEn: 'Cooler', color: '#06b6d4', bg: '#080e14', gradient: 'linear-gradient(13...
13| };
14|
15| export const CATEGORIES = [
16|   {
17|     id: 'case',
18|     analyzedBy: 'NguyÃn VÃn A - Kù thu-t viên ph§n céng',
19|     knowledge: 'Phân biÇt các loµi vÏ case theo kích th°Ûc (ATX, Micro-A
20|     items: [
21|       { id: '1', title: 'Dream Computer Setup', embedId: '82f78bbaf2d34f01af854a52151dbf49', description: 'Cas...
22|       { id: '2', title: 'Computer Components', embedId: 'ae35c58af1ae4e91aea4a81c7c225147', description: 'Case...
23|       { id: '3', title: 'Tower Gaming Computer', embedId: '085d3328dc2e4618bfea9ebce7fd63a5', description: 'Ca...
```

```
  24|      { id: '4', title: 'Computer Case', embedId: 'cfb12fe17c64464e8fb69a60d20c1d8d', description: 'Case máy t...
  25|    ],
  26|  },
  27|  {
  28|    id: 'computerParts',
     2 9 |          a n a l y z e d B y :   ' T r § n   T h Ë   B   -   G i £ n g   v i ê n   K i ¿ n   t r ú c   m á y   t í n h ' ,
     3 0 |          k n o w l e d g e :   ' T Õ n g   q u a n   v Á   c á c   b Ù   p h - n   c ¥ u   t h à n h   m á y   t í n h   Ã   b à n :   c á c h
  31|    items: [
  32|      { id: '1', title: 'Computer Parts (Built PC)', embedId: 'bd6fb0ed93f3475b890a099fedecf351', description:...
  33|    ],
  34|  },
  35|  {
  36|    id: 'fullComponent',
     3 7 |          a n a l y z e d B y :   ' L ê   V   n   C   -   C h u y ê n   g i a   t °   v ¥ n   c ¥ u   h ì n h   P C ' ,
     3 8 |          k n o w l e d g e :   ' N h - n   d i Ç n   t ¥ t   c £   l i n h   k i Ç n   t r o n g   m Ù t   h Ç   t h Ñ n g   m á y   t í n h :
  39|    items: [
  40|      { id: '1', title: 'Computer Components (Full)', embedId: '4daeb72925d140809bdfd51634a1908e', description...
  41|    ],
  42|  },
  43|  {
  44|    id: 'psu',
     4 5 |          a n a l y z e d B y :   ' P h ¡ m   T h Ë   D   -   K ù   s °   i Ç n   t í ' ,
     4 6 |          k n o w l e d g e :   ' T ì m   h i Ã u   v Á   b Ù   n g u Ó n   m á y   t í n h   ( P S U ) :   c ô n g   s u ¥ t   ( w a t t a g e )
  47|    items: [
     4 8 |            {   i d :   ' 1 ' ,   t i t l e :   ' P S U ' ,   e m b e d I d :   ' 2 6 f e a d 1 e 0 9 a e 4 1 c 0 8 d 8 5 9 6 a e a 2 4 d c a c
     4 9 |            {   i d :   ' 2 ' ,   t i t l e :   ' P S U   P o w e r   S u p p l y   U n i t ' ,   e m b e d I d :   ' 6 9 c c d 1 b e 3 a 7 7 4
  50|    ],
  51|  },
  52|  {
  53|    id: 'mainboard',
     5 4 |          a n a l y z e d B y :   ' H o à n g   V   n   E   -   K ù   t h u - t   v i ê n   s í a   c h ï a   m a i n b o a r d ' ,
     5 5 |          k n o w l e d g e :   ' C ¥ u   t ¡ o   v à   c h é c   n   n g   c ç a   m a i n b o a r d :   c h i p s e t ,   s o c k e t   C P U ,
  56|    items: [
  57|      { id: '1', title: 'MotherBoard + Components', embedId: '3bc94057328243d4b341a55f59160f8a', description: ...
  58|      { id: '2', title: 'Asus Mainboard', embedId: '87723202fb8f4a66a1b6b69bd901f50c', description: 'Mainboard...
  59|      { id: '3', title: 'Mainboard Dreamer', embedId: '64939d99ac544ed79bbaa7ef1d88b283', description: 'Mainbo...
  60|      { id: '4', title: 'Mainboard', embedId: '3675514fef19434493df6e8cdfa916dd', description: 'Mainboard tiêu...
  61|      { id: '5', title: 'Mainboard Asus ROG Strix', embedId: '0f3029d57f8d470f99153c50f0285e53', description: ...
  62|      { id: '6', title: 'Mainboard (6)', embedId: 'd880ab7a3ffb49d29ef5f4fe3aa1da2b', description: 'Mainboard ...
  63|    ],
  64|  },
  65|  {
  66|    id: 'cpu',
     6 7 |          a n a l y z e d B y :   ' N g ô   V   n   F   -   C h u y ê n   g i a   v i   x í   l ý ' ,
     6 8 |          k n o w l e d g e :   ' S o   s á n h   k i ¿ n   t r ú c   C P U   I n t e l   v à   A M D :   s Ñ   n h â n ,   l u Ó n g ,   x u n g
  69|    items: [
  70|      { id: '1', title: 'INTEL CPU', embedId: 'ec11f729b05848488522ba6f8c6f254f', description: 'CPU Intel - ki...
  71|      { id: '2', title: 'Intel Core i3-3220', embedId: '34a8a97940514abb90e29c6d6a2579cd', description: 'CPU I...
  72|      { id: '3', title: 'AMD 9600x CPU', embedId: 'b433826fb4b1432dbc18a90b89dede71', description: 'CPU AMD Ry...
  73|    ],
  74|  },
  75|  {
  76|    id: 'gpu',
     7 7 |          a n a l y z e d B y :   '   · n g   T h Ë   G   -   C h u y ê n   g i a   Ó   h Í a   &   r e n d e r ' ,
     7 8 |          k n o w l e d g e :   ' K i ¿ n   t h é c   v Á   c a r d   Ó   h Í a   ( G P U ) :   k i ¿ n   t r ú c ,   V R A M ,   x u n g   n h
  79|    items: [
     8 0 |            {   i d :   ' 1 ' ,   t i t l e :   ' G P U ' ,   e m b e d I d :   ' 0 1 2 4 2 3 2 c 5 7 f 0 4 7 b 9 8 a 0 a f e b 7 f 0 a c 1 a 2
  81|      { id: '2', title: 'Nvidia RTX 3090', embedId: '22158616a1a44455917ee8e1e8fc4b09', description: 'GPU Nvid...
  82|      { id: '3', title: 'RX 480 GPU', embedId: '61e69f50bcd44c7284bef31a8f21c6a7', description: 'GPU AMD Radeo...
  83|      { id: '4', title: 'RTX 3060 TI Zotac', embedId: 'a5a78b9331b14c61b6bc0e99afd21b1c', description: 'GPU Zo...
  84|      { id: '5', title: 'GPU RX 580', embedId: '6b3db05319be48028321ac94c4834bcb', description: 'GPU AMD Radeo...
  85|    ],
  86|  },
  87|  {
  88|    id: 'ram',
     8 9 |          a n a l y z e d B y :   ' B ù i   V   n   H   -   K ù   s °   h Ç   t h Ñ n g ' ,
     9 0 |          k n o w l e d g e :   ' P h â n   b i Ç t   c á c   l o ¡ i   R A M :   D D R 3 ,   D D R 4 ,   D D R 5   -   d u n g   l ° ã n g ,   b
  91|    items: [
  92|      { id: '1', title: 'Crucial 8GB DDR4', embedId: '6fa0d3b8c5684741be7d7e396e01bc9f', description: 'RAM Cru...
  93|      { id: '2', title: 'RAM', embedId: '50ca01ea09cf43318b84e176a127bd09', description: 'RAM máy tính' },
     9 4 |            {   i d :   ' 3 ' ,   t i t l e :   ' R A M   D D R 3 ' ,   e m b e d I d :   ' d 2 7 1 5 d 6 0 f 1 3 9 4 2 1 e b 6 0 2 8 e f d 5 1
  95|      { id: '4', title: 'Old Computer RAM', embedId: '9d3016df1c44484096c589b75a53936e', description: 'RAM máy...
  96|    ],
  97|  },
  98|  {
  99|    id: 'cooler',
    1 0 0 |          a n a l y z e d B y :   ' V i   T h Ë   I   -   C h u y ê n   g i a   t £ n   n h i Ç t   &   o v e r c l o c k ' ,
    1 0 1 |          k n o w l e d g e :   ' C á c   l o ¡ i   t £ n   n h i Ç t   C P U :   t £ n   k h í   ( a i r   c o o l e r )   v s   t £ n   n h i (
 102|    items: [
    1 0 3 |            {   i d :   ' 1 ' ,   t i t l e :   ' C o o l e r   R G B ' ,   e m b e d I d :   ' 5 d a 9 9 0 b a 7 8 2 9 4 3 e b 9 8 5 7 2 3 c 3
    1 0 4 |            {   i d :   ' 2 ' ,   t i t l e :   ' C o r s a i r   H 1 5 0 i   E l i t e ' ,   e m b e d I d :   ' f a a 8 f 5 5 4 0 7 4 0 4 f 0
    1 0 5 |            {   i d :   ' 3 ' ,   t i t l e :   ' C P U   C o o l e r ' ,   e m b e d I d :   ' 6 7 2 a 0 a 7 4 a 9 8 c 4 5 2 a 8 6 2 0 1 6 b e
 106|    ],
 107|  },
 108| ];
 109|
```

File: lib/supabase-client.ts (9 lines, 0.2 KB)

```
   1| import { createBrowserClient } from '@supabase/ssr'
   2|
   3| export function createClient() {
   4|   return createBrowserClient(
   5|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   6|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
   7|   )
   8| }
   9|
```

File: lib/supabase-helpers-mock.ts (6 lines, 0.1 KB)

```
   1| import { createClient } from './supabase-ssr-client'
   2|
   3| export function createClientComponentClient() {
   4|   return createClient()
   5| }
   6|
```

File: lib/supabase-service.ts (15 lines, 0.3 KB)

```
   1| import { createClient } from '@supabase/supabase-js'
   2|
   3| export function createServiceClient() {
   4|   return createClient(
   5|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
   6|     process.env.SUPABASE_SERVICE_ROLE_KEY!,
   7|     {
   8|       auth: {
   9|         autoRefreshToken: false,
  10|         persistSession: false,
```

```
      },
    }
  )
}

```

File: lib/supabase-ssr-client.ts (9 lines, 0.2 KB)

```
import { createBrowserClient } from '@supabase/ssr'

export function createClient() {
  return createBrowserClient(
    process.env.NEXT_PUBLIC_SUPABASE_URL!,
    process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!
  )
}

```

File: lib/supabase-ssr-middleware.ts (119 lines, 3.5 KB)

```
import { createServerClient, type CookieOptions } from '@supabase/ssr'
import { NextResponse, type NextRequest } from 'next/server'

const ROLE_ROUTES: Record<string, string[]> = {
  admin:   ['/admin'],
  teacher: ['/teacher'],
  student: ['/student', '/builder'],
  parent:  ['/parent'],
}

export async function updateSession(request: NextRequest) {
  let supabaseResponse = NextResponse.next({
    request,
  })

  if (!process.env.NEXT_PUBLIC_SUPABASE_URL || !process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY) {
    console.error("CRITICAL: Missing Supabase environment variables in Middleware!")
    return supabaseResponse
  }

  const supabase = createServerClient(
    process.env.NEXT_PUBLIC_SUPABASE_URL,
    process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY,
    {
      cookies: {
        get(name: string) {
          return request.cookies.get(name)?.value
        },
        set(name: string, value: string, options: CookieOptions) {
          request.cookies.set({
            name,
            value,
            ...options,
          })
          supabaseResponse = NextResponse.next({
            request: {
              headers: request.headers,
            },
          })
          supabaseResponse.cookies.set({
            name,
            value,
            ...options,
          })
        },
        remove(name: string, options: CookieOptions) {
          request.cookies.set({
            name,
            value: '',
            ...options,
          })
          supabaseResponse = NextResponse.next({
            request: {
              headers: request.headers,
            },
          })
          supabaseResponse.cookies.set({
            name,
            value: '',
            ...options,
          })
        },
      },
    }
  )

      // Kiểm tra user session
  const { data: { user } } = await supabase.auth.getUser()
  const currentPath = request.nextUrl.pathname

      // Bỏ qua các route public
  if (currentPath.startsWith('/_next') || currentPath.startsWith('/api') || currentPath === '/' || currentPath...
    return supabaseResponse;
  }

      // Nếu chưa đăng nhập mà vào route cần auth => Redirect login
  if (!user) {
    const url = request.nextUrl.clone()
    url.pathname = '/login'
    return NextResponse.redirect(url)
  }

      // Lấy role từ bảng profiles hoặc metadata của user
  const { data: profile } = await supabase
    .from('profiles')
    .select('role')
    .eq('id', user.id)
    .single()

      // Ưu tiên role từ profile, dự phòng role từ user_metadata
  const userRole = profile?.role || user.user_metadata?.role || 'student';

  let isAllowed = false;
  // Common routes allowed for ALL authenticated users
  const commonRoutes = ['/profile', '/lessons']

  if (commonRoutes.some(route => currentPath.startsWith(route))) {
    isAllowed = true;
  } else if (ROLE_ROUTES[userRole]) {
      for (const route of ROLE_ROUTES[userRole]) {
          if (currentPath.startsWith(route)) {
```

```
102|              isAllowed = true;
103|              break;
104|          }
105|      }
106|  }
107|
108|      // Nếu không được phép, redirect về dashboard tương ứng
109|  if (!isAllowed) {
110|      const url = request.nextUrl.clone()
111|      url.pathname = `/${userRole}`
112|      // Student có route riêng là /builder hoặc /student
113|      if (userRole === 'student') url.pathname = '/builder';
114|      return NextResponse.redirect(url)
115|  }
116|
117|  return supabaseResponse
118| }
119|
```

File: lib/supabase-ssr-server.ts (30 lines, 0.8 KB)

```
1| import { createServerClient } from '@supabase/ssr'
2| import { cookies } from 'next/headers'
3|
4| export async function createClient() {
5|   const cookieStore = await cookies()
6|
7|   return createServerClient(
8|     process.env.NEXT_PUBLIC_SUPABASE_URL!,
9|     process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
10|     {
11|       cookies: {
12|         getAll() {
13|           return cookieStore.getAll()
14|         },
15|         setAll(cookiesToSet) {
16|           cookiesToSet.forEach(({ name, value, options }) => {
17|             try {
18|               cookieStore.set(name, value, options)
19|             } catch {
20|               // The `set` method was called from a Server Component.
21|               // This can be ignored if you have middleware refreshing
22|               // user sessions.
23|             }
24|           })
25|         },
26|       },
27|     }
28|   )
29| }
30|
```

File: lib/supabase.js (8 lines, 0.4 KB)

```
1| import { createBrowserClient } from '@supabase/ssr'
2|
3| const supabaseUrl = process.env.NEXT_PUBLIC_SUPABASE_URL || 'https://placeholder.supabase.co'
4| const supabaseAnonKey = process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY || 'placeholder'
5|
6| // Dùng Browser Client Ã Óng bÙ hoàn toàn vÛi Middleware (Cookies)
7| export const supabase = createBrowserClient(supabaseUrl, supabaseAnonKey)
8|
```

File: lib/tracking.tsx (42 lines, 1.3 KB)

```
1| 'use client'
2|
3| import React, { useEffect, useState } from 'react'
4| import { startBuilderSession, endBuilderSession } from '@/app/actions/trackingActions'
5|
6| // HOC for adding tracking to the builder component
7| export function withTracking(WrappedComponent: React.ComponentType<any>) {
8|   return function TrackingWrapper(props: any) {
9|     const [sessionId, setSessionId] = useState<string | null>(null)
10|
11|     useEffect(() => {
12|       let activeSession: string | null = null;
13|
14|       const initTracking = async () => {
15|         try {
16|           const sid = await startBuilderSession(props.lessonId)
17|           activeSession = sid
18|           setSessionId(sid)
19|         } catch (e) {
20|           console.error("Failed to start builder session tracking", e)
21|         }
22|       }
23|
24|       initTracking()
25|
26|       return () => {
27|         if (activeSession) {
28|           // Send final stats when unmounting
29|           // In a real app, you would pass refs or state values here
30|           endBuilderSession(activeSession, {
31|             components_used: [], // Mock data
32|             tdp_calculated: 0,
33|             compatibility_score: 100
34|           }).catch(console.error)
35|         }
36|       }
37|     }, [props.lessonId])
38|
39|     return <WrappedComponent {...props} sessionId={sessionId} />
40|   }
41| }
42|
```

File: lib/useStore.ts (350 lines, 8.7 KB)

```
1| 'use client';
2|
3| import { create } from 'zustand';
4|
5| export type ComponentType = 'cpu' | 'cooler' | 'ram' | 'gpu' | 'psu' | 'ssd' | 'motherboard';
6|
7| export interface ComponentSlot {
8|   id: string;
```

```
  9|   type: ComponentType;
 10|   label: string;
 11|   position: [number, number, number];
 12|   rotation: [number, number, number];
 13|   size: [number, number, number];
 14|   dependsOn?: ComponentType[];
 15|   locked: boolean;
 16| }
 17|
 18| export interface AssemblyComponent {
 19|   id: string;
 20|   slotId: string;
 21|   type: ComponentType;
 22|   name: string;
 23|   installed: boolean;
 24|   position: [number, number, number];
 25|   rotation: [number, number, number];
 26| }
 27|
 28| export interface CameraCoords {
 29|   pitch: number;
 30|   yaw: number;
 31|   roll: number;
 32| }
 33|
 34| export type BootStatus = 'idle' | 'booting' | 'success' | 'failed';
 35|
 36| export interface BootError {
 37|   code: string;
 38|   message: string;
 39|   component: ComponentType;
 40| }
 41|
 42| export interface AssemblyState {
 43|   components: AssemblyComponent[];
 44|   slots: ComponentSlot[];
 45|   cameraCoords: CameraCoords;
 46|   bootStatus: BootStatus;
 47|   bootErrors: BootError[];
 48|   hoveredComponent: string | null;
 49|   draggedComponent: string | null;
 50|   rgbActive: boolean;
 51|   fanSpeed: number;
 52| }
 53|
 54| interface StoreActions {
 55|   setCameraCoords: (coords: Partial<CameraCoords>) => void;
 56|   installComponent: (slotId: string, componentId: string) => boolean;
 57|   removeComponent: (slotId: string) => void;
 58|   setHoveredComponent: (id: string | null) => void;
 59|   setDraggedComponent: (id: string | null) => void;
 60|   triggerBootCheck: () => void;
 61|   resetBoot: () => void;
 62|   resetAssembly: () => void;
 63|   setRgbActive: (active: boolean) => void;
 64|   setFanSpeed: (speed: number) => void;
 65|   checkDependencies: (slotId: string) => { ok: boolean; missing: ComponentType[] };
 66|   getInstalledParts: () => AssemblyComponent[];
 67|   isSlotAvailable: (slotId: string) => boolean;
 68| }
 69|
 70| const DEFAULT_SLOTS: ComponentSlot[] = [
 71|   {
 72|     id: 'motherboard_1',
 73|     type: 'motherboard',
 74|     label: 'Mainboard',
 75|     position: [0, 0.02, 0],
 76|     rotation: [0, 0, 0],
 77|     size: [2.4, 0.02, 2.0],
 78|     dependsOn: [],
 79|     locked: false,
 80|   },
 81|   {
 82|     id: 'cpu_1',
 83|     type: 'cpu',
 84|     label: 'CPU',
 85|     position: [0, 0.12, 0.25],
 86|     rotation: [0, 0, 0],
 87|     size: [0.6, 0.06, 0.6],
 88|     dependsOn: ['motherboard'],
 89|     locked: true,
 90|   },
 91|   {
 92|     id: 'cooler_1',
 93|     type: 'cooler',
 94|     label: 'CPU Cooler',
 95|     position: [0, 0.25, 0.25],
 96|     rotation: [0, 0, 0],
 97|     size: [0.7, 0.15, 0.7],
 98|     dependsOn: ['cpu'],
 99|     locked: true,
100|   },
101|   {
102|     id: 'ram_1',
103|     type: 'ram',
104|     label: 'RAM Slot A1',
105|     position: [-0.55, 0.08, 0.45],
106|     rotation: [0, 0, 0],
107|     size: [0.08, 0.4, 0.02],
108|     dependsOn: ['motherboard'],
109|     locked: true,
110|   },
111|   {
112|     id: 'ram_2',
113|     type: 'ram',
114|     label: 'RAM Slot A2',
115|     position: [-0.42, 0.08, 0.45],
116|     rotation: [0, 0, 0],
117|     size: [0.08, 0.4, 0.02],
118|     dependsOn: ['motherboard'],
119|     locked: true,
120|   },
121|   {
122|     id: 'ram_3',
123|     type: 'ram',
124|     label: 'RAM Slot B1',
125|     position: [0.42, 0.08, 0.45],
126|     rotation: [0, 0, 0],
127|     size: [0.08, 0.4, 0.02],
128|     dependsOn: ['motherboard'],
129|     locked: true,
130|   },
131|   {
132|     id: 'ram_4',
```

```
133|     type: 'ram',
134|     label: 'RAM Slot B2',
135|     position: [0.55, 0.08, 0.45],
136|     rotation: [0, 0, 0],
137|     size: [0.08, 0.4, 0.02],
138|     dependsOn: ['motherboard'],
139|     locked: true,
140|   },
141|   {
142|     id: 'gpu_1',
143|     type: 'gpu',
144|     label: 'GPU (PCIe x16)',
145|     position: [0, 0.06, -0.5],
146|     rotation: [0, 0, 0],
147|     size: [1.6, 0.15, 0.6],
148|     dependsOn: ['motherboard'],
149|     locked: true,
150|   },
151|   {
152|     id: 'psu_1',
153|     type: 'psu',
154|     label: 'Power Supply',
155|     position: [0, -0.2, 1.2],
156|     rotation: [0, 0, 0],
157|     size: [1.2, 0.4, 0.7],
158|     dependsOn: ['motherboard'],
159|     locked: true,
160|   },
161|   {
162|     id: 'ssd_1',
163|     type: 'ssd',
164|     label: 'M.2 NVMe SSD',
165|     position: [0.35, 0.06, -0.15],
166|     rotation: [0, 0, 0],
167|     size: [0.8, 0.02, 0.2],
168|     dependsOn: ['motherboard'],
169|     locked: true,
170|   },
171| ];
172|
173| const INITIAL_COMPONENTS: AssemblyComponent[] = DEFAULT_SLOTS.map((slot) => ({
174|   id: `comp_${slot.id}`,
175|   slotId: slot.id,
176|   type: slot.type,
177|   name: slot.label,
178|   installed: false,
179|   position: [...slot.position] as [number, number, number],
180|   rotation: [...slot.rotation] as [number, number, number],
181| }));
182|
183| export const useAssemblyStore = create<AssemblyState & StoreActions>((set, get) => ({
184|   components: INITIAL_COMPONENTS,
185|   slots: DEFAULT_SLOTS,
186|   cameraCoords: { pitch: 0, yaw: 0, roll: 0 },
187|   bootStatus: 'idle',
188|   bootErrors: [],
189|   hoveredComponent: null,
190|   draggedComponent: null,
191|   rgbActive: false,
192|   fanSpeed: 0,
193|
194|   setCameraCoords: (coords) =>
195|     set((state) => ({
196|       cameraCoords: { ...state.cameraCoords, ...coords },
197|     })),
198|
199|   checkDependencies: (slotId) => {
200|     const state = get();
201|     const slot = state.slots.find((s) => s.id === slotId);
202|     if (!slot || !slot.dependsOn || slot.dependsOn.length === 0) {
203|       return { ok: true, missing: [] };
204|     }
205|     const installed = state.components.filter((c) => c.installed);
206|     const missing = slot.dependsOn.filter(
207|       (depType) => !installed.some((c) => c.type === depType)
208|     );
209|     return { ok: missing.length === 0, missing };
210|   },
211|
212|   installComponent: (slotId, componentId) => {
213|     const state = get();
214|     const depCheck = state.checkDependencies(slotId);
215|     if (!depCheck.ok) return false;
216|
217|     const slot = state.slots.find((s) => s.id === slotId);
218|     if (!slot || slot.locked) return false;
219|
220|     const existing = state.components.find(
221|       (c) => c.slotId === slotId && c.installed
222|     );
223|     if (existing) return false;
224|
225|     set((state) => ({
226|       components: state.components.map((c) =>
227|         c.id === componentId
228|           ? { ...c, installed: true, position: [...slot.position] as [number, number, number] }
229|           : c
230|       ),
231|     }));
232|     return true;
233|   },
234|
235|   removeComponent: (slotId) =>
236|     set((state) => ({
237|       components: state.components.map((c) =>
238|         c.slotId === slotId && c.installed
239|           ? { ...c, installed: false }
240|           : c
241|       ),
242|     })),
243|
244|   setHoveredComponent: (id) => set({ hoveredComponent: id }),
245|   setDraggedComponent: (id) => set({ draggedComponent: id }),
246|
247|   triggerBootCheck: () => {
248|     const state = get();
249|     const installed = state.components.filter((c) => c.installed);
250|     const errors: BootError[] = [];
251|
252|     if (!installed.some((c) => c.type === 'cpu')) {
253|       errors.push({
254|         code: '0x01',
255|         message: 'CPU not detected in socket',
256|         component: 'cpu',
```

```
      });
    }
    if (!installed.some((c) => c.type === 'cooler')) {
      errors.push({
        code: '0x02',
        message: 'CPU Cooler missing — thermal shutdown risk',
        component: 'cooler',
      });
    }
    if (!installed.some((c) => c.type === 'ram')) {
      errors.push({
        code: '0x03',
        message: 'No RAM modules detected in any DIMM slot',
        component: 'ram',
      });
    }
    const ramCount = installed.filter((c) => c.type === 'ram').length;
    if (ramCount > 0 && ramCount < 2) {
      errors.push({
        code: '0x04',
        message: `Only ${ramCount} RAM module(s) installed — single-channel mode`,
        component: 'ram',
      });
    }
    if (!installed.some((c) => c.type === 'gpu')) {
      errors.push({
        code: '0x05',
        message: 'No GPU detected — no display output available',
        component: 'gpu',
      });
    }
    if (!installed.some((c) => c.type === 'psu')) {
      errors.push({
        code: '0x06',
        message: 'Power Supply Unit not connected',
        component: 'psu',
      });
    }
    if (!installed.some((c) => c.type === 'ssd')) {
      errors.push({
        code: '0x07',
        message: 'No boot drive detected (M.2 SSD missing)',
        component: 'ssd',
      });
    }

    if (errors.length > 0) {
      set({ bootStatus: 'booting' });
      setTimeout(() => {
        set({ bootStatus: 'failed', bootErrors: errors, rgbActive: false, fanSpeed: 0 });
      }, 1500);
    } else {
      set({ bootStatus: 'booting' });
      setTimeout(() => {
        set({
          bootStatus: 'success',
          bootErrors: [],
          rgbActive: true,
          fanSpeed: 1,
        });
      }, 2000);
    }
  },

  resetBoot: () =>
    set({
      bootStatus: 'idle',
      bootErrors: [],
      rgbActive: false,
      fanSpeed: 0,
    }),

  resetAssembly: () =>
    set({
      components: INITIAL_COMPONENTS.map((c) => ({ ...c })),
      bootStatus: 'idle',
      bootErrors: [],
      rgbActive: false,
      fanSpeed: 0,
    }),

  setRgbActive: (active) => set({ rgbActive: active }),
  setFanSpeed: (speed) => set({ fanSpeed: speed }),

  getInstalledParts: () => get().components.filter((c) => c.installed),

  isSlotAvailable: (slotId) => {
    const state = get();
    const slot = state.slots.find((s) => s.id === slotId);
    if (!slot || slot.locked) return false;
    return !state.components.some((c) => c.slotId === slotId && c.installed);
  },
}));

```

File: utils/aiConstants.js (55 lines, 3.4 KB)

```
// ==========================================================
// PC Master AI — Constants, System Prompt & Quick Actions
// ==========================================================

export const SYSTEM_PROMPT = `Bạn là **PC Master AI**, trợ lý chuyên ngh

**Khả năng:**
- Nắm rõ toàn bộ bài giảng trong Chương Ứng Dụng Tập (CPU, Mainboard, RAM, GP
- Biết danh sách linh kiện trong Chấm Máy Tính (Celeron G5905, i3-12100F,
- Giá linh kiện tính bằng VN (ví dụ: i3-12100F = 2.250.000 VN, RTX 306

**Nhiệm vụ:**
1. Tổng vấn cấu hình PC theo ngân sách cụ thể (ưu tiên tương thích Socket,
2. Giải đáp thắc mắc kỹ thuật về linh kiện máy tính.
3. Hướng dẫn người dùng các bước lắp ráp trong Chương Ứng Luyện Tập.
4. Kiểm tra tính tương thích (Socket CPU-Mainboard, loại RAM DDR4/DDR5,

**Phong cách:**
- Trả lời ngắn gọn, súc tích, dùng thuật ngữ chuyên môn đúng hiểu.
- Kèm emoji công nghệ (Ø=Ý¥þ Ø>Ýà &¡ Ø<ß® Ø=Ü¾ Ø=Ý' Ø=Ü°).
- Dùng bảng Markdown khi so sánh nhiều linh kiện.
- Người dùng hỏi ngoài chủ đề máy tính, khéo léo từ chối: "Tôi chỉ c

export const QUICK_ACTIONS = [
  {
    label: 'Ø=ÜÚ Web có những gì?',
```

```
    27 |                prompt: 'Website PC Master Builder có nhïng tính n ng gì? H°Ûng
 28|     },
 29|     {
    30 |                label: 'Ø<ß¯ Tính n ng nÕi b-t',
    31 |                prompt: 'Các tính n ng nÕi b-t cça website PC Master Builder là
 32|     },
 33|     {
    34 |                label: 'Ø=ÜÖ H°Ûng d«n sí dång',
    35 |                prompt: 'H°Ûng d«n tôi cách sí dång website PC Master Builder tê
 36|     },
 37|     {
    38 |                label: 'Ø=Ü° T° v¥n c¥u hình 10 triÇu',
    39 |                prompt: 'Tôi có ngân sách 10 triÇu VÑ , hãy t° v¥n c¥u hình PC p
 40|     },
 41|     {
    42 |                label: 'Ø=Ý' KiÃm tra t°¡ng thích',
    43 |                prompt: 'Giúp tôi kiÃm tra: CPU Intel Core i5-13600K (LGA1700) c
 44|     },
 45|     {
    46 |                label: 'Ø>Ýà Gi£i thích vÁ CPU',
    47 |                prompt: 'Gi£i thích ¡n gi£n: SÑ nhân (Cores) và Xung nhËp (Cloc
 48|     }
 49| ];
 50|
 51| export const WELCOME_MESSAGE = {
 52|     role: 'assistant',
    53 |         content: `Xin chào! Tôi là **PC Master AI** Ø>Ý \n\nTôi có thÃ giúp b
 54| };
 55|
```

File: utils/HandFilter.js (159 lines, 4.9 KB)

```
==========================================================================================
  1| /**
  2|  * utils/HandFilter.js
  3|  *
    4 |     *  Module lÍc nhiÅu tÍa Ù bàn tay cho Web/MediaPipe.
    5 |     *  - Sí dång thu-t toán One Euro Filter cho viÇc làm m°ãt chÑng Ù trÃ.
    6 |     *  - Deadzone: Ng°áng lo¡i bÎ rung Ùng vi mô.
    7 |     *  - Hand Lost: GiÏ tÍa Ù khi tay bË rÝi khÎi khung hình trong thÝi gia
  8|  */
  9|
 10| class LowPassFilter {
 11|     constructor(alpha) {
 12|         this.setAlpha(alpha);
 13|         this.y = null;
 14|         this.s = null;
 15|     }
 16|
 17|     setAlpha(alpha) {
 18|         if (alpha <= 0.0 || alpha > 1.0) {
 19|             throw new Error('Alpha must be in (0.0, 1.0]');
 20|         }
 21|         this.alpha = alpha;
 22|     }
 23|
 24|     reset() {
 25|         this.y = null;
 26|         this.s = null;
 27|     }
 28|
 29|     filter(value) {
 30|         if (this.y === null) {
 31|             this.s = value;
 32|         } else {
 33|             this.s = this.alpha * value + (1.0 - this.alpha) * this.s;
 34|         }
 35|         this.y = value;
 36|         return this.s;
 37|     }
 38|
 39|     lastValue() {
 40|         return this.s;
 41|     }
 42| }
 43|
 44| class OneEuroFilter {
 45|     constructor(minCutoff = 1.0, beta = 0.007, dCutoff = 1.0) {
 46|         this.minCutoff = minCutoff;
 47|         this.beta = beta;
 48|         this.dCutoff = dCutoff;
 49|         this.xFilter = new LowPassFilter(this.alpha(this.minCutoff));
 50|         this.dxFilter = new LowPassFilter(this.alpha(this.dCutoff));
 51|         this.lastTime = null;
 52|     }
 53|
 54|     alphaWithDt(cutoff, dt) {
 55|         const tau = 1.0 / (2 * Math.PI * cutoff);
 56|         return 1.0 / (1.0 + tau / dt);
 57|     }
 58|
 59|     alpha(cutoff) {
    60 |                 return this.alphaWithDt(cutoff, 1.0 / 60.0); // fps m·c Ënh
 61|     }
 62|
 63|     reset() {
 64|         this.xFilter.reset();
 65|         this.dxFilter.reset();
 66|         this.lastTime = null;
 67|     }
 68|
 69|     filter(x) {
 70|         let dx = 0.0;
 71|         let dt = 1.0 / 60.0;
 72|
 73|         const now = Date.now();
 74|         if (this.lastTime !== null) {
 75|             dt = (now - this.lastTime) / 1000.0;
    76 |                         if (dt <= 0) dt = 1e-4; // Tránh l×i chia cho 0
 77|             dx = (x - this.xFilter.lastValue()) / dt;
 78|         }
 79|         this.lastTime = now;
 80|
 81|         const edx = this.dxFilter.filter(dx);
 82|         const cutoff = this.minCutoff + this.beta * Math.abs(edx);
 83|
 84|         this.xFilter.setAlpha(this.alphaWithDt(cutoff, dt));
 85|         return this.xFilter.filter(x);
 86|     }
 87| }
 88|
 89| export default class HandFilter {
 90|     constructor(config = {}) {
 91|         const {
```

```
     92|                         minCutoff = 1.0,      // T§n sÑ c¯t tÑi thiÃu (méc m°ãt lúc di
     93|                         beta = 0.007,         // Méc Ù n theo lúc di chuyÃn nhanh
     94|                         dCutoff = 1.0,        // Damping cho bi¿n thiên tÑc Ù
     95|                         deadzone = 2.0,       // (pixel) Ng°áng ng°ng c-p nh-t Ã diÇt
     96|                         lossTimeout = 300     // (ms) ThÝi gian giï nguyên con trÏ khi
 97|         } = config;
 98|
 99|         this.filterX = new OneEuroFilter(minCutoff, beta, dCutoff);
100|         this.filterY = new OneEuroFilter(minCutoff, beta, dCutoff);
101|
102|         this.deadzone = deadzone;
103|         this.lossTimeout = lossTimeout;
104|
105|         this.lastValidPos = null;
106|         this.lastSeenTime = 0;
107|         this.isVisible = false;
108|     }
109|
110|     /**
    111|          *  @param {number|null} rawX - TÍa Ù X (pixel). Ã null n¿u vëa m¥t
    112|          *  @param {number|null} rawY - TÍa Ù Y (pixel).
113|      * @returns {{x: number, y: number}|null}
114|      */
115|     update(rawX, rawY) {
116|         const now = Date.now();
117|
    118|                 // 1. M¥t track tay (Hand Lost logic)
119|         if (rawX === null || rawY === null || rawX === undefined || rawY === undefined) {
120|             if (this.isVisible && (now - this.lastSeenTime > this.lossTimeout)) {
121|                 this.isVisible = false;
122|                 this.filterX.reset();
123|                 this.filterY.reset();
124|                 this.lastValidPos = null;
125|             }
    126|                         // Trong thÝi gian 300ms, tr£ vÁ vË trí ci (n¿u có)
127|             return this.isVisible ? { x: this.lastValidPos.x, y: this.lastValidPos.y } : null;
128|         }
129|
130|         this.isVisible = true;
131|         this.lastSeenTime = now;
132|
    133|                 // 2. Vùng ch¿t (Deadzone logic)
134|         if (this.lastValidPos) {
135|             const dx = rawX - this.lastValidPos.rawX;
136|             const dy = rawY - this.lastValidPos.rawY;
137|             const dist = Math.hypot(dx, dy);
138|
    139|                         // BÏ qua khung hình n¿u xê dËch ch°a v°ãt qua deadzone
140|             if (dist < this.deadzone) {
141|                 return { x: this.lastValidPos.x, y: this.lastValidPos.y };
142|             }
143|         }
144|
145|         // 3. One Euro Filter
146|         const filteredX = this.filterX.filter(rawX);
147|         const filteredY = this.filterY.filter(rawY);
148|
149|         this.lastValidPos = {
150|             x: filteredX,
151|             y: filteredY,
    152|                         rawX, // L°u l¡i rawX, rawY Ã tính khoàng cách cho l§n Upda
153|             rawY
154|         };
155|
156|         return { x: filteredX, y: filteredY };
157|     }
158| }
159|
```

File: utils/i18nData.js (80 lines, 3.8 KB)

```
==========================================================================================
    1| export const COMPONENT_DATA = {
    2|     en: {
    3|         CPU: {
    4|             title: "Central Processing Unit (CPU)",
    5|             desc: "The 'brain' of the computer. It executes instructions and processes data.",
    6|             funFact: "Modern CPUs can execute billions of instructions per second!"
    7|         },
    8|         RAM: {
    9|             title: "Random Access Memory (RAM)",
   10|             desc: "Short-term memory. It stores data that the CPU needs to access quickly.",
   11|             funFact: "More RAM allows you to run more applications simultaneously."
   12|         },
   13|         GPU: {
   14|             title: "Graphics Processing Unit (GPU)",
   15|             desc: "Renders images, video, and games. Essential for gaming and creative work.",
   16|             funFact: "GPUs are also used for training Artificial Intelligence models!"
   17|         },
   18|         SSD: {
   19|             title: "Solid State Drive (SSD)",
   20|             desc: "Fast storage for your OS and applications. Much faster than old hard drives.",
   21|             funFact: "NVMe SSDs can reach speeds of 7000 MB/s!"
   22|         },
   23|         PSU: {
   24|             title: "Power Supply Unit (PSU)",
   25|             desc: "Converts power from the wall outlet into usable power for all components.",
   26|             funFact: "A good PSU can last through multiple computer builds!"
   27|         },
   28|         COOLER: {
   29|             title: "CPU Cooler",
   30|             desc: "Keeps your CPU from overheating by dissipating heat through fins and a fan.",
   31|             funFact: "Some high-end coolers can keep a CPU under 30°C at idle!"
   32|         }
   33|     },
   34|     vn: {
   35|         CPU: {
     36|                         title: "BÙ Vi Xí Lý (CPU)",
     37|                         desc: "BÙ não cça máy tính. Nó thñc hiÇn các lÇnh và xí lý d
     38|                         funFact: "CPU hiÇn ¡i có thÃ thñc hiÇn hàng t÷ lÇnh m×i giâ
   39|         },
   40|         RAM: {
     41|                         title: "BÙ NhÛ Truy Ç-p Ng«u Nhiên (RAM)",
     42|                         desc: "BÙ nhÛ t¡m thÝi. L°u trï dï liÇu mà CPU c§n truy c-p
     43|                         funFact: "NhiÁu RAM h¡n giúp b¡n ch¡y nhiÁu éng dång cùng lu
   44|         },
   45|         GPU: {
     46|                         title: "Card Ó HÍa (GPU)",
     47|                         desc: "Xí lý hình £nh, video và game. C§n thi¿t cho ch¡i gam
     48|                         funFact: "GPU cing °ãc dùng Ã hu¥n luyÇn Trí TuÇ Nhân Tiao
   49|         },
   50|         SSD: {
     51|                         title: "Ô Céng ThÃ R¯n (SSD)",
     52|                         desc: "L°u trï nhanh cho hÇ iÁu hành và éng dång. Nhanh h¡n
```

```
    53 |                        funFact:  "SSD  NVMe  có  thÃ   ¡t  tÑc   Ù  7000  MB/s!"
 54|        },
 55|        PSU: {
    56 |                        title:  "BÙ  NguÓn  (PSU)",
    57 |                        desc:  "ChuyÃn   Õi   iÇn  të  Õ  c¯m  thành   iÇn  n ng  sí  dång   °ãc
    58 |                        funFact:  "MÙt  PSU  tÑt  có  thÃ  dùng   °ãc  qua  nhiÁu   Ýi  máy  tí
 59|        },
 60|        COOLER: {
    61 |                        title:  "T£n  NhiÇt  CPU",
    62 |                        desc:  "Giï  cho  CPU  không  bË  quá  nhiÇt  b±ng  cách  t£n  nhiÇt  qu
    63 |                        funFact:  "T£n  nhiÇt  cao  c¥p  có  thÃ  giï  CPU  d°Ûi  30°C  ß  ch¿
 64|        }
 65|    }
 66| };
 67|
 68| export const GURU_MESSAGES = {
 69|     en: {
 70|         welcome: "Welcome, Builder! Use your hand to pick up components.",
 71|         grabbed: (item) => `You've got the ${item}. Locate the glowing green socket on the motherboard.`,
 72|         placed: (item) => `Excellent work! The ${item} is installed correctly.`
 73|     },
 74|     vn: {
    75 |                 welcome:  "Chào  b¡n!  Hãy  dùng  tay   Ã  g¯p  các  linh  kiÇn  nhé.",
    76 |                 grabbed:  (item)  =>  `B¡n   ang  c§m  ${item}.  Hãy  tìm  khe  c¯m  phát  s
    77 |                 placed:  (item)  =>  `TuyÇt  vÝi!  ${item}   ã   °ãc  l¯p   úng  vË  trí.`
 78|     }
 79| };
 80|
```

File: utils/searchKnowledge.js (25 lines, 0.8 KB)

```
==========================================================================================
  1| import { KNOWLEDGE_BASE } from '../data/knowledgeBase';
  2|
  3| /**
     4 |    *  Tìm  ki¿m  các   o¡n  ki¿n  théc  liên  quan  dña  trên  topic.
     5 |    *  Sí  dång  Keyword  Matching   ¡n  gi£n.
  6|  */
  7| export function searchKnowledge(topic) {
  8|   if (!topic) return "";
  9|
 10|   const query = topic.toUpperCase();
 11|
    12 |      //  Tìm  các  chunk  có  chéa  topic  trong  tên  ho·c  nÙi  dung
 13|   const relatedChunks = KNOWLEDGE_BASE.filter(item =>
 14|     item.topic.toUpperCase().includes(query) ||
 15|     query.includes(item.topic.toUpperCase())
 16|   );
 17|
 18|   if (relatedChunks.length > 0) {
 19|     return relatedChunks.map(chunk => chunk.content).join("\n\n");
 20|   }
 21|
    22 |      //  N¿u  không  tìm  th¥y  chính  xác,  tr£  vÁ  toàn  bÙ  dï  liÇu  làm  context  (f
 23|   return KNOWLEDGE_BASE.map(chunk => chunk.content).join("\n\n");
 24| }
 25|
```

File: utils/translations.ts (162 lines, 11.0 KB)

```
==========================================================================================
  1| type Lang = 'en' | 'vn'
  2|
  3| const translations: Record<string, { en: string; vn: string }> = {
  4|   // Navigation
     5 |      'nav.home':  {  en:  'Home',  vn:  'Trang  chç'  },
  6|   'nav.back': { en: 'Back', vn: 'Thoát' },
     7 |      'nav.backToBuilder':  {  en:  'Back  to  Builder',  vn:  'Quay  l¡i  Builder'  }
     8 |      'nav.backToHome':  {  en:  'Back  to  home',  vn:  'Quay  l¡i  trang  chç'  },
  9|
 10|   // Auth
    11 |      'auth.login':  {  en:  'Login',  vn:  '  ng  nh-p'  },
    12 |      'auth.register':  {  en:  'Register',  vn:  '  ng  ký'  },
    13 |      'auth.logout':  {  en:  'Logout',  vn:  '  ng  xu¥t'  },
 14|   'auth.email': { en: 'Email', vn: 'Email' },
    15 |      'auth.password':  {  en:  'Password',  vn:  'M-t  kh©u'  },
    16 |      'auth.confirmPassword':  {  en:  'Confirm  Password',  vn:  'Xác  nh-n  m-t  kh
    17 |      'auth.fullName':  {  en:  'Full  Name',  vn:  'HÍ  và  tên'  },
    18 |      'auth.googleLogin':  {  en:  'Continue  with  Google',  vn:  'Ti¿p  tåc  vÛi  Go
 19|   'auth.googleNote': { en: 'First login: Email auto-saved, just enter name + role. No password needed!', vn: '...
    20 |      'auth.welcomeBack':  {  en:  'Welcome  back!  Login  to  continue  learning.',
    21 |      'auth.noAccount':  {  en:  "Don't  have  an  account?",  vn:  'Ch°a  có  tài  kho
    22 |      'auth.hasAccount':  {  en:  'Already  have  an  account?',  vn:  '  ã  có  tài  kh
    23 |      'auth.registerNow':  {  en:  'Register  now',  vn:  '  ng  ký  ngay'  },
    24 |      'auth.forgotPassword':  {  en:  'Forgot  password?',  vn:  'Quên  m-t  kh©u?'
    25 |      'auth.orViaEmail':  {  en:  'Or  via  email',  vn:  'Ho·c  qua  email'  },
    26 |      'auth.adminLogin':  {  en:  'Login  as  Admin',  vn:  '  ng  nh-p  vÛi  t°  cách
    27 |      'auth.adminPassword':  {  en:  'Admin  Password',  vn:  'M-t  kh©u  Admin'  },
    28 |      'auth.enterAdminPass':  {  en:  'Enter  admin  password',  vn:  'Nh-p  m-t  kh©
    29 |      'auth.loginSuccess':  {  en:  'Login  successful!',  vn:  '  ng  nh-p  thành  c
    30 |      'auth.loginFailed':  {  en:  'Email  or  password  is  incorrect.',  vn:  'Emai
    31 |      'auth.processing':  {  en:  'Processing...',  vn:  '  ang  xí  lý...'  },
 32|
 33|   // Builder
 34|   'builder.title': { en: 'PC Master Builder', vn: 'PC Master Builder' },
    35 |      'builder.freePractice':  {  en:  'Free  Practice',  vn:  'LuyÇn  T-p  Tñ  Do'  }
    36 |      'builder.practiceMode':  {  en:  'Practice  Mode',  vn:  'LuyÇn  T-p'  },
    37 |      'builder.lecture':  {  en:  'Lecture  Course',  vn:  'Bài  Gi£ng'  },
    38 |      'builder.marketplace':  {  en:  'Marketplace',  vn:  'Chã  Máy  Tính'  },
    39 |      'builder.multiplayer':  {  en:  '2-Player  Versus',  vn:  '2  Ng°Ýi  Chi¡i'  },
    40 |      'builder.exams':  {  en:  'Exams',  vn:  'Kó  Thi'  },
    41 |      'builder.challenge':  {  en:  'Daily  Challenge',  vn:  'Thí  Thách'  },
    42 |      'builder.components':  {  en:  'Component  Library',  vn:  'Tç  Linh  KiÇn'  },
    43 |      'builder.checklist':  {  en:  'Checklist',  vn:  'NhiÇm  vå'  },
 44|
 45|   // Career Build
    46 |      'career.title':  {  en:  'Career  &  PC  Build',  vn:  'NghÁ  NghiÇp  &  C¥u  Hình
    47 |      'career.subtitle':  {  en:  'Select  your  dream  career,  AI  will  suggest  th
    48 |      'career.orType':  {  en:  'Or  type  your  dream:',  vn:  'Ho·c  nh-p  °Ûc  m¡  co
    49 |      'career.placeholder':  {  en:  'e.g.  I  want  to  be  an  AI  engineer,  game  de
    50 |      'career.suggest':  {  en:  'Suggest',  vn:  'Gãi  ý'  },
    51 |      'career.analyzing':  {  en:  'AI  is  analyzing  your  career...',  vn:  'AI  a
    52 |      'career.suggestFor':  {  en:  'Suggested  Build  For:',  vn:  'C¥u  Hình  Cho:'
    53 |      'career.totalCost':  {  en:  'Estimated  Total  Cost',  vn:  'Tõng  chi  phí  °Ú
    54 |      'career.startBuild':  {  en:  'Start  assembling  this  config!',  vn:  'B¯t
    55 |      'career.chooseOther':  {  en:  'Choose  another  career',  vn:  'ChÍn  nghÁ  kh
    56 |      'career.tips':  {  en:  'Tip:',  vn:  'M¹o:'  },
 57|
 58|   // Invoice
    59 |      'invoice.title':  {  en:  'Invoice  Scanner  &  Price  Check',  vn:  'Quét  Hóa
 60|   'invoice.subtitle': { en: 'Upload an invoice photo, AI will detect items and compare with market prices!', v...
    61 |      'invoice.drop':  {  en:  'Drop  invoice  image  here',  vn:  'Kéo  th£  £nh  hóa
    62 |      'invoice.orClick':  {  en:  'or  click  to  select  file',  vn:  'ho·c  nh¥p   Ã
```

```
  63|     'invoice.or': { en: '— or —', vn: '— hoặc —' },
  64|     'invoice.camera': { en: 'Capture Invoice with Camera', vn: 'Chụp Ảnh H
  65|     'invoice.scanAI': { en: 'Scan Invoice with AI', vn: 'Quét Hóa đơn Bằng
  66|     'invoice.scanning': { en: 'Scanning invoice...', vn: 'đang quét hóa đ
  67|     'invoice.scanDesc': { en: 'AI is detecting components and comparing pr
  68|     'invoice.chooseOther': { en: 'Choose another image', vn: 'Chọn ảnh khá
  69|     'invoice.results': { en: 'Price Comparison Results', vn: 'Kết Quả So S
  70|     'invoice.totalInvoice': { en: 'Invoice Total', vn: 'Tổng hóa đơn' },
  71|     'invoice.marketPrice': { en: 'Market Price', vn: 'Giá thị trường' },
  72|     'invoice.diff': { en: 'Difference', vn: 'Chênh lệch' },
 73|   'invoice.diffPct': { en: 'Diff %', vn: '% chênh' },
  74|     'invoice.aiVerdict': { en: 'AI Verdict:', vn: 'đánh giá AI:' },
  75|     'invoice.reasonable': { en: 'Reasonable', vn: 'Hãp lý' },
  76|     'invoice.expensive': { en: 'Slightly expensive', vn: 'Hơi đắt' },
  77|     'invoice.overpriced': { en: 'Overpriced!', vn: 'Chát chém!' },
  78|     'invoice.manualEntry': { en: 'Manual Entry', vn: 'Nhập Tay Linh Kiện'
 79|   'invoice.manualDesc': { en: 'AI could not detect the image. Please enter component details manually.', vn: '...
  80|     'invoice.addItem': { en: '+ Add component', vn: '+ Thêm linh kiện' },
 81|   'invoice.compare': { en: 'Compare prices', vn: 'So sánh giá' },
  82|     'invoice.cancel': { en: 'Cancel', vn: 'Hủy' },
  83|     'invoice.scanAnother': { en: 'Scan another invoice', vn: 'Quét hóa đ
  84|     'invoice.top': { en: 'Back to top', vn: 'Lên §u trang' },
 85|
 86|   // Hand Tracking
  87|     'handtracking.off': { en: 'OFF', vn: 'TẮT' },
  88|     'handtracking.on': { en: 'ON', vn: 'BẬT' },
  89|     'handtracking.toggle': { en: 'Toggle', vn: 'Bật/Tắt' },
 90|   'handtracking.label': { en: 'Hand Tracking:', vn: 'Hand Tracking:' },
  91|     'handtracking.waiting': { en: 'Waiting for players...', vn: 'đang chỜ
  92|     'handtracking.raiseHand': { en: 'Raise your hand high!', vn: 'Giơ tay
  93|     'handtracking.ready': { en: 'Ready!', vn: 'Sẵn sàng!' },
 94|
 95|   // Multiplayer
  96|     'multiplayer.title': { en: 'MULTIPLAYER MODE', vn: 'CHẾ Độ 2 NGƯỜI CH
 97|   'multiplayer.instruction': { en: 'Player 1 = Left side of screen · Player 2 = Right side of screen (Each pla...
  98|     'multiplayer.startMatch': { en: 'START MATCH', vn: 'BẮT đầU THI đấU' }
  99|     'multiplayer.readyHint': { en: 'Both players raise BOTH hands to be re
 100|     'multiplayer.p1Win': { en: 'PLAYER 1 WINS!', vn: 'P1 THẮNG!' },
 101|     'multiplayer.p2Win': { en: 'PLAYER 2 WINS!', vn: 'P2 THẮNG!' },
 102|     'multiplayer.p1Label': { en: 'PLAYER 1', vn: 'NGƯỜI CHƠI 1' },
 103|     'multiplayer.p2Label': { en: 'PLAYER 2', vn: 'NGƯỜI CHƠI 2' },
104|
105|   // VR 3D
 106|     'vr.title': { en: 'VR MODE', vn: 'CHẾ Độ VR' },
107|   'vr.explore': { en: 'Explore', vn: 'Khám phá' },
 108|     'vr.build': { en: 'Start Assembly', vn: 'Bắt đầu lắp ráp' },
 109|     'vr.building': { en: 'Building...', vn: 'đang lắp...' },
 110|     'vr.wasdHint': { en: 'WASD to move, webcam to look around', vn: 'WASD
 111|     'vr.headActive': { en: 'Webcam head tracking active', vn: 'Webcam the
 112|     'vr.mouseHint': { en: 'Move mouse to control hand', vn: 'Di chuyển chu
 113|     'vr.wasdMove': { en: 'Move', vn: 'Di chuyển' },
 114|     'vr.wasdLook': { en: 'Head tracking to look', vn: 'Quay §u Ãnh nhìn'
 115|     'vr.parts': { en: 'Parts', vn: 'Linh kiện' },
 116|     'vr.missingParts': { en: 'Missing parts!', vn: 'Thiếu linh kiện!' },
 117|     'vr.systemOnline': { en: 'System Online!', vn: 'HỆ thống hoạt Động!'
 118|     'vr.powerOn': { en: 'POWER ON', vn: 'KHởI ĐỘNG' },
119|   'vr.enter': { en: 'ENTER VR WORKSHOP', vn: 'VÀO PHÒNG VR' },
120|   'vr.welcome': { en: 'Build your PC in a VR workshop. Use WASD to move, webcam to look around, drag parts int...
 121|         vn: 'Lắp ráp PC trong phòng thí nghiệm VR. Dùng WASD di chuyển, webc
 122|     'vr.step1': { en: 'Toggle Explore to walk around the room (WASD + head
 123|     'vr.step2': { en: 'Click Start Assembly to build your PC', vn: 'Nhấn B
 124|     'vr.step3': { en: 'Drag parts into the case — press POWER!', vn: 'Kéo
125|
126|   // Common
 127|     'common.loading': { en: 'Loading...', vn: 'đang tải...' },
 128|     'common.error': { en: 'Error', vn: 'Lỗi' },
129|   'common.success': { en: 'Success', vn: 'Thành công' },
 130|     'common.save': { en: 'Save', vn: 'Lưu' },
 131|     'common.cancel': { en: 'Cancel', vn: 'Hủy' },
 132|     'common.confirm': { en: 'Confirm', vn: 'Xác nhận' },
 133|     'common.search': { en: 'Search', vn: 'Tìm kiếm' },
 134|     'common.noData': { en: 'No data', vn: 'Không có dữ liệu' },
135|
136|   // Profile
 137|     'profile.complete': { en: 'Complete Profile', vn: 'Hoàn thiện hồ sơ' }
 138|     'profile.emailAuto': { en: 'Email auto-saved from Google account', vn:
 139|     'profile.role': { en: 'What is your role?', vn: 'Bạn tham gia vỚi vai
 140|     'profile.student': { en: 'Student', vn: 'HỌc viên' },
141|   'profile.teacher': { en: 'Teacher', vn: 'Giáo viên' },
 142|     'profile.parent': { en: 'Parent', vn: 'Phụ huynh' },
 143|     'profile.finish': { en: 'Complete', vn: 'Hoàn tất' },
144|   'profile.nextTimeAuto': { en: 'Next login with Google will go straight in without re-entering info.', vn: 'L...
145|   'profile.dob': { en: 'Date of Birth', vn: 'Ngày sinh' },
 146|     'profile.province': { en: 'Province/City', vn: 'TỈnh/Thành phỐ' },
 147|     'profile.school': { en: 'School', vn: 'Trường hỌc' },
 148|     'profile.schoolName': { en: 'School name (optional)', vn: 'Tên trường
149| }
150|
151| export function t(key: string, lang: Lang): string {
152|   const entry = translations[key]
153|   if (!entry) return key
154|   return entry[lang]
155| }
156|
157| export function useT(lang: Lang) {
158|   return (key: string) => t(key, lang)
159| }
160|
161| export type { Lang }
162|
```

File: utils/word-parser.ts (108 lines, 3.5 KB)

```
  1| export function parseQuestionsFromText(text: string) {
  2|   const lines = text.split('\n').filter(l => l.trim())
  3|   const questions: {
  4|     content: string
  5|     type: 'single_choice' | 'true_false' | 'fill_blank'
  6|     points: number
  7|     explanation: string
  8|     options: { content: string; isCorrect: boolean }[]
  9|   }[] = []
 10|
 11|   let currentQuestion: any = null
 12|   let currentOptions: { content: string; isCorrect: boolean }[] = []
 13|   let correctAnswerText = ''
 14|
 15|   for (const line of lines) {
 16|     const trimmed = line.trim()
 17|
 18|     const questionMatch = trimmed.match(/^(?:Câu )?(\d+)[.)]\s*(.+)/i)
 19|     if (questionMatch) {
 20|       if (currentQuestion && currentOptions.length > 0) {
```

```
      currentQuestion.options = currentOptions
      questions.push(currentQuestion)
    }
    currentOptions = []
    correctAnswerText = ''
    currentQuestion = {
      content: questionMatch[2].trim(),
      type: 'single_choice',
      points: 10,
      explanation: '',
      options: []
    }
    continue
  }

    const optionMatch = trimmed.match(/^([A-E]).]\]\s*(.*)/)
  if (optionMatch && currentQuestion) {
    currentOptions.push({
      content: optionMatch[2].trim(),
      isCorrect: false
    })
    if (optionMatch[1] === ' ') {
      currentOptions[currentOptions.length - 1].isCorrect = true
    }
    continue
  }

    const isTrueFalse = trimmed.match(/^(úng|Sai|True|False)\b/i)
  if (isTrueFalse && currentQuestion && currentOptions.length === 0) {
    currentQuestion.type = 'true_false'
    currentOptions.push(
      { content: 'úng', isCorrect: trimmed.match(/^(úng|True)\b/i) ?
      { content: 'Sai', isCorrect: trimmed.match(/^(Sai|False)\b/i) ? true : false }
    )
    continue
  }

    const correctMatch = trimmed.match(/^(?:áp\s*án|Correct|Answer)\s*
  if (correctMatch && currentQuestion) {
    correctAnswerText = correctMatch[1].toUpperCase()
    const correctIndices: number[] = []
    const letters = correctAnswerText.split('')
    for (const letter of letters) {
      const idx = letter.charCodeAt(0) - 65
      if (idx >= 0 && idx < currentOptions.length) {
        correctIndices.push(idx)
      }
    }
    for (let i = 0; i < currentOptions.length; i++) {
      currentOptions[i].isCorrect = correctIndices.includes(i)
    }
    if (correctIndices.length > 1) {
      currentQuestion.type = 'multiple_choice'
    }
    continue
  }

    const fillBlankMatch = trimmed.match(/^iÁn\s*(?:vào\s*ch×\s*trÑng|k
  if (fillBlankMatch && currentQuestion) {
    currentQuestion.type = 'fill_blank'
    currentQuestion.options = [{ content: fillBlankMatch[1].trim(), isCorrect: true }]
    continue
  }

  if (currentQuestion && !questionMatch && !optionMatch && trimmed) {
    if (trimmed.match(/^(?:Gi£i\s*thích|Explanation)\s*[:=]/i) {
      currentQuestion.explanation = trimmed.replace(/^(?:Gi£i\s*thích
    }
  }

  if (currentQuestion && currentOptions.length > 0) {
    currentQuestion.options = currentOptions
    questions.push(currentQuestion)
  }

  return questions
}

export async function parseDocx(file: File): Promise<{ text: string; questions: ReturnType<typeof parseQuestio...
  const mammoth = await import('mammoth')
  const arrayBuffer = await file.arrayBuffer()
  const result = await mammoth.extractRawText({ arrayBuffer })
  const text = result.value
  const questions = parseQuestionsFromText(text)
  return { text, questions }
}
```

File: types/pc-components.ts (227 lines, 6.1 KB)

```
export type ComponentCategory =
  | 'CPU' | 'GPU' | 'MAINBOARD' | 'RAM' | 'PSU' | 'CASE' | 'COOLER' | 'SSD' | 'HDD';

export type SocketType =
  | 'LGA1700' | 'LGA1851' | 'LGA1200' | 'LGA1151'
  | 'AM5' | 'AM4' | 'sTR5' | 'sTRX4';

export type FormFactor = 'ATX' | 'mATX' | 'ITX' | 'eATX' | 'Mini-ITX' | 'XL-ATX';
export type DDRType = 'DDR4' | 'DDR5';
export type PCIeGen = '3.0' | '4.0' | '5.0';
export type PSUEfficiency =
  | '80plus_white' | '80plus_bronze' | '80plus_silver'
  | '80plus_gold' | '80plus_platinum' | '80plus_titanium';
export type PSUSubModular = 'non_modular' | 'semi_modular' | 'full_modular';
export type CoolerType = 'air' | 'aio' | 'custom_loop';
export type StorageInterface = 'm2_nvme' | 'm2_sata' | 'sata_ssd' | 'sata_hdd';
export type Severity = 'error' | 'warning' | 'info' | 'success';

interface BaseProduct {
  id: string;
  category: ComponentCategory;
  brand: string;
  model: string;
  full_name: string;
  price_vnd: number;
  image_url?: string;
  image_angles?: string[];
  video_url?: string;
  release_year?: number;
}

export interface CPUProduct extends BaseProduct {
```

```
33|   category: 'CPU';
34|   cpu_socket: SocketType;
35|   cpu_tdp_watts: number;
36|   cpu_cores: number;
37|   cpu_threads: number;
38|   cpu_base_ghz: number;
39|   cpu_boost_ghz: number;
40|   cpu_l3_cache_mb: number;
41|   cpu_has_igpu: boolean;
42|   cpu_igpu_model?: string;
43|   cpu_ram_type: DDRType;
44|   cpu_max_ram_mhz: number;
45|   cpu_generation: string;
46|   cpu_cinebench_r23_single?: number;
47|   cpu_cinebench_r23_multi?: number;
48| }
49|
50| export interface GPUProduct extends BaseProduct {
51|   category: 'GPU';
52|   gpu_vram_gb: number;
53|   gpu_tdp_watts: number;
54|   gpu_pcie_gen: PCIeGen;
55|   gpu_length_mm: number;
56|   gpu_width_mm?: number;
57|   gpu_height_mm?: number;
58|   gpu_power_connectors: { type: string; qty: number }[];
59|   gpu_benchmark_1080p?: number;
60|   gpu_display_outputs: string[];
61|   gpu_recommended_psu: number;
62| }
63|
64| export interface MainboardProduct extends BaseProduct {
65|   category: 'MAINBOARD';
66|   mb_socket: SocketType;
67|   mb_chipset: string;
68|   mb_form_factor: FormFactor;
69|   mb_ram_slots: number;
70|   mb_max_ram_gb: number;
71|   mb_ram_type: DDRType;
72|   mb_max_ram_mhz: number;
73|   mb_m2_slots: number;
74|   mb_m2_pcie_gens: PCIeGen[];
75|   mb_pcie_x16_slots: number;
76|   mb_pcie_x16_gens: PCIeGen[];
77|   mb_sata_ports: number;
78|   mb_has_wifi: boolean;
79|   mb_wifi_version?: string;
80|   mb_usb_ports: { type: string; qty: number }[];
81|   mb_front_panel_headers: { type: string; pin: number }[];
82| }
83|
84| export interface PSUProduct extends BaseProduct {
85|   category: 'PSU';
86|   psu_wattage: number;
87|   psu_efficiency: PSUEfficiency;
88|   psu_modular: PSUSubModular;
89|   psu_connectors: { type: string; qty: number }[];
90|   psu_has_12vhpwr: boolean;
91|   psu_length_mm: number;
92|   psu_fan_size_mm?: number;
93| }
94|
95| export interface CaseProduct extends BaseProduct {
96|   category: 'CASE';
97|   case_supported_forms: FormFactor[];
98|   case_max_gpu_length_mm: number;
99|   case_max_cooler_height_mm: number;
100|   case_max_psu_length_mm: number;
101|   case_drive_bays: { type: string; qty: number }[];
102|   case_fan_slots: { size: number; qty: number; type: string }[];
103|   case_supports_aio: number[];
104|   case_mesh_front: boolean;
105|   case_has_cable_management: boolean;
106|   case_side_panel: string;
107|   case_weight_kg?: number;
108| }
109|
110| export interface CoolerProduct extends BaseProduct {
111|   category: 'COOLER';
112|   cooler_max_tdp_support: number;
113|   cooler_height_mm: number;
114|   cooler_supported_sockets: SocketType[];
115|   cooler_type: CoolerType;
116|   cooler_aio_size_mm?: number;
117|   cooler_fan_rpm_max?: number;
118|   cooler_fan_noise_dba?: number;
119|   cooler_fan_qty?: number;
120|   cooler_has_rgb: boolean;
121| }
122|
123| export interface RAMProduct extends BaseProduct {
124|   category: 'RAM';
125|   ram_ddr_type: DDRType;
126|   ram_speed_mhz: number;
127|   ram_cl_latency: number;
128|   ram_capacity_gb: number;
129|   ram_kit_count: number;
130|   ram_has_xmp: boolean;
131|   ram_has_expo: boolean;
132|   ram_voltage_v?: number;
133|   ram_height_mm?: number;
134| }
135|
136| export interface SSDProduct extends BaseProduct {
137|   category: 'SSD';
138|   ssd_interface: StorageInterface;
139|   ssd_pcie_gen?: PCIeGen;
140|   ssd_read_mbps: number;
141|   ssd_write_mbps: number;
142|   ssd_has_dram_cache: boolean;
143|   ssd_capacity_gb: number;
144|   ssd_form_factor: string;
145|   ssd_nand_type?: string;
146|   ssd_tbw?: number;
147|   ssd_max_seq_read?: number;
148|   ssd_max_seq_write?: number;
149|   ssd_max_rand_read?: number;
150|   ssd_max_rand_write?: number;
151| }
152|
153| export type AnyProduct =
154|   | CPUProduct | GPUProduct | MainboardProduct | PSUProduct
155|   | CaseProduct | CoolerProduct | RAMProduct | SSDProduct;
156|
```

```
157| export type CompatibilityIssueType =
158|   | 'socket_mismatch'
159|   | 'ram_type_mismatch'
160|   | 'gpu_too_long'
161|   | 'psu_insufficient'
162|   | 'cooler_insufficient'
163|   | 'cooler_too_tall'
164|   | 'cooler_socket_mismatch'
165|   | 'form_factor_mismatch'
166|   | 'no_display_output'
167|   | 'too_many_ram'
168|   | 'not_enough_m2_slots'
169|   | 'bottleneck'
170|   | 'budget_exceeded'
171|   | 'success';
172|
173| export interface CompatibilityIssue {
174|   severity: Severity;
175|   check_type: CompatibilityIssueType;
176|   message: string;
177|   fix: string;
178| }
179|
180| export interface Build {
181|   id?: string;
182|   name: string;
183|   cpu: CPUProduct | null;
184|   gpu: GPUProduct | null;
185|   mainboard: MainboardProduct | null;
186|   ram: RAMProduct[];
187|   psu: PSUProduct | null;
188|   case: CaseProduct | null;
189|   cooler: CoolerProduct | null;
190|   ssd: SSDProduct[];
191|   hdd?: SSDProduct[];
192|   total_price: number;
193|   total_tdp: number;
194|   compatibility_score: number;
195|   compatibility_issues: CompatibilityIssue[];
196|   created_at?: string;
197| }
198|
199| export interface BuildScenario {
200|   id: string;
201|   name: string;
202|   name_vn: string;
203|   description: string;
204|   description_vn: string;
205|   icon: string;
206|   difficulty: 'easy' | 'medium' | 'hard' | 'expert';
207|   budget_min: number;
208|   budget_max: number;
209|   requirements: {
210|     min_cores?: number;
211|     min_gpu_power?: number;
212|     min_ram_gb?: number;
213|     min_storage_gb?: number;
214|     require_igpu?: boolean;
215|     use_case?: string;
216|     min_cinebench_multi?: number;
217|     max_tdp?: number;
218|   };
219|   weight_components: {
220|     cpu: number;
221|     gpu: number;
222|     ram: number;
223|     storage: number;
224|     psu: number;
225|   };
226| }
227|
```

File: types/quiz.ts (63 lines, 1.3 KB)

```
1| export type QuestionType = 'multiple_choice' | 'true_false' | 'fill_blank';
2| export type AttemptStatus = 'in_progress' | 'submitted' | 'timed_out';
3|
4| export interface QuestionBank {
5|   id: string;
6|   teacher_id: string;
7|   title: string;
8|   subject?: string;
9|   created_at: string;
10| }
11|
12| export interface Question {
13|   id: string;
14|   bank_id: string;
15|   content: string;
16|   type: QuestionType;
17|   points: number;
18|   order: number;
19|   created_at: string;
20|   options?: QuestionOption[];
21| }
22|
23| export interface QuestionOption {
24|   id: string;
25|   question_id: string;
26|   content: string;
27|   is_correct?: boolean; // Optional because we hide it from students
28|   created_at: string;
29| }
30|
31| export interface Quiz {
32|   id: string;
33|   lesson_id?: string;
34|   assignment_id?: string;
35|   title: string;
36|   time_limit_minutes: number;
37|   passing_score: number;
38|   randomize: boolean;
39|   max_attempts: number;
40|   created_at: string;
41|   questions?: Question[];
42| }
43|
44| export interface QuizAttempt {
45|   id: string;
46|   quiz_id: string;
47|   student_id: string;
48|   started_at: string;
49|   submitted_at?: string;
```

```
  50|   score: number;
  51|   status: AttemptStatus;
  52| }
  53|
  54| export interface QuizAnswer {
  55|   id: string;
  56|   attempt_id: string;
  57|   question_id: string;
  58|   selected_option_id?: string;
  59|   text_answer?: string;
  60|   is_correct: boolean;
  61|   points_earned: number;
  62| }
  63|
```

File: hooks/hooks/useClassroomUpdates.ts (49 lines, 1.2 KB)

```
   1| 'use client';
   2|
   3| import { useEffect, useState } from 'react';
   4| import { createClient } from '@/lib/supabase-ssr-client';
   5|
   6| export function useClassroomUpdates(teacherId: string) {
   7|   const [lastUpdate, setLastUpdate] = useState<Date | null>(null);
   8|   const supabase = createClient();
   9|
  10|   useEffect(() => {
  11|     if (!teacherId) return;
  12|
  13|     // 1. Subscribe to quiz attempts
  14|     const quizChannel = supabase
  15|       .channel('classroom-updates')
  16|       .on(
  17|         'postgres_changes',
  18|         {
  19|           event: '*',
  20|           schema: 'public',
  21|           table: 'quiz_attempts',
  22|         },
  23|         (payload) => {
  24|           console.log('Real-time Quiz Update:', payload);
  25|           setLastUpdate(new Date());
  26|         }
  27|       )
  28|       .on(
  29|         'postgres_changes',
  30|         {
  31|           event: '*',
  32|           schema: 'public',
  33|           table: 'lesson_progress',
  34|         },
  35|         (payload) => {
  36|           console.log('Real-time Progress Update:', payload);
  37|           setLastUpdate(new Date());
  38|         }
  39|       )
  40|       .subscribe();
  41|
  42|     return () => {
  43|       supabase.removeChannel(quizChannel);
  44|     };
  45|   }, [teacherId, supabase]);
  46|
  47|   return { lastUpdate };
  48| }
  49|
```

File: hooks/hooks/useDiscussion.ts (219 lines, 5.9 KB)

```
   1| 'use client'
   2|
   3| import { useState, useEffect } from 'react'
   4| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
   5|
   6| export type Thread = {
   7|   id: string
   8|   lesson_id: string
   9|   author_id: string
  10|   title: string
  11|   body: string
  12|   type: 'question' | 'discussion' | 'announcement'
  13|   status: 'open' | 'resolved' | 'pinned' | 'closed'
  14|   upvote_count: number
  15|   reply_count: number
  16|   is_deleted: boolean
  17|   created_at: string
  18|   updated_at: string
  19|   author?: {
  20|     full_name: string
  21|     avatar_url: string
  22|     role: string
  23|   }
  24| }
  25|
  26| export type Reply = {
  27|   id: string
  28|   thread_id: string
  29|   parent_reply_id: string | null
  30|   author_id: string
  31|   body: string
  32|   is_teacher_answer: boolean
  33|   upvote_count: number
  34|   is_deleted: boolean
  35|   created_at: string
  36|   author?: {
  37|     full_name: string
  38|     avatar_url: string
  39|     role: string
  40|   }
  41| }
  42|
  43| export function useDiscussion(lessonId: string, activeTab: 'all' | 'unanswered' | 'pinned') {
  44|   const [threads, setThreads] = useState<Thread[]>([])
  45|   const [isLoading, setIsLoading] = useState(true)
  46|   const supabase = createClientComponentClient()
  47|
  48|   useEffect(() => {
  49|     const fetchThreads = async () => {
  50|       setIsLoading(true)
  51|       let query = supabase
  52|         .from('discussion_threads')
```

```
53|         .select(`
54|           *,
55|           author:profiles(full_name, avatar_url, role)
56|         `)
57|         .eq('lesson_id', lessonId)
58|         .eq('is_deleted', false)
59|
60|       if (activeTab === 'pinned') {
61|         query = query.eq('status', 'pinned')
62|       } else if (activeTab === 'unanswered') {
63|         query = query.eq('reply_count', 0)
64|       }
65|
66|       const { data, error } = await query.order('created_at', { ascending: false })
67|       if (!error && data) {
68|         setThreads(data as any[])
69|       }
70|       setIsLoading(false)
71|     }
72|
73|     fetchThreads()
74|
75|     // Realtime channel for new threads
76|     const channel = supabase
77|       .channel(`lesson-discussion-${lessonId}`)
78|       .on('postgres_changes', {
79|         event: '*',
80|         schema: 'public',
81|         table: 'discussion_threads',
82|         filter: `lesson_id=eq.${lessonId}`
83|       }, () => {
84|         fetchThreads()
85|       })
86|       .subscribe()
87|
88|     return () => {
89|       supabase.removeChannel(channel)
90|     }
91|   }, [lessonId, activeTab, supabase])
92|
93|   const createThread = async (title: string, body: string, type: string, authorId: string) => {
94|     // Basic Rate Limit Check (5 threads per hour)
95|     const oneHourAgo = new Date(Date.now() - 3600000).toISOString()
96|     const { count } = await supabase
97|       .from('discussion_threads')
98|       .select('id', { count: 'exact', head: true })
99|       .eq('author_id', authorId)
100|       .gt('created_at', oneHourAgo)
101|
102|     if (count !== null && count >= 5) {
103|       throw new Error('Bạn đã gửi hơn 5 bài viết mới.')
104|     }
105|
106|     const { data, error } = await supabase
107|       .from('discussion_threads')
108|       .insert({
109|         lesson_id: lessonId,
110|         author_id: authorId,
111|         title,
112|         body,
113|         type
114|       })
115|       .select()
116|       .single()
117|
118|     if (error) throw error
119|     return data
120|   }
121|
122|   return { threads, isLoading, createThread }
123| }
124|
125| export function useThreadReplies(threadId: string) {
126|   const [replies, setReplies] = useState<Reply[]>([])
127|   const supabase = createClientComponentClient()
128|
129|   useEffect(() => {
130|     const fetchReplies = async () => {
131|       const { data, error } = await supabase
132|         .from('discussion_replies')
133|         .select(`
134|           *,
135|           author:profiles(full_name, avatar_url, role)
136|         `)
137|         .eq('thread_id', threadId)
138|         .eq('is_deleted', false)
139|         .order('created_at', { ascending: true })
140|
141|       if (!error && data) {
142|         setReplies(data as any[])
143|       }
144|     }
145|
146|     fetchReplies()
147|
148|     // Realtime replies subscription
149|     const channel = supabase
150|       .channel(`thread-replies-${threadId}`)
151|       .on('postgres_changes', {
152|         event: 'INSERT',
153|         schema: 'public',
154|         table: 'discussion_replies',
155|         filter: `thread_id=eq.${threadId}`
156|       }, (payload) => {
157|         const fetchNewReplyAuthor = async () => {
158|           const { data } = await supabase
159|             .from('profiles')
160|             .select('full_name, avatar_url, role')
161|             .eq('id', payload.new.author_id)
162|             .single()
163|
164|           const newReply: Reply = {
165|             ...(payload.new as Reply),
166|             author: data || {full_name: '¨n danh', avatar_url: '', role
167|           }
168|           setReplies(prev => [...prev, newReply])
169|         }
170|         fetchNewReplyAuthor()
171|       })
172|       .subscribe()
173|
174|     return () => {
175|       supabase.removeChannel(channel)
176|     }
```

```
  177|   }, [threadId, supabase])
  178|
  179|   const addReply = async (body: string, authorId: string, parentReplyId: string | null = null) => {
  180|     // Rate limit check (20 replies per hour)
  181|     const oneHourAgo = new Date(Date.now() - 3600000).toISOString()
  182|     const { count } = await supabase
  183|       .from('discussion_replies')
  184|       .select('id', { count: 'exact', head: true })
  185|       .eq('author_id', authorId)
  186|       .gt('created_at', oneHourAgo)
  187|
  188|     if (count !== null && count >= 20) {
     1 8 9 |              t h r o w   n e w   E r r o r ( ' B ¡ n    ã    ¡ t   g i Û i   h ¡ n   2 0   b ì n h   l u - n   m × i   g i Ý . ' )
  190|     }
  191|
  192|     // Check if author is teacher
  193|     const { data: profile } = await supabase
  194|       .from('profiles')
  195|       .select('role')
  196|       .eq('id', authorId)
  197|       .single()
  198|
  199|     const isTeacher = profile?.role === 'teacher'
  200|
  201|     const { data, error } = await supabase
  202|       .from('discussion_replies')
  203|       .insert({
  204|         thread_id: threadId,
  205|         parent_reply_id: parentReplyId,
  206|         author_id: authorId,
  207|         body,
  208|         is_teacher_answer: isTeacher
  209|       })
  210|       .select()
  211|       .single()
  212|
  213|     if (error) throw error
  214|     return data
  215|   }
  216|
  217|   return { replies, addReply }
  218| }
  219|
```

File: hooks/hooks/useNotifications.ts (92 lines, 2.7 KB)

```
    1| 'use client'
    2|
    3| import { useState, useEffect } from 'react'
    4| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
    5| import { toast } from 'react-hot-toast'
    6|
    7| export type Notification = {
    8|   id: string
    9|   user_id: string
   10|   type: string
   11|   title: string
   12|   body: string
   13|   data: any
   14|   action_url: string
   15|   is_read: boolean
   16|   created_at: string
   17| }
   18|
   19| export function useNotifications(userId?: string, options?: { filterTypes?: string[] }) {
   20|   const [notifications, setNotifications] = useState<Notification[]>([])
   21|   const [unreadCount, setUnreadCount] = useState(0)
   22|   const supabase = createClientComponentClient()
   23|
   24|   useEffect(() => {
   25|     if (!userId) return;
   26|
   27|     const loadNotifications = async () => {
   28|       let query = supabase
   29|         .from('notifications')
   30|         .select('*')
   31|         .eq('user_id', userId)
   32|         .order('created_at', { ascending: false })
   33|         .limit(20)
   34|
   35|       if (options?.filterTypes && options.filterTypes.length > 0) {
   36|         query = query.in('type', options.filterTypes)
   37|       }
   38|
   39|       const { data } = await query
   40|       if (data) {
   41|         setNotifications(data as Notification[])
   42|         setUnreadCount(data.filter(n => !n.is_read).length)
   43|       }
   44|     }
   45|     loadNotifications()
   46|
   47|     const channel = supabase
   48|       .channel('notifications_channel')
   49|       .on('postgres_changes', {
   50|         event: 'INSERT',
   51|         schema: 'public',
   52|         table: 'notifications',
   53|         filter: `user_id=eq.${userId}`
   54|       }, (payload) => {
   55|         const newNotif = payload.new as Notification
   56|         if (options?.filterTypes && !options.filterTypes.includes(newNotif.type)) {
   57|           return
   58|         }
   59|         setNotifications(prev => [newNotif, ...prev])
   60|         setUnreadCount(prev => prev + 1)
     6 1 |                  t o a s t ( n e w N o t i f . t i t l e ,   {   i c o n :   'Ø=Ý  '   } )
   62|       })
   63|       .subscribe()
   64|
   65|     return () => {
   66|       supabase.removeChannel(channel)
   67|     }
   68|   }, [userId, supabase, options?.filterTypes?.join(',')])
   69|
   70|   const markAsRead = async (notificationId: string) => {
   71|     setNotifications(prev =>
   72|       prev.map(n => n.id === notificationId ? { ...n, is_read: true } : n)
   73|     )
   74|     setUnreadCount(prev => Math.max(0, prev - 1))
   75|     await supabase.from('notifications').update({ is_read: true }).eq('id', notificationId)
   76|   }
   77|
```

```
  78|   const markAllAsRead = async () => {
  79|     const unreadIds = notifications.filter(n => !n.is_read).map(n => n.id)
  80|     if (unreadIds.length === 0) return
  81|
  82|     setNotifications(prev => prev.map(n => ({ ...n, is_read: true })))
  83|     setUnreadCount(0)
  84|
  85|     await supabase.from('notifications')
  86|       .update({ is_read: true })
  87|       .in('id', unreadIds)
  88|   }
  89|
  90|   return { notifications, unreadCount, markAsRead, markAllAsRead }
  91| }
  92|
```

File: hooks/hooks/useSessionTimeout.ts (41 lines, 1.1 KB)

```
   1| 'use client'
   2|
   3| import { useEffect, useCallback } from 'react'
   4| import { useRouter } from 'next/navigation'
   5| import { logout } from '@/lib/auth-actions'
   6|
   7| export function useSessionTimeout(timeoutMinutes: number = 30) {
   8|   const router = useRouter()
   9|   const timeoutMs = timeoutMinutes * 60 * 1000
  10|
  11|   const handleLogout = useCallback(async () => {
  12|     await logout()
  13|     router.push('/login?session=expired')
  14|   }, [router])
  15|
  16|   useEffect(() => {
  17|     let timeoutId: NodeJS.Timeout
  18|
  19|     const resetTimer = () => {
  20|       if (timeoutId) clearTimeout(timeoutId)
  21|       timeoutId = setTimeout(handleLogout, timeoutMs)
  22|     }
  23|
  24|     // Events to reset the timer
  25|     const events = ['mousedown', 'keydown', 'scroll', 'touchstart']
  26|
  27|     events.forEach(event => {
  28|       window.addEventListener(event, resetTimer)
  29|     })
  30|
  31|     resetTimer() // Initialize timer
  32|
  33|     return () => {
  34|       if (timeoutId) clearTimeout(timeoutId)
  35|       events.forEach(event => {
  36|         window.removeEventListener(event, resetTimer)
  37|       })
  38|     }
  39|   }, [handleLogout, timeoutMs])
  40| }
  41|
```

File: hooks/useChildRealtime.ts (265 lines, 8.9 KB)

```
   1| // Path: hooks/useChildRealtime.ts
   2| 'use client'
   3| import { useEffect, useState, useCallback, useRef } from 'react'
   4| import { createClient } from '@/lib/supabase-ssr-client'
   5| import { RealtimeChannel } from '@supabase/supabase-js'
   6|
   7| export interface RecentActivity {
   8|   id: string
   9|   type: 'lesson_completed' | 'lesson_started' | 'quiz_graded' | 'login'
  10|   title: string
  11|   timestamp: string
  12|   score?: number
  13|   lessonTitle?: string
  14| }
  15|
  16| export interface ChildRealtimeData {
  17|   isOnline: boolean
  18|   lastSeen: string | null
  19|   lessonsCompleted: number
  20|   totalLessonsStarted: number
  21|   totalTimeSeconds: number
  22|   averageQuizScore: number | null
  23|   recentActivities: RecentActivity[]
  24|   connectionStatus: 'connecting' | 'connected' | 'disconnected' | 'error'
  25| }
  26|
  27| export function useChildRealtime(studentId: string | null): ChildRealtimeData {
  28|   const [data, setData] = useState<ChildRealtimeData>({
  29|     isOnline: false,
  30|     lastSeen: null,
  31|     lessonsCompleted: 0,
  32|     totalLessonsStarted: 0,
  33|     totalTimeSeconds: 0,
  34|     averageQuizScore: null,
  35|     recentActivities: [],
  36|     connectionStatus: 'connecting',
  37|   })
  38|
  39|   const channelRef = useRef<RealtimeChannel | null>(null)
  40|   const supabase = createClient()
  41|
  42|   // Fetch initial data
  43|   const fetchInitialData = useCallback(async () => {
  44|     if (!studentId) return
  45|
  46|     setData(prev => ({ ...prev, connectionStatus: 'connecting' }))
  47|
  48|     try {
  49|       const [progressRes, quizRes, profileRes] = await Promise.all([
  50|         supabase
  51|           .from('lesson_progress')
  52|           .select('status, time_spent_seconds, completed_at, last_accessed')
  53|           .eq('student_id', studentId)
  54|           .order('last_accessed', { ascending: false }),
  55|         supabase
  56|           .from('quiz_attempts')
  57|           .select('score, max_score, submitted_at, quiz_title, status')
  58|           .eq('student_id', studentId)
  59|           .eq('status', 'graded')
```

```
60|           .order('submitted_at', { ascending: false })
61|           .limit(10),
62|         supabase
63|           .from('profiles')
64|           .select('is_online, last_seen_at')
65|           .eq('id', studentId)
66|           .single(),
67|       ])
68|
69|       const progress = progressRes.data ?? []
70|       const quizzes = quizRes.data ?? []
71|       const profile = profileRes.data
72|
73|       const completed = progress.filter(p => p.status === 'completed')
74|       const totalTime = progress.reduce((sum, p) => sum + (p.time_spent_seconds ?? 0), 0)
75|       const avgScore = quizzes.length > 0
76|         ? quizzes.reduce((sum, q) => sum + (Number(q.score) ?? 0), 0) / quizzes.length
77|         : null
78|
79|       // Build recent activities list
80|       const activities: RecentActivity[] = []
81|
82|       // From lesson progress (last 5 completed/active)
83|       progress.forEach(p => {
84|         if (p.status === 'completed' && p.completed_at) {
85|           activities.push({
86|             id: `lesson-${p.completed_at}`,
87|             type: 'lesson_completed',
    8 8 |                         t i t l e :   ' H o à n   t h à n h   b à i   h Í c ' ,
89|             timestamp: p.completed_at,
90|           })
91|         } else if (p.status === 'in_progress' && p.last_accessed) {
92|           activities.push({
93|             id: `lesson-started-${p.last_accessed}`,
94|             type: 'lesson_started',
    9 5 |                         t i t l e :   '   a n g   h Í c   b à i ' ,
96|             timestamp: p.last_accessed,
97|           })
98|         }
99|       })
100|
101|       // From quiz attempts (last 5 graded)
102|       quizzes.forEach(q => {
103|         if (q.submitted_at) {
104|           activities.push({
105|             id: `quiz-${q.submitted_at}`,
106|             type: 'quiz_graded',
   1 0 7 |                         t i t l e :   ` K ¿ t   q u £ :   $ { q . q u i z _ t i t l e } ` ,
108|             timestamp: q.submitted_at,
109|             score: Number(q.score) ?? 0,
110|           })
111|         }
112|       })
113|
114|       // Sort activities descending by timestamp
115|       activities.sort((a, b) =>
116|         new Date(b.timestamp).getTime() - new Date(a.timestamp).getTime()
117|       )
118|
119|       setData({
120|         isOnline: profile?.is_online ?? false,
121|         lastSeen: profile?.last_seen_at ?? null,
122|         lessonsCompleted: completed.length,
123|         totalLessonsStarted: progress.length,
124|         totalTimeSeconds: totalTime,
125|         averageQuizScore: avgScore,
126|         recentActivities: activities.slice(0, 8),
127|         connectionStatus: 'connecting', // will update after WebSocket connects
128|       })
129|     } catch (err) {
130|       console.error('Error fetching initial data:', err)
131|       setData(prev => ({ ...prev, connectionStatus: 'error' }))
132|     }
133|   }, [studentId])
134|
135|   useEffect(() => {
136|     if (!studentId) {
137|       setData({
138|         isOnline: false,
139|         lastSeen: null,
140|         lessonsCompleted: 0,
141|         totalLessonsStarted: 0,
142|         totalTimeSeconds: 0,
143|         averageQuizScore: null,
144|         recentActivities: [],
145|         connectionStatus: 'disconnected',
146|       })
147|       return
148|     }
149|
150|     fetchInitialData()
151|
152|     // 1. Create a specific child monitoring realtime channel
153|     const channelName = `parent-watch-${studentId}`
154|     const channel = supabase.channel(channelName)
155|
156|     channelRef.current = channel
157|
158|     // 2. Subscribe to lesson_progress table changes
159|     channel
160|       .on('postgres_changes', {
161|         event: '*',
162|         schema: 'public',
163|         table: 'lesson_progress',
164|         filter: `student_id=eq.${studentId}`,
165|       }, (payload) => {
166|         if (payload.eventType === 'UPDATE' || payload.eventType === 'INSERT') {
167|           const record = payload.new as any
168|
169|           setData(prev => {
170|             const isComp = record.status === 'completed'
171|             const newActivity: RecentActivity = {
172|               id: `lesson-${record.lesson_id}-${Date.now()}`,
173|               type: isComp ? 'lesson_completed' : 'lesson_started',
   1 7 4 |                         t i t l e :   i s C o m p   ?   ' H o à n   t h à n h   b à i   h Í c '   :   '   a n g   h Í c   b à i ' ,
175|               timestamp: new Date().toISOString(),
176|             }
177|
178|             // Recalculate lessons completed & started
179|             const completedCount = isComp ? prev.lessonsCompleted + 1 : prev.lessonsCompleted
180|
181|             return {
182|               ...prev,
183|               lessonsCompleted: completedCount,
```

```
184|               totalTimeSeconds: prev.totalTimeSeconds + (record.time_spent_seconds ?? 0),
185|               recentActivities: [newActivity, ...prev.recentActivities].slice(0, 8),
186|             }
187|           })
188|         }
189|       })
190|
191|       // 3. Subscribe to quiz_attempts table changes (when graded)
192|       .on('postgres_changes', {
193|         event: '*',
194|         schema: 'public',
195|         table: 'quiz_attempts',
196|         filter: `student_id=eq.${studentId}`,
197|       }, (payload) => {
198|         if (payload.eventType === 'UPDATE' || payload.eventType === 'INSERT') {
199|           const record = payload.new as any
200|           if (record.status === 'graded') {
201|             setData(prev => {
202|               const newActivity: RecentActivity = {
203|                 id: `quiz-${record.id}-${Date.now()}`,
204|                 type: 'quiz_graded',
2 0 5 |                                 t i t l e :   ` K ¿ t   q u £ :   $ { r e c o r d . q u i z _ t i t l e } ` ,
206|                 timestamp: record.submitted_at ?? new Date().toISOString(),
207|                 score: Number(record.score) ?? 0,
208|               }
209|
210|               // Recalculate average quiz score
211|               const currentQuizActivities = prev.recentActivities.filter(a => a.type === 'quiz_graded')
212|               const scores = currentQuizActivities.map(a => a.score ?? 0)
213|               scores.unshift(Number(record.score) ?? 0)
214|               const avgScore = scores.reduce((s, sc) => s + sc, 0) / scores.length
215|
216|               return {
217|                 ...prev,
218|                 averageQuizScore: avgScore,
219|                 recentActivities: [newActivity, ...prev.recentActivities].slice(0, 8),
220|               }
221|             })
222|           }
223|         }
224|       })
225|
226|       // 4. Subscribe to profile table changes (online / active state)
227|       .on('postgres_changes', {
228|         event: 'UPDATE',
229|         schema: 'public',
230|         table: 'profiles',
231|         filter: `id=eq.${studentId}`,
232|       }, (payload) => {
233|         const record = payload.new as any
234|         setData(prev => ({
235|           ...prev,
236|           isOnline: record.is_online ?? false,
237|           lastSeen: record.last_seen_at ?? prev.lastSeen,
238|         }))
239|       })
240|
241|       // 5. Connect and subscribe to channel updates
242|       .subscribe((status) => {
243|         if (status === 'SUBSCRIBED') {
244|           setData(prev => ({ ...prev, connectionStatus: 'connected' }))
245|         } else if (status === 'CHANNEL_ERROR') {
246|           setData(prev => ({ ...prev, connectionStatus: 'error' }))
247|         } else if (status === 'CLOSED') {
248|           setData(prev => ({ ...prev, connectionStatus: 'disconnected' }))
249|         } else {
250|           setData(prev => ({ ...prev, connectionStatus: 'connecting' }))
251|         }
252|       })
253|
254|     // 6. Cleanup channel on unmount or child selection change (Channel Cleanup Rule)
255|     return () => {
256|       if (channelRef.current) {
257|         supabase.removeChannel(channelRef.current)
258|         channelRef.current = null
259|       }
260|     }
261|   }, [studentId, fetchInitialData])
262|
263|   return data
264| }
265|
```

File: hooks/useClassroomUpdates.ts (49 lines, 1.2 KB)

```
1| 'use client';
2|
3| import { useEffect, useState } from 'react';
4| import { createClient } from '@/lib/supabase-ssr-client';
5|
6| export function useClassroomUpdates(teacherId: string) {
7|   const [lastUpdate, setLastUpdate] = useState<Date | null>(null);
8|   const supabase = createClient();
9|
10|   useEffect(() => {
11|     if (!teacherId) return;
12|
13|     // 1. Subscribe to quiz attempts
14|     const quizChannel = supabase
15|       .channel('classroom-updates')
16|       .on(
17|         'postgres_changes',
18|         {
19|           event: '*',
20|           schema: 'public',
21|           table: 'quiz_attempts',
22|         },
23|         (payload) => {
24|           console.log('Real-time Quiz Update:', payload);
25|           setLastUpdate(new Date());
26|         }
27|       )
28|       .on(
29|         'postgres_changes',
30|         {
31|           event: '*',
32|           schema: 'public',
33|           table: 'lesson_progress',
34|         },
35|         (payload) => {
36|           console.log('Real-time Progress Update:', payload);
37|           setLastUpdate(new Date());
38|         }
```

```
  39|       )
  40|       .subscribe();
  41|
  42|     return () => {
  43|       supabase.removeChannel(quizChannel);
  44|     };
  45|   }, [teacherId, supabase]);
  46|
  47|   return { lastUpdate };
  48| }
  49|
```

File: hooks/useComponentUpdates.ts (105 lines, 3.3 KB)

```
   1| 'use client';
   2|
   3| import { useEffect, useCallback } from 'react';
   4| import toast from 'react-hot-toast';
   5| import { createClient } from '@/lib/supabase-client';
   6|
   7| interface UseComponentUpdatesOptions {
   8|   onComponentPublished?: (component: any) => void;
   9|   onComponentUpdated?: (component: any) => void;
  10|   onComponentDeleted?: (componentId: string) => void;
  11| }
  12|
  13| export function useComponentUpdates(options: UseComponentUpdatesOptions = {}) {
  14|   const subscribeToComponents = useCallback(() => {
  15|     const supabase = createClient();
  16|     const channel = supabase
  17|       .channel('components-updates')
  18|       .on(
  19|         'postgres_changes',
  20|         { event: 'INSERT', schema: 'public', table: 'components', filter: 'is_published=eq.true' },
  21|         (payload) => {
  22|           const { new: newComponent } = payload;
  23|           toast.success(`New component published: ${newComponent.name}`, {
  24|             duration: 5000,
     2 5 |                           i c o n :   'Ø<Ý• ' ,
  26|           });
  27|           options.onComponentPublished?.(newComponent);
  28|         }
  29|       )
  30|       .on(
  31|         'postgres_changes',
  32|         { event: 'UPDATE', schema: 'public', table: 'components' },
  33|         (payload) => {
  34|           const { new: updatedComponent } = payload;
  35|           if (updatedComponent.is_published) {
  36|             toast(`Component specs updated: ${updatedComponent.name}`, {
  37|               duration: 5000,
     3 8 |                           i c o n :   'Ø=ÜÝ ' ,
  39|             });
  40|             options.onComponentUpdated?.(updatedComponent);
  41|           }
  42|         }
  43|       )
  44|       .on(
  45|         'postgres_changes',
  46|         { event: 'DELETE', schema: 'public', table: 'components' },
  47|         (payload) => {
  48|           const { old: oldComponent } = payload;
  49|           toast.error(`Component removed: ${oldComponent.name}`, {
  50|             duration: 5000,
     5 1 |                           i c o n :   'Ø=ÝÑþ  ' ,
  52|           });
  53|           options.onComponentDeleted?.(oldComponent.id);
  54|         }
  55|       )
  56|       .subscribe();
  57|
  58|     return () => {
  59|       supabase.removeChannel(channel);
  60|     };
  61|   }, [options]);
  62|
  63|   useEffect(() => {
  64|     const unsubscribe = subscribeToComponents();
  65|     return unsubscribe;
  66|   }, [subscribeToComponents]);
  67| }
  68|
  69| export function useComponentLock(componentId: string | null) {
  70|   const lockComponent = useCallback(async (userId: string) => {
  71|     if (!componentId) return false;
  72|     const res = await fetch('/api/components/lock', {
  73|       method: 'POST',
  74|       headers: { 'Content-Type': 'application/json' },
  75|       body: JSON.stringify({ componentId, userId, action: 'lock' }),
  76|     });
  77|     const data = await res.json();
  78|     if (!data.locked) {
  79|       toast.error(`${data.message}: ${data.lockedBy}`, { duration: 4000 });
  80|       return false;
  81|     }
  82|     return true;
  83|   }, [componentId]);
  84|
  85|   const releaseLock = useCallback(async (userId: string) => {
  86|     if (!componentId) return;
  87|     await fetch('/api/components/lock', {
  88|       method: 'POST',
  89|       headers: { 'Content-Type': 'application/json' },
  90|       body: JSON.stringify({ componentId, userId, action: 'release' }),
  91|     });
  92|   }, [componentId]);
  93|
  94|   const heartbeat = useCallback(async (userId: string) => {
  95|     if (!componentId) return;
  96|     await fetch('/api/components/lock', {
  97|       method: 'POST',
  98|       headers: { 'Content-Type': 'application/json' },
  99|       body: JSON.stringify({ componentId, userId, action: 'heartbeat' }),
 100|     });
 101|   }, [componentId]);
 102|
 103|   return { lockComponent, releaseLock, heartbeat };
 104| }
 105|
```

File: hooks/useDiscussion.ts (219 lines, 5.9 KB)

```
==========================================================================================
'use client'

import { useState, useEffect } from 'react'
import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'

export type Thread = {
  id: string
  lesson_id: string
  author_id: string
  title: string
  body: string
  type: 'question' | 'discussion' | 'announcement'
  status: 'open' | 'resolved' | 'pinned' | 'closed'
  upvote_count: number
  reply_count: number
  is_deleted: boolean
  created_at: string
  updated_at: string
  author?: {
    full_name: string
    avatar_url: string
    role: string
  }
}

export type Reply = {
  id: string
  thread_id: string
  parent_reply_id: string | null
  author_id: string
  body: string
  is_teacher_answer: boolean
  upvote_count: number
  is_deleted: boolean
  created_at: string
  author?: {
    full_name: string
    avatar_url: string
    role: string
  }
}

export function useDiscussion(lessonId: string, activeTab: 'all' | 'unanswered' | 'pinned') {
  const [threads, setThreads] = useState<Thread[]>([])
  const [isLoading, setIsLoading] = useState(true)
  const supabase = createClientComponentClient()

  useEffect(() => {
    const fetchThreads = async () => {
      setIsLoading(true)
      let query = supabase
        .from('discussion_threads')
        .select(`
          *,
          author:profiles(full_name, avatar_url, role)
        `)
        .eq('lesson_id', lessonId)
        .eq('is_deleted', false)

      if (activeTab === 'pinned') {
        query = query.eq('status', 'pinned')
      } else if (activeTab === 'unanswered') {
        query = query.eq('reply_count', 0)
      }

      const { data, error } = await query.order('created_at', { ascending: false })
      if (!error && data) {
        setThreads(data as any[])
      }
      setIsLoading(false)
    }

    fetchThreads()

    // Realtime channel for new threads
    const channel = supabase
      .channel(`lesson-discussion-${lessonId}`)
      .on('postgres_changes', {
        event: '*',
        schema: 'public',
        table: 'discussion_threads',
        filter: `lesson_id=eq.${lessonId}`
      }, () => {
        fetchThreads()
      })
      .subscribe()

    return () => {
      supabase.removeChannel(channel)
    }
  }, [lessonId, activeTab, supabase])

  const createThread = async (title: string, body: string, type: string, authorId: string) => {
    // Basic Rate Limit Check (5 threads per hour)
    const oneHourAgo = new Date(Date.now() - 3600000).toISOString()
    const { count } = await supabase
      .from('discussion_threads')
      .select('id', { count: 'exact', head: true })
      .eq('author_id', authorId)
      .gt('created_at', oneHourAgo)

    if (count !== null && count >= 5) {
      throw new Error('Bạn đã gửi hơn 5 bài viết mới gần đây.')
    }

    const { data, error } = await supabase
      .from('discussion_threads')
      .insert({
        lesson_id: lessonId,
        author_id: authorId,
        title,
        body,
        type
      })
      .select()
      .single()

    if (error) throw error
    return data
  }

  return { threads, isLoading, createThread }
}
```

```
export function useThreadReplies(threadId: string) {
  const [replies, setReplies] = useState<Reply[]>([])
  const supabase = createClientComponentClient()

  useEffect(() => {
    const fetchReplies = async () => {
      const { data, error } = await supabase
        .from('discussion_replies')
        .select(`
          *,
          author:profiles(full_name, avatar_url, role)
        `)
        .eq('thread_id', threadId)
        .eq('is_deleted', false)
        .order('created_at', { ascending: true })

      if (!error && data) {
        setReplies(data as any[])
      }
    }

    fetchReplies()

    // Realtime replies subscription
    const channel = supabase
      .channel(`thread-replies-${threadId}`)
      .on('postgres_changes', {
        event: 'INSERT',
        schema: 'public',
        table: 'discussion_replies',
        filter: `thread_id=eq.${threadId}`
      }, (payload) => {
        const fetchNewReplyAuthor = async () => {
          const { data } = await supabase
            .from('profiles')
            .select('full_name, avatar_url, role')
            .eq('id', payload.new.author_id)
            .single()

          const newReply: Reply = {
            ...(payload.new as Reply),
          author: data || { full_name: '¨n danh', avatar_url: '', role
          }
          setReplies(prev => [...prev, newReply])
        }
        fetchNewReplyAuthor()
      })
      .subscribe()

    return () => {
      supabase.removeChannel(channel)
    }
  }, [threadId, supabase])

  const addReply = async (body: string, authorId: string, parentReplyId: string | null = null) => {
    // Rate limit check (20 replies per hour)
    const oneHourAgo = new Date(Date.now() - 3600000).toISOString()
    const { count } = await supabase
      .from('discussion_replies')
      .select('id', { count: 'exact', head: true })
      .eq('author_id', authorId)
      .gt('created_at', oneHourAgo)

    if (count !== null && count >= 20) {
      throw new Error('Bµn ãµ giÛi hµn 20 bình luªn mªi giÝ.')
    }

    // Check if author is teacher
    const { data: profile } = await supabase
      .from('profiles')
      .select('role')
      .eq('id', authorId)
      .single()

    const isTeacher = profile?.role === 'teacher'

    const { data, error } = await supabase
      .from('discussion_replies')
      .insert({
        thread_id: threadId,
        parent_reply_id: parentReplyId,
        author_id: authorId,
        body,
        is_teacher_answer: isTeacher
      })
      .select()
      .single()

    if (error) throw error
    return data
  }

  return { replies, addReply }
}
```

File: hooks/useIsMobile.ts (17 lines, 0.4 KB)

```
'use client'

import { useState, useEffect } from 'react'

export function useIsMobile(breakpoint = 768) {
  const [isMobile, setIsMobile] = useState(false)

  useEffect(() => {
    const check = () => setIsMobile(window.innerWidth < breakpoint)
    check()
    window.addEventListener('resize', check)
    return () => window.removeEventListener('resize', check)
  }, [breakpoint])

  return isMobile
}
```

File: hooks/useNotifications.ts (92 lines, 2.6 KB)

```
'use client'
```

```
    3| import { useState, useEffect } from 'react'
    4| import { createClientComponentClient } from '@supabase/auth-helpers-nextjs'
    5| import { toast } from 'react-hot-toast'
    6|
    7| export type Notification = {
    8|   id: string
    9|   user_id: string
   10|   type: string
   11|   title: string
   12|   body: string
   13|   data: any
   14|   action_url: string
   15|   is_read: boolean
   16|   created_at: string
   17| }
   18|
   19| export function useNotifications(userId?: string, options?: { filterTypes?: string[] }) {
   20|   const [notifications, setNotifications] = useState<Notification[]>([])
   21|   const [unreadCount, setUnreadCount] = useState(0)
   22|   const supabase = createClientComponentClient()
   23|
   24|   const filterTypesStr = options?.filterTypes?.join(',') || ''
   25|
   26|   useEffect(() => {
   27|     if (!userId) return;
   28|
   29|     const loadNotifications = async () => {
   30|       let query = supabase
   31|         .from('notifications')
   32|         .select('*')
   33|         .eq('user_id', userId)
   34|
   35|       if (options?.filterTypes && options.filterTypes.length > 0) {
   36|         query = query.in('type', options.filterTypes)
   37|       }
   38|
   39|       const { data } = await query
   40|         .order('created_at', { ascending: false })
   41|         .limit(20)
   42|
   43|       if (data) {
   44|         setNotifications(data as Notification[])
   45|         setUnreadCount(data.filter(n => !n.is_read).length)
   46|       }
   47|     }
   48|     loadNotifications()
   49|
   50|     const channel = supabase
   51|       .channel('notifications_channel')
   52|       .on('postgres_changes', {
   53|         event: 'INSERT',
   54|         schema: 'public',
   55|         table: 'notifications',
   56|         filter: `user_id=eq.${userId}`
   57|       }, (payload) => {
   58|         const newNotif = payload.new as Notification
   59|         setNotifications(prev => [newNotif, ...prev])
   60|         setUnreadCount(prev => prev + 1)
      6 1 |                  t o a s t ( n e w N o t i f . t i t l e ,   {   i c o n :   'Ø=Ý  '   } )
   62|       })
   63|       .subscribe()
   64|
   65|     return () => {
   66|       supabase.removeChannel(channel)
   67|     }
   68|   }, [userId, supabase, filterTypesStr])
   69|
   70|   const markAsRead = async (notificationId: string) => {
   71|     setNotifications(prev =>
   72|       prev.map(n => n.id === notificationId ? { ...n, is_read: true } : n)
   73|     )
   74|     setUnreadCount(prev => Math.max(0, prev - 1))
   75|     await supabase.from('notifications').update({ is_read: true }).eq('id', notificationId)
   76|   }
   77|
   78|   const markAllAsRead = async () => {
   79|     const unreadIds = notifications.filter(n => !n.is_read).map(n => n.id)
   80|     if (unreadIds.length === 0) return
   81|
   82|     setNotifications(prev => prev.map(n => ({ ...n, is_read: true })))
   83|     setUnreadCount(0)
   84|
   85|     await supabase.from('notifications')
   86|       .update({ is_read: true })
   87|       .in('id', unreadIds)
   88|   }
   89|
   90|   return { notifications, unreadCount, markAsRead, markAllAsRead }
   91| }
   92|
```

File: hooks/useParentNotifications.ts (161 lines, 5.0 KB)

```
    1| // Path: hooks/useParentNotifications.ts
    2| 'use client'
    3| import { useEffect, useState, useRef } from 'react'
    4| import { RealtimeChannel } from '@supabase/supabase-js'
    5|
    6| export interface NotificationData {
    7|   id: string
    8|   user_id: string
    9|   type: string
   10|   title: string
   11|   body: string
   12|   data: any
   13|   action_url: string | null
   14|   is_read: boolean
   15|   created_at: string
   16| }
   17|
   18| export function useParentNotifications(parentId: string | null) {
   19|   const [notifications, setNotifications] = useState<NotificationData[]>([])
   20|   const [unreadCount, setUnreadCount] = useState(0)
   21|   const [supabase, setSupabase] = useState<any>(null)
   22|   const channelRef = useRef<RealtimeChannel | null>(null)
   23|
   24|   useEffect(() => {
   25|     import('@/lib/supabase-ssr-client').then(m => setSupabase(m.createClient()))
   26|   }, [])
   27|
   28|   // Fetch initial notifications
   29|   useEffect(() => {
   30|     if (!parentId || !supabase) return
```

```
31|
32|     async function fetchNotifications() {
33|       try {
34|         const { data, error } = await supabase
35|           .from('notifications')
36|           .select('*')
37|           .eq('user_id', parentId)
38|           .order('created_at', { ascending: false })
39|           .limit(20)
40|
41|         if (error) throw error
42|
43|         const list = data ?? []
44|         setNotifications(list)
45|         setUnreadCount(list.filter(n => !n.is_read).length)
46|       } catch (err) {
47|         console.error('Error fetching initial notifications:', err)
48|       }
49|     }
50|
51|     fetchNotifications()
52|   }, [parentId])
53|
54|   // Subscribe to real-time notification changes
55|   useEffect(() => {
56|     if (!parentId || !supabase) return
57|
58|     const channelName = `parent-notif-${parentId}`
59|     const channel = supabase.channel(channelName)
60|     channelRef.current = channel
61|
62|     channel
63|       .on('postgres_changes', {
64|         event: '*',
65|         schema: 'public',
66|         table: 'notifications',
67|         filter: `user_id=eq.${parentId}`,
68|       }, (payload) => {
69|         if (payload.eventType === 'INSERT') {
70|           const newNotif = payload.new as NotificationData
71|
72|           // Play warning sound or trigger vibration for alert events (like child low score)
73|           try {
74|             if (newNotif.type === 'child_low_score') {
75|               // Trigger browser vibration API
76|               if (typeof window !== 'undefined' && navigator.vibrate) {
77|                 navigator.vibrate([200, 100, 200])
78|               }
79|               // Play a quick warning alert sound
80|               const audioCtx = new (window.AudioContext || (window as any).webkitAudioContext)()
81|               const osc = audioCtx.createOscillator()
82|               const gain = audioCtx.createGain()
83|               osc.type = 'sine'
84|               osc.frequency.setValueAtTime(300, audioCtx.currentTime) // Low warning beep
85|               gain.gain.setValueAtTime(0.1, audioCtx.currentTime)
86|               osc.connect(gain)
87|               gain.connect(audioCtx.destination)
88|               osc.start()
89|               osc.stop(audioCtx.currentTime + 0.3)
90|             }
91|           } catch (soundErr) {
92|             console.warn('AudioContext sound failed to play:', soundErr)
93|           }
94|
95|           setNotifications(prev => [newNotif, ...prev])
96|           setUnreadCount(prev => prev + 1)
97|         } else if (payload.eventType === 'UPDATE') {
98|           const updatedNotif = payload.new as NotificationData
99|           setNotifications(prev =>
100|             prev.map(n => n.id === updatedNotif.id ? updatedNotif : n)
101|           )
102|           // Recalculate unread count
103|           setNotifications(prev => {
104|             const list = prev.map(n => n.id === updatedNotif.id ? updatedNotif : n)
105|             setUnreadCount(list.filter(n => !n.is_read).length)
106|             return list
107|           })
108|         }
109|       })
110|       .subscribe()
111|
112|     return () => {
113|       if (channelRef.current) {
114|         supabase.removeChannel(channelRef.current)
115|         channelRef.current = null
116|       }
117|     }
118|   }, [parentId])
119|
120|   // Mark all notifications as read
121|   const markAllAsRead = async () => {
122|     if (!parentId || !supabase) return
123|     try {
124|       const { error } = await supabase
125|         .from('notifications')
126|         .update({ is_read: true })
127|         .eq('user_id', parentId)
128|         .eq('is_read', false)
129|
130|       if (error) throw error
131|
132|       setNotifications(prev => prev.map(n => ({ ...n, is_read: true })))
133|       setUnreadCount(0)
134|     } catch (err) {
135|       console.error('Error marking notifications as read:', err)
136|     }
137|   }
138|
139|   // Mark single notification as read
140|   const markAsRead = async (notificationId: string) => {
141|     if (!supabase) return
142|     try {
143|       const { error } = await supabase
144|         .from('notifications')
145|         .update({ is_read: true })
146|         .eq('id', notificationId)
147|
148|       if (error) throw error
149|
150|       setNotifications(prev =>
151|         prev.map(n => n.id === notificationId ? { ...n, is_read: true } : n)
152|       )
153|       setUnreadCount(prev => Math.max(0, prev - 1))
154|     } catch (err) {
```

```
  155|       console.error('Error marking notification as read:', err)
  156|     }
  157|   }
  158|
  159|   return { notifications, unreadCount, markAllAsRead, markAsRead }
  160| }
  161|
```

File: hooks/useProctorEngine.ts (435 lines, 14.5 KB)

```
    1| 'use client'
    2|
    3| import { useState, useEffect, useRef, useCallback } from 'react'
    4| import { supabase } from '@/lib/supabase'
    5|
    6| const SNAPSHOT_INTERVAL = 60000
    7| const FACE_CHECK_INTERVAL = 1500
    8| const AUDIO_CHECK_INTERVAL = 3000
    9| const IDLE_CHECK_INTERVAL = 5000
   10| const SCREEN_REC_CHECK_INTERVAL = 30000
   11| const MAX_VIOLATIONS = 5
   12| const IDLE_THRESHOLD = 30
   13| const AUDIO_THRESHOLD = 0.15
   14| const GAZE_YAW_THRESHOLD = 0.4
   15| const GAZE_PITCH_THRESHOLD = 0.35
   16|
   17| export type ViolationType = 'tab_switch' | 'fullscreen_exit' | 'face_not_visible' | 'multiple_faces' | 'lookin...
   18|
   19| export interface ProctorState {
   20|   status: 'idle' | 'loading' | 'active' | 'error'
   21|   faceDetected: boolean
   22|   faceMatch: boolean
   23|   multipleFaces: boolean
   24|   lookingAway: boolean
   25|   violations: number
   26|   maxViolations: number
   27|   cameraError: string | null
   28|   stream: MediaStream | null
   29|   identityCapture: string | null
   30|   gazeDirection: { yaw: number; pitch: number }
   31|   audioLevel: number
   32|   isIdle: boolean
   33|   idleTime: number
   34| }
   35|
   36| interface ProctorOptions {
   37|   examId: string
   38|   attemptId: string
   39|   identityPhoto?: string | null
   40|   onViolation?: (type: ViolationType) => void
   41|   onMaxViolations?: () => void
   42| }
   43|
   44| const FACE_LANDMARKER_URL = 'https://storage.googleapis.com/mediapipe-models/face_landmarker/face_landmarker/f...
   45| const WASM_BASE = 'https://cdn.jsdelivr.net/npm/@mediapipe/tasks-vision@0.10.32/wasm'
   46|
   47| export function useProctorEngine({ examId, attemptId, identityPhoto, onViolation, onMaxViolations }: ProctorOp...
   48|   const [state, setState] = useState<ProctorState>({
   49|     status: 'idle',
   50|     faceDetected: false,
   51|     faceMatch: false,
   52|     multipleFaces: false,
   53|     lookingAway: false,
   54|     violations: 0,
   55|     maxViolations: MAX_VIOLATIONS,
   56|     cameraError: null,
   57|     stream: null,
   58|     identityCapture: null,
   59|     gazeDirection: { yaw: 0, pitch: 0 },
   60|     audioLevel: 0,
   61|     isIdle: false,
   62|     idleTime: 0,
   63|   })
   64|
   65|   const videoRef = useRef<HTMLVideoElement>(null)
   66|   const canvasRef = useRef<HTMLCanvasElement>(null)
   67|   const streamRef = useRef<MediaStream | null>(null)
   68|   const landmarkerRef = useRef<any>(null)
   69|   const faceCheckTimerRef = useRef<any>(null)
   70|   const snapshotTimerRef = useRef<any>(null)
   71|   const mountedRef = useRef(true)
   72|   const violationCountRef = useRef(0)
   73|
   74|   const audioContextRef = useRef<AudioContext | null>(null)
   75|   const analyserRef = useRef<AnalyserNode | null>(null)
   76|   const audioDataRef = useRef<Uint8Array<ArrayBuffer> | null>(null)
   77|   const idleTimeRef = useRef<number>(0)
   78|   const audioCheckTimerRef = useRef<any>(null)
   79|   const idleCheckTimerRef = useRef<any>(null)
   80|   const lastActivityRef = useRef<number>(Date.now())
   81|   const activityHandlerRef = useRef<(() => void) | null>(null)
   82|   const screenRecCheckTimerRef = useRef<any>(null)
   83|   const vmCheckedRef = useRef<boolean>(false)
   84|
   85|   const capturePhoto = useCallback(() => {
   86|     if (videoRef.current && canvasRef.current) {
   87|       const ctx = canvasRef.current.getContext('2d')
   88|       if (ctx) {
   89|         ctx.drawImage(videoRef.current, 0, 0, 320, 240)
   90|         return canvasRef.current.toDataURL('image/png')
   91|       }
   92|     }
   93|     return null
   94|   }, [])
   95|
   96|   const recordViolation = useCallback(async (type: ViolationType, data?: string) => {
   97|     if (!mountedRef.current) return
   98|     violationCountRef.current += 1
   99|
  100|     setState(prev => ({ ...prev, violations: violationCountRef.current }))
  101|
  102|     const snapshot = capturePhoto()
  103|     const violationData = {
  104|       type,
  105|       message: data || `Vi pham lan ${violationCountRef.current}`,
  106|       snapshot: snapshot || null,
  107|       violationCount: violationCountRef.current,
  108|     }
  109|
  110|     supabase.from('exam_logs').insert({
  111|       exam_id: examId,
  112|       attempt_id: attemptId,
  113|       event_type: type,
```

```
114|       event_data: JSON.stringify(violationData),
115|       created_at: new Date().toISOString(),
116|     }).then()
117|
118|     onViolation?.(type)
119|
120|     if (violationCountRef.current >= MAX_VIOLATIONS) {
121|       onMaxViolations?.()
122|     }
123|   }, [examId, attemptId, capturePhoto, onViolation, onMaxViolations])
124|
125|   const startCamera = useCallback(async () => {
126|     try {
127|       setState(prev => ({ ...prev, status: 'loading', cameraError: null }))
128|       let stream: MediaStream
129|       try {
130|         stream = await navigator.mediaDevices.getUserMedia({
131|           video: { width: { ideal: 240 }, height: { ideal: 180 }, facingMode: 'user', frameRate: { ideal: 15 } },
132|           audio: true,
133|         })
134|       } catch {
135|         stream = await navigator.mediaDevices.getUserMedia({
136|           video: { width: { ideal: 240 }, height: { ideal: 180 }, facingMode: 'user', frameRate: { ideal: 15 } },
137|         })
138|       }
139|       if (!mountedRef.current) { stream.getTracks().forEach(t => t.stop()); return }
140|       streamRef.current = stream
141|       if (videoRef.current) {
142|         videoRef.current.srcObject = stream
143|         await videoRef.current.play()
144|       }
145|       setState(prev => ({ ...prev, status: 'active', stream }))
146|       return stream
147|     } catch (err: any) {
148|       const msg = err.name === 'NotAllowedError'
149|         ? 'Ban da tu choi quyen Camera. Vui long cho phep Camera trong trinh duyet!'
150|         : err.name === 'NotFoundError'
151|           ? 'Khong tim thay Webcam. Vui long ket noi Webcam va thu lai.'
152|           : 'Loi camera: ' + (err.message || 'Loi khong xac dinh')
153|       setState(prev => ({ ...prev, status: 'error', cameraError: msg }))
154|       return null
155|     }
156|   }, [])
157|
158|   const stopCamera = useCallback(() => {
159|     if (streamRef.current) {
160|       streamRef.current.getTracks().forEach(t => t.stop())
161|       streamRef.current = null
162|     }
163|     setState(prev => ({ ...prev, stream: null, status: 'idle' }))
164|   }, [])
165|
166|   const initMediaPipe = useCallback(async () => {
167|     try {
168|       const { FilesetResolver, FaceLandmarker } = await import('@mediapipe/tasks-vision')
169|       const vision = await FilesetResolver.forVisionTasks(WASM_BASE)
170|       const landmarker = await FaceLandmarker.createFromOptions(vision, {
171|         baseOptions: { modelAssetPath: FACE_LANDMARKER_URL, delegate: 'GPU' },
172|         runningMode: 'VIDEO',
173|         numFaces: 2,
174|         outputFaceBlendshapes: false,
175|       })
176|       if (mountedRef.current) landmarkerRef.current = landmarker
177|     } catch (e) {
178|       console.warn('MediaPipe init failed, falling back to canvas detection:', e)
179|     }
180|   }, [])
181|
182|   const detectFace = useCallback(() => {
183|     if (!videoRef.current || !canvasRef.current) return { face: false, multiple: false, yaw: 0, pitch: 0 }
184|     const video = videoRef.current
185|     const canvas = canvasRef.current
186|     const ctx = canvas.getContext('2d')
187|     if (!ctx) return { face: false, multiple: false, yaw: 0, pitch: 0 }
188|
189|     const w = video.videoWidth || 240
190|     const h = video.videoHeight || 180
191|     canvas.width = w
192|     canvas.height = h
193|     ctx.drawImage(video, 0, 0, w, h)
194|     const imageData = ctx.getImageData(0, 0, w, h)
195|     const data = imageData.data
196|     let skinPixels = 0
197|     const total = data.length / 4
198|     for (let i = 0; i < data.length; i += 16) {
199|       const r = data[i], g = data[i + 1], b = data[i + 2]
200|       if (r > 95 && g > 40 && b > 20 && r > g && r > b && Math.abs(r - g) > 15) skinPixels++
201|     }
202|     const ratio = skinPixels / (total / 4)
203|     return { face: ratio > 0.05, multiple: false, yaw: 0, pitch: 0 }
204|   }, [])
205|
206|   const setupAudioDetection = useCallback(() => {
207|     const stream = streamRef.current
208|     if (!stream) return
209|     try {
210|       const audioTrack = stream.getAudioTracks()[0]
211|       if (!audioTrack) return
212|
213|       const audioContext = new AudioContext()
214|       const source = audioContext.createMediaStreamSource(stream)
215|       const analyser = audioContext.createAnalyser()
216|       analyser.fftSize = 256
217|       source.connect(analyser)
218|
219|       audioContextRef.current = audioContext
220|       analyserRef.current = analyser
221|       audioDataRef.current = new Uint8Array(analyser.frequencyBinCount) as Uint8Array<ArrayBuffer>
222|
223|       audioCheckTimerRef.current = setInterval(() => {
224|         if (!analyserRef.current || !audioDataRef.current) return
225|         analyserRef.current.getByteFrequencyData(audioDataRef.current)
226|         const sum = audioDataRef.current.reduce((a, b) => a + b, 0)
227|         const average = sum / audioDataRef.current.length
228|         const level = average / 255
229|
230|         setState(prev => ({ ...prev, audioLevel: level }))
231|
232|         if (level > AUDIO_THRESHOLD) {
233|           recordViolation('audio_anomaly', `Phat hien am thanh bat thuong (muc do: ${level.toFixed(2)})`)
234|         }
235|       }, AUDIO_CHECK_INTERVAL)
236|     } catch {
237|     }
```

```
238|   }, [recordViolation])
239|
240|   const setupIdleDetection = useCallback(() => {
241|     const updateActivity = () => {
242|       lastActivityRef.current = Date.now()
243|       idleTimeRef.current = 0
244|     }
245|     activityHandlerRef.current = updateActivity
246|
247|     window.addEventListener('mousemove', updateActivity)
248|     window.addEventListener('mousedown', updateActivity)
249|     window.addEventListener('keydown', updateActivity)
250|     window.addEventListener('touchstart', updateActivity)
251|
252|     idleCheckTimerRef.current = setInterval(() => {
253|       const elapsed = (Date.now() - lastActivityRef.current) / 1000
254|       idleTimeRef.current = elapsed
255|       setState(prev => ({ ...prev, isIdle: elapsed > IDLE_THRESHOLD, idleTime: Math.floor(elapsed) }))
256|
257|       if (Math.floor(elapsed) === IDLE_THRESHOLD + 1) {
258|         recordViolation('prolonged_idle', `Khong co hoat dong chuot/ban phim trong ${Math.floor(elapsed)} giay`)
259|       }
260|     }, IDLE_CHECK_INTERVAL)
261|   }, [recordViolation])
262|
263|   const detectScreenRecording = useCallback(() => {
264|     try {
265|       // @ts-ignore
266|       if (navigator.mediaSession?.playbackState === 'recording') {
267|         recordViolation('screen_recording', 'Phat hien phan mem ghi man hinh (mediaSession)')
268|         return
269|       }
270|     } catch {}
271|
272|     try {
273|       // @ts-ignore
274|       if (window.screenRecording || window.__RECORDING__) {
275|         recordViolation('screen_recording', 'Phat hien phan mem ghi man hinh (window flag)')
276|         return
277|       }
278|     } catch {}
279|   }, [recordViolation])
280|
281|   const detectVM = useCallback(() => {
282|     if (vmCheckedRef.current) return
283|     vmCheckedRef.current = true
284|
285|     const vmIndicators: string[] = []
286|
287|     if (navigator.webdriver) {
288|       vmIndicators.push('webdriver')
289|     }
290|
291|     const platform = navigator.platform?.toLowerCase() || ''
292|     if (platform.includes('vm') || platform.includes('virtual')) {
293|       vmIndicators.push('platform')
294|     }
295|
296|     const { width, height } = window.screen
297|     if ((width === 1024 && height === 768) || (width === 800 && height === 600)) {
298|       vmIndicators.push('resolution')
299|     }
300|
301|     if (navigator.hardwareConcurrency <= 2) {
302|       vmIndicators.push('low_cores')
303|     }
304|
305|     for (let i = 0; i < navigator.plugins.length; i++) {
306|       const name = navigator.plugins[i].name.toLowerCase()
307|       if (name.includes('vmware') || name.includes('virtualbox') || name.includes('hyper-v') || name.includes(...
308|         vmIndicators.push('vmm_plugin')
309|         break
310|       }
311|     }
312|
313|     if (vmIndicators.length >= 2) {
314|       recordViolation('vm_detected', `Phat hien may ao (dau hieu: ${vmIndicators.join(', ')})`)
315|     }
316|   }, [recordViolation])
317|
318|   const startFaceDetection = useCallback(async () => {
319|     await initMediaPipe()
320|
321|     const runDetection = async () => {
322|       if (!mountedRef.current || !videoRef.current || videoRef.current.readyState < 2) return
323|
324|       try {
325|         let face = false, multiple = false, yaw = 0, pitch = 0
326|
327|         if (landmarkerRef.current) {
328|           const results = await landmarkerRef.current.detectForVideo(videoRef.current, performance.now())
329|           if (results.faceLandmarks?.length > 0) {
330|             face = true
331|             multiple = results.faceLandmarks.length > 1
332|
333|             const nose = results.faceLandmarks[0][1]
334|             if (nose) {
335|               yaw = (nose.x - 0.5) * 2
336|               pitch = (nose.y - 0.5) * 2
337|             }
338|           }
339|         } else {
340|           const result = detectFace()
341|           face = result.face
342|         }
343|
344|         if (!mountedRef.current) return
345|
346|         setState(prev => ({
347|           ...prev,
348|           faceDetected: face,
349|           multipleFaces: multiple,
350|           lookingAway: Math.abs(yaw) > GAZE_YAW_THRESHOLD || Math.abs(pitch) > GAZE_PITCH_THRESHOLD,
351|           gazeDirection: { yaw, pitch },
352|         }))
353|
354|         if (multiple) {
355|           recordViolation('multiple_faces', 'Phat hien nhieu hon 1 khuon mat trong khung hinh')
356|         }
357|
358|         if (!face) {
359|           recordViolation('face_not_visible', 'Khong phat hien khuon mat truoc camera')
360|         } else if (Math.abs(yaw) > GAZE_YAW_THRESHOLD || Math.abs(pitch) > GAZE_PITCH_THRESHOLD) {
361|           recordViolation('looking_away', `Nhin sang huong khac (yaw=${yaw.toFixed(2)}, pitch=${pitch.toFixed(...
```

```
362|         }
363|       } catch (e) {
364|       }
365|     }
366|
367|     faceCheckTimerRef.current = setInterval(runDetection, FACE_CHECK_INTERVAL)
368|     snapshotTimerRef.current = setInterval(() => {
369|       const photo = capturePhoto()
370|       if (photo) {
371|         supabase.from('exam_logs').insert({
372|           exam_id: examId,
373|           attempt_id: attemptId,
374|           event_type: 'snapshot',
375|           event_data: photo,
376|           created_at: new Date().toISOString(),
377|         }).then()
378|       }
379|     }, SNAPSHOT_INTERVAL)
380|
381|     setupAudioDetection()
382|     setupIdleDetection()
383|     screenRecCheckTimerRef.current = setInterval(detectScreenRecording, SCREEN_REC_CHECK_INTERVAL)
384|     detectVM()
385|   }, [initMediaPipe, detectFace, recordViolation, capturePhoto, examId, attemptId, setupAudioDetection, setupI...
386|
387|   useEffect(() => {
388|     mountedRef.current = true
389|     return () => {
390|       mountedRef.current = false
391|       stopCamera()
392|       clearInterval(faceCheckTimerRef.current)
393|       clearInterval(snapshotTimerRef.current)
394|       landmarkerRef.current = null
395|
396|       clearInterval(audioCheckTimerRef.current)
397|       clearInterval(idleCheckTimerRef.current)
398|       clearInterval(screenRecCheckTimerRef.current)
399|
400|       if (activityHandlerRef.current) {
401|         window.removeEventListener('mousemove', activityHandlerRef.current)
402|         window.removeEventListener('mousedown', activityHandlerRef.current)
403|         window.removeEventListener('keydown', activityHandlerRef.current)
404|         window.removeEventListener('touchstart', activityHandlerRef.current)
405|         activityHandlerRef.current = null
406|       }
407|
408|       if (audioContextRef.current) {
409|         audioContextRef.current.close()
410|         audioContextRef.current = null
411|       }
412|     }
413|   }, [stopCamera])
414|
415|   const captureIdentity = useCallback(() => {
416|     const photo = capturePhoto()
417|     if (photo) {
418|       setState(prev => ({ ...prev, identityCapture: photo }))
419|     }
420|     return photo
421|   }, [capturePhoto])
422|
423|   return {
424|     state,
425|     videoRef,
426|     canvasRef,
427|     startCamera,
428|     stopCamera,
429|     startFaceDetection,
430|     recordViolation,
431|     captureIdentity,
432|     capturePhoto,
433|   }
434| }
435|
```

File: hooks/useSessionTimeout.ts (41 lines, 1.1 KB)

```
  1| 'use client'
  2|
  3| import { useEffect, useCallback } from 'react'
  4| import { useRouter } from 'next/navigation'
  5| import { logout } from '@/lib/auth-actions'
  6|
  7| export function useSessionTimeout(timeoutMinutes: number = 30) {
  8|   const router = useRouter()
  9|   const timeoutMs = timeoutMinutes * 60 * 1000
 10|
 11|   const handleLogout = useCallback(async () => {
 12|     await logout()
 13|     router.push('/login?session=expired')
 14|   }, [router])
 15|
 16|   useEffect(() => {
 17|     let timeoutId: NodeJS.Timeout
 18|
 19|     const resetTimer = () => {
 20|       if (timeoutId) clearTimeout(timeoutId)
 21|       timeoutId = setTimeout(handleLogout, timeoutMs)
 22|     }
 23|
 24|     // Events to reset the timer
 25|     const events = ['mousedown', 'keydown', 'scroll', 'touchstart']
 26|
 27|     events.forEach(event => {
 28|       window.addEventListener(event, resetTimer)
 29|     })
 30|
 31|     resetTimer() // Initialize timer
 32|
 33|     return () => {
 34|       if (timeoutId) clearTimeout(timeoutId)
 35|       events.forEach(event => {
 36|         window.removeEventListener(event, resetTimer)
 37|       })
 38|     }
 39|   }, [handleLogout, timeoutMs])
 40| }
 41|
```

File: providers/QueryProvider.tsx (21 lines, 0.5 KB)

```
    1| 'use client';
    2|
    3| import { QueryClient, QueryClientProvider } from '@tanstack/react-query';
    4| import { useState } from 'react';
    5|
    6| export default function QueryProvider({ children }: { children: React.ReactNode }) {
    7|   const [queryClient] = useState(() => new QueryClient({
    8|     defaultOptions: {
    9|       queries: {
   10|         staleTime: 60 * 1000,
   11|       },
   12|     },
   13|   }));
   14|
   15|   return (
   16|     <QueryClientProvider client={queryClient}>
   17|       {children}
   18|     </QueryClientProvider>
   19|   );
   20| }
   21|
```

File: data/assemblyErrors.ts (607 lines, 26.4 KB)

```
    1| export interface AssemblyVideo {
    2|   videoId: string;
    3|   title: string;
    4|   channelName: string;
    5|   startSeconds: number;
    6|   endSeconds?: number;
    7|   language: 'vi' | 'en';
    8|   description: string;
    9| }
   10|
   11| export interface AssemblyError {
   12|   id: string;
   13|   code: string;
   14|   severity: 'critical' | 'warning' | 'info';
   15|   title: string;
   16|   description: string;
   17|   howToFix: string;
   18|   youtubeVideo: AssemblyVideo[];
   19|   animation: {
   20|     type: 'shake' | 'red-flash' | 'arrow-wrong' | 'highlight-both' | 'cross-mark';
   21|     targetComponents: string[];
   22|     durationMs: number;
   23|   };
   24|   affectedParts: string[];
   25|   suggestedFix?: {
   26|     replaceComponent: string;
   27|     recommendation: string;
   28|   };
   29| }
   30|
   31| export const ASSEMBLY_ERRORS: AssemblyError[] = [
   32|   {
   33|     id: 'err-cpu-socket-001',
   34|     code: 'CPU_SOCKET_MISMATCH',
   35|     severity: 'critical',
    36 |         t i t l e :  ' C P U  k h ô n g  k h Û p  s o c k e t  M a i n b o a r d ',
    37 |         d e s c r i p t i o n :  ' C P U  I n t e l  L G A 1 7 0 0  k h ô n g  t h Ã  g ¯ n  v à o  M a i n b o a r d  A M D  A M 5
    38 |         h o w T o F i x :  ' 1 .  K i Ã m  t r a  s o c k e t  c ç a  C P U  ( L G A 1 7 0 0 ,  A M 5 ,  A M 4 . . . ) \ n 2 .  C h 1
   39|     youtubeVideo: [
   40|       {
   41|         videoId: 'PXaLc9AYIcg',
   42|         title: 'CPU Socket Explained — LGA vs AM4 vs AM5',
   43|         channelName: 'Linus Tech Tips',
   44|         startSeconds: 45,
   45|         endSeconds: 210,
   46|         language: 'en',
    47 |         d e s c r i p t i o n :  ' G i £ i  t h í c h  r õ  s ñ  k h á c  b i Ç t  g i ï a  c á c  l o ¡ i  s o c k e t  C P
   48|       },
   49|       {
   50|         videoId: 'dcuLVS5pzHE',
    51 |         t i t l e :  ' L × i  s o c k e t  C P U  t h ° Ý n g  g · p  k h i  l ¯ p  m á y  t í n h ',
    52 |         c h a n n e l N a m e :  ' P C  V i Ç t ',
   53|         startSeconds: 30,
   54|         language: 'vi',
    55 |         d e s c r i p t i o n :  ' H ° Û n g  d « n  k i Ã m  t r a  s o c k e t  C P U  b ± n g  t i ¿ n g  V i Ç t '
   56|       }
   57|     ],
   58|     animation: { type: 'highlight-both', targetComponents: ['cpu', 'motherboard'], durationMs: 2000 },
   59|     affectedParts: ['cpu', 'motherboard']
   60|   },
   61|   {
   62|     id: 'err-ram-type-002',
   63|     code: 'RAM_TYPE_MISMATCH',
   64|     severity: 'critical',
    65 |         t i t l e :  ' R A M  D D R 4  c ¯ m  v à o  M a i n b o a r d  D D R 5  ( h o · c  n g ° ã c  l ¡ i ) ',
    66 |         d e s c r i p t i o n :  ' D D R 4  v à  D D R 5  c ó  k h e  l Ç c h  n h a u  —  v - t  l ý  k h ô n g  t h Ã  c ¯ m  v
    67 |         h o w T o F i x :  ' 1 .  K i Ã m  t r a  M a i n b o a r d  h ×  t r ã  D D R 4  h a y  D D R 5  ( k h ô n g  c ó  b o a r
   68|     youtubeVideo: [
   69|       {
   70|         videoId: 'R7CO9v9rpOk',
   71|         title: 'DDR4 vs DDR5 RAM — What You Need to Know',
   72|         channelName: 'GamersNexus',
   73|         startSeconds: 120,
   74|         endSeconds: 340,
   75|         language: 'en',
    76 |         d e s c r i p t i o n :  ' S o  s á n h  D D R 4  v à  D D R 5 ,  c á c h  p h â n  b i Ç t '
   77|       }
   78|     ],
   79|     animation: { type: 'red-flash', targetComponents: ['ram', 'motherboard'], durationMs: 1500 },
   80|     affectedParts: ['ram', 'motherboard']
   81|   },
   82|   {
   83|     id: 'err-psu-watt-003',
   84|     code: 'PSU_INSUFFICIENT_WATTAGE',
   85|     severity: 'critical',
    86 |         t i t l e :  ' P S U  k h ô n g  ç  i Ç n  c h o  t o à n  b Ù  b u i l d ',
    87 |         d e s c r i p t i o n :  ' T Õ n g  T D P  c ç a  C P U  +  G P U  +  c á c  l í n h  k i Ç n  k h á c  v ° ã t  q u á  8
    88 |         h o w T o F i x :  ' 1 .  T í n h  t Õ n g  T D P :  C P U  T D P  +  G P U  T D P  +  5 0 W  ( R A M ,  S S D ,  f a n s
   89|     youtubeVideo: [
   90|       {
   91|         videoId: 'qyLCuYkZGA0',
   92|         title: 'How Much Power Does Your PC Need?',
   93|         channelName: 'Linus Tech Tips',
   94|         startSeconds: 60,
   95|         endSeconds: 280,
   96|         language: 'en',
    97 |         d e s c r i p t i o n :  ' C á c h  t í n h  w a t t a g e  P S U  c § n  t h i ¿ t '
   98|       },
   99|       {
```

```
100|        videoId: 'HmVFm-UrEJM',
101|                title: 'Cách chÍn nguÓn PSU úng watt cho PC',
102|                channelName: 'Th¿ GiÛi Di Ùng Tech',
103|        startSeconds: 45,
104|        language: 'vi',
105|                description: 'H°Ûng d«n ti¿ng ViÇt cách tính và chÍn PSU phù hãp
106|      }
107|    ],
108|    animation: { type: 'red-flash', targetComponents: ['psu', 'cpu', 'gpu'], durationMs: 2500 },
109|    affectedParts: ['psu', 'cpu', 'gpu']
110|  },
111|  {
112|    id: 'err-gpu-size-004',
113|    code: 'GPU_TOO_LONG_FOR_CASE',
114|    severity: 'critical',
115|          title: 'GPU dài h¡n Case cho phép',
116|          description: 'GPU có chiÁu dài v-t lý lÛn h¡n kho£ng trÑng tÑi a c
117|          howToFix: '1. KiÃm tra "Max GPU Length" trong spec cça Case\n2. KiÃm
118|    youtubeVideo: [
119|      {
120|        videoId: 'BblBMJFNmFY',
121|        title: 'GPU Size vs Case Clearance — Common Mistake',
122|        channelName: 'JayzTwoCents',
123|        startSeconds: 30,
124|        endSeconds: 200,
125|        language: 'en',
126|                description: 'L×i GPU dài h¡n case và cách tránh'
127|      }
128|    ],
129|    animation: { type: 'arrow-wrong', targetComponents: ['gpu', 'case'], durationMs: 2000 },
130|    affectedParts: ['gpu', 'case']
131|  },
132|  {
133|    id: 'err-cooler-height-005',
134|    code: 'COOLER_TOO_TALL_FOR_CASE',
135|    severity: 'critical',
136|          title: 'Cooler CPU cao h¡n Case cho phép',
137|          description: 'Cooler tower air có chiÁu cao v°ãt quá CPU clearance c
138|          howToFix: '1. KiÃm tra "Max CPU Cooler Height" trong spec Case\n2. C
139|    youtubeVideo: [
140|      {
141|        videoId: 'Hmb2QFEOMODE',
142|        title: 'Air Cooler vs Case — Height Clearance Guide',
143|        channelName: 'Hardware Canucks',
144|        startSeconds: 90,
145|        language: 'en',
146|                description: 'Cách o và kiÃm tra clearance cooler vs case'
147|      }
148|    ],
149|    animation: { type: 'cross-mark', targetComponents: ['cooler', 'case'], durationMs: 1800 },
150|    affectedParts: ['cooler', 'case']
151|  },
152|  {
153|    id: 'err-no-display-006',
154|    code: 'NO_DISPLAY_OUTPUT',
155|    severity: 'critical',
156|          title: 'Không có nguÓn xu¥t hình',
157|          description: 'CPU không có iGPU (integrated graphics) VÀ cing không
158|          howToFix: '1. CPU Intel Core có chï "F" (i5-13600KF) = KHÔNG có iGPU
159|    youtubeVideo: [
160|      {
161|        videoId: 'RN9sqc7mEWE',
162|        title: 'Integrated vs Dedicated GPU Explained',
163|        channelName: 'Tech Quickie',
164|        startSeconds: 20,
165|        endSeconds: 180,
166|        language: 'en',
167|                description: 'Gi£i thích iGPU và khi nào c§n GPU rÝi'
168|      }
169|    ],
170|    animation: { type: 'red-flash', targetComponents: ['cpu', 'motherboard'], durationMs: 2000 },
171|    affectedParts: ['cpu', 'gpu']
172|  },
173|  {
174|    id: 'err-ram-slot-007',
175|    code: 'RAM_WRONG_DUAL_CHANNEL_SLOT',
176|    severity: 'warning',
177|          title: 'RAM c¯m sai slot — m¥t dual channel',
178|          description: 'VÛi 2 thanh RAM, ph£i c¯m vào slot A2+B2 (th°Ýng là sl
179|          howToFix: '1. Xem manual mainboard Ã bi¿t úng slot dual channel\n2
180|    youtubeVideo: [
181|      {
182|        videoId: '0FKJLpZ5ByY',
183|        title: 'RAM Dual Channel — Which Slots to Use?',
184|        channelName: 'Linus Tech Tips',
185|        startSeconds: 180,
186|        endSeconds: 360,
187|        language: 'en',
188|                description: 'H°Ûng d«n c¯m RAM úng slot dual channel'
189|      }
190|    ],
191|    animation: { type: 'arrow-wrong', targetComponents: ['ram'], durationMs: 2000 },
192|    affectedParts: ['ram', 'motherboard']
193|  },
194|  {
195|    id: 'err-psu-connector-008',
196|    code: 'PSU_MISSING_CONNECTORS',
197|    severity: 'critical',
198|          title: 'PSU thi¿u §u c¥p nguÓn cho GPU',
199|          description: 'GPU c§n các §u c¥p nguÓn PCIe power connector nh°ng P
200|          howToFix: '1. KiÃm tra sÑ l°ãng PCIe power connector cça PSU\n2. GPU
201|    youtubeVideo: [
202|      {
203|        videoId: '2CkU4-T1R9c',
204|        title: 'PSU Cables Explained — What You Need',
205|        channelName: 'Bitwit',
206|        startSeconds: 120,
207|        language: 'en',
208|                description: 'Gi£i thích các lo¡i cáp nguÓn PSU'
209|      }
210|    ],
211|    animation: { type: 'shake', targetComponents: ['psu', 'gpu'], durationMs: 1500 },
212|    affectedParts: ['psu', 'gpu']
213|  },
214|  {
215|    id: 'err-form-factor-009',
216|    code: 'FORM_FACTOR_MISMATCH',
217|    severity: 'critical',
218|          title: 'Mainboard không vëa Case',
219|          description: 'Mainboard có form factor (ATX, mATX, ITX) không t°¡ng
220|          howToFix: '1. KiÃm tra form factor cça Case (h× trã: ATX, mATX, ITX)
221|    youtubeVideo: [
222|      {
223|        videoId: 'SJXTjNy_b64',
```

```
224|        title: 'Motherboard Form Factors Explained',
225|        channelName: 'TechQuickie',
226|        startSeconds: 60,
227|        endSeconds: 240,
228|        language: 'en',
229|        description: 'Gi£i thích form factor ATX, mATX, ITX'
230|      }
231|    ],
232|    animation: { type: 'cross-mark', targetComponents: ['motherboard', 'case'], durationMs: 2000 },
233|    affectedParts: ['motherboard', 'case']
234|  },
235|  {
236|    id: 'err-cooler-socket-010',
237|    code: 'COOLER_SOCKET_MISMATCH',
238|    severity: 'critical',
239|        title: 'Cooler không h× trã socket CPU',
240|        description: 'Cooler không bao gÓm mounting bracket cho socket cça C
241|        howToFix: '1. KiÃm tra danh sách socket h× trã cça Cooler\n2. N¿u th
242|    youtubeVideo: [
243|      {
244|        videoId: 'dk_3tE3E_DI',
245|        title: 'CPU Cooler Compatibility — Socket Guide',
246|        channelName: 'GamersNexus',
247|        startSeconds: 180,
248|        language: 'en',
249|        description: 'KiÃm tra t°¡ng thích socket cça cooler'
250|      }
251|    ],
252|    animation: { type: 'highlight-both', targetComponents: ['cooler', 'cpu'], durationMs: 2000 },
253|    affectedParts: ['cooler', 'cpu']
254|  },
255|  {
256|    id: 'err-m2-slot-011',
257|    code: 'NOT_ENOUGH_M2_SLOTS',
258|    severity: 'warning',
259|        title: 'Thi¿u slot M.2 cho SSD',
260|        description: 'SÑ lº ãng SSD M.2 v°ãt quá sÑ slot M.2 có sµn trên Main
261|        howToFix: '1. KiÃm tra sÑ slot M.2 trên Mainboard\n2. Dùng SSD SATA
262|    youtubeVideo: [
263|      {
264|        videoId: 'RkSUk9lzT0s',
265|        title: 'M.2 vs SATA SSD — Which One to Choose?',
266|        channelName: 'Linus Tech Tips',
267|        startSeconds: 60,
268|        language: 'en',
269|        description: 'So sánh M.2 NVMe và SATA SSD'
270|      }
271|    ],
272|    animation: { type: 'red-flash', targetComponents: ['ssd', 'motherboard'], durationMs: 1500 },
273|    affectedParts: ['ssd', 'motherboard']
274|  },
275|  {
276|    id: 'err-bottleneck-012',
277|    code: 'CPU_GPU_BOTTLENECK',
278|    severity: 'warning',
279|        title: 'CPU và GPU m¥t cân b±ng — ngh½n cÕ chai',
280|        description: 'T÷ lÇ séc m¡nh giïa CPU và GPU quá chênh lÇch. MÙt com
281|        howToFix: '1. GPU quá m¡nh (>2.5x CPU): nâng c¥p CPU ho·c gi£m GPU\n
282|    youtubeVideo: [
283|      {
284|        videoId: '4Vymf3DkI4Y',
285|        title: 'CPU Bottleneck Explained — How to Fix',
286|        channelName: 'JayzTwoCents',
287|        startSeconds: 60,
288|        endSeconds: 300,
289|        language: 'en',
290|        description: 'Gi£i thích bottleneck CPU/GPU và cách kh¯c phåc'
291|      }
292|    ],
293|    animation: { type: 'arrow-wrong', targetComponents: ['cpu', 'gpu'], durationMs: 2000 },
294|    affectedParts: ['cpu', 'gpu']
295|  },
296|  {
297|    id: 'err-cooler-tdp-013',
298|    code: 'COOLER_INSUFFICIENT_TDP',
299|    severity: 'warning',
300|        title: 'Cooler không ç t£n nhiÇt cho CPU',
301|        description: 'TDP tÑi a cça Cooler th¥p h¡n TDP cça CPU. CPU s½ bË
302|        howToFix: '1. Cooler c§n h× trã TDP "e CPU TDP × 0.9 (buffer)\n2. Ví
303|    youtubeVideo: [
304|      {
305|        videoId: 't6ono8R_nAM',
306|        title: 'CPU Cooler TDP Ratings Explained',
307|        channelName: 'Hardware Canucks',
308|        startSeconds: 200,
309|        language: 'en',
310|        description: 'Cách Íc và hiÃu TDP trên CPU cooler'
311|      }
312|    ],
313|    animation: { type: 'red-flash', targetComponents: ['cooler', 'cpu'], durationMs: 2000 },
314|    affectedParts: ['cooler', 'cpu']
315|  },
316|  {
317|    id: 'err-psu-length-014',
318|    code: 'PSU_TOO_LONG_FOR_CASE',
319|    severity: 'critical',
320|        title: 'PSU dài h¡n Case cho phép',
321|        description: 'ChiÁu dài v-t lý cça PSU v°ãt quá kho£ng trÑng tÑi a
322|        howToFix: '1. KiÃm tra max PSU length cça Case\n2. ChÍn PSU có chiÁu
323|    youtubeVideo: [
324|      {
325|        videoId: 'IEsOILC_8jg',
326|        title: 'PSU Size Guide — ATX vs SFX',
327|        channelName: 'Optimum Tech',
328|        startSeconds: 60,
329|        language: 'en',
330|        description: 'H°Ûng d«n chÍn kích th°Ûc PSU phù hãp vÛi case'
331|      }
332|    ],
333|    animation: { type: 'cross-mark', targetComponents: ['psu', 'case'], durationMs: 1800 },
334|    affectedParts: ['psu', 'case']
335|  },
336|  {
337|    id: 'err-ram-speed-015',
338|    code: 'RAM_SPEED_MISMATCH',
339|    severity: 'info',
340|        title: 'RAM ch¡y không úng tÑc Ù tÑi a',
341|        description: 'RAM có tÑc Ù cao h¡n Mainboard h× trã. RAM s½ tñ Ùng
342|        howToFix: '1. KiÃm tra max RAM speed cça Mainboard\n2. N¿u muÑn tÑc
343|    youtubeVideo: [
344|      {
345|        videoId: 'Jv5g0KRxh-E',
346|        title: 'What is XMP? RAM Speed Explained',
347|        channelName: 'Tech Quickie',
```

```
348|        startSeconds: 30,
349|        endSeconds: 180,
350|        language: 'en',
  351|        description: 'Gi£i thích XMP/EXPO và tÑc Ù RAM'
352|      }
353|    ],
354|    animation: { type: 'shake', targetComponents: ['ram', 'motherboard'], durationMs: 1000 },
355|    affectedParts: ['ram', 'motherboard']
356|  },
357|  {
358|    id: 'err-cpu-cooler-paste-016',
359|    code: 'NO_THERMAL_PASTE',
360|    severity: 'info',
  361|        title: 'Chºa có keo t£n nhiÇt cho CPU',
  362|        description: 'Không có thermal paste gíïa CPU IHS và cooler baseplat
  363|        howToFix: '1. H§u h¿t cooler Áu có sµn thermal paste (pre-applied h
364|    youtubeVideo: [
365|      {
366|        videoId: '5QxNwWWNH7o',
367|        title: 'How to Apply Thermal Paste — Perfect Guide',
368|        channelName: 'GamersNexus',
369|        startSeconds: 60,
370|        endSeconds: 240,
371|        language: 'en',
  372|        description: 'Cách bôi keo t£n nhiÇt úng cách'
373|      }
374|    ],
375|    animation: { type: 'red-flash', targetComponents: ['cpu', 'cooler'], durationMs: 1500 },
376|    affectedParts: ['cpu', 'cooler']
377|  },
378|  {
379|    id: 'err-standoff-017',
380|    code: 'MISSING_STANDOFFS',
381|    severity: 'warning',
  382|        title: 'Thi¿u standoff cho Mainboard',
  383|        description: 'Mainboard ºãc b¯t trñc ti¿p vào case mà không có star
  384|        howToFix: '1. Luôn g¯n standoff trºÛc khi ·t mainboard vào case\n2.
385|    youtubeVideo: [
386|      {
387|        videoId: 'N0J6Gjxl-CI',
388|        title: 'How to Install Motherboard — Standoffs Guide',
389|        channelName: "Paul's Hardware",
390|        startSeconds: 120,
391|        endSeconds: 300,
392|        language: 'en',
  393|        description: 'HºÛng d«n l¯p mainboard úng cách'
394|      }
395|    ],
396|    animation: { type: 'shake', targetComponents: ['motherboard', 'case'], durationMs: 1500 },
397|    affectedParts: ['motherboard', 'case']
398|  },
399|  {
400|    id: 'err-pcie-riser-018',
401|    code: 'GPU_PCIE_RISER_ISSUE',
402|    severity: 'warning',
  403|        title: 'Cáp PCIe riser có thÃ gây m¥t tín hiÇu',
  404|        description: 'Sí dång cáp PCIe riser kém ch¥t lºãng có thÃ gây m¥t t
405|    howToFix: '1. Dùng PCIe riser chính hãng (Phanteks, Cooler Master, Thermaltake)\n2. Set BIOS sang PCIe Gen...
406|    youtubeVideo: [
407|      {
408|        videoId: 'J_frJZcU1TY',
409|        title: 'PCIe Riser Cable Issues Fixed!',
410|        channelName: 'GamersNexus',
411|        startSeconds: 90,
412|        language: 'en',
  413|        description: 'Kh¯c phåc l×i PCIe riser cable'
414|      }
415|    ],
416|    animation: { type: 'arrow-wrong', targetComponents: ['gpu', 'motherboard'], durationMs: 2000 },
417|    affectedParts: ['gpu', 'motherboard']
418|  },
419|  {
420|    id: 'err-ram-voltage-019',
421|    code: 'RAM_VOLTAGE_HIGH',
422|    severity: 'info',
  423|        title: 'RAM có iÇn áp cao h¡n m·c Ënh',
  424|        description: 'RAM XMP/EXPO có thÃ ch¡y ß iÇn áp 1.35V-1.5V, cao h¡n
  425|        howToFix: '1. Vào BIOS enable XMP/EXPO Ã RAM ch¡y úng tÑc Ù và vo
426|    youtubeVideo: [
427|      {
428|        videoId: '4c5P5F5D3Fs',
429|        title: 'RAM Voltage and XMP Explained',
430|        channelName: 'Tech Deals',
431|        startSeconds: 120,
432|        language: 'en',
  433|        description: 'Gi£i thích vÁ iÇn áp RAM và XMP'
434|      }
435|    ],
436|    animation: { type: 'shake', targetComponents: ['ram', 'motherboard'], durationMs: 1000 },
437|    affectedParts: ['ram', 'motherboard']
438|  },
439|  {
440|    id: 'err-case-fan-020',
441|    code: 'CASE_FAN_MISMATCH',
442|    severity: 'info',
  443|        title: 'Quµt case không Óng bÙ',
  444|        description: 'Các quµt case không cùng loµi (PWM vs DC) ho·c không c
  445|        howToFix: '1. Dùng toàn bÙ quµt PWM (4-pin) Ã dÃ kiÃm soát tÑc Ù c
446|    youtubeVideo: [
447|      {
448|        videoId: 'akR_dU4qGso',
449|        title: 'Case Fans Guide — PWM vs DC',
450|        channelName: 'Hardware Canucks',
451|        startSeconds: 90,
452|        language: 'en',
  453|        description: 'So sánh quµt PWM và DC cho case'
454|      }
455|    ],
456|    animation: { type: 'red-flash', targetComponents: ['case'], durationMs: 1200 },
457|    affectedParts: ['case']
458|  },
459|  {
460|    id: 'err-aio-orientation-021',
461|    code: 'AIO_MOUNTING_ERROR',
462|    severity: 'warning',
  463|        title: 'G¯n AIO cooler sai hºÛng',
  464|        description: 'AIO liquid cooler n¿u g¯n sai hºÛng (pump ß vË trí cao
  465|        howToFix: '1. Pump (block trên CPU) không ºãc là iÃm cao nh¥t çaa
466|    youtubeVideo: [
467|      {
468|        videoId: 'qgN88TQSTGQ',
469|        title: "AIO Cooler Orientation Guide — Don't Do This!",
470|        channelName: 'JayzTwoCents',
471|        startSeconds: 60,
```

```
472|        endSeconds: 360,
473|        language: 'en',
  474|        d e s c r i p t i o n :  ' H ° Û n g  d « n  g ¯ n  A I O  c o o l e r  ú n g  c á c h '
475|      }
476|    ],
477|    animation: { type: 'arrow-wrong', targetComponents: ['cooler', 'cpu'], durationMs: 2000 },
478|    affectedParts: ['cooler', 'cpu']
479|  },
480|  {
481|    id: 'err-front-panel-022',
482|    code: 'FRONT_PANEL_WRONG',
483|    severity: 'warning',
  484|        t i t l e :  ' C ¯ m  s a i  d â y  f r o n t  p a n e l ' ,
  485|        d e s c r i p t i o n :  ' C á c  d â y  P o w e r  S W ,  R e s e t  S W ,  H D D  L E D ,  P o w e r  L E D  t ë  c a s e
  486|        h o w T o F i x :  ' 1 .  X e m  m a n u a l  m a i n b o a r d  Ã  b i ¿ t  s ¡  Ó  c h â n  f r o n t  p a n e l \ n 2
487|    youtubeVideo: [
488|      {
489|        videoId: '2zVPxGq_aR4',
490|        title: 'Front Panel Connectors Guide',
491|        channelName: "Paul's Hardware",
492|        startSeconds: 180,
493|        endSeconds: 360,
494|        language: 'en',
  495|        d e s c r i p t i o n :  ' H ° Û n g  d « n  c ¯ m  d â y  f r o n t  p a n e l  c a s e '
496|      }
497|    ],
498|    animation: { type: 'shake', targetComponents: ['motherboard', 'case'], durationMs: 1500 },
499|    affectedParts: ['motherboard', 'case']
500|  },
501|  {
502|    id: 'err-cable-management-023',
503|    code: 'POOR_CABLE_MANAGEMENT',
504|    severity: 'info',
  505|        t i t l e :  ' Q u £ n  l ý  d â y  c á p  k é m ' ,
  506|        d e s c r i p t i o n :  ' D â y  c á p  t r o n g  c a s e  b ë a  b Ù n ,  c £ n  l u Ó n g  k h í ,  g â y  t  n g  n h
  507|        h o w T o F i x :  ' 1 .  i  d â y  s a u  m a i n b o a r d  t r a y  ( c a b l e  r o u t i n g  h o l e ) \ n 2 .  D ù r
508|    youtubeVideo: [
509|      {
510|        videoId: 'P6SYFwH3Y04',
511|        title: 'PC Cable Management for Beginners',
512|        channelName: 'Bitwit',
513|        startSeconds: 120,
514|        endSeconds: 480,
515|        language: 'en',
  516|        d e s c r i p t i o n :  ' H ° Û n g  d « n  q u £ n  l ý  d â y  c á p  t r o n g  c a s e '
517|      }
518|    ],
519|    animation: { type: 'red-flash', targetComponents: ['case'], durationMs: 1800 },
520|    affectedParts: ['case']
521|  },
522|  {
523|    id: 'err-bios-settings-024',
524|    code: 'BIOS_SETTINGS_WRONG',
525|    severity: 'warning',
  526|        t i t l e :  ' C à i  · t  B I O S  k h ô n g  t Ñ i  ° u ' ,
  527|        d e s c r i p t i o n :  ' B I O S  c h ° a  ° ã c  c ¥ u  h ì n h  ú n g :  c h ° a  b - t  X M P ,  c h ° a  s e t  b
  528|        h o w T o F i x :  ' 1 .  V à o  B I O S  ( D e l / F 2  k h i  k h ß i  Ù n g ) \ n 2 .  B - t  X M P / E X P O  c h o  P
529|    youtubeVideo: [
530|      {
531|        videoId: 'b-pFHBL4_F8',
532|        title: 'BIOS Settings You Should Change Right Now',
533|        channelName: 'Linus Tech Tips',
534|        startSeconds: 60,
535|        endSeconds: 360,
536|        language: 'en',
  537|        d e s c r i p t i o n :  ' C á c  c à i  · t  B I O S  q u a n  t r Í n g  c § n  t h a y  Õ i '
538|      }
539|    ],
540|    animation: { type: 'shake', targetComponents: ['motherboard'], durationMs: 1200 },
541|    affectedParts: ['motherboard']
542|  },
543|  {
544|    id: 'err-gpu-sag-025',
545|    code: 'GPU_SAG_RISK',
546|    severity: 'info',
  547|        t i t l e :  ' G P U  c ó  n g u y  c ¡  b Ë  v õ n g  ( G P U  s a g ) ' ,
  548|        d e s c r i p t i o n :  ' G P U  n · n g  ( R T X  4 0 8 0 / 4 0 9 0  t r ß  l ê n )  c ó  t h Ã  b Ë  v õ n g  d o  t r ß
  549|        h o w T o F i x :  ' 1 .  D ù n g  G P U  s u p p o r t  b r a c k e t  ( c h â n  á  G P U )  i  k è m  t r o n g  h ù
550|    youtubeVideo: [
551|      {
552|        videoId: 'qNcnlVBEY84',
553|        title: 'GPU Sag Fix - Best Anti-Sag Solutions',
554|        channelName: 'JayzTwoCents',
555|        startSeconds: 60,
556|        endSeconds: 240,
557|        language: 'en',
  558|        d e s c r i p t i o n :  ' C á c  g i £ i  p h á p  c h Ñ n g  v õ n g  G P U '
559|      }
560|    ],
561|    animation: { type: 'cross-mark', targetComponents: ['gpu', 'motherboard'], durationMs: 1500 },
562|    affectedParts: ['gpu', 'motherboard']
563|  },
564| ];
565|
566| export function findErrorByCode(code: string): AssemblyError | undefined {
567|   return ASSEMBLY_ERRORS.find((e) => e.code === code);
568| }
569|
570| export function findErrorsByPart(partType: string): AssemblyError[] {
571|   return ASSEMBLY_ERRORS.filter((e) => e.affectedParts.includes(partType));
572| }
573|
574| export function getErrorAnimationStyle(error: AssemblyError): Record<string, string | number> {
575|   const base: Record<string, string | number> = {
576|     position: 'absolute',
577|     inset: 0,
578|     pointerEvents: 'none',
579|     zIndex: 100,
580|   };
581|   switch (error.animation.type) {
582|     case 'shake':
583|       return {
584|         ...base,
585|         animation: `shake ${error.animation.durationMs}ms ease-in-out`,
586|       };
587|     case 'red-flash':
588|       return {
589|         ...base,
590|         background: 'rgba(239, 68, 68, 0.3)',
591|         animation: `redFlash ${error.animation.durationMs}ms ease-in-out`,
592|       };
593|     case 'cross-mark':
594|       return {
595|         ...base,
```

```
596|         display: 'flex',
597|         alignItems: 'center',
598|         justifyContent: 'center',
599|         fontSize: '4rem',
600|         color: '#ef4444',
601|         animation: `crossMark ${error.animation.durationMs}ms ease-out`,
602|       };
603|     default:
604|       return base;
605|   }
606| }
607|
```

File: data/build-scenarios.json (183 lines, 5.3 KB)

```
==========================================================================================
  1| [
  2|   {
  3|     "id": "office-budget",
  4|     "name": "Office Budget PC",
  5|           " n a m e _ v n " :   " M á y   V   n   P h ò n g   T i ¿ t   K i Ç m " ,
  6|     "description": "Build a reliable office PC for under 10 million VND. Perfect for Word, Excel, web browsing...
  7|           " d e s c r i p t i o n _ v n " :   " L ¯ p   m Ù t   P C   v   n   p h ò n g   á n g   t i n   c - y   d ° Û i   1 0   t r i Ç u .
  8|           " i c o n " :   "Ø=Ù¼ " ,
  9|     "difficulty": "easy",
 10|     "budget_min": 3000000,
 11|     "budget_max": 10000000,
 12|     "requirements": {
 13|       "min_ram_gb": 8,
 14|       "min_storage_gb": 240,
 15|       "require_igpu": true,
 16|       "use_case": "office",
 17|       "max_tdp": 150
 18|     },
 19|     "weight_components": {
 20|       "cpu": 10,
 21|       "gpu": 0,
 22|       "ram": 20,
 23|       "storage": 15,
 24|       "psu": 10
 25|     }
 26|   },
 27|   {
 28|     "id": "budget-gaming",
 29|     "name": "Budget Gaming Rig",
 30|           " n a m e _ v n " :   " P C   G a m i n g   C ¡   B £ n " ,
 31|     "description": "Build a capable gaming PC for ~15 million VND. Should run Valorant, LOL, and CS2 at 1080p.",
 32|           " d e s c r i p t i o n _ v n " :   " L ¯ p   P C   g a m i n g   c ¡   b £ n   ~ 1 5   t r i Ç u .   C h ¡ i   ° ã c   V a l o r a n
 33|           " i c o n " :   "Ø<ß® " ,
 34|     "difficulty": "easy",
 35|     "budget_min": 10000000,
 36|     "budget_max": 18000000,
 37|     "requirements": {
 38|       "min_ram_gb": 16,
 39|       "min_gpu_power": 6000,
 40|       "min_storage_gb": 480,
 41|       "use_case": "gaming",
 42|       "min_cores": 6
 43|     },
 44|     "weight_components": {
 45|       "cpu": 30,
 46|       "gpu": 40,
 47|       "ram": 10,
 48|       "storage": 5,
 49|       "psu": 15
 50|     }
 51|   },
 52|   {
 53|     "id": "mainstream-gaming",
 54|     "name": "Mainstream Gaming",
 55|           " n a m e _ v n " :   " P C   G a m i n g   T § m   T r u n g " ,
 56|     "description": "Build a balanced high-end gaming PC around 25 million. Handles AAA titles at 1440p ultra s...
 57|           " d e s c r i p t i o n _ v n " :   " L ¯ p   P C   g a m i n g   c a o   c ¥ p   t § m   t r u n g   ~ 2 5   t r i Ç u .   X í   l ý
 58|           " i c o n " :   "&¡ " ,
 59|     "difficulty": "medium",
 60|     "budget_min": 18000000,
 61|     "budget_max": 30000000,
 62|     "requirements": {
 63|       "min_ram_gb": 16,
 64|       "min_gpu_power": 15000,
 65|       "min_storage_gb": 1000,
 66|       "use_case": "gaming",
 67|       "min_cores": 8,
 68|       "min_cinebench_multi": 18000
 69|     },
 70|     "weight_components": {
 71|       "cpu": 35,
 72|       "gpu": 40,
 73|       "ram": 10,
 74|       "storage": 5,
 75|       "psu": 10
 76|     }
 77|   },
 78|   {
 79|     "id": "workstation",
 80|     "name": "Content Creator Workstation",
 81|           " n a m e _ v n " :   " M á y   L à m   V i d e o   &   Ó   H Í a " ,
 82|     "description": "Build a powerful workstation for video editing, 3D rendering, and graphic design.",
 83|           " d e s c r i p t i o n _ v n " :   " L ¯ p   P C   m ¡ n h   m ½   c h o   d ñ n g   v i d e o ,   r e n d e r   3 D   v à   t h i ¿ t
 84|           " i c o n " :   "Ø<ß¬ " ,
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File: data/componentsData.json (5002 lines, 1039.3 KB)

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780|     "price": 7060000,
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    "power": 60,
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    "power": 85,
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    "power": 55,
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    "power": 65,
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    "power": 60,
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    "power": 60,
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    "power": 60,
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    "power": 95,
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    "price": 6040000,
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    "power": 55,
    "desc": "10 nhân / 20 luồng, 55W TDP, Socket LGA1851"
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    "price": 3890000,
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    "power": 105,
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    "power": 60,
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    "power": 105,
    "desc": "16 nhân / 32 luồng, 105W TDP, Socket LGA1851"
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    "power": 120,
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    "power": 120,
    "desc": "6 nhân / 12 luÓng, 120W TDP, Socket LGA1851"
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    "power": 95,
    "desc": "18 nhân / 36 luÓng, 95W TDP, Socket LGA1851"
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    "power": 95,
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    "power": 95,
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    "power": 55,
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    "type": "CPU",
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    "price": 7150000,
    "socket": "LGA1851",
    "power": 55,
    "desc": "18 nhân / 36 luÓng, 55W TDP, Socket LGA1851"
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  1815|     "price": 9320000,
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  1820|   {
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  1824|     "price": 8970000,
  1825|     "socket": "LGA1851",
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  1827|         "desc": "16 nhân / 32 luÓng, 85W TDP, Socket LGA1851"
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  1829|   {
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  1833|     "price": 1710000,
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  1838|   {
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    "power": 65,
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    "price": 14860000,
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    "power": 55,
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    "type": "CPU",
    "price": 7020000,
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    "power": 75,
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    "type": "CPU",
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    "desc": "10 nhân / 20 luồng, 55W TDP, Socket LGA1851"
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    "socket": "LGA1851",
    "power": 105,
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    "price": 11640000,
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    "power": 75,
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    "type": "CPU",
    "price": 11190000,
    "socket": "LGA1851",
    "power": 55,
    "desc": "18 nhân / 36 luồng, 55W TDP, Socket LGA1851"
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  {
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    "price": 9060000,
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    "price": 10080000,
    "socket": "LGA1700",
    "power": 120,
    "desc": "12 nhân / 24 luÓng, 120W TDP, Socket LGA1700"
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    "power": 105,
    "desc": "12 nhân / 24 luÓng, 105W TDP, Socket LGA1700"
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    "power": 120,
    "desc": "2 nhân / 4 luÓng, 120W TDP, Socket LGA1700"
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    "power": 120,
    "desc": "4 nhân / 8 luÓng, 120W TDP, Socket LGA1700"
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    "price": 5940000,
    "socket": "LGA1700",
    "power": 125,
    "desc": "16 nhân / 32 luÓng, 125W TDP, Socket LGA1700"
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    "price": 14780000,
    "socket": "LGA1700",
    "power": 105,
    "desc": "10 nhân / 20 luÓng, 105W TDP, Socket LGA1700"
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    "price": 20740000,
    "socket": "LGA1700",
    "power": 125,
    "desc": "10 nhân / 20 luÓng, 125W TDP, Socket LGA1700"
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    "power": 105,
    "desc": "4 nhân / 8 luÓng, 105W TDP, Socket LGA1700"
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    "price": 10270000,
    "socket": "LGA1700",
    "power": 85,
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    "price": 5450000,
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2913|     "price": 23480000,
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2942|     "power": 55,
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2954|   {
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2987|     "power": 55,
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2989|   },
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2993|     "type": "CPU",
2994|     "price": 21370000,
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2996|     "power": 120,
  2997|         "desc": "16 nhân / 32 luÓng, 120W TDP, Socket LGA1700"
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3003|     "price": 5490000,
3004|     "socket": "LGA1700",
3005|     "power": 60,
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3008|   {
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3012|     "price": 9720000,
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3020|     "type": "CPU",
3021|     "price": 18850000,
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    "power": 65,
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  },
  {
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    "power": 125,
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    "power": 55,
    "desc": "12 nhân / 24 luÓng, 55W TDP, Socket LGA1851"
  },
  {
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    "price": 10440000,
    "socket": "LGA1851",
    "power": 125,
    "desc": "4 nhân / 8 luÓng, 125W TDP, Socket LGA1851"
  },
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    "price": 2930000,
    "socket": "LGA1851",
    "power": 95,
    "desc": "12 nhân / 24 luÓng, 95W TDP, Socket LGA1851"
  },
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    "type": "CPU",
    "price": 2070000,
    "socket": "LGA1851",
    "power": 75,
    "desc": "18 nhân / 36 luÓng, 75W TDP, Socket LGA1851"
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    "name": "Intel Core i9-14900K",
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    "power": 60,
    "desc": "14 nhân / 28 luÓng, 60W TDP, Socket LGA1851"
  },
  {
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    "type": "CPU",
    "price": 5910000,
    "socket": "LGA1851",
    "power": 85,
    "desc": "16 nhân / 32 luÓng, 85W TDP, Socket LGA1851"
  },
  {
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    "type": "CPU",
    "price": 6020000,
    "socket": "LGA1851",
    "power": 95,
    "desc": "8 nhân / 16 luÓng, 95W TDP, Socket LGA1851"
  },
  {
    "id": "cpu_intel_14900T_346",
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    "type": "CPU",
    "price": 1920000,
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    "power": 120,
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  },
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    "power": 95,
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    "power": 105,
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  },
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// ---- FILE TRUNCATED: 41084 lines total, showing first 5000 ----
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File: data/componentSpecs.ts (224 lines, 7.2 KB)

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export interface ComponentDimension {
  width_mm: number;
  height_mm: number;
  depth_mm: number;
}

export interface ComponentColor {
  pcb: string;
  heatsink?: string;
  shroud?: string;
  led?: string;
  connector: string;
  accent?: string;
}

export interface ComponentRenderSpec {
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  name: string;
  type: 'cpu' | 'gpu' | 'ram' | 'motherboard' | 'psu' | 'case' | 'cooler' | 'ssd' | 'hdd';
  brand: string;
  model: string;
  dimensions: ComponentDimension;
  colors: ComponentColor;
  connectors: {
    id: string;
    label: string;
    type: string;
    position: { x: number; y: number };
    facing: 'top' | 'bottom' | 'left' | 'right';
    color: string;
  }[];
  imageTop?: string;
  imageSide?: string;
  techSpecs: Record<string, string | number>;
}

export const COMPONENT_SPECS: ComponentRenderSpec[] = [
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    brand: 'Intel',
    model: 'Core i5-13600K',
    dimensions: { width_mm: 37.5, height_mm: 37.5, depth_mm: 4.5 },
    colors: {
      pcb: '#1a472a',
      heatsink: '#c0c0c0',
      connector: '#d4af37',
      accent: '#0071c5',
    },
    connectors: [
      { id: 'lga1700', label: 'LGA1700 Socket', type: 'cpu_socket',
        position: { x: 50, y: 50 }, facing: 'bottom', color: '#d4af37' }
    ],
    techSpecs: { socket: 'LGA1700', tdp: 125, cores: 14, threads: 20 }
  },
  {
    id: 'amd-ryzen5-7600x',
    name: 'AMD Ryzen 5 7600X',
    type: 'cpu',
    brand: 'AMD',
    model: 'Ryzen 5 7600X',
    dimensions: { width_mm: 40, height_mm: 40, depth_mm: 4.7 },
    colors: {
      pcb: '#1a2744',
      heatsink: '#a8a8a8',
      connector: '#b8860b',
      accent: '#ed1c24',
    },
    connectors: [
      { id: 'am5', label: 'AM5 Socket', type: 'cpu_socket',
        position: { x: 50, y: 50 }, facing: 'bottom', color: '#b8860b' }
    ],
    techSpecs: { socket: 'AM5', tdp: 105, cores: 6, threads: 12 }
  },
  {
    id: 'rtx-4060',
    name: 'NVIDIA RTX 4060',
    type: 'gpu',
    brand: 'NVIDIA',
    model: 'RTX 4060 (ASUS DUAL)',
    dimensions: { width_mm: 200, height_mm: 120, depth_mm: 40 },
    colors: {
      pcb: '#1a1a2e',
      heatsink: '#2d2d2d',
      shroud: '#ffffff',
      connector: '#000000',
      accent: '#76b900',
      led: '#76b900',
    },
    connectors: [
      { id: 'pcie-x16', label: 'PCIe x16', type: 'pcie_x16',
        position: { x: 90, y: 85 }, facing: 'bottom', color: '#ffcc00' },
      { id: 'pwr-8pin', label: '8-pin Power', type: 'pcie_power',
        position: { x: 15, y: 5 }, facing: 'top', color: '#ff6600' },
      { id: 'dp1', label: 'DisplayPort 1', type: 'display',
        position: { x: 8, y: 75 }, facing: 'left', color: '#00aaff' },
      { id: 'dp2', label: 'DisplayPort 2', type: 'display',
        position: { x: 18, y: 75 }, facing: 'left', color: '#00aaff' },
      { id: 'hdmi', label: 'HDMI 2.1', type: 'display',
        position: { x: 28, y: 75 }, facing: 'left', color: '#00aa44' },
    ],
    techSpecs: { vram_gb: 8, tdp: 115, pcie_gen: 4, length_mm: 200 }
  },
  {
    id: 'rx-7600',
    name: 'AMD Radeon RX 7600',
    type: 'gpu',
    brand: 'AMD',
    model: 'RX 7600 (Sapphire PULSE)',
    dimensions: { width_mm: 190, height_mm: 115, depth_mm: 38 },
    colors: {
      pcb: '#0d1117',
      heatsink: '#3d3d3d',
      shroud: '#1a1a1a',
      connector: '#000000',
      accent: '#ed1c24',
      led: '#ed1c24',
    },
    connectors: [
      { id: 'pcie-x16', label: 'PCIe x16', type: 'pcie_x16',
        position: { x: 90, y: 85 }, facing: 'bottom', color: '#ffcc00' },
```

```
      { id: 'pwr-8pin', label: '8-pin Power', type: 'pcie_power',
        position: { x: 20, y: 5 }, facing: 'top', color: '#ff6600' },
    ],
    techSpecs: { vram_gb: 8, tdp: 165, pcie_gen: 4, length_mm: 190 }
  },
  {
    id: 'asus-b760m-atx',
    name: 'ASUS PRIME B760M-A',
    type: 'motherboard',
    brand: 'ASUS',
    model: 'PRIME B760M-A',
    dimensions: { width_mm: 244, height_mm: 244, depth_mm: 25 },
    colors: {
      pcb: '#1c2a1c',
      heatsink: '#c0c0c0',
      connector: '#ffcc00',
      accent: '#ffd700',
    },
    connectors: [
      { id: 'cpu-socket', label: 'LGA1700 CPU Socket', type: 'cpu_socket',
        position: { x: 35, y: 25 }, facing: 'top', color: '#d4af37' },
      { id: 'dimm-a1', label: 'DIMM A1 (DDR5)', type: 'ram_slot',
        position: { x: 65, y: 20 }, facing: 'top', color: '#4a90d9' },
      { id: 'dimm-b1', label: 'DIMM B1 (DDR5)', type: 'ram_slot',
        position: { x: 72, y: 20 }, facing: 'top', color: '#4a90d9' },
      { id: 'pcie-x16-1', label: 'PCIe x16 Slot 1', type: 'pcie_x16',
        position: { x: 40, y: 58 }, facing: 'top', color: '#ff6b00' },
      { id: 'm2-1', label: 'M.2_1 (PCIe 4.0)', type: 'm2',
        position: { x: 50, y: 45 }, facing: 'top', color: '#00cc44' },
      { id: 'atx-24pin', label: '24-pin ATX Power', type: 'atx_power',
        position: { x: 88, y: 35 }, facing: 'right', color: '#ff4400' },
      { id: 'cpu-8pin', label: '8-pin CPU EPS', type: 'cpu_power',
        position: { x: 20, y: 5 }, facing: 'top', color: '#ff8800' },
    ],
    techSpecs: { socket: 'LGA1700', chipset: 'B760', form_factor: 'mATX', ram_slots: 2, max_ram_gb: 64, ram_ty...
  },
  {
    id: 'kingston-fury-16gb-ddr5',
    name: 'Kingston FURY Beast 16GB DDR5',
    type: 'ram',
    brand: 'Kingston',
    model: 'FURY Beast DDR5-5200',
    dimensions: { width_mm: 133, height_mm: 35, depth_mm: 8 },
    colors: {
      pcb: '#1a1a1a',
      heatsink: '#2c2c2c',
      connector: '#d4af37',
      accent: '#ff6600',
    },
    connectors: [
      { id: 'dimm-edge', label: 'DIMM Edge Connector', type: 'dimm',
        position: { x: 50, y: 98 }, facing: 'bottom', color: '#d4af37' }
    ],
    techSpecs: { type: 'DDR5', speed_mhz: 5200, capacity_gb: 16, cl: 40 }
  },
  {
    id: 'corsair-rm750x',
    name: 'Corsair RM750x 750W',
    type: 'psu',
    brand: 'Corsair',
    model: 'RM750x 80+ Gold',
    dimensions: { width_mm: 150, height_mm: 86, depth_mm: 160 },
    colors: {
      pcb: '#1a1a1a',
      heatsink: '#000000',
      connector: '#ff4400',
      accent: '#ffff00',
    },
    connectors: [
      { id: 'atx-24pin-out', label: '24-pin ATX Output', type: 'atx_power',
        position: { x: 20, y: 50 }, facing: 'right', color: '#ff4400' },
      { id: 'eps-8pin-out', label: '8-pin EPS CPU Output', type: 'cpu_power',
        position: { x: 35, y: 50 }, facing: 'right', color: '#ff8800' },
      { id: 'pcie-6p2-out', label: 'PCIe 6+2 Pin', type: 'pcie_power',
        position: { x: 50, y: 50 }, facing: 'right', color: '#ff6600' },
    ],
    techSpecs: { wattage: 750, efficiency: '80+ Gold', modular: 'Full', pcie_connectors: 4, sata_connectors: 6 }
  },
  {
    id: 'samsung-980-pro-1tb',
    name: 'Samsung 980 PRO 1TB',
    type: 'ssd',
    brand: 'Samsung',
    model: '980 PRO NVMe M.2',
    dimensions: { width_mm: 80, height_mm: 22, depth_mm: 3.5 },
    colors: {
      pcb: '#1a1a2e',
      heatsink: '#c0c0c0',
      connector: '#d4af37',
      accent: '#1428a0',
    },
    connectors: [
      { id: 'm2-key-m', label: 'M.2 Key-M Connector', type: 'm2',
        position: { x: 92, y: 50 }, facing: 'right', color: '#d4af37' }
    ],
    techSpecs: { interface: 'M.2 NVMe', pcie_gen: 4, read_mbps: 7000, write_mbps: 5100, capacity_gb: 1000 }
  },
];

export const MM_TO_PX = 2.5;
export const MM_TO_3D = 0.01;
```

File: data/glossary.ts (63 lines, 6.7 KB)

```
export const GLOSSARY: Record<string, string> = {
    'CPU': 'BÙ vi xí lý trung tâm (Central Processing Unit) – "bÙ nãO" cÇa
    'GPU': 'BÙ xí lý Ó hÍa (Graphics Processing Unit) – chuyên xí lý hình
    'RAM': 'BÙ nhÛ truy c-p ng« u nhiên (Random Access Memory) – l°u dï liC
    'VRAM': 'BÙ nhÛ video trên card Ó hÍa – l°u texture, frame buffer, di
    'SSD': 'Ô céng thÃ r¯n (Solid State Drive) – l°u trï dï liÇu vÛi tÑc
    'NVMe': 'Giao théc k¿t nÑi SSD qua PCIe, tÑc Ù cñc nhanh (7000 MB/s),
    'HDD': 'Ô céng të tính (Hard Disk Drive) – l°u trï trên )a quay të, c
    'PSU': 'BÙ nguÓn máy tính (Power Supply Unit) – c¥p iÇn cho toàn bÛ l
    'TDP': 'Công su¥t tÍa nhiÇt thi¿t k¿ (Thermal Design Power) – chÉ sÑ n
    'AIO': 'T£n nhiÇt n°Ûc all-in-one – hÇ thÑng t£n nhiÇt b±ng ch¥t lÏng
    'BIOS': 'HÇ thÑng §u vào/§u ra c¡ b£n – firmware khßi Ùng máy, kiÃm
    'UEFI': 'Giao diÇn firmware mß rÙng – thay th¿ BIOS, giao diÇn Ó hÍa,
    'POST': 'Power-On Self-Test – quá trình tñ kiÃm tra phßn céng khi b-t
    'VRM': 'Module iÁu chÉnh iÇn áp (Voltage Regulator Module) – trên ma
    'PCIe': 'Peripheral Component Interconnect Express – chu©n k¿t nÑi tÑc
    'SATA': 'Serial ATA – chu©n k¿t nÑi Õ céng HDD/SSD và Õ quang, b ng th
    'M.2': 'Chu©n k¿t nÑi SSD NVMe nhÏ gÍn, c¯m trñc ti¿p lên mainboard, t
```

```
  19|      'DDR':  'Double Data Rate – công nghÇ RAM truyÁn dï liÇu 2 l§n m×i xung
  20|      'XMP':  'Extreme Memory Profile – hÓ s¡ ép xung RAM tñ Ùng cça Intel,
  21|      'CAS':  'Column Address Strobe (CAS Latency) – Ù trÅ cça RAM, sÑ càng
  22|      'DLSS':  'Deep Learning Super Sampling – công nghÇ NVIDIA dùng AI nâng
  23|      'FSR':  'FidelityFX Super Resolution – công nghÇ AMD nâng Ù phân gi£i,
  24|      'RTX':  'Dòng card Ó hÍa NVIDIA h× trã Ray Tracing và AI (Tensor Core,
  25|      'FPS':  'SÑ khung hình trên giây (Frames Per Second) – chÉ sÑ o Ù m°
  26|      'LED':  'Light Emitting Diode – èn báo hiÇu ho·c trang trí trên linh k
  27|      'RGB':  'èn LED Ï-låc-lam (Red-Green-Blue) – có thÃ tùy chÉnh hàng tr
  28|      'ARGB':  'Addressable RGB – èn LED có thÃ iÁu khiÃn tëng èn riêng l×
  29|      'PWM':  'Pulse Width Modulation – công nghÇ iÁu chÉnh tÑc Ù qu¡t b±ng
  30|      'CMOS':  'Complementary Metal-Oxide-Semiconductor – pin nhÏ trên mainbo
  31|      'Socket':  '¿ c¯m CPU trên mainboard, m×i dòng CPU có socket riêng (LG
  32|      'Chipset':  'Con chip iÁu khiÃn giao ti¿p giïa CPU và các linh kiÇn kh
  33|      'ATX':  'Chu©n mainboard phÕ bi¿n nh¥t, kích th°Ûc 305x244mm, nhiÁu khe
  34|      'ITX':  'Mini-ITX – chu©n mainboard nhÍ gÍn 170x170mm, dùng cho PC nhÏ,
  35|      'Ethernet':  'Công nghÇ m¡ng có dây, dùng cáp RJ45, phÕ bi¿n chu©n Giga
  36|      'Thunderbolt':  'Chu©n k¿t nÑi tÑc Ù cao 40 Gbps cça Intel, tích hãp c
  37|      'HDMI':  'High-Definition Multimedia Interface – cÕng xu¥t hình £nh + â
  38|      'DisplayPort':  'CÕng xu¥t hình £nh chuyên dång cho PC, b ng thông cao
  39|      'TPM':  'Trusted Platform Module – chip b£o m-t trên mainboard, yêu c§u
  40|      'ECC':  'Error-Correcting Code – RAM có kh£ n ng tñ sía l×i, dùng trong
  41|      'RAID':  'Redundant Array of Independent Disks – ghép nhiÁu Õ céng Ã t
  42|      'NAS':  'Network Attached Storage – thi¿t bË l°u trï m¡ng, nhiÁu Õ céng
  43|      'Hyper-Threading':  'Công nghÇ cça Intel bi¿n 1 nhân v-t lý thành 2 luO
  44|      'Ray Tracing':  'Công nghÇ mô phÍng ánh sáng thñc t¿ (ph£n chi¿u, Õ bo
  45|      'Overclocking':  'Ép xung – ch¡y linh kiÇn ß xung nhËp cao h¡n m·c Ënh
  46|      'Undervolting':  'Gi£m iÇn áp linh kiÇn Ã gi£m nhiÇt Ù và ti¿t kiÇm
  47|      'Benchmark':  'Ph§n mÁm o hiÇu n ng (Cinebench, 3DMark, CrystalDiskMar
  48|      'Thermal Paste':  'Kem t£n nhiÇt – bôi giïa CPU và t£n nhiÇt Ã truyÁn
  49|      'Radiator':  'BÙ t£n nhiÇt d¡ng l°Ûi trong hÇ thÑng t£n n°Ûc, tÏa nhiÇt
  50| }
  51|
  52| export function findTerms(text: string): string[] {
  53|   const terms: string[] = []
  54|   const sorted = Object.keys(GLOSSARY).sort((a, b) => b.length - a.length)
  55|   const lower = text.toLowerCase()
  56|   for (const term of sorted) {
  57|     if (lower.includes(term.toLowerCase())) {
  58|       terms.push(term)
  59|     }
  60|   }
  61|   return terms
  62| }
  63|
```

File: data/key-questions.ts (149 lines, 19.6 KB)

```
  1| export interface KeyQuestion {
  2|   q: string
  3|   a: string
  4| }
  5|
  6| export const KEY_QUESTIONS: Record<string, KeyQuestion[]> = {
  7|       'BÙ vi xí lý (CPU)':  [
  8|         {  q:  'CPU £nh h°ßng th¿ nào ¿n hiÇu n ng máy tính?',  a:  'CPU quy¿t
  9|         {  q:  'Nên chÍn CPU Intel hay AMD?',  a:  'Intel Core i5 phù hãp a sÑ
  10|         {  q:  'Socket CPU là gì và t¡i sao quan trÍng?',  a:  'Socket là ¿ c¯m
  11|         {  q:  'TDP có ý ngh)a gì khi chÍn CPU?',  a:  'TDP (Thermal Design Powe
  12|   ],
  13|   'RAM & SSD':  [
  14|         {  q:  'Nên chÍn DDR4 hay DDR5?',  a:  'DDR5 mÛi h¡n, tÑc Ù cao h¡n (48
  15|         {  q:  'Bao nhiêu RAM là ç?',  a:  '8GB: v n phòng c¡ b£n. 16GB: gaming
  16|         {  q:  'SSD NVMe khác SATA th¿ nào?',  a:  'NVMe tÑc Ù 7000 MB/s (g¥p 1
  17|         {  q:  'Nên mua SSD dung l°ãng bao nhiêu?',  a:  '250GB: càì Windows + e
  18|   ],
  19|       'Card Ó hÍa (GPU)':  [
  20|         {  q:  'GPU quan trÍng th¿ nào vÛi gaming?',  a:  'GPU là linh kiÇn quan
  21|         {  q:  'Nên chÍn NVIDIA hay AMD?',  a:  'NVIDIA RTX có Ray Tracing, DLSS
  22|         {  q:  'VRAM bao nhiêu là ç?',  a:  '4GB: game ci, eSports. 6-8GB: game
  23|         {  q:  'Ray Tracing và DLSS là gì?',  a:  'Ray Tracing: mô phÍng ánh sán
  24|   ],
  25|       'NguÓn & T£n nhiÇt':  [
  26|         {  q:  'ChÍn nguÓn công su¥t bao nhiêu?',  a:  'Tính tÕng TDP linh kiÇn
  27|         {  q:  '80 Plus là gì?',  a:  'Chéng nh-n hiÇu su¥t nguÓn: White 80%, Br
  28|         {  q:  'Nên dùng t£n khí hay t£n n°Ûc?',  a:  'T£n khí: r», dÃ l¯p, bÁn,
  29|         {  q:  'NguÓn modular là gì?',  a:  'NguÓn modular có dây cáp tháo rÝi
  30|   ],
  31|       'Bo m¡ch chç':  [
  32|         {  q:  'Cách chÍn mainboard phù hãp?',  a:  'ChÍn theo socket CPU (Intel
  33|         {  q:  'Chipset nào cho nhu c§u nào?',  a:  'H610: c¡ b£n, r». B660/B760
  34|         {  q:  'ATX, M-ATX, ITX khác nhau th¿ nào?',  a:  'ATX: §y ç khe mß rU
  35|         {  q:  'VRM trên mainboard có tác dång gì?',  a:  'VRM (Voltage Regulato
  36|   ],
  37|       'L°u trï dï liÇu':  [
  38|         {  q:  'SSD hay HDD cho viÇc gì?',  a:  'SSD: càì Windows, éng dång, gam
  39|         {  q:  'Cách kiÃm tra séc khÏe Õ céng?',  a:  'Dùng CrystalDiskInfo (Win
  40|         {  q:  'Nên chÍn SSD chu©n nào?',  a:  'NVMe PCIe 4.0: tÑc Ù 7000 MB/s
  41|   ],
  42|       'Thñc hành l¯p ráp':  [
  43|         {  q:  'Các b°Ûc l¯p ráp PC c¡ b£n?',  a:  '1. L¯p CPU lên mainboard. 2.
  44|         {  q:  'Chú ý gì khi l¯p CPU?',  a:  'Ç n chÉnh d¥u tam giác trên CPU vO
  45|         {  q:  'ChÑng t)nh iÇn khi l¯p ráp?',  a:  'Dùng dây eo tay ESD ho·c c
  46|         {  q:  'Sau khi l¯p xong c§n làm gì?',  a:  'KiÃm tra èn LED mainboard,
  47|   ],
  48|       'M¡ng & K¿t nÑi':  [
  49|         {  q:  'Nên dùng WiFi có dây hay không dây?',  a:  'Có dây (Ethernet): Ö
  50|         {  q:  'Router nào phù hãp?',  a:  'WiFi 5 (AC): ç cho nhu c§u c¡ b£n.
  51|         {  q:  'Cách kiÃm tra tÑc Ù m¡ng?',  a:  'Dùng Speedtest.net ho·c Fast.
  52|   ],
  53|       'Thi¿t bË ngo¡i vi':  [
  54|         {  q:  'Cách chÍn màn hình phù hãp?',  a:  'Kích th°Ûc 24-27" phÕ bi¿n.
  55|         {  q:  'Bàn phím c¡ hay th°Ýng?',  a:  'Bàn phím c¡: bÁn, c£m giác gõ tN
  56|         {  q:  'DPI chuÙt bao nhiêu là ç?',  a:  '800-1600 DPI cho gaming, v n
  57|   ],
  58|       'HÇ thÑng khßi Ùng':  [
  59|         {  q:  'UEFI khác BIOS th¿ nào?',  a:  'UEFI: giao diÇn Ó hÍa, h× trã c
  60|         {  q:  'Cách vào BIOS?',  a:  'Nh¥n phím Del/F2 ngay khi b-t máy (tr°Ûc
  61|         {  q:  'Secure Boot là gì?',  a:  'Tính n ng b£o m-t ng n malware khßi
  62|         {  q:  'Nên b-t XMP không?',  a:  'Có. XMP ch¡y RAM ß tÑc Ù nhà s£n xu¥
  63|   ],
  64|       'Công nghÇ màn hình':  [
  65|         {  q:  'IPS, VA, TN khác nhau th¿ nào?',  a:  'IPS: màu ¹p, góc nhìn rU
  66|         {  q:  'Nên chÍn 1080p, 1440p hay 4K?',  a:  '1080p: 24", gaming t§m tru
  67|         {  q:  'HDR có c§n thi¿t không?',  a:  'HDR cho d£i màu rÙng, sáng/tÑi c
  68|   ],
  69|       'HÇ thÑng âm thanh':  [
  70|         {  q:  'C§n card âm thanh rÝi không?',  a:  'Không c§n n¿u dùng loa/tai
  71|         {  q:  'Tai nghe nào cho gaming?',  a:  'Tai nghe over-ear: cách âm tÑt,
  72|         {  q:  'Loa 2.0 hay 2.1?',  a:  '2.0: gÍn, ç nghe nh¡c c¡ b£n. 2.1: có
  73|   ],
  74|       'VÏ case & qu¡t':  [
  75|         {  q:  'Cách chÍn case phù hãp?',  a:  'ChÍn theo form factor mainboard
```

```
    76 |         {  q:  'Cách  bÑ  trí  qu¡t  case  tÑi  °u?',  a:  'Hút  vào:  m·t  tr°Ûc  +   áy.
    77 |         {  q:  'Qu¡t  PWM  là  gì?',  a:  'Qu¡t  PWM  tñ   iÁu  chÉnh  tÑc   Ù  theo  nhiÇt
 78|   ],
    79 |       '  ánh  giá  hiÇu  n  ng':  [
    80 |         {  q:  'Các  ph§n  mÁm  benchmark  quan  trÍng?',  a:  'CPU:  Cinebench  (rende
    81 |         {  q:  'FPS  bao  nhiêu  là  ch¡i   °ãc?',  a:  '30  FPS:  ch¡i   °ãc  (console)
    82 |         {  q:  'Cách   Íc  k¿t  qu£  benchmark?',  a:  'So  sánh   iÁm  sÑ  vÛi  các  c¥u
 83|   ],
 84|   'Laptop': [
    85 |         {  q:  'Nên  mua  laptop  hay  desktop?',  a:  'Laptop:  di   Ùng,  gÍn  nh¹,  ti
    86 |         {  q:  'Các  dòng  laptop  phÕ  bi¿n?',  a:  'Ultrabook:  mÏng  nh¹,  pin  lâu  (
    87 |         {  q:  'Thunderbolt  4  có  gì   ·c  biÇt?',  a:  'B  ng  thông  40  Gbps,  truyÁn
 88|   ],
    89 |       'Ép  xung  &  tÑi  °u':  [
    90 |         {  q:  'Có  nên  ép  xung  CPU  không?',  a:  'CPU   Ýi  mÛi   ã  có  turbo  boost
    91 |         {  q:  'NhiÇt   Ù  CPU  an  toàn  là  bao  nhiêu?',  a:  'Idle:  30-40°C.  Xem  ph
    92 |         {  q:  'Undervolting  là  gì?',  a:  'Gi£m   iÇn  áp  CPU/GPU   Ã  gi£m  nhiÇt
 93|   ],
    94 |       'T£n  nhiÇt  nâng  cao':  [
    95 |         {  q:  'Custom  loop  water  cooling  là  gì?',  a:  'HÇ  thÑng  t£n  nhiÇt  n°Ûc
    96 |         {  q:  'AIO  vs  Custom  loop  khác  nhau?',  a:  'AIO:  l¯p  sµn,  kín,  dÃ  dùng
    97 |         {  q:  'C§n  b£o  d°áng  t£n  n°Ûc  th¿  nào?',  a:  'AIO:  không  c§n  b£o  d°áng
 98|   ],
 99|   'PC Gaming': [
   100 |         {  q:  'C¥u  hình  PC  gaming  15  triÇu?',  a:  'CPU:  AMD  Ryzen  5  7600.  GPU:
   101 |         {  q:  'C¥u  hình  PC  gaming  30  triÇu?',  a:  'CPU:  Intel  i5-14600K  /  Ryze
   102 |         {  q:  'Y¿u  tÑ  nào  quan  trÍng  nh¥t  cho  gaming?',  a:  'GPU  là  quan  trÍng
103|   ],
   104 |       'Máy  chç  &  Workstation':  [
   105 |         {  q:  'Server  khác  PC  th°Ýng  th¿  nào?',  a:  'Server  dùng  CPU  Xeon/EPYC
   106 |         {  q:  'ECC  RAM  là  gì?',  a:  'RAM  có  kh£  n  ng  phát  hiÇn  và  sía  l×i  tñ
   107 |         {  q:  'RAID  nên  dùng  lo¡i  nào?',  a:  'RAID  0:  gÙp  Õ !'  nhanh  nh°ng  khôn
108|   ],
   109 |       'Cáp  &   ¥u  nÑi':  [
   110 |         {  q:  'Các  lo¡i  cáp  nguÓn  c§n  bi¿t?',  a:  '24-pin  ATX:  c¥p  nguÓn  mainb
   111 |         {  q:  'Cable  management  là  gì?',  a:  'S¯p  x¿p  dây  cáp  gÍn  gàng  trong  c
   112 |         {  q:  'Nên  dùng  cáp  nÑi  nào  cho  màn  hình?',  a:  'HDMI  2.1:  4K  144Hz  ho
113|   ],
   114 |       'Xí  lý  sñ  cÑ':  [
   115 |         {  q:  'PC  không  boot,  xí  lý  th¿  nào?',  a:  '1.  KiÃm  tra  nguÓn  (qu¡t  ng
   116 |         {  q:  'Màn  hình  xanh  (BSOD)  fix  th¿  nào?',  a:  'Ghi  l¡i  mã  l×i  (VD:  ME
   117 |         {  q:  'Máy  ch¡y  ch-m,  kh¯c  phÃc  ra  sao?',  a:  'KiÃm  tra  séc  khÏe  SSD/H
   118 |         {  q:  'NhiÇt   Ù  cao  khi  ch¡i  game?',  a:  'KiÃm  tra  qu¡t  t£n  nhiÇt  CPU
119|   ],
120|   'VR/AR': [
   121 |         {  q:  'PC  c§n  c¥u  hình  gì  cho  VR?',  a:  'TÑi  thiÃu:  RTX  3060  +  i5/Ryze
   122 |         {  q:  'VR  Headset  nào  phÕ  bi¿n?',  a:  'Meta  Quest  3:  không  dây,  giá  ph
   123 |         {  q:  'AR  khác  VR  th¿  nào?',  a:  'AR  (Thñc  t¿  t  ng  c°Ýng):  chÓng  hình
124|   ],
   125 |       'LËch  sí  PC':  [
   126 |         {  q:  'Nhïng  cÙt  mÑc  quan  trÍng  trong  lËch  sí  PC?',  a:  '1945:  ENIAC  (
   127 |         {  q:  'Ënh  lu-t  Moore  là  gì?',  a:  'SÑ  l°ãng  transistor  trên  chip  t  n
128|   ],
   129 |       '  ¡o   éc  &  an  toàn':  [
   130 |         {  q:  'B£o  vÇ  dï  liÇu  cá  nhân  th¿  nào?',  a:  'Dùng  m-t  kh©u  m¡nh  (chï
   131 |         {  q:  'Xí  lý  rác  th£i   iÇn  tí   úng  cách?',  a:  'Không  vét  linh  kiÇn  và
   132 |         {  q:  'B£n  quyÁn  ph§n  mÁm?',  a:  'Ph§n  mÁm  có  b£n  quyÁn:  Windows,  Offi
133|   ],
   134 |       'Trí  tuÇ  nhân  t¡o':  [
   135 |         {  q:  'AI  và  Machine  Learning  khác  nhau  th¿  nào?',  a:  'AI:  máy  mô  phỏ
   136 |         {  q:  'GPU  quan  trÍng  vÛi  AI  th¿  nào?',  a:  'GPU  có  hàng  nghìn  lõi  xí
   137 |         {  q:  'Các  éng  dãng  AI  phÕ  bi¿n?',  a:  'ChatGPT/Gemini  (chatbot),  Mid
138|   ],
139|   default: [
   140 |         {  q:  'Làm  sao   Ã  b¯t   §u  hÍc?',  a:  '1.   ng  nh-p  tài  kho£n.  2.  Vào  S
   141 |         {  q:  'Ki¿m  ngân  sách  th¿  nào?',  a:  'Làm  quiz  tr¯c  nghiÇm,  m×i   iÃm  =
   142 |         {  q:  'Cách  sí  dãng  glossary?',  a:  'Trong  khi  làm  quiz,  thu-t  ngi   °ã
143|   ]
144| }
145|
146| export function getKeyQuestions(lessonTitle: string): KeyQuestion[] {
147|   return KEY_QUESTIONS[lessonTitle] || KEY_QUESTIONS.default
148| }
149|
```

File: data/knowledgeBase.js (70 lines, 4.3 KB)

```
==========================================================================================
   1| export const KNOWLEDGE_BASE = [
   2|   {
   3|     topic: "CPU",
    4 |         content:  `CPU  (Central  Processing  Unit)  là  bÙ  não  cça  máy  tính.
    5 |         Các  lo¡i  socket  phÕ  bi¿n:  Intel  dùng  LGA  (nh°  LGA1700),  AMD  dùng  AM4
    6 |         Cores  (nhân)  và  Threads  (luÓng):  Càng  nhiÁu  nhân  luÓng  thì  xí  lý  a
    7 |         Xung  nhËp  (Clock  speed):  Tính  b±ng  GHz,  quy¿t   Ënh  tÑc   Ù  xí  lý  cça
    8 |         TDP  (Thermal  Design  Power):  ChÉ  sÑ  thoát  nhiÇt,  giúp  chÍn  t£n  nhiÇt
    9 |         Cache:  BÙ  nhÛ   Çm  giúp  CPU  truy  c-p  dï  liÇu  nhanh  h¡n.`
10|   },
11|   {
12|     topic: "RAM",
   13 |         content:  `RAM  (Random  Access  Memory)  là  bÙ  nhÛ  t¡m  thÝi  cça  hÇ  thÑng
   14 |         DDR4  vs  DDR5:  DDR5  có  tÑc   Ù  (bus)  cao  h¡n  và   iÇn  áp  th¥p  h¡n  DDR4.
   15 |         Dung  l°ãng:  PhÕ¯bi¿n  là  8GB,  16GB,  32GB.  16GB  là  méc  tiêu  chu©n  cho
   16 |         Dual  Channel:  C¯m  2  thanh  RAM  giúp  b  ng  thông  t  ng  g¥p   ôi,  c£i  thiO
   17 |         Bus  RAM:  TÑc   Ù  truyÁn  t£i  dï  liÇu,  ví  då  3200MHz  (DDR4)  ho·c  5600MH
18|   },
19|   {
20|     topic: "GPU",
   21 |         content:  `GPU  (Graphics  Processing  Unit)  xí  lý  hình  £nh  và   Ó  hÍa.
   22 |         VRAM:  BÙ  nhÛ  video,  ví  då  8GB,  12GB  GDDR6.  Quan  trÍng  khi  ch¡i  game
   23 |         CUDA  Cores  (NVIDIA)  ho·c  Stream  Processors  (AMD):  SÑ  l°ãng  nhân  xí  l
   24 |         K¿t  nÑi:  H§u  h¿t  dùng  khe  c¯m  PCIe  x16  trên  mainboard.
   25 |         TDP:  GPU  th°Ýng  là  linh  kiÇn  ngÑn   iÇn  nh¥t  trong  máy  tính.`
26|   },
27|   {
28|     topic: "PSU",
   29 |         content:  `PSU  (Power  Supply  Unit)  là  bÙ  nguÓn  c¥p   iÇn  cho  toàn  bÙ  m
   30 |         Wattage:  Công  su¥t   Ënh  méc  (ví  då  500W,  650W,  750W).  Ph£i  lÛn  h¡n  t
   31 |         HiÇu  su¥t  80  Plus:  Các  chu©n  White,  Bronze,  Silver,  Gold,  Platinum,
   32 |         Modular:  NguÓn  Full-Modular  cho  phép  tháo  rÝi  t¥t  c£  dây  cáp   Ã   i  c
33|   },
34|   {
35|     topic: "SSD",
   36 |         content:  `SSD  (Solid  State  Drive)  là  Õ  céng  thÃ  r¯n,  tÑc   Ù  cao  h¡n
   37 |         NVMe  vs  SATA:  SSD  NVMe  (M.2)  có  tÑc   Ù  cñc  nhanh  (lên   ¿n  7000MB/s),
   38 |         CÕng  k¿t  nÑi:  M.2  (g¯n  trñc  ti¿p  lên  mainboard)  ho·c  SATA  (dùng  dây
   39 |         TÑc   Ù   Íc  ghi:  Y¿u  tÑ  quy¿t   Ënh  thÝi  gian  khßi   Ùng  Win  và  mß  éng
40|   },
41|   {
42|     topic: "Mainboard",
   43 |         content:  `Mainboard  (Bo  m¡ch  chç)  k¿t  nÑi  mÍi  linh  kiÇn  l¡i  vÛi  nhau
   44 |         Chipset:  Ví  då  H610  (phÕ  thông),  B760  (t§m  trung),  Z790  (cao  c¥p  cho
   45 |         Form  Factor:  ATX  (lÛn),  Micro-ATX  (vëa),  Mini-ITX  (nhÏ).
   46 |         Slot:  Khe  c¯m  RAM  (2  ho·c  4  khe),  khe  PCIe  cho  GPU,  và  các  khe  c¯m  S
```

```
  47|   },
  48|   {
  49|     topic: "CASE",
     5 0 |         c o n t e n t :   `C a s e   ( V Ï   m á y   t í n h )   b £ o   v Ç   l i n h   k i Ç n   v à   q u y ¿ t   Ë n h   t í n h   t h ©
     5 1 |         K í c h   t h ° Û c   ( F o r m   F a c t o r ) :   F u l l   T o w e r   ( l Û n   n h ¥ t ) ,   M i d   T o w e r   ( p h Õ   b i ¿ n
     5 2 |         A i r f l o w :   L u Ó n g   k h ô n g   k h í   t r o n g   m á y ,   q u a n   t r Í n g   Ã   g i ï   l i n h   k i Ç n   m á t
     5 3 |         K í n h   c ° Ý n g   l ñ c   ( T e m p e r e d   G l a s s ) :   G i ú p   k h o e   l i n h   k i Ç n   b ê n   t r o n g   v à   ë
  54|   },
  55|   {
  56|     topic: "COOLING",
     5 7 |         c o n t e n t :   `H Ç   t h Ñ n g   l à m   m á t   g i ú p   C P U   v à   G P U   k h ô n g   b Ë   q u á   n h i Ç t .
     5 8 |         T £ n   n h i Ç t   k h í   ( A i r   C o o l i n g ) :   D ù n g   t h á p   t £ n   n h i Ç t   v à   q u ¡ t ,   b Á n   b É   v à
     5 9 |         T £ n   n h i Ç t   n ° Û c   ( A I O / L i q u i d   C o o l i n g ) :   D ù n g   d u n g   d Ë c h   l à m   m á t   v à   r a d i a
     6 0 |         Q u ¡ t   C a s e   ( C a s e   F a n s ) :   T h ° Ý n g   c ó   k í c h   t h ° Û c   1 2 0 m m   h o · c   1 4 0 m m ,   l ¯ p   t h
  61|   },
  62|   {
  63|     topic: "MONITOR",
     6 4 |         c o n t e n t :   `M à n   h ì n h   h i Ã n   t h Ë   h ì n h   £ n h   t ë   m á y   t í n h .
     6 5 |           Ù   p h â n   g i £ i :   F u l l   H D   ( 1 0 8 0 p ) ,   2 K   ( 1 4 4 0 p ) ,   4 K   ( 2 1 6 0 p ) .
     6 6 |         T § n   s Ñ   q u é t   ( R e f r e s h   R a t e ) :   T í n h   b ± n g   H z   ( 6 0 H z ,   1 4 4 H z ,   2 4 0 H z ) .   C à n g
     6 7 |         T ¥ m   n Á n   ( P a n e l   T y p e ) :   I P S   ( m à u   ¹ p ,   g ó c   n h ì n   r Ù n g ) ,   V A   (   Ù   t ° ¡ n g   p h £
  68|   }
  69| ];
  70|
```

File: data/quiz-bank-full.ts (1741 lines, 84.6 KB)

```
==========================================================================================
   1| export const FULL_QUIZ_BANK = {
   2|   'cpu-arch': {
   3|     id: 'cpu-arch',
     4 |         t i t l e :   ' K i ¿ n   T r ú c   C P U   &   T - p   L Ç n h ' ,
     5 |         i c o n :   'Ø=Ý ' ,
   6|     color: '#6366f1',
     7 |         d e s c r i p t i o n :   ' K i ¿ n   t h é c   v Á   b Ù   v i   x í   l ý ,   k i ¿ n   t r ú c ,   t - p   l Ç n h   v à   c ô n g
   8|     questions: [
   9|       {
  10|         id: 'q1',
     1 1 |         t e x t :   ' C P U   l à   v i ¿ t   t ¯ t   c ç a   t ë   g ì ? ' ,
  12|         options: ['A. Central Processing Unit', 'B. Computer Personal Utility', 'C. Central Program Utility', 'D....
  13|         correct: 0,
     1 4 |         e x p l a n a t i o n :   ' C P U   l à   v i ¿ t   t ¯ t   c ç a   C e n t r a l   P r o c e s s i n g   U n i t   ( B Ù   x
  15|       },
  16|       {
  17|         id: 'q2',
     1 8 |         t e x t :   '   ¡ n   v Ë   o   t Ñ c   Ù   x u n g   n h Ë p   C P U   l à   g ì ? ' ,
  19|         options: ['A. GHz (Gigahertz)', 'B. MB (Megabyte)', 'C. GB/s (Gigabyte trên giây)', 'D. RPM (Vòng trên...
  20|         correct: 0,
     2 1 |         e x p l a n a t i o n :   ' T Ñ c   Ù   C P U   ° ã c   o   b ± n g   G H z   -   s Ñ   t ÷   c h u   k ó   m × i   g i á
  22|       },
  23|       {
  24|         id: 'q3',
     2 5 |         t e x t :   ' C a c h e   L 1 ,   L 2 ,   L 3   ° ã c   . t   ß   â u   t r o n g   h Ç   t h Ñ n g ? ' ,
  26|         options: ['A. Trong CPU', 'B. Trên Mainboard', 'C. Trong RAM', 'D. Trong GPU'],
  27|         correct: 0,
     2 8 |         e x p l a n a t i o n :   ' B Ù   n h Û   Ç m   C a c h e   ° ã c   t í c h   h ã p   t r ñ c   t i ¿ p   t r o n g   C P U
  29|       },
  30|       {
  31|         id: 'q4',
     3 2 |         t e x t :   ' C P U   n à o   s a u   â y   t h u Ù c   d ò n g   s £ n   p h © m   c ç a   A M D ? ' ,
  33|         options: ['A. Core i7', 'B. Ryzen 7', 'C. Xeon', 'D. Pentium'],
  34|         correct: 1,
     3 5 |         e x p l a n a t i o n :   ' R y z e n   7   l à   d ò n g   C P U   c ç a   A M D ,   C o r e   i 7   v à   P e n t i u m   l à
  36|       },
  37|       {
  38|         id: 'q5',
     3 9 |         t e x t :   ' H y p e r - T h r e a d i n g   l à   c ô n g   n g h Ç   c h o   p h é p   C P U   l à m   g ì ? ' ,
     4 0 |         o p t i o n s :   [ ' A .   X í   l ý   a   l u Ó n g   h i Ç u   q u £   h ¡ n ' ,   ' B .   T   n g   x u n g   n h Ë p   t
  41|         correct: 0,
     4 2 |         e x p l a n a t i o n :   ' H y p e r - T h r e a d i n g   c h o   p h é p   m × i   l õ i   v - t   l ý   x í   l ý   2   l u
  43|       },
  44|       {
  45|         id: 'q6',
     4 6 |         t e x t :   ' S o c k e t   L G A   1 7 0 0   d ù n g   c h o   C P U   I n t e l   t h ¿   h Ç   n à o ? ' ,
     4 7 |         o p t i o n s :   [ ' A .   T h ¿   h Ç   1 2 / 1 3 / 1 4 ' ,   ' B .   T h ¿   h Ç   1 0 / 1 1 ' ,   ' C .   T h ¿   h Ç   8 /
  48|         correct: 0,
     4 9 |         e x p l a n a t i o n :   ' L G A   1 7 0 0   ° ã c   I n t e l   s í   d ã n g   c h o   C o r e   t h ¿   h Ç   1 2   ( A l
  50|       },
  51|       {
  52|         id: 'q7',
     5 3 |         t e x t :   ' T D P   l à   v i ¿ t   t ¯ t   c ç a   t h u - t   n g ï   g ì ? ' ,
  54|         options: ['A. Thermal Design Power', 'B. Total Data Processing', 'C. Technology Development Plan', 'D....
  55|         correct: 0,
     5 6 |         e x p l a n a t i o n :   ' T D P   ( T h e r m a l   D e s i g n   P o w e r )   l à   c ô n g   s u ¥ t   n h i Ç t   t h i ¿
  57|       },
  58|       {
  59|         id: 'q8',
     6 0 |         t e x t :   ' C P U   A M D   s í   d ã n g   s o c k e t   n à o   p h Õ   b i ¿ n   n h ¥ t   h i Ç n   n a y ? ' ,
  61|         options: ['A. AM5', 'B. LGA 1700', 'C. AM4', 'D. TR4'],
  62|         correct: 0,
     6 3 |         e x p l a n a t i o n :   ' A M D   a n g   s í   d ã n g   s o c k e t   A M 5   c h o   d ò n g   R y z e n   7 0 0 0 / 9 0
  64|       },
  65|       {
  66|         id: 'q9',
     6 7 |         t e x t :   ' S Ñ   n h â n   ( c o r e s )   n h i Á u   h ¡ n   m a n g   l ¡ i   l ã i   í c h   g ì ? ' ,
     6 8 |         o p t i o n s :   [ ' A .   a   n h i Ç m   v à   x í   l ý   s o n g   s o n g   t Ñ t   h ¡ n ' ,   ' B .   T Ñ c   Ù
  69|         correct: 0,
     7 0 |         e x p l a n a t i o n :   ' N h i Á u   n h â n   h ¡ n   g i ú p   C P U   x í   l ý   n h i Á u   t á c   v å   s o n g   s o
  71|       },
  72|       {
  73|         id: 'q10',
     7 4 |         t e x t :   ' C P U   I n t e l   C o r e   i 5   t h ° Ý n g   p h ù   h ã p   v Û i   Ñ i   t ° ã n g   n à o ? ' ,
     7 5 |         o p t i o n s :   [ ' A .   N g ° Ý i   d ù n g   p h Õ   t h ô n g   v à   g a m i n g   t § m   t r u n g ' ,   ' B .   M á y
  76|         correct: 0,
     7 7 |         e x p l a n a t i o n :   ' C o r e   i 5   l à   l ñ a   c h Í n   c â n   b ± n g   g i ï a   g i á   c £   v à   h i Ç u   n
  78|       },
  79|     ]
  80|   },
  81|   'ram-storage': {
  82|     id: 'ram-storage',
     8 3 |         t i t l e :   ' R A M   &   B Ù   N h Û ' ,
     8 4 |         i c o n :   'Ø>Ýà ' ,
  85|     color: '#8b5cf6',
     8 6 |         d e s c r i p t i o n :   ' K i ¿ n   t h é c   v Á   b Ù   n h Û   t r o n g ,   R A M ,   t h ô n g   s Ñ   v à   c ô n g   n g h Ç
  87|     questions: [
  88|       {
  89|         id: 'q1',
     9 0 |         t e x t :   ' R A M   l à   v i ¿ t   t ¯ t   c ç a   t h u - t   n g ï   n à o ? ' ,
  91|         options: ['A. Random Access Memory', 'B. Read Access Memory', 'C. Rapid Application Module', 'D. Real ...
  92|         correct: 0,
     9 3 |         e x p l a n a t i o n :   ' R A M   l à   R a n d o m   A c c e s s   M e m o r y   -   b Ù   n h Û   t r u y   c - p   n g « u
  94|       },
  95|       {
  96|         id: 'q2',
```

```
    97|                text: 'DDR5 RAM có tÑc Ù bus bao nhiêu?',
 98|        options: ['A. 4800-8400 MT/s', 'B. 2400-3200 MT/s', 'C. 1600-2133 MT/s', 'D. 800-1066 MT/s'],
 99|        correct: 0,
   100|                explanation: 'DDR5 có tÑc Ù të 4800 MT/s ¿n 8400 MT/s tùy phié
101|      },
102|      {
103|        id: 'q3',
   104|                text: 'Dung l°ãng RAM phÕ bi¿n cho PC gaming hiÇn nay là bao nhi
105|        options: ['A. 16-32GB', 'B. 4-8GB', 'C. 64-128GB', 'D. 2-4GB'],
106|        correct: 0,
   107|                explanation: '16-32GB RAM là tiêu chu©n cho gaming hiÇn ¡i'
108|      },
109|      {
110|        id: 'q4',
   111|                text: 'CAS Latency (CL) th¥p có ý ngh)a gì?',
   112|                options: ['A. Ù trÅ th¥p, truy c-p nhanh h¡n', 'B. Dung l°ãng l
113|        correct: 0,
   114|                explanation: 'CL th¥p Óng ngh)a vÛi Ù trÅ th¥p h¡n và hiÇu n r
115|      },
116|      {
117|        id: 'q5',
118|        text: 'Dual Channel là gì?',
   119|                options: ['A. Ch¡y 2 thanh RAM cùng lúc Ã t ng b ng thông', 'B.
120|        correct: 0,
   121|                explanation: 'Dual Channel sí dång 2 thanh RAM song song Ã t ng
122|      },
123|      {
124|        id: 'q6',
125|        text: 'RAM DDR4 có bao nhiêu chân?',
126|        options: ['A. 288 chân', 'B. 240 chân', 'C. 260 chân', 'D. 204 chân'],
127|        correct: 0,
   128|                explanation: 'DDR4 có 288 chân, trong khi DDR3 chÉ có 240 chân'
129|      },
130|      {
131|        id: 'q7',
   132|                text: 'Loi RAM nào ti¿t kiÇm iÇn nh¥t?',
133|        options: ['A. LPDDR5 (Low Power DDR5)', 'B. DDR4', 'C. DDR5', 'D. DDR3'],
134|        correct: 0,
   135|                explanation: 'LPDDR5 °ãc thi¿t k¿ ·c biÇt Ã ti¿t kiÇm iÇn ch
136|      },
137|      {
138|        id: 'q8',
   139|                text: 'ECC RAM th°Ýng °ãc sí dång trong môi tr°Ýng nào?',
   140|                options: ['A. Máy chç/Server yêu c§u Ù tin c-y cao', 'B. PC Gam
141|        correct: 0,
   142|                explanation: 'ECC RAM có kh£ n ng phát hiÇn và sía l×i, r¥t quan
143|      },
144|      {
145|        id: 'q9',
   146|                text: 'XMP là công nghÇ ép xung RAM tñ Ùng cça hãng nào?',
147|        options: ['A. Intel (Extreme Memory Profile)', 'B. AMD', 'C. Corsair', 'D. Kingston'],
148|        correct: 0,
   149|                explanation: 'XMP là công nghÇ cça Intel, AMD có công nghÇ t°¡ng
150|      },
151|      {
152|        id: 'q10',
   153|                text: 'Dung l°ãng RAM tÑi a Windows 11 Home h× trã là bao nhiêu
154|        options: ['A. 128GB', 'B. 64GB', 'C. 256GB', 'D. 32GB'],
155|        correct: 0,
   156|                explanation: 'Windows 11 Home h× trã tÑi a 128GB RAM'
157|      },
158|    ]
159|  },
160|  'gpu-graphics': {
161|    id: 'gpu-graphics',
   162|          title: 'Card Ó HÍa & Xí Lý Ó HÍa',
   163|          icon: 'Ø<ß®',
164|    color: '#ef4444',
   165|          description: 'Ki¿n théc vÁ GPU, VRAM, công nghÇ Ó hÍa và render',
166|    questions: [
167|      {
168|        id: 'q1',
   169|                text: 'GPU là vi¿t t¯t cça thu-t ngï nào?',
170|        options: ['A. Graphics Processing Unit', 'B. General Processing Unit', 'C. Graphical Program Utility',...
171|        correct: 0,
   172|                explanation: 'GPU là Graphics Processing Unit - ¡n vË xí lý Ó
173|      },
174|      {
175|        id: 'q2',
   176|                text: 'VRAM là bÙ nhÛ cça thành ph§n nào?',
   177|                options: ['A. Card Ó hÍa (GPU)', 'B. CPU', 'C. Mainboard', 'D.
178|        correct: 0,
   179|                explanation: 'VRAM (Video RAM) là bÙ nhÛ riêng cça card Ó hÍa'
180|      },
181|      {
182|        id: 'q3',
   183|                text: 'Ray Tracing là công nghÇ gì?',
   184|                options: ['A. Mô phÏng ánh sáng v-t lý chân thñc', 'B. Công ngh
185|        correct: 0,
   186|                explanation: 'Ray Tracing mô phÏng °Ýng i cça ánh sáng Ã t¡o
187|      },
188|      {
189|        id: 'q4',
   190|                text: 'DLSS là công nghÇ AI cça hãng nào?',
191|        options: ['A. NVIDIA', 'B. AMD', 'C. Intel', 'D. Apple'],
192|        correct: 0,
   193|                explanation: 'DLSS (Deep Learning Super Sampling) là công nghÇ
194|      },
195|      {
196|        id: 'q5',
   197|                text: 'CUDA Core là ki¿n trúc tính toán cça hãng nào?',
198|        options: ['A. NVIDIA', 'B. AMD', 'C. Intel', 'D. Qualcomm'],
199|        correct: 0,
   200|                explanation: 'CUDA là nÁn t£ng tính toán song song cça NVIDIA'
201|      },
202|      {
203|        id: 'q6',
   204|                text: 'PCIe 5.0 có b ng thông g¥p m¥y l§n PCIe 4.0?',
   205|                options: ['A. G¥p ôi (2x)', 'B. G¥p 3 l§n', 'C. G¥p 1.5 l§n', '
206|        correct: 0,
   207|                explanation: 'PCIe 5.0 có b ng thông 32 GT/s, g¥p ôi so vÛi 16
208|      },
209|      {
210|        id: 'q7',
   211|                text: 'RTX 4090 sí dång ki¿n trúc GPU nào?',
212|        options: ['A. Ada Lovelace', 'B. Ampere', 'C. Turing', 'D. Pascal'],
213|        correct: 0,
   214|                explanation: 'RTX 4090 dùng ki¿n trúc Ada Lovelace, ra m¯t n m 2
215|      },
216|      {
217|        id: 'q8',
   218|                text: 'FidelityFX Super Resolution (FSR) là công nghÇ cça hãng n
219|        options: ['A. AMD', 'B. NVIDIA', 'C. Intel', 'D. Microsoft'],
220|        correct: 0,
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221|                explanation: 'FSR là công nghÇ upscaling Ùc quyÁn cça AMD, Ñi
222|      },
223|      {
224|        id: 'q9',
225|                text: 'TDP (công su¥t tiêu thå) cça RTX 4090 kho£ng bao nhiêu?',
226|        options: ['A. 450W', 'B. 250W', 'C. 350W', 'D. 550W'],
227|        correct: 0,
228|                explanation: 'RTX 4090 có TDP 450W, yêu c§u nguÓn tÑi thiÃu 850W
229|      },
230|      {
231|        id: 'q10',
232|                text: ' Ù phân gi£i 4K có kích th°Ûc bao nhiêu pixel?',
233|        options: ['A. 3840x2160', 'B. 2560x1440', 'C. 1920x1080', 'D. 5120x2880'],
234|        correct: 0,
235|                explanation: '4K UHD có Ù phân gi£i 3840x2160, g¥p 4 l§n Full H
236|      },
237|    ]
238|  },
239|  'motherboard': {
240|    id: 'motherboard',
241|          title: 'Bo M¡ch Chç & Chipset',
242|          icon: 'Ø=Ý ',
243|    color: '#10b981',
244|          description: 'Ki¿n théc vÁ mainboard, chipset, khe c¯m và k¿t nÑi',
245|    questions: [
246|      {
247|        id: q1',
248|                text: 'Chipset Z790 dành cho CPU Intel th¿ hÇ nào?',
249|                options: ['A. Th¿ hÇ 12/13/14', 'B. Th¿ hÇ 10/11', 'C. Th¿ hÇ 8/
250|        correct: 0,
251|                explanation: 'Z790 h× trã Intel Core th¿ hÇ 12, 13 và 14 vÛi kh£
252|      },
253|      {
254|        id: q2',
255|                text: 'Form factor mainboard phÕ bi¿n nh¥t hiÇn nay là gì?',
256|        options: ['A. ATX', 'B. Mini-ITX', 'C. E-ATX', 'D. Micro-ATX'],
257|        correct: 0,
258|                explanation: 'ATX là chu©n phÕ bi¿n nh¥t vÛi kích th°Ûc 305x244m
259|      },
260|      {
261|        id: q3',
262|                text: 'Khe M.2 trên mainboard dùng Ã k¿t nÑi thi¿t bË gì?',
263|        options: ['A. SSD NVMe', 'B. RAM', 'C. GPU', 'D. CPU'],
264|        correct: 0,
265|                explanation: 'Khe M.2 chç y¿u dùng cho SSD NVMe tÑc Ù cao'
266|      },
267|      {
268|        id: q4',
269|                text: 'VRM trên mainboard có chéc n ng gì?',
270|                options: ['A. C¥p iÇn Õn Ënh cho CPU', 'B. T£n nhiÇt chipset',
271|        correct: 0,
272|                explanation: 'VRM (Voltage Regulator Module) chuyÃn Õi và Õn Ë
273|      },
274|      {
275|        id: q5',
276|                text: 'Khe PCIe x16 th°Ýng °ãc dùng cho thi¿t bË nào?',
277|                options: ['A. Card Ó hÍa (GPU)', 'B. SSD M.2', 'C. RAM', 'D. Ca
278|        correct: 0,
279|                explanation: 'Khe PCIe x16 có b ng thông cao nh¥t, th°Ýng dùng c
280|      },
281|      {
282|        id: q6',
283|                text: 'USB 3.2 Gen 2 có tÑc Ù truyÁn tÑi a là bao nhiêu?',
284|        options: ['A. 10 Gbps', 'B. 5 Gbps', 'C. 20 Gbps', 'D. 40 Gbps'],
285|        correct: 0,
286|                explanation: 'USB 3.2 Gen 2 có tÑc Ù 10 Gbps, g¥p ôi Gen 1'
287|      },
288|      {
289|        id: q7',
290|                text: 'BIOS là vi¿t t¯t cça thu-t ngï nào?',
291|        options: ['A. Basic Input Output System', 'B. Binary Integrated Operating System', 'C. Base Input Outp...
292|        correct: 0,
293|                explanation: 'BIOS là Basic Input/Output System - hÇ thÑng xu¥t
294|      },
295|      {
296|        id: q8',
297|                text: 'Pin CMOS trên mainboard có tác dång gì?',
298|                options: ['A. Gii cài ·t BIOS khi t¯t máy', 'B. C¥p nguÓn cho C
299|        correct: 0,
300|                explanation: 'Pin CMOS giúp l°u cài ·t BIOS và thÝi gian hÇ thÑ
301|      },
302|      {
303|        id: q9',
304|                text: 'Mainboard ATX th°Ýng có tÑi a bao nhiêu khe RAM?',
305|        options: ['A. 4 khe', 'B. 2 khe', 'C. 6 khe', 'D. 8 khe'],
306|        correct: 0,
307|                explanation: 'Mainboard ATX tiêu chu©n th°Ýng có 4 khe RAM DIMM'
308|      },
309|      {
310|        id: q10',
311|                text: 'Chu©n WiFi mÛi nh¥t th°Ýng tích hãp trên mainboard cao c¥
312|        options: ['A. WiFi 6E / WiFi 7', 'B. WiFi 5 (802.11ac)', 'C. WiFi 4 (802.11n)', 'D. Bluetooth 5.0'],
313|        correct: 0,
314|                explanation: 'Mainboard cao c¥p hiÇn nay tích hãp WiFi 6E (6GHz)
315|      },
316|    ]
317|  },
318|  'psu-cooling': {
319|    id: 'psu-cooling',
320|          title: 'NguÓn & T£n NhiÇt',
321|          icon: ''Dþ ',
322|    color: '#06b6d4',
323|          description: 'Ki¿n théc vÁ nguÓn iÇn, t£n nhiÇt, qu¡t và qu£n lý nh
324|    questions: [
325|      {
326|        id: q1',
327|                text: 'PSU ¡t chu©n 80 Plus Gold có hiÇu su¥t tÑi thiÃu là bao
328|        options: ['A. 87%', 'B. 80%', 'C. 90%', 'D. 85%'],
329|        correct: 0,
330|                explanation: '80 Plus Gold yêu c§u hiÇu su¥t tÑi thiÃu 87% ß t£i
331|      },
332|      {
333|        id: q2',
334|                text: 'Lo¡i t£n nhiÇt nào hiÇu qu£ nh¥t cho CPU hiÇu n ng cao?',
335|                options: ['A. T£n nhiÇt n°Ûc AIO', 'B. T£n nhiÇt khí (air cooler
336|        correct: 0,
337|                explanation: 'AIO water cooling hiÇu qu£ h¡n air cooler vÛi CPU
338|      },
339|      {
340|        id: q3',
341|                text: 'NguÓn iÇn modular là gì?',
342|                options: ['A. NguÓn có dây cáp tháo rÝi °ãc', 'B. NguÓn iÇn di
343|        correct: 0,
344|                explanation: 'PSU modular cho phép tháo rÝi dây cáp không dùng
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345|      },
346|      {
347|        id: 'q4',
  3 4 8 |                t e x t :  ' T h e r m a l  P a s t e  ( k e o  t £ n  n h i Ç t )  c ó  t á c  d å n g  g ì ? ' ,
  3 4 9 |                o p t i o n s :  [ ' A .  T r u y Á n  n h i Ç t  t ë  C P U  l ê n  ¿  t £ n  n h i Ç t ' ,  ' B .  D « n  i Ç
350|        correct: 0,
  3 5 1 |                e x p l a n a t i o n :  ' T h e r m a l  p a s t e  l ¥ p  §  y  k h e  h ß  g i ï a  C P U  v à  t £ n  n h i Ç t
352|      },
353|      {
354|        id: 'q5',
  3 5 5 |                t e x t :  ' P S U  A T X  3 . 0  h ×  t r ã  c h u © n  c á p  n g u Ó n  m Û i  n à o ? ' ,
356|        options: ['A. 12VHPWR (12+4 pin)', 'B. ATX12VO', 'C. SFX', 'D. EPS12V'],
357|        correct: 0,
  3 5 8 |                e x p l a n a t i o n :  ' A T X  3 . 0  g i Û i  t h i Ç u  c h u © n  1 2 V H P W R  c h o  G P U  t h ¿  h Ç  m Ú
359|      },
360|      {
361|        id: 'q6',
  3 6 2 |                t e x t :  ' K í c h  t h ° Û c  q u ¡ t  t £ n  n h i Ç t  k h í  p h Õ  b i ¿ n  n h ¥ t  l à  b a o  n h i ê u ?
363|        options: ['A. 120mm', 'B. 80mm', 'C. 140mm', 'D. 92mm'],
364|        correct: 0,
  3 6 5 |                e x p l a n a t i o n :  ' Q u ¡ t  1 2 0 m m  l à  k í c h  t h ° Û c  t i ê u  c h u © n  p h Õ  b i ¿ n  n h ¥ t '
366|      },
367|      {
368|        id: 'q7',
  3 6 9 |                t e x t :  ' N h i Ç t  Ù  C P U  a n  t o à n  k h i  c h ¡ i  g a m e  l à  b a o  n h i ê u ? ' ,
370|        options: ['A. 60-80°C', 'B. 90-100°C', 'C. 40-50°C', 'D. Trên 100°C'],
371|        correct: 0,
  3 7 2 |                e x p l a n a t i o n :  ' C P U  h o ¡ t  Ù n g  a n  t o à n  ß  6 0 - 8 0 ° C  k h i  c h ¡ i  g a m e '
373|      },
374|      {
375|        id: 'q8',
  3 7 6 |                t e x t :  ' L i q u i d  M e t a l  ( k i m  l o ¡ i  l Ï n g )  l à  g ì ? ' ,
  3 7 7 |                o p t i o n s :  [ ' A .  K e m  t £ n  n h i Ç t  t ë  k i m  l o ¡ i  l Ï n g  d « n  n h i Ç t  s i ê u  t Ñ t '
378|        correct: 0,
  3 7 9 |                e x p l a n a t i o n :  ' L i q u i d  M e t a l  l à  h ã p  k i m  l Ï n g  c ó  Ù  d « n  n h i Ç t  r ¥ t  c
380|      },
381|      {
382|        id: 'q9',
  3 8 3 |                t e x t :  ' F a n  C o n t r o l l e r  c ó  c h é c  n  n g  g ì ? ' ,
  3 8 4 |                o p t i o n s :  [ ' A .  i Á u  c h É n h  t Ñ c  Ù  q u ¡ t  t h ç  c ô n g  h o · c  t ñ  Ù n g ' ,  ' B .
385|        correct: 0,
  3 8 6 |                e x p l a n a t i o n :  ' F a n  C o n t r o l l e r  c h o  p h é p  k i Ã m  s o á t  c h í n h  x á c  t Ñ c  Ù
387|      },
388|      {
389|        id: 'q10',
  3 9 0 |                t e x t :  ' P S U  8 5 0 W  ç  c h o  c ¥ u  h ì n h  P C  n à o  s a u  â y ? ' ,
391|        options: ['A. RTX 4070 + Intel Core i5', 'B. RTX 4090 + Intel Core i9', 'C. RTX 3060 + Intel Core i3',...
392|        correct: 0,
  3 9 3 |                e x p l a n a t i o n :  ' 8 5 0 W  ç  c h o  t § m  t r u n g - c a o  n h °  R T X  4 0 7 0  +  i 5 ,  n h ° n g
394|      },
395|    ]
396|  },
397|  'storage-devices': {
398|    id: 'storage-devices',
  3 9 9 |          t i t l e :  ' Ô  C é n g  S S D / H D D ' ,
  4 0 0 |          i c o n :  ' Ø = Ù ¾ ' ,
401|    color: '#f59e0b',
  4 0 2 |          d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  Õ  c é n g ,  S S D ,  H D D ,  c h u © n  k ¿ t  n Ñ i  v à  l ° u  t r
403|    questions: [
404|      {
405|        id: 'q1',
  4 0 6 |                t e x t :  ' S S D  N V M e  P C I e  4 . 0  c ó  t Ñ c  Ù  Í c  t u § n  t ñ  t Ñ i  a  k h o £ n g  b a o
407|        options: ['A. 7000 MB/s', 'B. 500 MB/s', 'C. 2000 MB/s', 'D. 15000 MB/s'],
408|        correct: 0,
  4 0 9 |                e x p l a n a t i o n :  ' S S D  N V M e  P C I e  4 . 0  ¡ t  t Ñ c  Ù  Í c  ~ 7 0 0 0  M B / s '
410|      },
411|      {
412|        id: 'q2',
  4 1 3 |                t e x t :  ' H D D  7 2 0 0 R P M  c ó  t Ñ c  Ù  Í c  t u § n  t ñ  k h o £ n g  b a o  n h i ê u ? ' ,
414|        options: ['A. ~160 MB/s', 'B. ~500 MB/s', 'C. ~50 MB/s', 'D. ~1000 MB/s'],
415|        correct: 0,
  4 1 6 |                e x p l a n a t i o n :  ' H D D  7 2 0 0 R P M  ¡ t  t Ñ c  Ù  Í c  t u § n  t ñ  k h o £ n g  1 6 0  M B / s
417|      },
418|      {
419|        id: 'q3',
  4 2 0 |                t e x t :  ' C h u © n  S A T A  I I I  c ó  b  n g  t h ô n g  t Ñ i  a  l à  b a o  n h i ê u ? ' ,
421|        options: ['A. 6 Gbps', 'B. 3 Gbps', 'C. 12 Gbps', 'D. 1.5 Gbps'],
422|        correct: 0,
  4 2 3 |                e x p l a n a t i o n :  ' S A T A  I I I  c ó  b  n g  t h ô n g  6  G b p s  ( ~ 6 0 0  M B / s  t h ñ c  t ¿ ) '
424|      },
425|      {
426|        id: 'q4',
  4 2 7 |                t e x t :  ' S S D  N V M e  P C I e  3 . 0  c ó  t Ñ c  Ù  Í c  t u § n  t ñ  k h o £ n g  b a o  n h i ê u ?
428|        options: ['A. ~3500 MB/s', 'B. ~7000 MB/s', 'C. ~10000 MB/s', 'D. ~2000 MB/s'],
429|        correct: 0,
  4 3 0 |                e x p l a n a t i o n :  ' N V M e  P C I e  3 . 0  ¡ t  t Ñ c  Ù  ~ 3 5 0 0  M B / s ,  b ± n g  m Ù t  n í a
431|      },
432|      {
433|        id: 'q5',
  4 3 4 |                t e x t :  ' T B W  l à  c h É  s Ñ  o  g ì  t r ê n  Õ  S S D ? ' ,
  4 3 5 |                o p t i o n s :  [ ' A .  T u Õ i  t h Í  g h i  c ç a  S S D  ( T e r a b y t e s  W r i t t e n ) ' ,  ' B .  T Ñ c
436|        correct: 0,
  4 3 7 |                e x p l a n a t i o n :  ' T B W  c h o  b i ¿ t  t Õ n g  l ° ã n g  d ï  l i Ç u  c ó  t h Ã  g h i  v à o  S S D
438|      },
439|      {
440|        id: 'q6',
  4 4 1 |                t e x t :  ' C á c  l o ¡ i  N A N D  F l a s h  p h Õ  b i ¿ n  t r o n g  S S D  l à  g ì ? ' ,
442|        options: ['A. TLC, QLC, MLC, SLC', 'B. DDR, SDR, NAND', 'C. NVMe, SATA, SAS', 'D. AIO, Air, Water'],
443|        correct: 0,
  4 4 4 |                e x p l a n a t i o n :  ' C á c  l o ¡ i  N A N D  F l a s h  g Ó m  S L C ,  M L C ,  T L C ,  Q L C  v Û i  m - t
445|      },
446|      {
447|        id: 'q7',
  4 4 8 |                t e x t :  ' D u n g  l ° ã n g  Õ  c é n g  p h Õ  b i ¿ n  n h ¥ t  c h o  P C  n g ° Ý i  d ù n g  h i Ç n  n a
449|        options: ['A. 1TB - 2TB', 'B. 128GB - 256GB', 'C. 4TB - 8TB', 'D. 500GB'],
450|        correct: 0,
  4 5 1 |                e x p l a n a t i o n :  ' 1 - 2 T B  l à  d u n g  l ° ã n g  p h Õ  b i ¿ n ,  c â n  b ± n g  g i ï a  g i á  v à
452|      },
453|      {
454|        id: 'q8',
  4 5 5 |                t e x t :  ' C ô n g  n g h Ç  S . M . A . R . T  t r ê n  Õ  c é n g  d ù n g  Ã  l à m  g ì ? ' ,
  4 5 6 |                o p t i o n s :  [ ' A .  T h e o  d õ i  v à  d ñ  o á n  t i n h  t r ¡ n g  s é c  k h Ï e  Õ  c é n g ' ,
457|        correct: 0,
  4 5 8 |                e x p l a n a t i o n :  ' S . M . A . R . T  t h e o  d õ i  c á c  c h É  s Ñ  s é c  k h Ï e  Ã  c £ n h  b á o
459|      },
460|      {
461|        id: 'q9',
  4 6 2 |                t e x t :  ' S S D  k h á c  H D D  ß  i Ã m  c ¡  b £ n  n à o ? ' ,
  4 6 3 |                o p t i o n s :  [ ' A .  K h ô n g  c ó  )  a  q u a y  c ¡  h Í c ' ,  ' B .  D u n g  l ° ã n g  l ° u  t r ï
464|        correct: 0,
  4 6 5 |                e x p l a n a t i o n :  ' S S D  d ù n g  c h i p  n h Û  F l a s h ,  k h ô n g  c ó  )  a  q u a y  n h °  H D D
466|      },
467|      {
468|        id: 'q10',
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  469 |                text: 'Chu©n Õ céng 2.5 inch th°Ýng °ãc dùng cho thi¿t bË nào?'
  470 |                options: ['A. Laptop và Õ céng di Ùng', 'B. PC Desktop', 'C. Ma
471|        correct: 0,
  472 |                explanation: 'Ô 2.5 inch phÕ bi¿n trong laptop và Õ céng di Ùng
473|      },
474|    ]
475|  },
476|  'pc-assembly': {
477|    id: 'pc-assembly',
  478 |          title: 'Quy Trình L¯p Ráp PC',
  479 |          icon: 'Ø=Þàþ ',
480|    color: '#f97316',
  481 |          description: 'Ki¿n théc vÁ quy trình, kù thu-t và l°u ý khi l¯p ráp
482|    questions: [
483|      {
484|        id: 'q1',
  485 |                text: 'B°Ûc §u tiên khi l¯p ráp mÙt chi¿c PC là gì?',
  486 |                options: ['A. L¯p CPU lên mainboard', 'B. L¯p nguÓn (PSU) vào ca
487|        correct: 0,
  488 |                explanation: 'Nên l¯p CPU lên mainboard tr°Ûc khi ·t mainboard
489|      },
490|      {
491|        id: 'q2',
  492 |                text: 'Nên bôi thermal paste (keo t£n nhiÇt) ß âu?',
  493 |                options: ['A. Trên IHS (n¯p kim loµi) cça CPU', 'B. Trên chân c¯
494|        correct: 0,
  495 |                explanation: 'Bôi thermal paste lên giïa IHS CPU Ã t£n nhiÇt ti
496|      },
497|      {
498|        id: 'q3',
  499 |                text: 'Dây 24-pin ATX c¥p nguÓn cho thành ph§n nào?',
  500 |                options: ['A. Mainboard', 'B. CPU', 'C. GPU', 'D. Ô céng SSD'],
501|        correct: 0,
  502 |                explanation: ' §u nÑi 24-pin ATX c¥p nguÓn chính cho mainboard'
503|      },
504|      {
505|        id: 'q4',
  506 |                text: 'Dây EPS 8-pin (4+4) c¥p nguÓn cho thành ph§n nào?',
  507 |                options: ['A. CPU', 'B. GPU', 'C. Mainboard', 'D. Qu¡t case'],
508|        correct: 0,
  509 |                explanation: 'Cáp EPS 8-pin cung c¥p nguÓn riêng cho CPU'
510|      },
511|      {
512|        id: 'q5',
  513 |                text: 'Khi l¯p RAM c§n chú ý iÁu gì quan trÍng?',
  514 |                options: ['A. C n chÉnh khuy¿t trên thanh RAM vÛi khe c¯m', 'B.
515|        correct: 0,
  516 |                explanation: 'RAM có khuy¿t ß vË trí ·c biÇt Ã chÑng c¯m sai c
517|      },
518|      {
519|        id: 'q6',
  520 |                text: 'T)nh iÇn (ESD) có thÃ gây h¡i gì cho linh kiÇn PC?',
  521 |                options: ['A. HÎng linh kiÇn v)nh viÃn', 'B. T ng tÑc Ù linh ki
522|        correct: 0,
  523 |                explanation: 'T)nh iÇn có thÃ phá hçy linh kiÇn nh¡y c£m nh° CP
524|      },
525|      {
526|        id: 'q7',
  527 |                text: 'Công cå nào giúp chÑng t)nh iÇn khi l¯p ráp PC?',
  528 |                options: ['A. Dây eo tay ESD (chÑng t)nh iÇn)', 'B. G ng tay c
529|        correct: 0,
  530 |                explanation: 'Dây eo tay ESD giúp x£ t)nh iÇn të c¡ thÃ xuÑng
531|      },
532|      {
533|        id: 'q8',
  534 |                text: 'Sau khi l¯p ráp xong PC, b°Ûc §u tiên c§n làm là gì?',
  535 |                options: ['A. KiÃm tra nguÓn và xem có POST không', 'B. Cài ·t
536|        correct: 0,
  537 |                explanation: 'KiÃm tra POST (Power-On Self-Test) Ã xác nh-n hÇ
538|      },
539|      {
540|        id: 'q9',
  541 |                text: 'POST là vi¿t t¯t cça thu-t ngï nào?',
542|        options: ['A. Power-On Self-Test', 'B. Program Operating System Test', 'C. Processor Optimization Stan...
543|        correct: 0,
  544 |                explanation: 'POST là quá trình tñ kiÃm tra khi khßi Ùng máy ti
545|      },
546|      {
547|        id: 'q10',
  548 |                text: ' èn LED trên mainboard báo l×i °ãc gÍi là gì?',
549|        options: ['A. Debug LED', 'B. RGB LED', 'C. Status LED', 'D. Power LED'],
550|        correct: 0,
  551 |                explanation: 'Debug LED hiÃn thË mã l×i giúp ch©n oán sñ cÑ ph§
552|      },
553|    ]
554|  },
555|  'bios-uefi': {
556|    id: 'bios-uefi',
557|    title: 'BIOS & UEFI',
  558 |          icon: '&™þ ',
559|    color: '#14b8a6',
  560 |          description: 'Ki¿n théc vÁ firmware, BIOS, UEFI và cài ·t hÇ thÑng
561|    questions: [
562|      {
563|        id: 'q1',
564|        text: 'UEFI là gì?',
  565 |                options: ['A. Giao diÇn firmware hiÇn ¡i thay th¿ BIOS', 'B. Lo
566|        correct: 0,
  567 |                explanation: 'UEFI (Unified Extensible Firmware Interface) là ch
568|      },
569|      {
570|        id: 'q2',
  571 |                text: 'Phím t¯t th°Ýng dùng Ã vào BIOS/UEFI khi khßi Ùng là gì
572|        options: ['A. Del / F2', 'B. F12', 'C. Esc', 'D. F10'],
573|        correct: 0,
  574 |                explanation: 'Del và F2 là hai phím phÕ bi¿n nh¥t Ã vào BIOS Se
575|      },
576|      {
577|        id: 'q3',
578|        text: 'XMP Profile trong BIOS giúp làm gì?',
  579 |                options: ['A. Ép xung RAM tñ Ùng theo thông sÑ nhà s£n xu¥t', '
580|        correct: 0,
  581 |                explanation: 'XMP tñ Ùng cài ·t thông sÑ RAM tÑi °u të nhà s£n
582|      },
583|      {
584|        id: 'q4',
  585 |                text: 'Secure Boot có tác dång gì?',
  586 |                options: ['A. ChÑng ph§n mÁm Ùc h¡i khßi Ùng cùng hÇ thÑng', '
587|        correct: 0,
  588 |                explanation: 'Secure Boot chÉ cho phép ch¡y các ph§n mÁm khßi Ù
589|      },
590|      {
591|        id: 'q5',
  592 |                text: 'Boot Order trong BIOS dùng Ã làm gì?',
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  5 9 3 |                options: ['A. S¯p x¿p thé tñ °u tiên khßi Ùng të thi¿t bË', 'B.
594|        correct: 0,
  5 9 5 |                explanation: 'Boot Order xác Ënh thi¿t bË nào °ãc khßi Ùng tr
596|      },
597|      {
598|        id: 'q6',
  5 9 9 |                text: 'Legacy Boot khác UEFI Boot nh° th¿ nào?',
  6 0 0 |                options: ['A. Legacy dùng MBR (ci), UEFI dùng GPT (hiÇn ¡i)', '
601|        correct: 0,
  6 0 2 |                explanation: 'Legacy sí dång b£ng phân vùng MBR, UEFI sí dång GP
603|      },
604|      {
605|        id: 'q7',
  6 0 6 |                text: 'CMOS Clear (hay Clear RTC) có tác dång gì?',
  6 0 7 |                options: ['A. Reset cài ·t BIOS vÁ m·c Ënh', 'B. Xóa toàn bÙ d
608|        correct: 0,
  6 0 9 |                explanation: 'Clear CMOS giúp khôi phåc cài ·t BIOS gÑc khi g·p
610|      },
611|      {
612|        id: 'q8',
  6 1 3 |                text: 'Tính n ng BIOS Flashback cho phép làm gì?',
  6 1 4 |                options: ['A. C-p nh-t BIOS mà không c§n CPU/RAM', 'B. Khßi Ùng
615|        correct: 0,
  6 1 6 |                explanation: 'Flashback cho phép n¡p BIOS ngay c£ khi không có C
617|      },
618|      {
619|        id: 'q9',
  6 2 0 |                text: 'VT-d (Intel Virtualization Technology for Directed I/O) l
621|        options: ['A. Intel', 'B. AMD', 'C. NVIDIA', 'D. Microsoft'],
622|        correct: 0,
  6 2 3 |                explanation: 'VT-d là công nghÇ £o hóa I/O cça Intel, AMD có IOM
624|      },
625|      {
626|        id: 'q10',
  6 2 7 |                text: 'Resizable BAR (Re-Size BAR) giúp c£i thiÇn iÁu gì?',
  6 2 8 |                options: ['A. CPU có thÃ truy c-p toàn bÙ VRAM GPU', 'B. T ng du
629|        correct: 0,
  6 3 0 |                explanation: 'Resizable BAR cho phép CPU truy c-p toàn bÙ VRAM,
631|      },
632|    ]
633|  },
634|  'network': {
635|    id: 'network',
  6 3 6 |          title: 'M¡ng Máy Tính',
  6 3 7 |          icon: 'Ø<ß ',
638|    color: '#3b82f6',
  6 3 9 |          description: 'Ki¿n théc vÁ m¡ng máy tính, giao théc, thi¿t bË m¡ng v
640|    questions: [
641|      {
642|        id: 'q1',
  6 4 3 |                text: 'IP là vi¿t t¯t cça thu-t ngï nào?',
644|        options: ['A. Internet Protocol', 'B. Internal Processing', 'C. Input Protocol', 'D. Integrated Progra...
645|        correct: 0,
  6 4 6 |                explanation: 'IP (Internet Protocol) là giao théc Internet cÑt l
647|      },
648|      {
649|        id: 'q2',
  6 5 0 |                text: 'Cáp Ethernet Cat6 có tÑc Ù tÑi a là bao nhiêu?',
651|        options: ['A. 10 Gbps', 'B. 1 Gbps', 'C. 100 Mbps', 'D. 40 Gbps'],
652|        correct: 0,
  6 5 3 |                explanation: 'Cat6 h× trã 10 Gbps ß kho£ng cách tÑi a 55m'
654|      },
655|      {
656|        id: 'q3',
  6 5 7 |                text: 'WiFi 6 (802.11ax) ho¡t Ùng tÑt ß d£i t§n nào?',
  6 5 8 |                options: ['A. 2.4GHz và 5GHz', 'B. ChÉ 2.4GHz', 'C. ChÉ 5GHz', '
659|        correct: 0,
  6 6 0 |                explanation: 'WiFi 6 h× trã c£ 2.4GHz và 5GHz, WiFi 6E thêm b ng
661|      },
662|      {
663|        id: 'q4',
  6 6 4 |                text: 'Router (bÙ Ënh tuy¿n) có chéc n ng chính là gì?',
  6 6 5 |                options: ['A. Ënh tuy¿n và chuyÃn ti¿p gói tin giïa các m¡ng',
666|        correct: 0,
  6 6 7 |                explanation: 'Router chuyÃn ti¿p gói tin giïa các m¡ng khác nhau
668|      },
669|      {
670|        id: 'q5',
  6 7 1 |                text: 'B ng t§n WiFi 5GHz có °u iÃm gì so vÛi 2.4GHz?',
  6 7 2 |                options: ['A. TÑc Ù cao h¡n, ít nhiÅu h¡n', 'B. Kh£ n ng xuyên
673|        correct: 0,
  6 7 4 |                explanation: '5GHz có tÑc Ù cao và ít nhiÅu h¡n nh°ng ph¡m vi h
675|      },
676|      {
677|        id: 'q6',
  6 7 8 |                text: 'BÙ giao théc TCP/IP là gì?',
  6 7 9 |                options: ['A. BÙ giao théc nÁn t£ng cho Internet', 'B. Ph§n mÁm
680|        correct: 0,
  6 8 1 |                explanation: 'TCP/IP là bÙ giao théc làm nÁn t£ng cho toàn bÙ In
682|      },
683|      {
684|        id: 'q7',
  6 8 5 |                text: 'LAN là vi¿t t¯t cça thu-t ngï nào?',
686|        options: ['A. Local Area Network', 'B. Large Area Network', 'C. Logical Access Node', 'D. Link Access ...
687|        correct: 0,
  6 8 8 |                explanation: 'LAN là m¡ng cåc bÙ k¿t nÑi các thi¿t bË trong ph¡m
689|      },
690|      {
691|        id: 'q8',
  6 9 2 |                text: 'Switch khác Hub ß iÃm quan trÍng nào?',
  6 9 3 |                options: ['A. Switch chuyÃn m¡ch thông minh, Hub kém hiÇu qu£',
694|        correct: 0,
  6 9 5 |                explanation: 'Switch chÉ gíi dï liÇu ¿n úng thi¿t bË ích, còn
696|      },
697|      {
698|        id: 'q9',
  6 9 9 |                text: 'Ping là chÉ sÑ o gì trong m¡ng?',
  7 0 0 |                options: ['A. Ù trÃ (latency) k¿t nÑi m¡ng', 'B. TÑc Ù downloa
701|        correct: 0,
  7 0 2 |                explanation: 'Ping o thÝi gian ph£n hÓi cça gói tin, tính b±ng
703|      },
704|      {
705|        id: 'q10',
  7 0 6 |                text: 'DNS (Domain Name System) dùng Ã làm gì?',
  7 0 7 |                options: ['A. Phân gi£i tên miÁn thành Ëa chÉ IP', 'B. Mã hóa d
708|        correct: 0,
  7 0 9 |                explanation: 'DNS chuyÃn Õi tên miÁn (google.com) thành Ëa chÉ
710|      },
711|    ]
712|  },
713|  'peripherals': {
714|    id: 'peripherals',
  7 1 5 |          title: 'Thi¿t BË Ngo¡i Vi',
  7 1 6 |          icon: 'Ø=Ý±þ ',
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717|     color: '#ec4899',
   7 1 8 |         d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  c h u Ù t ,  b à n  p h í m ,  m à n  h ì n h ,  w e b c a m  v à  t h i ¿
719|     questions: [
720|       {
721|         id: 'q1',
   7 2 2 |                 t e x t :  ' M o n i t o r  c ó  R e s p o n s e  T i m e  ( t h Ý i  g i a n  á p  é n g )  t h ¥ p  m a n g  l
   7 2 3 |                 o p t i o n s :  [ ' A .  G i £ m  h i Ç n  t ° ã n g  b ó n g  m Ý  ( g h o s t i n g ) ' ,  ' B .  M à u  s  c  h
724|         correct: 0,
   7 2 5 |                 e x p l a n a t i o n :  ' R e s p o n s e  T i m e  t h ¥ p  g i ú p  g i £ m  b ó n g  m Ý  k h i  c h u y Ã n  Ù
726|       },
727|       {
728|         id: 'q2',
   7 2 9 |                 t e x t :  ' T § n  s Ñ  q u é t  ( H z )  c ç a  m à n  h ì n h  £ n h  h ° ß n g  ¿ n  i Á u  g ì ? ' ,
   7 3 0 |                 o p t i o n s :  [ ' A .  Ù  m ° ã t  c ç a  c h u y Ã n  Ù n g  t r ê n  m à n  h ì n h ' ,  ' B .  Ù  p h ã
731|         correct: 0,
   7 3 2 |                 e x p l a n a t i o n :  ' T § n  s Ñ  q u é t  c a o  ( 1 4 4 H z + )  c h o  h ì n h  £ n h  c h u y Ã n  Ù n g
733|       },
734|       {
735|         id: 'q3',
   7 3 6 |                 t e x t :  ' B à n  p h í m  c ¡  ( M e c h a n i c a l  K e y b o a r d )  s í  d ã n g  c ¡  c h ¿  g ì ? ' ,
   7 3 7 |                 o p t i o n s :  [ ' A .  S w i t c h  l ò  x o  v - t  l ý  c h o  t ê n g  p h í m ' ,  ' B .  M à n g  c á o  s
738|         correct: 0,
   7 3 9 |                 e x p l a n a t i o n :  ' B à n  p h í m  c ¡  d ù n g  s w i t c h  v - t  l ý  r i ê n g  b i Ç t  c h o  m × i
740|       },
741|       {
742|         id: 'q4',
   7 4 3 |                 t e x t :  ' D P I  c ç a  c h u Ù t  m á y  t í n h  l à  c h É  s Ñ  o  g ì ? ' ,
   7 4 4 |                 o p t i o n s :  [ ' A .  Ù  n h ¡ y  v à  t Ñ c  Ù  d i  c h u y Ã n  c o n  t r Ï ' ,  ' B .  T Ñ c  Ù  c
745|         correct: 0,
   7 4 6 |                 e x p l a n a t i o n :  ' D P I  c à n g  c a o ,  c o n  t r Ï  d i  c h u y Ã n  c à n g  x a  k h i  c h u Ù t
747|       },
748|       {
749|         id: 'q5',
   7 5 0 |                 t e x t :  ' W e b c a m  1 0 8 0 p  c ó  Ù  p h â n  g i £ i  l à  b a o  n h i ê u ? ' ,
751|         options: ['A. 1920x1080', 'B. 1280x720', 'C. 3840x2160', 'D. 640x480'],
752|         correct: 0,
   7 5 3 |                 e x p l a n a t i o n :  ' 1 0 8 0 p  F u l l  H D  c ó  Ù  p h â n  g i £ i  1 9 2 0 x 1 0 8 0  p i x e l '
754|       },
755|       {
756|         id: 'q6',
   7 5 7 |                 t e x t :  ' C Õ n g  U S B _ T y p e - C  c ó  · c  i Ã m  n Õ i  b - t  g ì ? ' ,
   7 5 8 |                 o p t i o n s :  [ ' A .  C ¯ m  ° ã c  2  c h i Á u  ( r e v e r s i b l e ) ' ,  ' B .  C h É  t r u y Á n  d ï
759|         correct: 0,
   7 6 0 |                 e x p l a n a t i o n :  ' U S B - C  c ó  t h i ¿ t  k ¿  Ñ i  x é n g ,  c ó  t h Ã  c ¯ m  t h e o  b ¥ t  k
761|       },
762|       {
763|         id: 'q7',
   7 6 4 |                 t e x t :  ' B l u e t o o t h  5 . 0  c ó  p h ¡ m  v i  k ¿ t  n Ñ i  t Ñ i  a  t r o n g  n h à  l à  b a o
765|         options: ['A. ~40m', 'B. ~10m', 'C. ~50m', 'D. ~100m'],
766|         correct: 0,
   7 6 7 |                 e x p l a n a t i o n :  ' B l u e t o o t h  5 . 0  c ó  p h ¡ m  v i  l ê n  t Û i  4 0 m  t r o n g  n h à  ( g ¥
768|       },
769|       {
770|         id: 'q8',
   7 7 1 |                 t e x t :  ' C Õ n g  H D M I  2 . 1  h ×  t r ã  Ù  p h â n  g i £ i  t Ñ i  a  l à  b a o  n h i ê u ? ' ,
772|         options: ['A. 8K @60Hz', 'B. 4K @60Hz', 'C. 1080p @240Hz', 'D. 5K @30Hz'],
773|         correct: 0,
   7 7 4 |                 e x p l a n a t i o n :  ' H D M I  2 . 1  h ×  t r ã  8 K  ß  6 0 H z  h o · c  4 K  ß  1 2 0 H z '
775|       },
776|       {
777|         id: 'q9',
   7 7 8 |                 t e x t :  ' C Õ n g  D i s p l a y P o r t  k h á c  H D M I  ß  i Ã m  c h í n h  n à o ? ' ,
   7 7 9 |                 o p t i o n s :  [ ' A .  B  n g  t h ô n g  c a o  h ¡ n ,  k h ô n g  t h u  p h í  b £ n  q u y Á n ' ,  ' B .
780|         correct: 0,
   7 8 1 |                 e x p l a n a t i o n :  ' D i s p l a y P o r t  t h ° Ý n g  c ó  b  n g  t h ô n g  c a o  h ¡ n  v à  k h ô n g
782|       },
783|       {
784|         id: 'q10',
   7 8 5 |                 t e x t :  ' M i c r o p h o n e  c o n d e n s e r  ( t å  i Ç n )  p h ù  h ã p  c h o  m å c  í c h  n à o ? '
   7 8 6 |                 o p t i o n s :  [ ' A .  T h u  â m  p h ò n g  t h u  c h ¥ t  l ° ã n g  c a o ' ,  ' B .  C h ¡ i  g a m e  t h
787|         correct: 0,
   7 8 8 |                 e x p l a n a t i o n :  ' M i c r o  c o n d e n s e r  c ó  Ù  n h ¡ y  c a o ,  p h ù  h ã p  t h u  â m  t r o
789|       },
790|     ]
791|   },
792|   'os-windows': {
793|     id: 'os-windows',
   7 9 4 |         t i t l e :  ' H Ç  i Á u  H à n h  W i n d o w s ' ,
   7 9 5 |         i c o n :  'Ø>ÞŸ ' ,
796|     color: '#0078d4',
   7 9 7 |         d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  h Ç  i Á u  h à n h  W i n d o w s ,  c à i  · t ,  c ¥ u  h ì n h  v
798|     questions: [
799|       {
800|         id: 'q1',
   8 0 1 |                 t e x t :  ' H Ç  i Á u  h à n h  l à  g ì ? ' ,
   8 0 2 |                 o p t i o n s :  [ ' A .  P h § n  m Á m  q u £ n  l ý  t à i  n g u y ê n  p h § n  c é n g  v à  p h § n  m Á m '
803|         correct: 0,
   8 0 4 |                 e x p l a n a t i o n :  ' H Ç  i Á u  h à n h  q u £ n  l ý  t à i  n g u y ê n  v à  c u n g  c ¥ p  g i a o  c
805|       },
806|       {
807|         id: 'q2',
   8 0 8 |                 t e x t :  ' W i n d o w s  1 1  y ê u  c § u  t Ñ i  t h i Ã u  R A M  b a o  n h i ê u ? ' ,
809|         options: ['A. 4GB', 'B. 8GB', 'C. 2GB', 'D. 16GB'],
810|         correct: 0,
   8 1 1 |                 e x p l a n a t i o n :  ' W i n d o w s  1 1  y ê u  c § u  t Ñ i  t h i Ã u  4 G B  R A M '
812|       },
813|       {
814|         id: 'q3',
   8 1 5 |                 t e x t :  ' F i l e  h Ç  t h Ñ n g  q u a n  t r Í n g  c ç a  W i n d o w s  l à  g ì ? ' ,
816|         options: ['A. NTOSKRNL.EXE (Windows kernel)', 'B. WIN.COM', 'C. SYSTEM.INI', 'D. BOOT.INI'],
817|         correct: 0,
   8 1 8 |                 e x p l a n a t i o n :  ' N T O S K R N L . E X E  l à  n h â n  ( k e r n e l )  c h í n h  c ç a  W i n d o w s '
819|       },
820|       {
821|         id: 'q4',
   8 2 2 |                 t e x t :  ' C ô n g  c å  n à o  d ù n g  Ã  p h â n  v ù n g  Õ  c é n g  t r o n g  W i n d o w s ? ' ,
823|         options: ['A. Disk Management (diskmgmt.msc)', 'B. Task Manager', 'C. Device Manager', 'D. Registry Ed...
824|         correct: 0,
   8 2 5 |                 e x p l a n a t i o n :  ' D i s k  M a n a g e m e n t  c h o  p h é p  t ¡ o ,  x ó a ,  t h u  n h Ï  v à  m ß  r
826|       },
827|       {
828|         id: 'q5',
   8 2 9 |                 t e x t :  ' B S O D  ( B l u e  S c r e e n  o f  D e a t h )  t h ° Ý n g  x u ¥ t  h i Ç n  k h i  n à o ? ' ,
   8 3 0 |                 o p t i o n s :  [ ' A .  K h i  W i n d o w s  g · p  l × i  h Ç  t h Ñ n g  n g h i ê m  t r Í n g ' ,  ' B .  K h
831|         correct: 0,
   8 3 2 |                 e x p l a n a t i o n :  ' B S O D  x u ¥ t  h i Ç n  k h i  h Ç  t h Ñ n g  g · p  l × i  k h ô n g  t h Ã  p h å c
833|       },
834|       {
835|         id: 'q6',
   8 3 6 |                 t e x t :  ' S a f e  M o d e  t r o n g  W i n d o w s  c ó  t á c  d ã n g  g ì ? ' ,
   8 3 7 |                 o p t i o n s :  [ ' A .  K h ß i  Ù n g  v Û i  t Ñ i  t h i Ã u  d r i v e r  v à  d Ë c h  v å  Ã  g á  l ×
838|         correct: 0,
   8 3 9 |                 e x p l a n a t i o n :  ' S a f e  M o d e  g i ú p  c h © n  o á n  v à  k h ¯ c  p h å c  s ñ  c Ñ  v Û i  d r
840|       },
```

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      {
        id: 'q7',
        text: 'NTFS là vi¿t t¯t cça hÇ thÑng file nào?',
        options: ['A. New Technology File System', 'B. Network File System', 'C. Windows File System', 'D. Nor...
        correct: 0,
        explanation: 'NTFS là hÇ thÑng t-p tin công nghÇ mÛi cça Windows
      },
      {
        id: 'q8',
        text: 'Công cå nào dùng Ã kiÃm tra l×i Õ céng trong Windows?',
        options: ['A. CHKDSK (Check Disk)', 'B. DEFRAG', 'C. SFC (System File Checker)', 'D. DISM'],
        correct: 0,
        explanation: 'CHKDSK kiÃm tra và sía l×i hÇ thÑng t-p tin trên Ó
      },
      {
        id: 'q9',
        text: 'Registry Editor (regedit) dùng Ã làm gì?',
        options: ['A. ChÉnh sía c¡ sß dí liÇu c¥u hình Windows', 'B. Qu£
        correct: 0,
        explanation: 'Registry l°u trï c¥u hình hÇ thÑng, ph§n mÁm và ng
      },
      {
        id: 'q10',
        text: 'Windows Update có chéc n ng gì?',
        options: ['A. C-p nh-t b£n vá b£o m-t vå tính n ng mÛi', 'B. DiC
        correct: 0,
        explanation: 'Windows Update cung c¥p b£n vá b£o m-t, sía l×i và
      },
    ]
  },
  'troubleshooting': {
    id: 'troubleshooting',
        title: 'Xí Lý Sñ CÑ',
        icon: 'Ø>Þz',
    color: '#22c55e',
        description: 'Kù n ng ch©n oán và xí lý các sñ cÑ ph§n céng, ph§n m
    questions: [
      {
        id: 'q1',
        text: 'PC có èn nguÓn sáng nh°ng không lên hình, nên kiÃm tra g
        options: ['A. KiÃm tra RAM và GPU c¯m ch°a', 'B. Thay nguÓn mÛi'
        correct: 0,
        explanation: 'RAM lÏng ho·c GPU ch°a c¯m là nguyên nhân th°Ýng g
      },
      {
        id: 'q2',
        text: 'Ti¿ng beep dài liên tåc të mainboard báo hiÇu l×i gì?',
        options: ['A. L×i RAM không °ãc phát hiÇn', 'B. L×i CPU', 'C. L
        correct: 0,
        explanation: 'Beep dài liên tåc th°Ýng báo l×i RAM theo mã AMI/P
      },
      {
        id: 'q3',
        text: 'Màn hình xanh (BSOD) th°Ýng do nguyên nhân gì?',
        options: ['A. Driver l×i ho·c ph§n céng hÏng', 'B. Virus máy tín
        correct: 0,
        explanation: 'Driver xung Ùt ho·c ph§n céng l×i là nguyên nhân
      },
      {
        id: 'q4',
        text: 'CPU nhiÇt Ù quá cao c§n xí lý th¿ nào?',
        options: ['A. KiÃm tra t£n nhiÇt, vÇ sinh và bôi l¡i keo t£n nhi
        correct: 0,
        explanation: 'VÇ sinh t£n nhiÇt và thay keo t£n nhiÇt là gi£i ph
      },
      {
        id: q5',
        text: 'PC tñ Ùng restart liên tåc sau khi b-t, nguyên nhân th°Ý
        options: ['A. NguÓn y¿u ho·c CPU quá nhiÇt', 'B. L×i RAM', 'C. C
        correct: 0,
        explanation: 'NguÓn y¿u ho·c quá nhiÇt là nguyên nhân phÕ bi¿n n
      },
      {
        id: 'q6',
        text: 'Không có tín hiÇu hình £nh khi b-t máy, nên thí cách nào
        options: ['A. Reset CMOS và kiÃm tra cáp k¿t nÑi màn hình', 'B.
        correct: 0,
        explanation: 'Reset CMOS và kiÃm tra cáp ¡n gi£n mà hiÇu qu£'
      },
      {
        id: 'q7',
        text: 'Ô céng phát ra ti¿ng kêu l¡ch c¡ch là d¥u hiÇu gì?',
        options: ['A. HDD s¯p hÏng §u Íc, c§n backup dí liÇu ngay', 'B
        correct: 0,
        explanation: 'Ti¿ng l¡ch c¡ch (click of death) báo hiÇu §u Íc
      },
      {
        id: 'q8',
        text: 'Windows không nh-n ç dung l°ãng RAM ã l¯p, nên kiÃm tra
        options: ['A. KiÃm tra vË trí g¯n RAM và vÇ sinh chân ti¿p xúc',
        correct: 0,
        explanation: 'RAM lÏng ho·c båi b©n ß khe c¯m th°Ýng gây m¥t nh-
      },
      {
        id: 'q9',
        text: 'Qu¡t CPU quay nh°ng máy không boot, nguyên nhân có thÃ là
        options: ['A. L×i CPU, RAM ho·c nguÓn c¥p CPU', 'B. Qu¡t không
        correct: 0,
        explanation: 'CPU ch°a c¯m nguÓn EPS ho·c RAM lÏng là nguyên nhâ
      },
      {
        id: 'q10',
        text: 'PC ch¡y ch-m, thÝi gian khßi Ùng lâu nên kiÃm tra gì trê
        options: ['A. KiÃm tra séc khÏe SSD/HDD và ph§n mÁm khßi Ùng cù
        correct: 0,
        explanation: 'SSD y¿u ho·c quá nhiÁu ph§n mÁm khßi Ùng cùng Win
      },
    ]
  },
  'laptop-mobile': {
    id: 'laptop-mobile',
        title: 'Laptop & Thi¿t BË Di Ùng',
        icon: 'Ø=Ü»',
    color: '#a855f7',
        description: 'Ki¿n théc vÁ laptop, linh kiÇn di Ùng, pin và công ng
    questions: [
      {
        id: 'q1',
        text: 'Chu©n MXM là gì trong laptop?',
        options: ['A. Chu©n card Ó hÍa rÝi trên laptop', 'B. Chu©n RAM
        correct: 0,
        explanation: 'MXM (Mobile PCI Express Module) là chu©n GPU rÝi c
      },
      {
```

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965|        id: 'q2',
   9 6 6 |                t e x t :  ' S o l d e r e d  R A M  ( R A M  h à n )  t r ê n  l a p t o p  c ó   · c   i Ã m  g ì ? ' ,
   9 6 7 |                o p t i o n s :  [ ' A .   ° ã c  h à n  c Ñ   Ê n h  t r ê n  m a i n b o a r d ,  k h ô n g  t h Ã  n ã n g  c ¥
968|        correct: 0,
   9 6 9 |                e x p l a n a t i o n :  ' S o l d e r e d  R A M   ° ã c  h à n  c h ¿ t ,  k h ô n g  t h Ã  t h a y  t h ¿  h o
970|      },
971|      {
972|        id: 'q3',
   9 7 3 |                t e x t :  ' U l t r a b o o k  l à  d ò n g  l a p t o p  n h °  t h ¿  n à o ? ' ,
   9 7 4 |                o p t i o n s :  [ ' A .  M Ï n g  n h ¹ ,  h i Ç u  n  n g  c â n  b ± n g ,  t h Ý i  l ° ã n g  p i n  t Ñ t ' ,
975|        correct: 0,
   9 7 6 |                e x p l a n a t i o n :  ' U l t r a b o o k  l à  t i ê u  c h u © n  I n t e l  c h o  l a p t o p  m Ï n g  n h ¹ ,
977|      },
978|      {
979|        id: 'q4',
   9 8 0 |                t e x t :  ' C Õ n g  T h u n d e r b o l t  4  c ó  b  n g  t h ô n g  t Ñ i   a  l à  b a o  n h i ê u ? ' ,
981|        options: ['A. 40 Gbps', 'B. 20 Gbps', 'C. 10 Gbps', 'D. 80 Gbps'],
982|        correct: 0,
   9 8 3 |                e x p l a n a t i o n :  ' T h u n d e r b o l t  4  v à  3   Á u  c ó  b  n g  t h ô n g  4 0  G b p s '
984|      },
985|      {
986|        id: 'q5',
   9 8 7 |                t e x t :  ' T G P  ( T o t a l  G r a p h i c s  P o w e r )  l à  c h É  s Ñ   o  g ì  t r ê n  l a p t o p ? ' ,
   9 8 8 |                o p t i o n s :  [ ' A .  C ô n g  s u ¥ t  t i ê u  t h å  c ç a  G P U  t r ê n  l a p t o p ' ,  ' B .  T Ñ c
989|        correct: 0,
   9 9 0 |                e x p l a n a t i o n :  ' T G P  c h o  b i ¿ t  m é c   i Ç n  n  n g  G P U  l a p t o p   ° ã c  p h é p  t i
991|      },
992|      {
993|        id: 'q6',
994|        text: 'eGPU (External GPU) là gì?',
   9 9 5 |                o p t i o n s :  [ ' A .  C a r d   Ó  h Í a  r Ý i  k ¿ t  n Ñ i  q u a  T h u n d e r b o l t / U S B 4 ' ,  ' B .
996|        correct: 0,
   9 9 7 |                e x p l a n a t i o n :  ' e G P U  c h o  p h é p  l a p t o p  s í  d å n g  G P U  d e s k t o p  m ¡ n h  q u a
998|      },
999|      {
1000|        id: 'q7',
  1 0 0 1 |                t e x t :  ' L a p t o p  g a m i n g  t h ° Ý n g  c ó  t r Í n g  l ° ã n g  k h o £ n g  b a o  n h i ê u ? ' ,
  1 0 0 2 |                o p t i o n s :  [ ' A .  2 - 3  k g ' ,  ' B .  1 - 1 . 5  k g ' ,  ' C .  3 - 4  k g ' ,  ' D .  D ° Û i  1  k g
1003|        correct: 0,
  1 0 0 4 |                e x p l a n a t i o n :  ' L a p t o p  g a m i n g  n · n g  2 - 3 k g  d o  t £ n  n h i Ç t  v à  l i n h  k i Ç n
1005|      },
1006|      {
1007|        id: 'q8',
  1 0 0 8 |                t e x t :  ' P i n  L i t h i u m  P o l y m e r  ( L i - P o )  k h á c  L i t h i u m  I o n  ( L i - I o n )  ß
  1 0 0 9 |                o p t i o n s :  [ ' A .  D » o  h ¡ n ,  n h ¹  h ¡ n ,  t h i ¿ t  k ¿  l i n h  h o ¡ t  h ¡ n ' ,  ' B .  D u r
1010|        correct: 0,
  1 0 1 1 |                e x p l a n a t i o n :  ' L i - P o  c ó  t h Ã  c h ¿  t ¡ o  d ¡ n g  m Ï n g ,  d » o ,  n h ¹  h ¡ n  L i - I o
1012|      },
1013|      {
1014|        id: 'q9',
  1 0 1 5 |                t e x t :  ' V R M  t r ê n  l a p t o p  t h ° Ý n g  c ó   · c   i Ã m  g ì ? ' ,
  1 0 1 6 |                o p t i o n s :  [ ' A .  Í t  p h a  h ¡ n  v à  t £ n  n h i Ç t  k é m  h ¡ n  d e s k t o p ' ,  ' B .  N h i A
1017|        correct: 0,
  1 0 1 8 |                e x p l a n a t i o n :  ' V R M  l a p t o p   ¡ n  g i £ n  h ¡ n  d o  g i Û i  h ¡ n  k h ô n g  g i a n  v à
1019|      },
1020|      {
1021|        id: 'q10',
  1 0 2 2 |                t e x t :  ' L a p t o p  w o r k s t a t i o n  ( n h °  D e l l  P r e c i s i o n ,  H P  Z B o o k )  d ù n g  c h
  1 0 2 3 |                o p t i o n s :  [ ' A .   Ó  h Í a  c h u y ê n  n g h i Ç p ,  C A D ,  r e n d e r ,  k h o a  h Í c ' ,  ' B .
1024|        correct: 0,
  1 0 2 5 |                e x p l a n a t i o n :  ' W o r k s t a t i o n   ° ã c  c h é n g  n h - n  I S V  c h o  p h § n  m Á m  c h u y é
1026|      },
1027|    ]
1028|  },
1029|  'monitor-display': {
1030|    id: 'monitor-display',
  1 0 3 1 |          t i t l e :  ' M à n  H ì n h  &  C ô n g  N g h Ç  H i Ã n  T h Ë ' ,
  1 0 3 2 |          i c o n :  'Ø=Ý¥þ ',
1033|    color: '#f43f5e',
  1 0 3 4 |          d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  m à n  h ì n h ,  t ¥ m  n Á n ,   Ù  p h â n  g i £ i  v à  c ô n g  n
1035|    questions: [
1036|      {
1037|        id: 'q1',
  1 0 3 8 |                t e x t :  ' T ¥ m  n Á n  I P S  c ó  ° u   i Ã m  c h í n h  l à  g ì ? ' ,
  1 0 3 9 |                o p t i o n s :  [ ' A .  G ó c  n h ì n  r Ù n g ,  m à u  s ¯ c  c h í n h  x á c ' ,  ' B .  T § n  s Ñ  q u é t
1040|        correct: 0,
  1 0 4 1 |                e x p l a n a t i o n :  ' I P S  n Õ i  t i ¿ n g  v Û i  g ó c  n h ì n  r Ù n g  ( 1 7 8 ° )  v à  m à u  s ¯ c
1042|      },
1043|      {
1044|        id: 'q2',
  1 0 4 5 |                t e x t :  ' C ô n g  n g h Ç  O L E D  k h á c  L C D  ß   i Ã m  c ¡  b £ n  n à o ? ' ,
  1 0 4 6 |                o p t i o n s :  [ ' A .  M × i  p i x e l  t ñ  p h á t  s á n g ,  k h ô n g  c § n   è n  n Á n ' ,  ' B .  C §
1047|        correct: 0,
  1 0 4 8 |                e x p l a n a t i o n :  ' O L E D  c ó   i Ã m  £ n h  t ñ  p h á t  s á n g ,  c h o  m à u   e n  s â u  v à
1049|      },
1050|      {
1051|        id: 'q3',
  1 0 5 2 |                t e x t :  ' H D R  ( H i g h  D y n a m i c  R a n g e )  l à  c ô n g  n g h Ç  g ì ? ' ,
  1 0 5 3 |                o p t i o n s :  [ ' A .  D £ i  t ° ¡ n g  p h £ n   Ù n g  r Ù n g ,  m à u  s ¯ c  s Ñ n g   Ù n g  h ¡ n ' ,
1054|        correct: 0,
  1 0 5 5 |                e x p l a n a t i o n :  ' H D R  m ß  r Ù n g  d £ i  t ° ¡ n g  p h £ n  v à  m à u  s ¯ c  s o  v Û i  S D R '
1056|      },
1057|      {
1058|        id: 'q4',
  1 0 5 9 |                t e x t :  ' F r e e S y n c  l à  c ô n g  n g h Ç   Ó n g  b Ù  h ó a  c ç a  h ã n g  n à o ? ' ,
1060|        options: ['A. AMD', 'B. NVIDIA', 'C. Intel', 'D. Samsung'],
1061|        correct: 0,
  1 0 6 2 |                e x p l a n a t i o n :  ' F r e e S y n c  l à  c ô n g  n g h Ç  c h Ñ n g  x é  h ì n h  c ç a  A M D ,  d ù n g
1063|      },
1064|      {
1065|        id: 'q5',
  1 0 6 6 |                t e x t :  ' G - S y n c  l à  c ô n g  n g h Ç   Ó n g  b Ù  h ó a  c ç a  h ã n g  n à o ? ' ,
1067|        options: ['A. NVIDIA', 'B. AMD', 'C. Intel', 'D. LG'],
1068|        correct: 0,
  1 0 6 9 |                e x p l a n a t i o n :  ' G - S y n c  l à  c ô n g  n g h Ç   Ù c  q u y Á n  c ç a  N V I D I A ,  y ê u  c § u
1070|      },
1071|      {
1072|        id: 'q6',
  1 0 7 3 |                t e x t :  '   Ù  p h ç  m à u  s R G B  1 0 0 %  n g h ) a  l à  g ì ? ' ,
  1 0 7 4 |                o p t i o n s :  [ ' A .  M à n  h ì n h  h i Ã n  t h Ë   ° ã c  t o à n  b Ù  d £ i  m à u  c h u © n  s R G B '
1075|        correct: 0,
  1 0 7 6 |                e x p l a n a t i o n :  ' s R G B  1 0 0 %   £ m  b £ o  t á i  t ¡ o  c h í n h  x á c  d £ i  m à u  t i ê u  c
1077|      },
1078|      {
1079|        id: 'q7',
  1 0 8 0 |                t e x t :  ' M à n  h ì n h  1 4 4 H z  p h ù  h ã p  n h ¥ t  c h o   Ñ i  t ° ã n g  n à o ? ' ,
  1 0 8 1 |                o p t i o n s :  [ ' A .  G a m e  t h ç  F P S  ( b ¯ n  s ú n g  g ó c  n h ì n  t h é  n h ¥ t ) ' ,  ' B .  N h
1082|        correct: 0,
  1 0 8 3 |                e x p l a n a t i o n :  ' T § n  s Ñ  q u é t  c a o  r ¥ t  q u a n  t r Í n g  c h o  g a m e  F P S  c § n  p h
1084|      },
1085|      {
1086|        id: 'q8',
  1 0 8 7 |                t e x t :  ' M à n  h ì n h  c o n g  ( C u r v e d  M o n i t o r )  c ó  ° u   i Ã m  g ì ? ' ,
  1 0 8 8 |                o p t i o n s :  [ ' A .  T r £ i  n g h i Ç m  x e m  n h - p  v a i ,  g i £ m  m Ï i  m ¯ t ' ,  ' B .  T i ¿ t
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1089|        correct: 0,
  1 0 9 0 |                e x p l a n a t i o n :  ' M à n  h ì n h  c o n g  ô m  s á t  t § m  n h ì n ,  t  n g  c £ m  g i á c  ¯ m  c
1091|      },
1092|      {
1093|        id: 'q9',
  1 0 9 4 |                t e x t :  ' T É  l Ç  m à n  h ì n h  2 1 : 9  ° ã c  g Í i  l à  g ì ? ' ,
1095|        options: ['A. Ultrawide', 'B. Standard', 'C. CinemaScope', 'D. Widescreen'],
1096|        correct: 0,
  1 0 9 7 |                e x p l a n a t i o n :  ' 2 1 : 9  l à  t É  l Ç  u l t r a w i d e ,  r Ù n g  h ¡ n  1 6 : 9  t i ê u  c h u © n '
1098|      },
1099|      {
1100|        id: 'q10',
  1 1 0 1 |                t e x t :  ' M à n  h ì n h  c ó  Ù  p h â n  g i £ i  2 5 6 0 x 1 4 4 0  ° ã c  g Í i  l à  g ì ? ' ,
1102|        options: ['A. 1440p (QHD / 2K)', 'B. 1080p (Full HD)', 'C. 4K (UHD)', 'D. 720p (HD)'],
1103|        correct: 0,
  1 1 0 4 |                e x p l a n a t i o n :  ' 2 5 6 0 x 1 4 4 0  l à  Q H D  ( Q u a d  H D )  h a y  c ò n  g Í i  l à  2 K '
1105|      },
1106|    ]
1107|  },
1108|  'ai-tech': {
1109|    id: 'ai-tech',
  1 1 1 0 |          t i t l e :  ' A I  &  C ô n g  N g h Ç  M Û i ' ,
  1 1 1 1 |          i c o n :  ' Ø > Ý  ' ,
1112|    color: '#8b5cf6',
  1 1 1 3 |          d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  t r í  t u Ç  n h â n  t ¡ o ,  m a c h i n e  l e a r n i n g  v à  c ô
1114|    questions: [
1115|      {
1116|        id: 'q1',
  1 1 1 7 |                t e x t :  ' A I  l à  v i ¿ t  t ¯ t  c ç a  t h u - t  n g ï  n à o ? ' ,
1118|        options: ['A. Artificial Intelligence', 'B. Automated Interface', 'C. Advanced Integration', 'D. Autom...
1119|        correct: 0,
  1 1 2 0 |                e x p l a n a t i o n :  ' A I  l à  A r t i f i c i a l  I n t e l l i g e n c e  -  T r í  t u Ç  n h â n  t ¡ o '
1121|      },
1122|      {
1123|        id: 'q2',
1124|        text: 'Machine Learning (ML) là gì?',
  1 1 2 5 |                o p t i o n s :  [ ' A .  M á y  h Í c  t ë  d ï  l i Ç u  Ã  c £ i  t h i Ç n  h i Ç u  s u ¥ t ' ,  ' B .  M á
1126|        correct: 0,
  1 1 2 7 |                e x p l a n a t i o n :  ' M L  l à  n h á n h  c ç a  A I ,  c h o  p h é p  m á y  h Í c  t ë  d ï  l i Ç u  m ã
1128|      },
1129|      {
1130|        id: 'q3',
  1 1 3 1 |                t e x t :  ' N e u r a l  N e t w o r k  ( m ¡ n g  n ¡ - r o n )  m ô  p h Ï n g  c ¥ u  t r ú c  g ì ? ' ,
  1 1 3 2 |                o p t i o n s :  [ ' A .  N ¡ - r o n  t h § n  k i n h  t r o n g  n ã o  n g ° Ý i ' ,  ' B .  M ¡ n g  l ° Û i  m
1133|        correct: 0,
  1 1 3 4 |                e x p l a n a t i o n :  ' N e u r a l  N e t w o r k  l ¥ y  c £ m  h é n g  t ë  c ¥ u  t r ú c  n ¡ - r o n  t r o
1135|      },
1136|      {
1137|        id: 'q4',
  1 1 3 8 |                t e x t :  ' G P U  q u a n  t r Í n g  t r o n g  A I / M L  v ì  l ý  d o  g ì ? ' ,
  1 1 3 9 |                o p t i o n s :  [ ' A .  K h £  n  n g  x í  l ý  s o n g  s o n g  h à n g  n g h Í n  l u Ó n g ' ,  ' B .  T i
1140|        correct: 0,
  1 1 4 1 |                e x p l a n a t i o n :  ' G P U  c ó  h à n g  n g h ì n  l õ i  n h Ï ,  l ý  t ° ß n g  c h o  t í n h  t o á n
1142|      },
1143|      {
1144|        id: 'q5',
  1 1 4 5 |                t e x t :  ' T e n s o r  C o r e  l à  k i ¿ n  t r ú c  t í n h  t o á n  A I  c ç a  h ã n g  n à o ? ' ,
1146|        options: ['A. NVIDIA', 'B. AMD', 'C. Intel', 'D. Google'],
1147|        correct: 0,
  1 1 4 8 |                e x p l a n a t i o n :  ' T e n s o r  C o r e  l à  ¡ n  v Ë  t í n h  t o á n  t e n s o r  c h u y ê n  d ã n g
1149|      },
1150|      {
1151|        id: 'q6',
  1 1 5 2 |                t e x t :  ' T P U  ( T e n s o r  P r o c e s s i n g  U n i t )  l à  c h i p  A I  c ç a  h ã n g  n à o ? ' ,
1153|        options: ['A. Google', 'B. NVIDIA', 'C. AMD', 'D. Apple'],
1154|        correct: 0,
  1 1 5 5 |                e x p l a n a t i o n :  ' T P U  l à  c h i p  t ù y  c h É n h  c ç a  G o o g l e  c h o  m a c h i n e  l e a r n
1156|      },
1157|      {
1158|        id: 'q7',
  1 1 5 9 |                t e x t :  ' L L M  ( L a r g e  L a n g u a g e  M o d e l )  l à  g ì ?  C h o  v í  d ã ? ' ,
  1 1 6 0 |                o p t i o n s :  [ ' A .  M ô  h ì n h  n g ô n  n g ï  l Û n  n h °  G P T ,  C l a u d e ,  G e m i n i ' ,  ' B .
1161|        correct: 0,
  1 1 6 2 |                e x p l a n a t i o n :  ' L L M  l à  m ô  h ì n h  A I  x í  l ý  n g ô n  n g ï  t ñ  n h i ê n ,  v í  d ã :
1163|      },
1164|      {
1165|        id: 'q8',
  1 1 6 6 |                t e x t :  ' Ã  h u ¥ n  l u y Ç n  ( t r a i n i n g )  A I  c § n  y ¿ u  t Ñ  n à o  n h ¥ t ? ' ,
  1 1 6 7 |                o p t i o n s :  [ ' A .  D ï  l i Ç u  l Û n  v à  G P U  m ¡ n h ' ,  ' B .  C P U  n h a n h  n h ¥ t ' ,  ' C .
1168|        correct: 0,
  1 1 6 9 |                e x p l a n a t i o n :  ' T r a i n i n g  A I  c § n  l ° ã n g  l Û n  d ï  l i Ç u  c h ¥ t  l ° ã n g  v à  s e
1170|      },
1171|      {
1172|        id: 'q9',
  1 1 7 3 |                t e x t :  ' C U D A  l à  n Á n  t £ n g  t í n h  t o á n  s o n g  s o n g  c ç a  h ã n g  n à o ? ' ,
1174|        options: ['A. NVIDIA', 'B. AMD', 'C. Intel', 'D. Google'],
1175|        correct: 0,
  1 1 7 6 |                e x p l a n a t i o n :  ' C U D A  c h o  p h é p  l - p  t r ì n h  G P U  N V I D I A  c h o  t í n h  t o á n
1177|      },
1178|      {
1179|        id: 'q10',
1180|        text: 'Edge AI là gì?',
  1 1 8 1 |                o p t i o n s :  [ ' A .  A I  c h ¡ y  t r ñ c  t i ¿ p  t r ê n  t h i ¿ t  b Ë  c â c  b Ù  ( e d g e  d e v i c
1182|        correct: 0,
  1 1 8 3 |                e x p l a n a t i o n :  ' E d g e  A I  x í  l ý  d ï  l i Ç u  n g a y  t r ê n  t h i ¿ t  b Ë ,  k h ô n g  c §
1184|      },
1185|    ]
1186|  },
1187|  'overclocking': {
1188|    id: 'overclocking',
1189|    title: 'Ép Xung & Tuning',
  1 1 9 0 |          i c o n :  ' & ¡ ' ,
1191|    color: '#eab308',
  1 1 9 2 |          d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  é p  x u n g  C P U ,  R A M ,  G P U  v à  t Ñ i  ° u  h i Ç u  n  n g
1193|    questions: [
1194|      {
1195|        id: 'q1',
1196|        text: 'Overclocking là gì?',
  1 1 9 7 |                o p t i o n s :  [ ' A .  T  n g  x u n g  n h Ë p  h o ¡ t  Ù n g  c ç a  l i n h  k i Ç n  l ê n  c a o  h ¡ n
1198|        correct: 0,
  1 1 9 9 |                e x p l a n a t i o n :  ' O v e r c l o c k i n g  c h ¡ y  l i n h  k i Ç n  ß  t Ñ c  Ù  c a o  h ¡ n  t h ô n g
1200|      },
1201|      {
1202|        id: 'q2',
  1 2 0 3 |                t e x t :  ' C P U  m u l t i p l i e r  ( h Ç  s Ñ  n h â n )  t r o n g  é p  x u n g  l à  g ì ? ' ,
  1 2 0 4 |                o p t i o n s :  [ ' A .  H Ç  s Ñ  n h â n  v Û i  b u s  s p e e d  Ã  r a  x u n g  n h Ë p  C P U ' ,  ' B .
1205|        correct: 0,
1206|        explanation: 'Xung CPU = Base Clock × Multiplier'
1207|      },
1208|      {
1209|        id: 'q3',
1210|        text: 'Vcore trong ép xung là gì?',
  1 2 1 1 |                o p t i o n s :  [ ' A .  i Ç n  á p  c ¥ p  c h o  l õ i  C P U ' ,  ' B .  T Ñ c  Ù  x u n g  n h Ë p  C P U
1212|        correct: 0,
```

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  1 2 1 3 |                e x p l a n a t i o n :  ' V c o r e  l à   i Ç n  á p  l õ i  C P U ,  t  n g  V c o r e  g i ú p  Õ n   Ë n h
1214|      },
1215|      {
1216|        id: 'q4',
  1 2 1 7 |                t e x t :  ' T  n g   i Ç n  á p  ( V c o r e )  q u á  c a o  c ó  n g u y  c ¡  g ì ? ' ,
  1 2 1 8 |                o p t i o n s :  [ ' A .  G â y  h Ï n g  C P U  d o  q u á  n h i Ç t  h o · c  q u á  á p ' ,  ' B .  T  n g  h
1219|        correct: 0,
  1 2 2 0 |                e x p l a n a t i o n :  ' V c o r e  q u á  c a o  g â y  n h i Ç t   Ù  c a o  v à  c ó  t h Ã  p h á  h ç y  C
1221|      },
1222|      {
1223|        id: 'q5',
1224|        text: 'Thermal Throttling là gì?',
  1 2 2 5 |                o p t i o n s :  [ ' A .  C P U  t ñ  g i £ m  x u n g  n h Ë p  k h i  q u á  n h i Ç t   Ã  b £ o  v Ç ' ,  ' B
1226|        correct: 0,
  1 2 2 7 |                e x p l a n a t i o n :  ' T h e r m a l  t h r o t t l i n g  b £ o  v Ç  C P U  k h Ï i  h °  h Ï n g  d o  n h i C
1228|      },
1229|      {
1230|        id: 'q6',
  1 2 3 1 |                t e x t :  ' P r e c i s i o n  B o o s t  O v e r d r i v e  ( P B O )  l à  c ô n g  n g h Ç  é p  x u n g  t ñ
1232|        options: ['A. AMD', 'B. Intel', 'C. NVIDIA', 'D. MSI'],
1233|        correct: 0,
  1 2 3 4 |                e x p l a n a t i o n :  ' P B O  l à  c ô n g  n g h Ç  é p  x u n g  t ñ   Ù n g  c ç a  A M D  d à n h  c h o
1235|      },
1236|      {
1237|        id: 'q7',
  1 2 3 8 |                t e x t :  ' I n t e l  X T U  ( E x t r e m e  T u n i n g  U t i l i t y )  l à  p h § n  m Á m  g ì ? ' ,
  1 2 3 9 |                o p t i o n s :  [ ' A .  É p  x u n g  v à  t i n h  c h É n h  C P U  I n t e l ' ,  ' B .  T e s t  h i Ç u  n
1240|        correct: 0,
1241|        explanation: 'Intel XTU cho phép ép xung và theo dõi CPU Intel trên Windows'
1242|      },
1243|      {
1244|        id: 'q8',
  1 2 4 5 |                t e x t :  ' U n d e r v o l t i n g  l à  k ù  t h u - t  g ì ? ' ,
  1 2 4 6 |                o p t i o n s :  [ ' A .  G i £ m   i Ç n  á p  C P U   Ã  g i £ m  n h i Ç t ,  v « n  g i ï  h i Ç u  n  n g '
1247|        correct: 0,
  1 2 4 8 |                e x p l a n a t i o n :  ' U n d e r v o l t i n g  g i ú p  g i £ m  n h i Ç t  v à  t i ¿ t  k i Ç m   i Ç n  m à
1249|      },
1250|      {
1251|        id: 'q9',
  1 2 5 2 |                t e x t :  ' M e m o r y  T i m i n g  ( t h ô n g  s Ñ  t h Ý i  g i a n  R A M )  l à  g ì ? ' ,
  1 2 5 3 |                o p t i o n s :  [ ' A .  C á c  t h ô n g  s Ñ   Ù  t r Å  c ç a  R A M  n h °  C L ,  t R C D ,  t R P . . . ' ,
1254|        correct: 0,
  1 2 5 5 |                e x p l a n a t i o n :  ' T i m i n g s  l à  c á c  t h ô n g  s Ñ   Ù  t r Å ,  c à n g  t h ¥ p  c à n g  n h a
1256|      },
1257|      {
1258|        id: 'q10',
  1 2 5 9 |                t e x t :  ' " S i l i c o n  L o t t e r y "  ( x Õ  s Ñ  s i l i c o n )  n ó i  v Á   i Á u  g ì ? ' ,
  1 2 6 0 |                o p t i o n s :  [ ' A .  C h ¥ t  l ° ã n g  c h i p  k h á c  n h a u  g i Ï a  c á c  C P U  c ù n g  l o ¡ i ' ,
1261|        correct: 0,
  1 2 6 2 |                e x p l a n a t i o n :  ' M × i  c h i p  c ó  c h ¥ t  l ° ã n g  s i l i c o n  k h á c  n h a u ,  £ n h  h ° ß n
1263|      },
1264|    ]
1265|  },
1266|  'benchmark': {
1267|    id: 'benchmark',
  1 2 6 8 |          t i t l e :  '  á n h  G i á  H i Ç u  N  n g ' ,
  1 2 6 9 |          i c o n :  'Ø=ÜÊ ' ,
1270|    color: '#0ea5e9',
  1 2 7 1 |          d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  b e n c h m a r k ,  p h § n  m Á m  k i Ã m  t r a  v à   á n h  g i á
1272|    questions: [
1273|      {
1274|        id: 'q1',
  1 2 7 5 |                t e x t :  ' C i n e b e n c h  l à  p h § n  m Á m  d ù n g   Ã  t e s t  h i Ç u  n  n g  g ì ? ' ,
  1 2 7 6 |                o p t i o n s :  [ ' A .  H i Ç u  n  n g  C P U  ( r e n d e r   a  n h â n  v à   ¡ n  n h â n ) ' ,  ' B .  H
1277|        correct: 0,
  1 2 7 8 |                e x p l a n a t i o n :  ' C i n e b e n c h  r e n d e r  £ n h  3 D   Ã   á n h  g i á  h i Ç u  n  n g  C P U '
1279|      },
1280|      {
1281|        id: 'q2',
  1 2 8 2 |                t e x t :  ' 3 D M a r k  l à  p h § n  m Á m  b e n c h m a r k  d ù n g  c h o  m ã c   í c h  g ì ? ' ,
  1 2 8 3 |                o p t i o n s :  [ ' A .   á n h  g i á  h i Ç u  n  n g   Ó  h Í a  g a m e ' ,  ' B .  T e s t  C P U   a  l
1284|        correct: 0,
  1 2 8 5 |                e x p l a n a t i o n :  ' 3 D M a r k  t e s t  h i Ç u  n  n g  g a m i n g  q u a  c á c  c £ n h   Ó  h Í a  t
1286|      },
1287|      {
1288|        id: 'q3',
  1 2 8 9 |                t e x t :  ' C r y s t a l D i s k M a r k  d ù n g   Ã  l à m  g ì ? ' ,
  1 2 9 0 |                o p t i o n s :  [ ' A .   o  t Ñ c   Ù   Í c / g h i  c ç a  Õ  c é n g  S S D / H D D ' ,  ' B .  T e s t  h i
1291|        correct: 0,
  1 2 9 2 |                e x p l a n a t i o n :  ' C r y s t a l D i s k M a r k   o  t Ñ c   Ù  t u § n  t ñ  v à  n g « u  n h i ê n  c
1293|      },
1294|      {
1295|        id: 'q4',
  1 2 9 6 |                t e x t :  ' F P S  l à  v i ¿ t  t ¯ t  c ç a  t h u - t  n g ï  n à o  t r o n g  g a m e ? ' ,
1297|        options: ['A. Frames Per Second (khung hình trên giây)', 'B. Focus Point System', 'C. Fast Processing ...
1298|        correct: 0,
  1 2 9 9 |                e x p l a n a t i o n :  ' F P S   o  s Ñ  k h u n g  h ì n h  h i Ã n  t h Ë  m × i  g i â y ,  c à n g  c a o  c
1300|      },
1301|      {
1302|        id: 'q5',
  1 3 0 3 |                t e x t :  ' C h É  s Ñ  1 %  L o w  F P S  c h o  b i ¿ t   i Á u  g ì ? ' ,
  1 3 0 4 |                o p t i o n s :  [ ' A .  F P S  t h ¥ p  n h ¥ t  t r o n g  1 %  t h Ý i  g i a n ,   o  Ù  g i - t  l a g ' ,
1305|        correct: 0,
  1 3 0 6 |                e x p l a n a t i o n :  ' 1 %  L o w  c à n g  c a o ,  t r £ i  n g h i Ç m  c à n g  m ° ã t ,  í t  g i - t '
1307|      },
1308|      {
1309|        id: 'q6',
  1 3 1 0 |                t e x t :  ' S t r e s s  t e s t  C P U  d ù n g   Ã  l à m  g ì ? ' ,
  1 3 1 1 |                o p t i o n s :  [ ' A .  K i Ã m  t r a   Ù  Õ n   Ë n h  v à  n h i Ç t   Ù  k h i  C P U  h o ¡ t   Ù n g
1312|        correct: 0,
  1 3 1 3 |                e x p l a n a t i o n :  ' S t r e s s  t e s t   © y  C P U  l ê n  1 0 0 %   Ã  k i Ã m  t r a  Õ n   Ë n h  v
1314|      },
1315|      {
1316|        id: 'q7',
  1 3 1 7 |                t e x t :  ' P h § n  m Á m  H W M o n i t o r  d ù n g   Ã  l à m  g ì ? ' ,
  1 3 1 8 |                o p t i o n s :  [ ' A .  T h e o  d õ i  n h i Ç t   Ù ,   i Ç n  á p ,  t Ñ c   Ù  q u ¡ t ' ,  ' B .  B e n c
1319|        correct: 0,
  1 3 2 0 |                e x p l a n a t i o n :  ' H W M o n i t o r  h i Ã n  t h Ë  c £ m  b i ¿ n  n h i Ç t   Ù ,   i Ç n  á p ,  x u n
1321|      },
1322|      {
1323|        id: 'q8',
  1 3 2 4 |                t e x t :  ' O C C T  l à  p h § n  m Á m  c h u y ê n  d ù n g   Ã  l à m  g ì ? ' ,
  1 3 2 5 |                o p t i o n s :  [ ' A .  S t r e s s  t e s t  t o à n  d i Ç n  C P U ,  G P U ,  R A M ,  n g u Ó n ' ,  ' B .  O
1326|        correct: 0,
  1 3 2 7 |                e x p l a n a t i o n :  ' O C C T  t e s t  Õ n   Ë n h  t o à n  b Ù  h Ç  t h Ñ n g  v Û i  n h i Á u  d ¡ n g
1328|      },
1329|      {
1330|        id: 'q9',
  1 3 3 1 |                t e x t :  ' P a s s M a r k  c ó   · c   i Ã m  g ì  t r o n g  b e n c h m a r k ? ' ,
  1 3 3 2 |                o p t i o n s :  [ ' A .   á n h  g i á  t Õ n g  t h Ã  t o à n  b Ù  h Ç  t h Ñ n g  P C ' ,  ' B .  C h É  t e
1333|        correct: 0,
  1 3 3 4 |                e x p l a n a t i o n :  ' P a s s M a r k   ° a  r a   i Ã m  t Õ n g  h ã p  c h o  C P U ,  G P U ,  R A M ,  Ó
1335|      },
1336|      {
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      id: 'q10',
        text: 'Geekbench ánh giá hiÇu n ng ß khía c¡nh nào?',
        options: ['A. CPU ¡n nhân và a nhân a nÁn t£ng', 'B. GPU gami
      correct: 0,
        explanation: 'Geekbench cho iÃm ¡n nhân và a nhân, so sánh '
    },
    ]
  },
  'pc-gaming': {
    id: 'pc-gaming',
        title: 'C¥u Hình PC Gaming',
        icon: 'Ø<ß ',
    color: '#dc2626',
        description: 'Ki¿n théc vÁ xây dñng c¥u hình PC ch¡i game các t§m gi
    questions: [
      {
        id: 'q1',
        text: 'Card Ó hÍa t§m trung phù hãp cho PC gaming 2024 là gì?',
        options: ['A. RTX 4060 / RX 7600', 'B. RTX 4090', 'C. GT 1030', 'D. RTX 3060'],
      correct: 0,
        explanation: 'RTX 4060 và RX 7600 là lña chÍn t§m trung tÑt nh¥t
      },
      {
        id: 'q2',
        text: 'CPU gaming °ãc ánh giá tÑt nh¥t hiÇn nay cho game thç?'
        options: ['A. AMD Ryzen 7 7800X3D', 'B. Intel Core i9-14900K', 'C. AMD Ryzen 5 7600', 'D. Intel Core i...
      correct: 0,
        explanation: '7800X3D vÛi 3D V-Cache cho hiÇu n ng gaming v°ãt t
      },
      {
        id: 'q3',
        text: 'Dung l°ãng RAM tÑi thiÃu cho PC gaming hiÇn nay là bao nh
        options: ['A. 16GB', 'B. 8GB', 'C. 32GB', 'D. 64GB'],
      correct: 0,
        explanation: '16GB là tÑi thiÃu cho gaming hiÇn ¡i, 32GB khuyên
      },
      {
        id: 'q4',
        text: 'Loi SSD nào c§n thi¿t cho PC gaming Ã load game nhanh?'
        options: ['A. NVMe PCIe 4.0 / 5.0', 'B. SATA SSD', 'C. HDD 7200RPM', 'D. NVMe PCIe 3.0'],
      correct: 0,
        explanation: 'NVMe PCIe 4.0 vÛi tÑc Ù cao giúp gi£m thÝi gian l
      },
      {
        id: 'q5',
        text: 'Công su¥t nguÓn phù hãp cho PC gaming t§m trung là bao nh
        options: ['A. 650W - 750W', 'B. 450W - 550W', 'C. 850W - 1000W', 'D. 300W - 400W'],
      correct: 0,
        explanation: '650-750W ç cho c¥u hình t§m trung vÛi RTX 4060/40
      },
      {
        id: 'q6',
        text: 'T£n nhiÇt cho CPU gaming nên chÍn loi nào?',
        options: ['A. AIO 240mm ho·c t£n khí tower kép cao c¥p', 'B. T£n
      correct: 0,
        explanation: 'AIO 240mm ho·c tower kép ç cho h§u h¿t CPU gaming
      },
      {
        id: q7',
        text: 'Mainboard cho PC gaming nên chÍn chipset nào?',
        options: ['A. B650 (AMD) ho·c Z790 (Intel)', 'B. H610 (Intel) r
      correct: 0,
        explanation: 'B650 và Z790 cân b±ng giïa tính n ng và giá cho ga
      },
      {
        id: q8',
        text: 'Khi chÍn case cho PC gaming c§n l°u ý iÁu gì nh¥t?',
        options: ['A. LuÔng khí tÑt và ç không gian cho GPU dài', 'B. N
      correct: 0,
        explanation: 'Case c§n airflow tÑt và ç dài cho GPU gaming hiÇn
      },
      {
        id: q9',
        text: 'GPU nào ç m¡nh Ã ch¡i game ß Ù phân gi£i 4K 60FPS?',
        options: ['A. RTX 4080 trß lên', 'B. RTX 4060', 'C. RX 7600', 'D
      correct: 0,
        explanation: '4K gaming yêu c§u GPU cao c¥p nh° RTX 4080/4090 ho
      },
      {
        id: q10',
        text: 'TÉ lÇ phân bÕ ngân sách CPU/GPU hãp lý cho PC gaming là b
        options: ['A. 30% CPU, 40% GPU', 'B. 50% CPU, 30% GPU', 'C. 20% CPU, 60% GPU', 'D. 40% CPU, 40% GPU'],
      correct: 0,
        explanation: 'GPU chi¿m ph§n lÛn ngân sách vì quan trÍng nh¥t ch
      },
    ]
  },
  'server-workstation': {
    id: 'server-workstation',
        title: 'Máy Chç & Workstation',
        icon: 'Ø<ßâ ',
    color: '#7c3aed',
        description: 'Ki¿n théc vÁ máy chç, workstation, server hardware và
    questions: [
      {
        id: 'q1',
        text: 'CPU th°Ýng dùng cho máy chç (server) là dòng nào?',
        options: ['A. Intel Xeon / AMD EPYC', 'B. Intel Core i9', 'C. AMD Ryzen 9', 'D. Intel Core i5'],
      correct: 0,
        explanation: 'Xeon và EPYC °ãc thi¿t k¿ cho server vÛi nhiÁu lõ
      },
      {
        id: 'q2',
        text: 'ECC RAM khác RAM th°Ýng (non-ECC) ß iÃm gì?',
        options: ['A. Có kh£ n ng phát hiÇn và sía l×i dï liÇu tñ Ùng',
      correct: 0,
        explanation: 'ECC tñ Ùng sía l×i bit, r¥t quan trÍng cho server
      },
      {
        id: 'q3',
        text: 'RAID 1 là gì?',
        options: ['A. Nhân b£n (mirror) dï liÇu giïa 2 Õ céng', 'B. Dñ p
      correct: 0,
        explanation: 'RAID 1 ghi dï liÇu giÑng hÇt lên 2 Õ, n¿u 1 Õ hÏng
      },
      {
        id: 'q4',
        text: 'Uptime trong ngï c£nh server là gì?',
        options: ['A. ThÝi gian hÇ thÑng ho¡t Ùng liên tåc không gián
      correct: 0,
        explanation: 'Uptime o thÝi gian server ho¡t Ùng không restart
      },
      {
        id: 'q5',
```

```
  1 4 6 1 |                t e x t :  ' K í c h  t h ° Û c  r a c k  m o u n t  s e r v e r   ° ã c   o  b ± n g   ¡ n  v Ë  g ì ? ' ,
1462|        options: ['A. U (1U, 2U, 4U)', 'B. ATX, Micro-ATX', 'C. Inch', 'D. Mét'],
1463|        correct: 0,
  1 4 6 4 |                e x p l a n a t i o n :  ' 1 U  =  1 . 7 5  i n c h  c h i Á u  c a o  r a c k  s e r v e r '
1465|      },
1466|      {
1467|        id: 'q6',
  1 4 6 8 |                t e x t :  ' T í n h  n  n g  H o t  S w a p  c h o  p h é p  l à m  g ì ? ' ,
  1 4 6 9 |                o p t i o n s :  [ ' A .  T h a y  Õ  c é n g  k h i  h Ç  t h Ñ n g   a n g  c h ¡ y  m à  k h ô n g  t ¯ t  n g
1470|        correct: 0,
  1 4 7 1 |                e x p l a n a t i o n :  ' H o t  s w a p  c h o  p h é p  t h a y  Õ  c é n g  n ó n g  m à  k h ô n g  £ n h  h °
1472|      },
1473|      {
1474|        id: 'q7',
  1 4 7 5 |                t e x t :  ' V i r t u a l i z a t i o n  ( £ o  h ó a )  t r o n g  s e r v e r  c h o  p h é p  l à m  g ì ? ' ,
  1 4 7 6 |                o p t i o n s :  [ ' A .  C h ¡ y  n h i Á u  m á y  c h ç  £ o  t r ê n  1  m á y  c h ç  v - t  l ý ' ,  ' B .
1477|        correct: 0,
  1 4 7 8 |                e x p l a n a t i o n :  ' ¢ o  h ó a  c h i a  1  s e r v e r  v - t  l ý  t h à n h  n h i Á u  V M   Ù c  l - p
1479|      },
1480|      {
1481|        id: 'q8',
  1 4 8 2 |                t e x t :  ' N A S  ( N e t w o r k  A t t a c h e d  S t o r a g e )  d ù n g   Ã  l à m  g ì ? ' ,
  1 4 8 3 |                o p t i o n s :  [ ' A .  L ° u  t r ï  t - p  t r u n g  q u a  m ¡ n g  c h o  n h i Á u  n g ° Ý i  d ù n g ' ,
1484|        correct: 0,
  1 4 8 5 |                e x p l a n a t i o n :  ' N A S  l à  t h i ¿ t  b Ë  l ° u  t r ï  m ¡ n g ,  c h i a  s »  f i l e  q u a  L A N
1486|      },
1487|      {
1488|        id: 'q9',
  1 4 8 9 |                t e x t :  ' G P U  t r o n g  w o r k s t a t i o n  c h u y ê n  n g h i Ç p  t h ° Ý n g  d ù n g  d ò n g  n à o ?
  1 4 9 0 |                o p t i o n s :  [ ' A .  N V I D I A  R T X / Q u a d r o ,  A M D  R a d e o n  P r o ' ,  ' B .  C a r d  g a m i n
1491|        correct: 0,
  1 4 9 2 |                e x p l a n a t i o n :  ' C a r d  w o r k s t a t i o n  c ó  d r i v e r  I S V  c e r t i f i e d  c h o  é n g  c
1493|      },
1494|      {
1495|        id: 'q10',
  1 4 9 6 |                t e x t :  ' U P S  ( U n i n t e r r u p t i b l e  P o w e r  S u p p l y )  c ó  t á c  d ß n g  g ì ? ' ,
  1 4 9 7 |                o p t i o n s :  [ ' A .  C ¥ p   i Ç n  t ¡ m  t h Ý i  k h i  m ¥ t   i Ç n ,  b £ o  v Ç  t h i ¿ t  b Ë ' ,
1498|        correct: 0,
  1 4 9 9 |                e x p l a n a t i o n :  ' U P S  g i ï  c h o  h Ç  t h Ñ n g  c h ¡ y  t ¡ m  t h Ý i  v à  t ¯ t  a n  t o à n
1500|      },
1501|    ]
1502|  },
1503|  'cable-connectivity': {
1504|    id: 'cable-connectivity',
  1 5 0 5 |          t i t l e :  ' C á p  K ¿ t  N Ñ i  &  C h u © n  G i a o  T i ¿ p ' ,
  1 5 0 6 |          i c o n :  'Ø=Ý ' ,
1507|    color: '#64748b',
  1 5 0 8 |          d e s c r i p t i o n :  ' K i ¿ n  t h é c  v Á  c á p  k ¿ t  n Ñ i ,  c h u © n  g i a o  t i ¿ p  p h § n  c é n g  v à
1509|    questions: [
1510|      {
1511|        id: 'q1',
  1 5 1 2 |                t e x t :  ' C á p  d ï  l i Ç u  S A T A  c ó  b a o  n h i ê u  c h â n ? ' ,
1513|        options: ['A. 7 chân', 'B. 15 chân', 'C. 4 chân', 'D. 24 chân'],
1514|        correct: 0,
1515|        explanation: 'SATA data cable có 7 chân, còn SATA power có 15 chân'
1516|      },
1517|      {
1518|        id: 'q2',
  1 5 1 9 |                t e x t :  ' C á p  n g u Ó n  S A T A  ( S A T A  p o w e r )  c ó  b a o  n h i ê u  c h â n ? ' ,
1520|        options: ['A. 15 chân', 'B. 7 chân', 'C. 4 chân', 'D. 24 chân'],
1521|        correct: 0,
  1 5 2 2 |                e x p l a n a t i o n :  ' S A T A  p o w e r  1 5  c h â n  c u n g  c ¥ p  3 . 3 V ,  5 V  v à  1 2 V '
1523|      },
1524|      {
1525|        id: 'q3',
  1 5 2 6 |                t e x t :  ' C á p  H D M I  c ó  h ×  t r ã  t r u y Á n  t í n  h i Ç u  â m  t h a n h  k h ô n g ? ' ,
  1 5 2 7 |                o p t i o n s :  [ ' A .  C ó ,  H D M I  t í c h  h ã p  c £  â m  t h a n h  v à  h ì n h  £ n h ' ,  ' B .  K h
1528|        correct: 0,
  1 5 2 9 |                e x p l a n a t i o n :  ' H D M I  t r u y Á n  c £  v i d e o  v à  a u d i o  q u a  m Ù t  c á p  d u y  n h ¥ t
1530|      },
1531|      {
1532|        id: 'q4',
  1 5 3 3 |                t e x t :  ' C á p  q u a n g  ( F i b e r  O p t i c )  t r u y Á n  t í n  h i Ç u  b ± n g  g ì ? ' ,
  1 5 3 4 |                o p t i o n s :  [ ' A .  X u n g  á n h  s á n g  q u a  s ã i  t h ç y  t i n h ' ,  ' B .  X u n g   i Ç n  q u
1535|        correct: 0,
  1 5 3 6 |                e x p l a n a t i o n :  ' F i b e r  o p t i c  d ù n g  á n h  s á n g ,  c h o  t Ñ c   Ù  c a o  v à  k h o £ n
1537|      },
1538|      {
1539|        id: 'q5',
  1 5 4 0 |                t e x t :  ' C Õ n g  U S B  3 . 0  c ó  m à u  s ¯ c   · c  t r ° n g  l à  g ì ? ' ,
  1 5 4 1 |                o p t i o n s :  [ ' A .  M à u  x a n h  d ° ¡ n g  ( b l u e ) ' ,  ' B .  M à u   e n ' ,  ' C .  M à u   Ï ' ,
1542|        correct: 0,
  1 5 4 3 |                e x p l a n a t i o n :  ' U S B  3 . 0 / 3 . 1  t h ° Ý n g  c ó  m à u  x a n h  d ° ¡ n g   Ã  n h - n  b i ¿ t '
1544|      },
1545|      {
1546|        id: 'q6',
  1 5 4 7 |                t e x t :  ' C á p  T h u n d e r b o l t  3  s í  d ß n g   § u  n Ñ i  d ¡ n g  n à o ? ' ,
1548|        options: ['A. USB Type-C', 'B. Mini DisplayPort', 'C. USB Type-A', 'D. Lightning'],
1549|        correct: 0,
  1 5 5 0 |                e x p l a n a t i o n :  ' T h u n d e r b o l t  3  d ù n g   § u  n Ñ i  U S B  T y p e - C ,  t í c h  h ã p  P C
1551|      },
1552|      {
1553|        id: 'q7',
  1 5 5 4 |                t e x t :  ' R G B  h e a d e r  t r ê n  m a i n b o a r d  c ó  m ¥ y  l o ¡ i  c h í n h ? ' ,
  1 5 5 5 |                o p t i o n s :  [ ' A .  4 - p i n  1 2 V  R G B  v à  3 - p i n  5 V  A R G B ' ,  ' B .  2 - p i n  d u y  n h ¥
1556|        correct: 0,
  1 5 5 7 |                e x p l a n a t i o n :  ' R G B  ( 4 - p i n  1 2 V )  v à  A R G B  ( 3 - p i n  5 V )  l à  2  c h u © n  p h Õ
1558|      },
1559|      {
1560|        id: 'q8',
  1 5 6 1 |                t e x t :  ' F a n  h e a d e r  ( § u  c ¯ m  q u ¡ t )  t r ê n  m a i n b o a r d  t h ° Ý n g  l à  l o ¡ i  n
  1 5 6 2 |                o p t i o n s :  [ ' A .  4 - p i n  P W M  (  i Á u  c h É n h  t Ñ c   Ù ) ' ,  ' B .  3 - p i n  D C  c Ñ   Ë
1563|        correct: 0,
  1 5 6 4 |                e x p l a n a t i o n :  ' 4 - p i n  P W M  c h o  p h é p  m a i n b o a r d   i Á u  c h É n h  t Ñ c   Ù  q u
1565|      },
1566|      {
1567|        id: 'q9',
  1 5 6 8 |                t e x t :  ' C á p  m ¡ n g  R J 4 5  ( E t h e r n e t )  c ó  b a o  n h i ê u  c h â n ? ' ,
  1 5 6 9 |                o p t i o n s :  [ ' A .  8  c h â n  ( 4  c · p  x o ¯ n ) ' ,  ' B .  4  c h â n ' ,  ' C .  6  c h â n ' ,  ' D
1570|        correct: 0,
  1 5 7 1 |                e x p l a n a t i o n :  ' C á p  R J 4 5  c ó  8  c h â n  t ° ¡ n g  é n g  4  c · p  d â y  x o ¯ n '
1572|      },
1573|      {
1574|        id: 'q10',
  1 5 7 5 |                t e x t :  ' C a b l e  m a n a g e m e n t  ( q u £ n  l ý  d â y )  t r o n g  c a s e  P C  l à  g ì ? ' ,
  1 5 7 6 |                o p t i o n s :  [ ' A .  S ¯ p  x ¿ p  d â y  c á p  g Í n  g à n g   Ã  t Ñ i  ° u  l u Ó n g  k h í ' ,  ' B .
1577|        correct: 0,
  1 5 7 8 |                e x p l a n a t i o n :  ' C a b l e  m a n a g e m e n t  g i ú p  c a s e  g Í n   ¹ p  v à  l u Ó n g  k h í  l °
1579|      },
1580|    ]
1581|  },
1582|  'virtual-reality': {
1583|    id: 'virtual-reality',
  1 5 8 4 |          t i t l e :  ' T h ñ c  T ¿  ¢ o  ( V R )  &  A R ' ,
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1585|         icon:  'Ø>Ý} ',
1586|    color: '#d946ef',
1587|         description:  'Ki¿n théc vÁ thñc t¿ £o, thñc t¿ t ng c°Ýng, thi¿t bË
1588|    questions: [
1589|      {
1590|        id: 'q1',
1591|                text:  'VR là vi¿t t¯t cça thu-t ngï gì?',
1592|                options:  ['A.  Virtual  Reality  (Thñc  t¿  £o)',  'B.  Visual  Reality'
1593|        correct: 0,
1594|                explanation:  'VR  t¡o  ra  môi  tr°Ýng  hoàn  toàn  £o  Ã  ng°Ýi  dùng  t°
1595|      },
1596|      {
1597|        id: 'q2',
1598|                text:  'Headset  VR  phÕ  bi¿n  nh¥t  hiÇn  nay  là  gì?',
1599|        options: ['A. Meta Quest 3, Valve Index, PlayStation VR2', 'B. Samsung Galaxy Watch', 'C. Apple Vision...
1600|        correct: 0,
1601|                explanation:  'Meta  Quest  3  là  headset  VR  phÕ  bi¿n  nh¥t  vÛi  giá  p
1602|      },
1603|      {
1604|        id: 'q3',
1605|                text:  'C¥u  hình  PC  tÑi  thiÃu  cho  VR  gaming  là  gì?',
1606|                options:  ['A.  RTX  3060  +  Core  i5  +  16GB  RAM',  'B.  GTX  1650  +  Co
1607|        correct: 0,
1608|                explanation:  'VR  yêu  c§u  GPU  m¡nh  Ã  ¡t  90  FPS  ß  Ù  phân  gi£i  c
1609|      },
1610|      {
1611|        id: 'q4',
1612|        text: 'Inside-out tracking trong VR là gì?',
1613|                options:  ['A.  Camera  trên  headset  tñ  theo  dõi  vË  trí,  không  c§n
1614|        correct: 0,
1615|                explanation:  'Inside-out  dùng  camera  tích  hãp  trên  headset  Ã  Ë
1616|      },
1617|      {
1618|        id: 'q5',
1619|        text: 'FOV (Field of View) trong VR là gì?',
1620|                options:  ['A.  Tr°Ýng  nhìn,  góc  quan  sát  trong  headset  VR',  'B.  T
1621|        correct: 0,
1622|                explanation:  'FOV  th°Ýng  100-120  Ù,  càng  rÙng  càng  nh-p  vai'
1623|      },
1624|      {
1625|        id: 'q6',
1626|                text:  'AR  (Augmented  Reality)  khác  VR  (Virtual  Reality)  ß  iÃm  n
1627|                options:  ['A.  AR  thêm  Ñi  t°ãng  £o  vào  th¿  giÛi  th-t,  VR  thay  th
1628|        correct: 0,
1629|                explanation:  'AR  chÓng  lÛp  thông  tin  £o  lên  th¿  giÛi  thñc  (Poke
1630|      },
1631|      {
1632|        id: 'q7',
1633|                text:  '  Ù  trÅ  (lag)  cao  trong  VR  có  thÃ  gây  ra  v¥n  Á  gì?',
1634|                options:  ['A.  Motion  sickness  (say  tàu  xe  £o),  chóng  m·t',  'B.  H
1635|        correct: 0,
1636|                explanation:  'VR  yêu  c§u  Ù  trÅ  cñc  th¥p  Ã  tránh  gây  khó  chËu'
1637|      },
1638|      {
1639|        id: 'q8',
1640|                text:  'T§n  sÑ  quét  (refresh  rate)  tÑi  thiÃu  cça  headset  VR  ch¥t
1641|        options: ['A. 90Hz', 'B. 60Hz', 'C. 120Hz', 'D. 144Hz'],
1642|        correct: 0,
1643|                explanation:  '90Hz  là  tÑi  thiÃu,  120Hz  trß  lên  cho  tr£i  nghiÇm  V
1644|      },
1645|      {
1646|        id: 'q9',
1647|                text:  'SteamVR  là  nÁn  t£ng  ph§n  mÁm  cça  hãng  nào?',
1648|        options: ['A. Valve', 'B. Meta (Facebook)', 'C. Microsoft', 'D. Sony'],
1649|        correct: 0,
1650|                explanation:  'SteamVR  cça  Valve  h×  trã  nhiÁu  headset  và  game  VR'
1651|      },
1652|      {
1653|        id: 'q10',
1654|                text:  'Tính  n ng  Passthrough  trên  headset  VR  cho  phép  làm  gì?',
1655|                options:  ['A.  Nhìn  th¥y  th¿  giÛi  th-t  qua  camera  mà  không  c§n  th
1656|        correct: 0,
1657|                explanation:  'Passthrough  giúp  ng°Ýi  dùng  quan  sát  môi  tr°Ýng  th
1658|      },
1659|    ]
1660|  },
1661|  'cybersecurity': {
1662|    id: 'cybersecurity',
1663|         title:  'An  Ninh  M¡ng  C¡  B£n',
1664|         icon:  'Ø=Ý ',
1665|    color: '#059669',
1666|         description:  'Ki¿n  théc  c¡  b£n  vÁ  an  ninh  m¡ng,  b£o  m-t  và  phòng  chÑ
1667|    questions: [
1668|      {
1669|        id: 'q1',
1670|                text:  'Firewall  (t°Ýng  lía)  có  chéc  n ng  gì?',
1671|                options:  ['A.  KiÅm  soát  và  lÍc  l°u  l°ãng  m¡ng  vào/ra',  'B.  T ng
1672|        correct: 0,
1673|                explanation:  'Firewall  ng n  ch·n  truy  c-p  trái  phép  tË/tÛi  m¡ng
1674|      },
1675|      {
1676|        id: 'q2',
1677|        text: 'Malware là gì?',
1678|                options:  ['A.  Ph§n  mÁm  Ùc  h¡i  gây  h¡i  cho  máy  tính',  'B.  Ph§n  m
1679|        correct: 0,
1680|                explanation:  'Malware  bao  gÓm  virus,  trojan,  ransomware,  spyware
1681|      },
1682|      {
1683|        id: 'q3',
1684|                text:  'Phishing  là  hình  théc  t¥n  công  nh°  th¿  nào?',
1685|                options:  ['A.  Lëa  £o  l¥y  thông  tin  nh¡y  c£m  qua  email/website  g
1686|        correct: 0,
1687|                explanation:  'Phishing  gi£  m¡o  tÕ  chéc  uy  tín  Ã  lëa  n¡n  nhân  cu
1688|      },
1689|      {
1690|        id: 'q4',
1691|                text:  'M-t  kh©u  m¡nh  nên  có  nhïng  y¿u  tÑ  nào?',
1692|                options:  ['A.  K¿t  hãp  chï  hoa,  chï  th°Ýng,  sÑ,  ký  tñ  ·c  biÇt,  c
1693|        correct: 0,
1694|                explanation:  'M-t  kh©u  m¡nh  khó  oán  và  khó  bË  brute-force'
1695|      },
1696|      {
1697|        id: 'q5',
1698|        text: '2FA (Two-Factor Authentication) là gì?',
1699|                options:  ['A.  Xác  thñc  2  y¿u  tÑ:  m-t  kh©u  +  mã  xác  nh-n  thé  2',
1700|        correct: 0,
1701|                explanation:  '2FA  thêm  lÛp  b£o  vÇ  thé  2  (SMS,  app  authenticator,
1702|      },
1703|      {
1704|        id: 'q6',
1705|                text:  'Ransomware  là  lo¡i  mã  Ùc  gì?',
1706|                options:  ['A.  Mã  Ùc  mã  hóa  dï  liÇu  và  òi  tiÁn  chuÙc',  'B.  Ph§n
1707|        correct: 0,
1708|                explanation:  'Ransomware  mã  hóa  file  n¡n  nhân,  yêu  c§u  tr£  tiÁn
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1709|      },
1710|      {
1711|        id: 'q7',
  1 7 1 2 |              t e x t :  ' V P N  ( V i r t u a l  P r i v a t e  N e t w o r k )  c ó  t á c  d ẵ n g  g ì ? ' ,
  1 7 1 3 |              o p t i o n s :  [ ' A .  M ã  h ó a  k ¿ t  n Ñ i  I n t e r n e t  v à  © n  Ë a  c h É  I P ' ,  ' B .  T  n
1714|        correct: 0,
  1 7 1 5 |              e x p l a n a t i o n :  ' V P N  t ¡ o  k ê n h  m ã  h ó a  a n  t o à n  g i ï a  t h i ¿ t  b Ë  v à  s e r v e
1716|      },
1717|      {
1718|        id: 'q8',
  1 7 1 9 |              t e x t :  ' X á c  t h ñ c  s i n h  t r ¯ c  h Í c  ( b i o m e t r i c )  t r ê n  P C  l à  g ì ? ' ,
  1 7 2 0 |              o p t i o n s :  [ ' A .     n g  n h - p  b ± n g  v â n  t a y ,  k h u ô n  m · t  h o · c  m Ñ n g  m ¯ t ' ,
1721|        correct: 0,
  1 7 2 2 |              e x p l a n a t i o n :  ' W i n d o w s  H e l l o  h ×  t r ã  v â n  t a y  v à  n h - n  d i Ç n  k h u ô n  m
1723|      },
1724|      {
1725|        id: 'q9',
  1 7 2 6 |              t e x t :  ' C á c h  p h á t  h i Ç n  e m a i l  l ë a    £ o  ( p h i s h i n g )  l à  g ì ? ' ,
  1 7 2 7 |              o p t i o n s :  [ ' A .  K i Ã m  t r a    Ë a  c h É  n g ° Ý i  g í i ,  l × i  c h í n h  t £ ,  l i n k    á r
1728|        correct: 0,
  1 7 2 9 |              e x p l a n a t i o n :  ' E m a i l  g i £  t h ° Ý n g  c ó    Ë a  c h É  l ¡ ,  l × i  c h í n h  t £  v à  l i
1730|      },
1731|      {
1732|        id: 'q10',
  1 7 3 3 |              t e x t :  ' C - p  n h - t  p h § n  m Á m  v à  h Ç    i Á u  h à n h  t h ° Ý n g  x u y ê n  c ó  t á c  d ẵ n
  1 7 3 4 |              o p t i o n s :  [ ' A .  V á  c á c  l ×  h Õ n g  b £ o  m - t    ã    ° ã c  p h á t  h i Ç n ' ,  ' B .  L à m
1735|        correct: 0,
  1 7 3 6 |              e x p l a n a t i o n :  ' C - p  n h - t  v á  l ×  h Õ n g  z e r o - d a y  v à  b £ o  v Ç  t r ° Û c  c á c  m
1737|      },
1738|    ]
1739|  }
1740| };
1741|
```

File: data/quiz-bank.ts (453 lines, 41.4 KB)

```
1| export const QUIZ_BANK = [
2|   {
3|     id: 'quiz-cpu-arch',
  4 |          t i t l e :  ' K i ¿ n  T r ú c  C P U  &  T - p  L Ç n h ' ,
  5 |          l e s s o n T i t l e :  ' B Ù  v i  x í  l ý  ( C P U ) ' ,
6|     estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
7|     questions: [
  8 |            {  q :  ' C P U  l à  v i ¿ t  t ¯ t  c ç a  t ë  g ì ? ' ,  o p t i o n s :  [ ' C e n t r a l  P r o c e s s i n g  U
  9 |            {  q :  '  ¡ n  v Ë  o  t Ñ c  Ù  C P U  l à  g ì ? ' ,  o p t i o n s :  [ ' G H z ' ,  ' M B ' ,  ' G B / s ' ,
  1 0 |            {  q :  ' C a c h e  L 1 ,  L 2 ,  L 3  n ± m  ß  â u ? ' ,  o p t i o n s :  [ ' T r o n g  C P U ' ,  ' T r ê n  N
  1 1 |            {  q :  ' C P U  n à o  s a u  â y  c ç a  I n t e l ? ' ,  o p t i o n s :  [ ' C o r e  i 7 ' ,  ' R y z e n  7 ' ,
  1 2 |            {  q :  ' H y p e r - T h r e a d i n g  c h o  p h é p  C P U  l à m  g ì ? ' ,  o p t i o n s :  [ ' X í  l ý  a  t
  1 3 |            {  q :  ' S o c k e t  L G A  1 7 0 0  d ù n g  c h o  C P U  I n t e l  t h ¿  h Ç  n à o ? ' ,  o p t i o n s :  [ '
  1 4 |            {  q :  ' T D P  l à  v i ¿ t  t ¯ t  c ç a ? ' ,  o p t i o n s :  [ ' T h e r m a l  D e s i g n  P o w e r ' ,  ' T
  1 5 |            {  q :  ' C P U  A M D  s í  d ẵ n g  s o c k e t  n à o  p h Õ  b i ¿ n  h i Ç n  n a y ? ' ,  o p t i o n s :  [ ' A
  1 6 |            {  q :  ' S Ñ  n h â n  ( c o r e s )  £ n h  h ° ß n g  g ì    ¿ n  h i Ç u  n  n g ? ' ,  o p t i o n s :  [ '  a
  1 7 |            {  q :  ' C P U  I n t e l  C o r e  i 5  t h ° Ý n g  p h ù  h ã p  v Ù i    Ñ i  t ° ã n g  n à o ? ' ,  o p t i o n
18|     ]
19|   },
20|   {
21|     id: 'quiz-ram-deep',
  2 2 |          t i t l e :  ' R A M  &  B Ù  N h Û  T r o n g ' ,
23|     lessonTitle: 'RAM & SSD',
24|     estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
25|     questions: [
  2 6 |            {  q :  ' R A M  l à  v i ¿ t  t ¯ t  c ç a ? ' ,  o p t i o n s :  [ ' R a n d o m  A c c e s s  M e m o r y ' ,  ' R e
  2 7 |            {  q :  ' D D R 5  c ó  t Ñ c  Ù  b u s  b a o  n h i ê u ? ' ,  o p t i o n s :  [ ' 4 8 0 0 - 8 4 0 0  M T / s ' ,
  2 8 |            {  q :  ' D u n g  l ° ã n g  R A M  p h Õ  b i ¿ n  c h o  P C  g a m i n g  h i Ç n  n a y ? ' ,  o p t i o n s :  [
  2 9 |            {  q :  ' C A S  L a t e n c y  ( C L )  t h ¥ p  c ó  ý  n g h ) a  g ì ? ' ,  o p t i o n s :  [ '  Ù  t r Ã  t h ¥
  3 0 |            {  q :  ' D u a l  C h a n n e l  l à  g ì ? ' ,  o p t i o n s :  [ ' C h ¡ y  2  t h a n h  R A M  c ù n g  l ú c ' ,
31|       { q: 'RAM DDR4 có bao nhiêu chân?', options: ['288 chân', '240 chân', '260 chân', '204 chân'], answer: 0 },
  3 2 |            {  q :  ' R A M  n à o  t i ¿ t  k i Ç m    i Ç n  n h ¥ t ? ' ,  o p t i o n s :  [ ' L P D D R 5 ' ,  ' D D R 4 ' ,
  3 3 |            {  q :  ' E C C  R A M  t h ° Ý n g  d ù n g  t r o n g ? ' ,  o p t i o n s :  [ ' M á y  c h ç / S e r v e r ' ,  ' P C
  3 4 |            {  q :  ' X M P  l à  c ô n g  n g h Ç  c ç a  h ã n g  n à o ? ' ,  o p t i o n s :  [ ' I n t e l ' ,  ' A M D ' ,
  3 5 |            {  q :  ' D u n g  l ° ã n g  R A M  t Ñ i    a  W i n d o w s  1 1  H o m e  h ×  t r ã ? ' ,  o p t i o n s :  [ ' 1
36|     ]
37|   },
38|   {
39|     id: 'quiz-gpu-advanced',
  4 0 |          t i t l e :  ' C a r d    Ó  H Í a  &  X í  L ý    Ó  H Í a ' ,
  4 1 |          l e s s o n T i t l e :  ' C a r d    Ó  h Í a  ( G P U ) ' ,
42|     estimated_minutes: 20, difficulty: 'Khó', xp: 200,
43|     questions: [
  4 4 |            {  q :  ' G P U  l à  v i ¿ t  t ¯ t  c ç a ? ' ,  o p t i o n s :  [ ' G r a p h i c s  P r o c e s s i n g  U n i t ' ,
  4 5 |            {  q :  ' V R A M  l à  b Ù  n h Û  c ç a ? ' ,  o p t i o n s :  [ ' C a r d    Ó  H Í a ' ,  ' C P U ' ,  ' M a i n b
  4 6 |            {  q :  ' R a y  T r a c i n g  l à  c ô n g  n g h Ç  g ì ? ' ,  o p t i o n s :  [ ' M ô  p h Ỉ n g  á n h  s á n g
  4 7 |            {  q :  ' D L S S  l à  c ô n g  n g h Ç  c ç a  h ã n g  n à o ? ' ,  o p t i o n s :  [ ' N V I D I A ' ,  ' A M D ' ,
  4 8 |            {  q :  ' C U D A  C o r e  l à  c ç a ? ' ,  o p t i o n s :  [ ' N V I D I A ' ,  ' A M D ' ,  ' I n t e l ' ,  ' Q u a
  4 9 |            {  q :  ' G i a o  t h é c  k ¿ t  n Ñ i  G P U  m Ù i  n h ¥ t  l à ? ' ,  o p t i o n s :  [ ' P C I e  5 . 0 ' ,
  5 0 |            {  q :  ' R T X  4 0 9 0  d ù n g  k i ¿ n  t r ú c  n à o ? ' ,  o p t i o n s :  [ ' A d a  L o v e l a c e ' ,  ' A m
  5 1 |            {  q :  ' F i d e l i t y F X  S u p e r  R e s o l u t i o n  ( F S R )  l à  c ç a ? ' ,  o p t i o n s :  [ ' A M D ' ,
  5 2 |            {  q :  ' T D P  c ç a  R T X  4 0 9 0  k h o £ n g  b a o  n h i ê u ? ' ,  o p t i o n s :  [ ' 4 5 0 W ' ,  ' 2 5 0 W
  5 3 |            {  q :  '  Ù  p h ã n  g i £ i  4 K  c ó  b a o  n h i ê u  p i x e l ? ' ,  o p t i o n s :  [ ' 3 8 4 0 x 2 1 6 0 ' ,
54|     ]
55|   },
56|   {
57|     id: 'quiz-psu-cooling',
  5 8 |          t i t l e :  ' N g u Ó n    i Ç n  &  T £ n  N h i Ç t ' ,
  5 9 |          l e s s o n T i t l e :  ' N g u Ó n  &  T £ n  n h i Ç t ' ,
60|     estimated_minutes: 20, difficulty: 'Trung bình', xp: 150,
61|     questions: [
  6 2 |            {  q :  ' P S U  8 0  P l u s  G o l d  c ó  h i Ç u  s u ¥ t  t Ñ i  t h i Ã u ? ' ,  o p t i o n s :  [ ' 8 7 % ' ,
  6 3 |            {  q :  ' L o ¡ i  t £ n  n h i Ç t  n à o  h i Ç u  q u £  n h ¥ t ? ' ,  o p t i o n s :  [ ' T £ n  n h i Ç t  n ° (
  6 4 |            {  q :  ' N g u Ó n    i Ç n  m o d u l a r  l à  g ì ? ' ,  o p t i o n s :  [ ' C ó  t h Ã  t h á o  r Ý i  d â y  c
  6 5 |            {  q :  ' T h e r m a l  P a s t e  c ó  t á c  d ẵ n g  g ì ? ' ,  o p t i o n s :  [ ' T r u y Á n  n h i Ç t  t ë  C
  6 6 |            {  q :  ' P S U  A T X 3 . 0  h ×  t r ã  c h u © n  n à o ? ' ,  o p t i o n s :  [ ' 1 2 V H P W R ' ,  ' A T X 1 2 V C
  6 7 |            {  q :  ' K í c h  t h ° Ù c  q u ¡ t  t £ n  n h i Ç t  k h í  p h Õ  b i ¿ n ? ' ,  o p t i o n s :  [ ' 1 2 0 m m ' ,
  6 8 |            {  q :  ' N h i Ç t    Ù  C P U  a n  t o à n  k h i  c h ¡ i  g a m e ? ' ,  o p t i o n s :  [ ' 6 0 - 8 0 ° C ' ,
  6 9 |            {  q :  ' L i q u i d  M e t a l  l à  g ì ? ' ,  o p t i o n s :  [ ' K e m  t £ n  n h i Ç t  k i m  l o ¡ i  l Ỉ n g
  7 0 |            {  q :  ' F a n  C o n t r o l l e r  d ù n g    Ã  l à m  g ì ? ' ,  o p t i o n s :  [ '  i Á u  c h É n h  t Ñ c
  7 1 |            {  q :  ' P S U  8 5 0 W    ç  c h o  c ¥ u  h ì n h  n à o ? ' ,  o p t i o n s :  [ ' R T X  4 0 7 0  +  i 5 ' ,
72|     ]
73|   },
74|   {
75|     id: 'quiz-motherboard',
  7 6 |          t i t l e :  ' M a i n b o a r d  &  K ¿ t  N Ñ i ' ,
  7 7 |          l e s s o n T i t l e :  ' B o  m ¡ c h  c h ç ' ,
78|     estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
79|     questions: [
  8 0 |            {  q :  ' C h i p s e t  Z 7 9 0  d à n h  c h o  C P U  I n t e l  n à o ? ' ,  o p t i o n s :  [ ' T h ¿  h Ç  1 2
  8 1 |            {  q :  ' F o r m  f a c t o r  m a i n b o a r d  p h Õ  b i ¿ n  n h ¥ t ? ' ,  o p t i o n s :  [ ' A T X ' ,  ' M i n
  8 2 |            {  q :  ' M . 2  S l o t  d ù n g    Ã  k ¿ t  n Ñ i ? ' ,  o p t i o n s :  [ ' S S D  N V M e ' ,  ' R A M ' ,  ' G P
  8 3 |            {  q :  ' V R M  t r ê n  m a i n b o a r d  c ó  c h é c  n  n g  g ì ? ' ,  o p t i o n s :  [ ' C ¥ p    i Ç n  Õ n
  8 4 |            {  q :  ' P C I e  x 1 6  s l o t  t h ° Ý n g  d ù n g  c h o ? ' ,  o p t i o n s :  [ ' C a r d    Ó  h Í a ' ,  ' S
  8 5 |            {  q :  ' U S B  3 . 2  G e n  2  c ó  t Ñ c    Ù  b a o  n h i ê u ? ' ,  o p t i o n s :  [ ' 1 0  G b p s ' ,  ' 5
  8 6 |            {  q :  ' B I O S  l à  v i ¿ t  t ¯ t  c ç a ? ' ,  o p t i o n s :  [ ' B a s i c  I n p u t  O u t p u t  S y s t e m
  8 7 |            {  q :  ' C M O S  b a t t e r y  d ù n g    Ã  l à m  g ì ? ' ,  o p t i o n s :  [ ' G i ï  c à i    · t  B I O S ' ,
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    88 |            {  q:  'SÑ  khe  RAM  tÑi   a trên  mainboard  ATX?',  options:  ['4  khe',  '
    89 |            {  q:  'Chu©n  WiFi  tích  hãp  trên  mainboard  là?',  options:  ['WiFi  6E/
 90|     ]
 91|   },
 92|   {
 93|     id: 'quiz-storage',
    94 |          title:  'Ô  Céng  &  L°u  Trï',
    95 |          lessonTitle:  'L°u  trï  dï  liçu',
    96 |          estimated_minutes:  15,  difficulty:  'DÃ',  xp:  100,
 97|     questions: [
    98 |            {  q:  'SSD  NVMe  có  tÑc   Ù   Íc  tÑi   a  kho£ng?',  options:  ['7000  MB/s
    99 |            {  q:  'HDD  7200RPM  có  tÑc   Ù   Íc  tu§n  tñ?',  options:  ['~160  MB/s',
   100 |            {  q:  'SATA  III  có  b  ng  thông  tÑi   a?',  options:  ['6  Gbps',  '3  Gbps
   101 |            {  q:  'PCIe  4.0  NVMe  có  tÑc   Ù   Íc?',  options:  ['~7000  MB/s',  '~350
   102 |            {  q:  'TBW  là  chÉ  sÑ   o  gì?',  options:  ['TuÕi  thÍ  ghi  cça  SSD',  'TÑ
   103 |            {  q:  'NAND  Flash  trong  SSD  có  loïi  nào?',  options:  ['TLC,  QLC,  MLC
   104 |            {  q:  'Dung  l°ãng  Õ  céng  phÕ  bi¿n  cho  PC?',  options:  ['1TB  -  2TB',
   105 |            {  q:  'Công  nghç  S.M.A.R.T  dùng   Ã?',  options:  ['Theo  dõi  séc  khÏe
   106 |            {  q:  'SSD  Õ  céng  thÃ  r¯n  khác  HDD  ß   iÃm  nào?',  options:  ['Không  c
   107 |            {  q:  'Chu©n  Õ  céng  2.5  inch  th°Ýng  dùng  cho?',  options:  ['Laptop  &
108|     ]
109|   },
110|   {
111|     id: 'quiz-assembly',
   112 |          title:  'Quy  Trình  L¯p  Ráp  PC',
   113 |          lessonTitle:  'Thñc  hành  l¯p  ráp',
114|     estimated_minutes: 25, difficulty: 'Khó', xp: 200,
115|     questions: [
   116 |            {  q:  'B°Ûc   §u  tiên  khi  l¯p  PC  là?',  options:  ['L¯p  CPU  lên  Mainbo
   117 |            {  q:  'Nên  bôi  thermal  paste  ß   âu?',  options:  ['Trên  IHS  cça  CPU',
   118 |            {  q:  'Dây  24-pin  ATX  c¥p  nguÓn  cho?',  options:  ['Mainboard',  'CPU
   119 |            {  q:  'Dây  EPS  8-pin  (4+4)  c¥p  nguÓn  cho?',  options:  ['CPU',  'GPU',
   120 |            {  q:  'L¯p  RAM  c§n  chú  ý  iÁu  gì?',  options:  ['C  n  chÉnh  khuy¿t  tré
   121 |            {  q:  'T)nh   içn  có  thÃ  gây  hïi  gì?',  options:  ['HÏng  linh  kiçn',
   122 |            {  q:  'Công  cå  chÑng  t)nh   içn  là?',  options:  ['Dây  eo  tay  ESD',
   123 |            {  q:  'Sau  khi  l¯p  xong  PC,  b°Ûc   §u  tiên  là?',  options:  ['KiÃm  tra
   124 |            {  q:  'POST  là  vi¿t  t¯t  cça?',  options:  ['Power-On  Self-Test',  'Pro
   125 |            {  q:  '  èn  LED  trên  mainboard  báo  l×i  gÍi  là?',  options:  ['Debug  LE
126|     ]
127|   },
128|   {
129|     id: 'quiz-network',
   130 |          title:  'M¡ng  Máy  Tính  &  K¿t  NÑi',
   131 |          lessonTitle:  'M¡ng  &  K¿t  nÑi',
132|     estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
133|     questions: [
   134 |            {  q:  'IP  là  vi¿t  t¯t  cça?',  options:  ['Internet  Protocol',  'Interr
   135 |            {  q:  'Ethernet  cable  Cat6  có  tÑc   Ù  tÑi   a?',  options:  ['10  Gbps',
   136 |            {  q:  'WiFi  6  có  tên  chu©n  IEEE  là?',  options:  ['802.11ax',  '802.11
   137 |            {  q:  'Router  dùng   Ã  làm  gì?',  options:  ['  Ënh  tuy¿n  m¡ng  Internet
   138 |            {  q:  'T§n  sÑ  WiFi  5GHz  có  °u  iÃm?',  options:  ['TÑc   Ù  cao,  ít  nhi
   139 |            {  q:  'TCP/IP  là?',  options:  ['BÙ  giao  théc  Internet',  'Ph§n  mÁm  m
   140 |            {  q:  'LAN  là  vi¿t  t¯t  cça?',  options:  ['Local  Area  Network',  'Larg
   141 |            {  q:  'Switch  khác  Hub  ß   iÃm  nào?',  options:  ['ChuyÃn  m¡ch  thông  m
   142 |            {  q:  'Ping  là  chÉ  sÑ   o?',  options:  ['  Ù  trÅ  m¡ng',  'TÑc   Ù  downlo
   143 |            {  q:  'DNS  dùng   Ã?',  options:  ['Phân  gi£i  tên  miÁn  thành  IP',  'Mã
144|     ]
145|   },
146|   {
147|     id: 'quiz-peripheral',
   148 |          title:  'Thi¿t  BË  Ngo¡i  Vi',
   149 |          lessonTitle:  'Thi¿t  bË  ngo¡i  vi',
   150 |          estimated_minutes:  10,  difficulty:  'DÃ',  xp:  80,
151|     questions: [
   152 |            {  q:  'Monitor  Response  Time  th¥p  có  lãi  gì?',  options:  ['Gi£m  bóng
   153 |            {  q:  'T§n  sÑ  quét  (Hz)  £nh  h°ßng  gì?',  options:  ['  Ù  m°ãt  chuyÃn
   154 |            {  q:  'C¡  ch¿  bàn  phím  c¡  (Mechanical)  là?',  options:  ['Switch  lò
   155 |            {  q:  'DPI  cça  chuÙt  là  chÉ  sÑ  gì?',  options:  ['  Ù  nh¡y  con  trÏ',
   156 |            {  q:  'Webcam  1080p  có   Ù  phân  gi£i?',  options:  ['1920x1080',  '1280
   157 |            {  q:  'USB  Type-C  có   .c  iÃm  gì?',  options:  ['C¯m  °ãc  2  chiÁu',
   158 |            {  q:  'Bluetooth  5.0  có  ph¡m  vi  tÑi   a?',  options:  ['~240m',  '~10m'
   159 |            {  q:  'CÕng  HDMI  2.1  h×  trã   Ù  phân  gi£i  tÑi   a?',  options:  ['8K  @6
   160 |            {  q:  'CÕng  DisplayPort  khác  HDMI  ß   iÃm?',  options:  ['B  ng  thông  c
   161 |            {  q:  'Microphone  condenser  phù  hãp  cho?',  options:  ['Thu  âm  phòng
162|     ]
163|   },
164|   {
165|     id: 'quiz-bios',
166|     title: 'BIOS & UEFI',
   167 |          lessonTitle:  'HÇ  thÑng  khßi   Ùng',
168|     estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
169|     questions: [
   170 |            {  q:  'UEFI  là  gì?',  options:  ['Giao  diçn  firmware  hiçn  ¡i',  'Loïi
   171 |            {  q:  'Phím  t¯t  vào  BIOS  th°Ýng  là?',  options:  ['Del/F2',  'F12',  'E
   172 |            {  q:  'XMP  Profile  giúp?',  options:  ['Ép  xung  RAM  tñ   Ùng',  'Ép  xun
   173 |            {  q:  'Secure  Boot  có  tác  dång?',  options:  ['ChÑng  malware  khßi   Ùn
   174 |            {  q:  'Boot  Order  dùng   Ã?',  options:  ['ChÍn  thé  tñ  khßi   Ùng',  'S
   175 |            {  q:  'Legacy  Boot  khác  UEFI  Boot  th¿  nào?',  options:  ['Dùng  MBR,  c
   176 |            {  q:  'CMOS  Clear  giúp?',  options:  ['Reset  cài   ·t  BIOS',  'Xóa  dÍ  l
   177 |            {  q:  'BIOS  Flashback  cho  phép?',  options:  ['C-p  nh-t  BIOS  không  cß
   178 |            {  q:  'VT-d  là  công  nghç  £o  hóa  cça?',  options:  ['Intel',  'AMD',  'N
   179 |            {  q:  'Resizable  BAR  giúp?',  options:  ['CPU  truy  c-p  toàn  bÙ  VRAM',
180|     ]
181|   },
182|   {
183|     id: 'quiz-monitor',
   184 |          title:  'Màn  Hình  &  Công  NghÇ  HiÃn  ThË',
   185 |          lessonTitle:  'Công  nghç  màn  hình',
   186 |          estimated_minutes:  15,  difficulty:  'DÃ',  xp:  100,
187|     questions: [
   188 |            {  q:  'IPS  panel  có  °u  iÃm  gì?',  options:  ['Góc  nhìn  rÙng,  màu  ¹p
   189 |            {  q:  'OLED  khác  LCD  ß   iÃm  nào?',  options:  ['M×i  pixel  tñ  phát  sá
   190 |            {  q:  'HDR  là  công  nghç?',  options:  ['D£i  t°¡ng  ph£n  Ùng  rÙng',  'T
   191 |            {  q:  'FreeSync  là  công  nghç  cça?',  options:  ['AMD',  'NVIDIA',  'Int
   192 |            {  q:  'G-Sync  là  công  nghç  cça?',  options:  ['NVIDIA',  'AMD',  'Intel
   193 |            {  q:  '  Ù  phç  màu  sRGB  100%  ngh)a  là?',  options:  ['HiÃn  thË  ç  100%
   194 |            {  q:  'Monitor  144Hz  phù  hãp  cho?',  options:  ['Ch¡i  game  FPS',  'Thi
   195 |            {  q:  'Curved  monitor  có  °u  iÃm?',  options:  ['Tr£i  nghiçm  nh-p  vai
   196 |            {  q:  'TÉ  lç  màn  hình  21:9  gÍi  là?',  options:  ['Ultrawide',  'Standa
   197 |            {  q:  'Màn  hình  1080p  có   Ù  phân  gi£i?',  options:  ['1920x1080',  '25
198|     ]
199|   },
200|   {
201|     id: 'quiz-audio',
202|     title: 'Âm Thanh & Card Sound',
   203 |          lessonTitle:  'HÇ  thÑng  âm  thanh',
   204 |          estimated_minutes:  10,  difficulty:  'DÃ',  xp:  80,
205|     questions: [
   206 |            {  q:  'Card  âm  thanh  onboard  là?',  options:  ['Tích  hãp  trên  mainboa
   207 |            {  q:  'DAC  có  chéc  n  ng  gì?',  options:  ['ChuyÃn  sÑ  sang  tín  hiçu  an
   208 |            {  q:  'T§n  sÑ  l¥y  m«u  44.1kHz  là  chu©n  cça?',  options:  ['CD  Audio',
209|       { q: 'Âm thanh 7.1 vòm có bao nhiêu loa?', options: ['8 loa (7+1)', '5 loa', '2 loa', '7 loa'], answer: ...
   210 |            {  q:  'Impedance  (trß  kháng)  cao  c§n  gì?',  options:  ['Amplifier  m¡n
   211 |            {  q:  'THX  là  chéng  nh-n  vÅ?',  options:  ['Ch¥t  l°ãng  âm  thanh',  '  i
```

```
212|            {  q:  'Codec  âm  thanh  ALC1220  cça  hãng  nào?',  options:  ['Realtek',
213|            {  q:  '3.5mm  jack  th°Ýng  dùng  cho?',  options:  ['Tai  nghe  &  micropho
214|            {  q:  'Bluetooth  audio  codec  aptX  có  °u  iÃm?',  options:  ['Âm  thanh
215|            {  q:  'Soundbar  là?',  options:  ['Loa  thanh  dài  tích  hãp  nhiÁu  cç',
216|    ]
217|  },
218|  {
219|    id: 'quiz-case',
220|          title:  'Case  &  Qu¡t  T£n  NhiÇt',
221|          lessonTitle:  'VÌ  case  &  qu¡t',
222|          estimated_minutes:  10,  difficulty:  'DÃ',  xp:  80,
223|    questions: [
224|            {  q:  'Case  ATX  h×  trã  mainboard?',  options:  ['ATX,  M-ATX,  ITX',  'C
225|            {  q:  'Qu¡t  case  hút  gió  vào  th°Ýng  ·t  ß?',  options:  ['M·t  tr°Úc  &
226|            {  q:  'Airflow  tích  cñc  (Positive  Pressure)  là?',  options:  ['Hút  và
227|            {  q:  'T£n  nhiÇt  khí_tower  ¡n  gÓm?',  options:  ['1  block  t£n  +  1  qu
228|            {  q:  'AIO  là  vi¿t  t_t  cça?',  options:  ['All-In-One',  'Air  Input  Ou
229|            {  q:  'Kích  th°Úc  Radiator  AIO  360mm  là?',  options:  ['360mm  x  120mm
230|            {  q:  'Dust  filter  trên  case  có  tác  dång?',  options:  ['LÍc  båi  cho
231|            {  q:  'Tempered  glass  case  °u  iÃm?',  options:  ['Nhìn  °ãc  linh  kiC
232|            {  q:  'Qu¡t  PWM  là?',  options:  ['Qu¡t  iÁu  chÉnh  tÑc  Ù  tñ  Ùng',
233|            {  q:  'Static  Pressure  fan  dùng  cho?',  options:  ['Radiator  &  t£n  nh
234|    ]
235|  },
236|  {
237|    id: 'quiz-benchmark',
238|          title:  'Benchmark  &  KiÃm  Tra  HiÇu  N  ng',
239|          lessonTitle:  'ánh  giá  hiÇu  n  ng',
240|    estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
241|    questions: [
242|            {  q:  'Cinebench  dùng  Ã  test  gì?',  options:  ['HiÇu  n  ng  CPU',  'HiC
243|            {  q:  '3DMark  là  ph§n  mÁm  benchmark?',  options:  ['Ó  hÍa  game',  'CP
244|            {  q:  'CrystalDiskMark  dùng  Ã?',  options:  ['  o  tÑc  Ù  Õ  céng',  'Te
245|            {  q:  'FPS  là  vi¿t  t_t  cça?',  options:  ['Frames  Per  Second',  'Focus
246|            {  q:  '1%  Low  FPS  cho  bi¿t  gì?',  options:  ['FPS  th¥p  nh¥t  trong  1%
247|            {  q:  'Stress  test  CPU  dùng  Ã?',  options:  ['KiÃm  tra  Õn  Ënh  và  nh
248|            {  q:  'HWMonitor  dùng  Ã?',  options:  ['Theo  dõi  nhiÇt  Ù,  iÇn  áp',
249|            {  q:  'OCCT  là  công  cå?',  options:  ['Stress  test  toàn  diÇn',  'ChÉnh
250|            {  q:  'PassMark  test  tÕng  thÃ  PC?',  options:  ['  úng,  ánh  giá  toàn
251|            {  q:  'Geekbench  ánh  giá?',  options:  ['CPU  ¡n  nhãn  &  a  nhân',  'C
252|    ]
253|  },
254|  {
255|    id: 'quiz-laptop',
256|          title:  'Laptop  &  Linh  KiÇn  Di  Ùng',
257|    lessonTitle: 'Laptop',
258|    estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
259|    questions: [
260|            {  q:  'MXM  là  chu©n  card  Ó  hÍa?',  options:  ['RÝi  trên  laptop',  'Ti
261|            {  q:  'Soldered  RAM  là?',  options:  ['RAM  hàn  ch¿t  trên  main',  'RAM
262|            {  q:  'Laptop  Ultrabook  là?',  options:  ['MÏng  nh¹,  hiÇu  n  ng  vëa',
263|            {  q:  'Thunderbolt  4  có  b  ng  thông?',  options:  ['40  Gbps',  '20  Gbps
264|            {  q:  'TGP  là  chÉ  sÑ  o  gì  trên  laptop?',  options:  ['Công  su¥t  tiêu
265|            {  q:  'eGPU  là  gì?',  options:  ['Card  Ó  hÍa  rÝi  ngoài',  'Card  Ó  hÍ
266|            {  q:  'Laptop  gaming  th°Ýng  có  cân  n·ng?',  options:  ['2-3kg',  '1-1.
267|            {  q:  'Pin  laptop  Lithium  Polymer  khác  Lithium  Ion?',  options:  ['D
268|            {  q:  'VRM  trên  laptop  th°Ýng?',  options:  ['Ít  pha  h¡n  desktop',  'N
269|            {  q:  'Laptop  workstation  dùng  cho?',  options:  ['  Ó  hÍa  &  CAD  chuyê
270|    ]
271|  },
272|  {
273|    id: 'quiz-overclocking',
274|    title: 'Ép Xung & Tuning',
275|          lessonTitle:  'Ép  xung  &  tÑi  °u',
276|    estimated_minutes: 20, difficulty: 'Khó', xp: 200,
277|    questions: [
278|            {  q:  'Overclocking  là  gì?',  options:  ['T  ng  xung  nhËp  linh  kiÇn',
279|            {  q:  'CPU  multiplier  là?',  options:  ['HÇ  sÑ  nhân  xung  nhËp',  'BÙ  n
280|            {  q:  'Vcore  là?',  options:  ['  iÇn  áp  lõi  CPU',  'TÑc  Ù  CPU',  'Nhi
281|            {  q:  '  iÇn  áp  cao  quá  có  thÃ?',  options:  ['Gây  hÏng  CPU',  'T  ng  hi
282|            {  q:  'Thermal  Throttling  là?',  options:  ['Gi£m  xung  khi  quá  nhiÇt'
283|            {  q:  'PBO  (Precision  Boost  Overdrive)  là  cça?',  options:  ['AMD',
284|            {  q:  'Intel  XTU  là  ph§n  mÁm?',  options:  ['Ép  xung  CPU  Intel',  'Tes
285|            {  q:  'Undervolting  là?',  options:  ['Gi£m  iÇn  áp  Ã  gi£m  nhiÇt',
286|            {  q:  'Memory  Timing  là?',  options:  ['Thông  sÑ  thÝi  gian  RAM',  'TÑc
287|            {  q:  'Silicon  Lottery  nói  vÁ?',  options:  ['Ch¥t  l°ãng  chip  khác  nh
288|    ]
289|  },
290|  {
291|    id: 'quiz-cooling-advanced',
292|          title:  'HÇ  ThÑng  T£n  NhiÇt  Nâng  Cao',
293|          lessonTitle:  'T£n  nhiÇt  nâng  cao',
294|    estimated_minutes: 20, difficulty: 'Khó', xp: 200,
295|    questions: [
296|            {  q:  'Custom  Loop  water  cooling  là?',  options:  ['Tñ  l_p  Ñng  n°Úc  t
297|            {  q:  'Ch¥t  liÇu  Ñng  n°Úc  custom  loop?',  options:  ['Acrylic,  PETG,
298|            {  q:  'Pump  dùng  Ã?',  options:  ['B¡m  n°Úc  tu§n  hoàn',  'Qu¡t  gió',
299|            {  q:  'Reservoir  là?',  options:  ['Bình  chéa  n°Úc  làm  mát',  'BÙ  lÍc'
300|            {  q:  'Coolant  là?',  options:  ['Dung  dËch  làm  mát',  'Kem  t£n  nhiÇt'
301|            {  q:  'Fitting  dùng  Ã?',  options:  ['K¿t  nÑi  Ñng  n°Úc',  'G_n  qu¡t',
302|            {  q:  'Radiator  trong  water  cooling?',  options:  ['T£n  nhiÇt  n°Úc  ra
303|            {  q:  'Phí  b£o  d°áng  custom  loop?',  options:  ['Thay  n°Úc  Ënh  kó',
304|            {  q:  'Water  block  là?',  options:  ['Block  ti¿p  xúc  CPU/GPU',  'B¡m  n
305|            {  q:  'So  sánh  custom  loop  vs  AIO?',  options:  ['Custom  loop  mát  h¡n
306|    ]
307|  },
308|  {
309|    id: 'quiz-pc-gaming',
310|          title:  'C¥u  Hình  PC  Gaming',
311|    lessonTitle: 'PC Gaming',
312|    estimated_minutes: 15, difficulty: 'Trung bình', xp: 150,
313|    questions: [
314|            {  q:  'PC  gaming  t§m  trung  nên  dùng  card  nào?',  options:  ['RTX  4060
315|            {  q:  'CPU  gaming  tÑt  nh¥t  hiÇn  nay?',  options:  ['AMD  Ryzen  7  7800X
316|            {  q:  'Dung  l°ãng  RAM  gaming  tÑi  thiÃu?',  options:  ['16GB',  '8GB',
317|            {  q:  'SSD  c§n  thi¿t  cho  gaming?',  options:  ['NVMe  PCIe  4.0',  'SATA
318|            {  q:  'PSU  cho  PC  gaming  t§m  trung?',  options:  ['650W  -  750W',  '450
319|            {  q:  'T£n  nhiÇt  cho  CPU  gaming  nên  dùng?',  options:  ['AIO  240mm  ho
320|            {  q:  'Mainboard  cho  gaming  nên  có?',  options:  ['Chipset  B650  ho·c
321|            {  q:  'Case  gaming  c§n  l°u  ý?',  options:  ['LuÓng  khí  tÑt,  kích  th°Ú
322|            {  q:  'GPU  nào  chi¡i  4K  60FPS  tÑt?',  options:  ['RTX  4080  trß  lên',
323|            {  q:  'TÉ  lÇ  CPU/GPU  budget  hãp  lý?',  options:  ['30%  CPU,  40%  GPU',
324|    ]
325|  },
326|  {
327|    id: 'quiz-server',
328|          title:  'Máy  Chç  &  Workstation',
329|          lessonTitle:  'Máy  chç  &  Workstation',
330|    estimated_minutes: 15, difficulty: 'Khó', xp: 200,
331|    questions: [
332|            {  q:  'CPU  server  th°Ýng  dùng?',  options:  ['Intel  Xeon  /  AMD  EPYC',
333|            {  q:  'ECC  RAM  khác  non-ECC  ß  iÃm?',  options:  ['Sía  l×i  tñ  Ùng',
334|            {  q:  'RAID  1  là?',  options:  ['G°¡ng  (mirror)  dí  liÇu',  'Chµn  l»  (p
335|            {  q:  'Uptime  là  gì?',  options:  ['ThÝi  gian  hoi¡t  Ùng  liên  tåc',  'T
```

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336|            {  q:  'Rack mount server kích thºÛc?', options: ['1U, 2U, 4U', 'AT
337|            {  q:  'Hot swap là tính n ng?', options: ['Thay Ô céng không t t n
338|            {  q:  'Virtualization là?', options: ['¢o hóa nhiÁu máy chç v-t lý
339|            {  q:  'NAS dùng Ã làm gì?', options: ['Lºu trï m¡ng t-p trung', 'C
340|            {  q:  'GPU trong workstation dùng?', options: ['NVIDIA RTX/Quadro,
341|            {  q:  'Power Supply dñ phòng (UPS) giúp?', options: ['ChÑng m¥t i
342|      ]
343|    },
344|    {
345|      id: 'quiz-cable',
346|          title: 'Cáp K¿t NÑi & ¥u NÑi',
347|          lessonTitle: 'Cáp & ¥u nÑi',
348|          estimated_minutes: 10, difficulty: 'DÅ', xp: 80,
349|      questions: [
350|        { q: 'SATA data cable có bao nhiêu chân?', options: ['7 chân', '15 chân', '4 chân', '24 chân'], answer: ...
351|        { q: 'SATA power cable có bao nhiêu chân?', options: ['15 chân', '7 chân', '4 chân', '24 chân'], answer:...
352|            {  q:  'Cáp HDMI có h× trã âm thanh?', options: ['Có, tích hãp âm th
353|            {  q:  'Cáp quang (Fiber Optic) dùng?', options: ['Tín hiÇu ánh sáng
354|            {  q:  'USB 3.0 có màu cÕng ·c trºng?', options: ['Màu xanh dº¡ng',
355|            {  q:  'Cáp Thunderbolt 3 dùng §u c m?', options: ['USB Type-C', 'N
356|            {  q:  'RGB header trên mainboard có?', options: ['4-pin 12V (RGB) h
357|        { q: 'Fan header trên mainboard là?', options: ['4-pin PWM', '3-pin DC', '2-pin', 'SATA power'], answer:...
358|            {  q:  'Cáp m¡ng RJ45 có bao nhiêu chân?', options: ['8 chân', '4 ch
359|            {  q:  'Cable management là?', options: ['S p x¿p dây gÍn gàng trong
360|      ]
361|    },
362|    {
363|      id: 'quiz-troubleshoot',
364|          title: 'Xí Lý Sñ CÑ & Ch©n oán',
365|          lessonTitle: 'Xí lý sñ cÑ',
366|      estimated_minutes: 20, difficulty: 'Khó', xp: 200,
367|      questions: [
368|            {  q:  'PC không boot có èn nguÓn nhºng không hình?', options: ['Ki
369|            {  q:  'Beep code dài liên tåc báo lxi?', options: ['Lxi RAM', 'Lxi
370|            {  q:  'Màn hình xanh (BSOD) thºÝng do?', options: ['Driver hºc ph§
371|            {  q:  'NhiÇt Ù CPU quá cao c§n làm gì?', options: ['KiÃm tra t£n r
372|            {  q:  'PC tñ restart liên tåc?', options: ['KiÃm tra nguÓn & nhiÇt
373|            {  q:  'Không lên hình khi b-t nguÓn?', options: ['Reset CMOS, kiÃm
374|            {  q:  'Ô céng kêu l¡ch c¡ch?', options: ['HDD s p hÍng, backup ngay
375|            {  q:  'Windows không nh-n ç RAM?', options: ['KiÃm tra vË trí g n
376|            {  q:  'Qu¡t CPU quay nhºng không boot?', options: ['KiÃm tra CPU, R
377|            {  q:  'PC ch¡y ch-m, khßi Ùng lâu?', options: ['KiÃm tra SSD/HDD s
378|      ]
379|    },
380|    {
381|      id: 'quiz-vr-ar',
382|          title: 'Thñc T¿ ¢o (VR) & Thñc T¿ T ng CºÝng (AR)',
383|      lessonTitle: 'VR/AR',
384|      estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
385|      questions: [
386|            {  q:  'VR là vi¿t t t cça?', options: ['Virtual Reality', 'Visual R
387|            {  q:  'Headset VR phÕ bi¿n hiÇn nay?', options: ['Meta Quest 3, Val
388|            {  q:  'PC yêu c§u tÑi thiÃu cho VR?', options: ['RTX 3060 + i5 + 16
389|            {  q:  'Inside-out tracking là?', options: ['Theo dõi tË headset, kh
390|            {  q:  'FOV trong VR là?', options: ['TrºÝng nhìn (Field of View)',
391|            {  q:  'AR khác VR ß iÃm nào?', options: ['AR thêm £o vào thñc t¿',
392|            {  q:  'Lag trong VR gây ra?', options: ['Motion sickness, chóng m·t
393|            {  q:  'Refresh rate headset VR tÑi thiÃu?', options: ['90Hz', '60Hz
394|            {  q:  'SteamVR là nÁn t£ng cça?', options: ['Valve', 'Meta', 'Micro
395|            {  q:  'Passthrough trên VR headset là?', options: ['Camera th¥y th
396|      ]
397|    },
398|    {
399|      id: 'quiz-pc-history',
400|          title: 'LËch Sí Máy Tính & Công NghÇ',
401|          lessonTitle: 'LËch sí PC',
402|          estimated_minutes: 10, difficulty: 'DÅ', xp: 80,
403|      questions: [
404|            {  q:  'Máy tính §u tiên trên th¿ giÛi tên gì?', options: ['ENIAC',
405|            {  q:  'Intel 4004 là?', options: ['Vi xí lý §u tiên', 'RAM §u tiê
406|            {  q:  'N m ra m t IBM PC §u tiên?', options: ['1981', '1975', '198
407|            {  q:  'Windows 95 có iÃm gì ·c biÇt?', options: ['Giao diÇn Ó hi
408|            {  q:  'Moore\'s Law nói vÁ?', options: ['SÑ transistor t ng g¥p ôi
409|            {  q:  'Apple Macintosh ra m t n m?', options: ['1984', '1976', '198
410|            {  q:  'Internet ra Ýi tË dñ án?', options: ['ARPANET', 'ENIAC', '1
411|            {  q:  'USB 1.0 ra m t n m?', options: ['1996', '2000', '1990', '198
412|            {  q:  'WiFi ºãc phát minh n m?', options: ['1997', '2000', '1990',
413|            {  q:  'SSD §u tiên cho consumer ra m t?', options: ['2007 (Intel X
414|      ]
415|    },
416|    {
417|      id: 'quiz-ethics',
418|          title: ¡o éc & An Toàn Công NghÇ',
419|          lessonTitle: ¡o éc & an toàn',
420|          estimated_minutes: 10, difficulty: 'DÅ', xp: 80,
421|      questions: [
422|            {  q:  'B£n quyÁn ph§n mÁm là?', options: ['QuyÁn sß hïu hãp pháp',
423|            {  q:  'E-waste là gì?', options: ['Rác th£i iÇn tí', 'Email rác',
424|            {  q:  'Xí lý pin laptop ci úng cách?', options: ['Mang ¿n iÃm th
425|            {  q:  'Password m¡nh nên?', options: ['K¿t hãp chï, sÑ, ký tñ ·c b
426|            {  q:  '2FA là?', options: ['Xác thñc 2 y¿u tÑ', '2 ngºÝi dùng', '2
427|            {  q:  'Phishing là gì?', options: ['LËa £o l¥y thông tin', 'Virus
428|            {  q:  'Copyright là?', options: ['QuyÁn tác gi£', 'ThºÝng hiÇu', 'B
429|            {  q:  'Open Source Software là?', options: ['Mã nguÓn mß công khai
430|            {  q:  'GDPR là lu-t b£o vÇ?', options: ['Dï liÇu cá nhân', 'Môi tr
431|            {  q:  'Nên làm gì khi nh-n email l¡ có link?', options: ['Không cli
432|      ]
433|    },
434|    {
435|      id: 'quiz-ai-tech',
436|          title: 'AI & Công NghÇ MÛi',
437|          lessonTitle: 'Trí tuÇ nhân t¡o',
438|      estimated_minutes: 15, difficulty: 'Trung bình', xp: 120,
439|      questions: [
440|            {  q:  'AI là vi¿t t t cça?', options: ['Artificial Intelligence',
441|            {  q:  'Machine Learning là?', options: ['Máy hÍc tË dï liÇu', 'Máy
442|            {  q:  'Neural Network mô phÍng?', options: ['N¡-ron th§n kinh ngºÝi
443|            {  q:  'GPU quan trÍng vÛi AI vi?', options: ['Xí lý song song m¡nh'
444|            {  q:  'Tensor Core là cça?', options: ['NVIDIA', 'AMD', 'Intel', '
445|            {  q:  'TPU là chip AI cça?', options: ['Google', 'NVIDIA', 'AMD', '
446|            {  q:  'LLM (Large Language Model) ví då?', options: ['GPT, Gemini,
447|            {  q:  'Training AI c§n gì nh¥t?', options: ['Dï liÇu lÛn + GPU m¡nh
448|            {  q:  'CUDA là nÁn t£ng cça?', options: ['NVIDIA cho tính toán song
449|            {  q:  'Edge AI là?', options: ['AI ch¡y trên thi¿t bË cåc bÙ', 'AI
450|      ]
451|    }
452| ]
453|
```

File: data/shopLinks.ts (123 lines, 6.1 KB)

```
1| export interface ShopInfo {
2|   name: string
```

```
  3|   url: string
  4|   logo: string
  5|   type: 'online' | 'retail' | 'marketplace'
  6|   rating: number
  7| }
  8|
  9| export const SHOPS: ShopInfo[] = [
 10|   { name: 'GearVN', url: 'https://gearvn.com', logo: '/shops/gearvn.png', type: 'online', rating: 4.8 },
    1 1 |       {   n a m e :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n ' ,   l o g o :   ' / s h o p s / p h o n g v u . p
 12|   { name: 'An Phát', url: 'https://anphatpc.com.vn', logo: '/shops/anphat.png', type: 'online', rating: 4.6 },
 13|   { name: 'Hoàng Hà', url: 'https://hoanghapc.vn', logo: '/shops/hoangha.png', type: 'online', rating: 4.5 },
 14|   { name: 'ThinkPro', url: 'https://thinkpro.vn', logo: '/shops/thinkpro.png', type: 'online', rating: 4.6 },
 15|   { name: 'CellphoneS', url: 'https://cellphones.com.vn', logo: '/shops/cellphones.png', type: 'online', ratin...
 16|   { name: 'FPT Shop', url: 'https://fptshop.com.vn', logo: '/shops/fpt.png', type: 'online', rating: 4.3 },
 17| ]
 18|
 19| export interface ProductLink {
 20|   shop: string
 21|   url: string
 22|   price?: number
 23| }
 24|
 25| export interface ComponentShops {
 26|   [componentId: string]: ProductLink[]
 27| }
 28|
 29| const SEARCH_URLS: Record<string, (query: string) => string> = {
 30|   'GearVN': (q) => `https://gearvn.com/search?q=${encodeURIComponent(q)}`,
    3 1 |       ' P h o n g   V i ' :   ( q )   = >   ` h t t p s : / / p h o n g v u . v n / s e a r c h ? q = $ { e n c o d e U R I C o m p o n e n t ( q
 32|   'An Phát': (q) => `https://anphatpc.com.vn/tim-kiem?keyword=${encodeURIComponent(q)}`,
 33|   'Hoàng Hà': (q) => `https://hoanghapc.vn/search?q=${encodeURIComponent(q)}`,
 34|   'ThinkPro': (q) => `https://thinkpro.vn/search?q=${encodeURIComponent(q)}`,
 35|   'CellphoneS': (q) => `https://cellphones.com.vn/tim-kiem?q=${encodeURIComponent(q)}`,
 36|   'FPT Shop': (q) => `https://fptshop.com.vn/tim-kiem?q=${encodeURIComponent(q)}`,
 37| }
 38|
 39| export function getComponentSearchLinks(name: string, type: string): ProductLink[] {
 40|   const query = `${name} ${type}`
    4 1 |       c o n s t   s h o p s   =   [ ' G e a r V N ' ,   ' P h o n g   V i ' ,   ' A n   P h á t ' ,   ' H o à n g   H à ' ,   ' T h i n k P r o '
 42|   return shops.map(shop => ({
 43|     shop,
 44|     url: SEARCH_URLS[shop](query),
 45|   }))
 46| }
 47|
 48| export const CATEGORY_LINKS: Record<string, ProductLink[]> = {
 49|   CPU: [
 50|     { shop: 'GearVN', url: 'https://gearvn.com/collections/cpu-bo-vi-xu-ly' },
    5 1 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / c p
 52|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/cpu-bo-vi-xu-ly' },
 53|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/cpu-bo-vi-xu-ly' },
 54|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/cpu-bo-vi-xu-ly' },
 55|     { shop: 'CellphoneS', url: 'https://cellphones.com.vn/linh-kien/cpu.html' },
 56|   ],
 57|   GPU: [
 58|     { shop: 'GearVN', url: 'https://gearvn.com/collections/vga-card-man-hinh' },
    5 9 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / c a
 60|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/vga-card-man-hinh' },
 61|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/vga-card-man-hinh' },
 62|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/vga-card-do-hoa' },
 63|     { shop: 'CellphoneS', url: 'https://cellphones.com.vn/linh-kien/vga.html' },
 64|   ],
 65|   RAM: [
 66|     { shop: 'GearVN', url: 'https://gearvn.com/collections/ram-desktop' },
    6 7 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / r a
 68|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/ram-may-tinh' },
 69|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/ram' },
 70|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/ram' },
 71|     { shop: 'CellphoneS', url: 'https://cellphones.com.vn/linh-kien/ram.html' },
 72|   ],
 73|   Mainboard: [
 74|     { shop: 'GearVN', url: 'https://gearvn.com/collections/mainboard-bo-mach-chu' },
    7 5 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / m a
 76|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/mainboard-bo-mach-chu' },
 77|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/mainboard' },
 78|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/mainboard' },
 79|   ],
 80|   Storage: [
 81|     { shop: 'GearVN', url: 'https://gearvn.com/collections/ssd-o-cung-ran' },
    8 2 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / o -
 83|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/o-cung-ssd' },
 84|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/ssd' },
 85|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/o-cung-ssd' },
 86|     { shop: 'CellphoneS', url: 'https://cellphones.com.vn/linh-kien/ssd.html' },
 87|   ],
 88|   PSU: [
 89|     { shop: 'GearVN', url: 'https://gearvn.com/collections/psu-nguon-may-tinh' },
    9 0 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / n g
 91|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/nguon-may-tinh-psu' },
 92|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/nguon-may-tinh' },
 93|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/nguon-may-tinh' },
 94|   ],
 95|   Cooler: [
 96|     { shop: 'GearVN', url: 'https://gearvn.com/collections/tan-nhiet' },
    9 7 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / t a
 98|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/tan-nhiet' },
 99|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/tan-nhiet' },
100|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/tan-nhiet' },
101|   ],
102|   Case: [
103|     { shop: 'GearVN', url: 'https://gearvn.com/collections/case-vo-may-tinh' },
   1 0 4 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / l i n h - k i e n - m a y - t i n h / c a
105|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/case-vo-may-tinh' },
106|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/case-vo-may-tinh' },
107|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/case-vo-case' },
108|   ],
109|   Monitor: [
110|     { shop: 'GearVN', url: 'https://gearvn.com/collections/man-hinh' },
   1 1 1 |         {   s h o p :   ' P h o n g   V i ' ,   u r l :   ' h t t p s : / / p h o n g v u . v n / c / m a n - h i n h - m a y - t i n h '   } ,
112|     { shop: 'An Phát', url: 'https://anphatpc.com.vn/man-hinh' },
113|     { shop: 'Hoàng Hà', url: 'https://hoanghapc.vn/man-hinh' },
114|     { shop: 'ThinkPro', url: 'https://thinkpro.vn/man-hinh' },
115|     { shop: 'CellphoneS', url: 'https://cellphones.com.vn/man-hinh-may-tinh.html' },
116|     { shop: 'FPT Shop', url: 'https://fptshop.com.vn/man-hinh-may-tinh' },
117|   ],
118| }
119|
120| export function getCategoryLinks(type: string): ProductLink[] {
121|   return CATEGORY_LINKS[type] || CATEGORY_LINKS['CPU']
122| }
123|
-----------------------------------------------------------------------------------------------------
```

File: database/03_progress_sample.sql (55 lines, 2.0 KB)

```
==========================================================================================
      1 |  - -  S c r i p t  t ¡ o  s a m p l e  d a t a  c h o  t r a n g  T i ¿ n  Ù  H Í c  T - p  ( / s t u d e n t / p r o g r e s s )
      2 |  - -  T H A Y  T H ¾  ` < s t u d e n t _ u u i d _ h e r e > `  b ± n g  I D  t h ñ c  t ¿  c ç a  b ¡ n  t ë  b £ n g  a u t h . u
    3|
    4| DO $$
    5| DECLARE
      6 |      s t u d e n t _ u i d  U U I D  : =  ' 0 0 0 0 0 0 0 0 - 0 0 0 0 - 0 0 0 0 - 0 0 0 0 - 0 0 0 0 0 0 0 0 0 0 0 0 ' ;  - -  i Á n  I D
    7| BEGIN
    8|
      9 |      - -  1 .  X ó a  d ï  l i Ç u  m « u  c i  ( n ¿ u  c ó )
   10|   DELETE FROM builder_sessions WHERE student_id = student_uid;
   11|   DELETE FROM quiz_attempts WHERE student_id = student_uid;
   12|   DELETE FROM lesson_progress WHERE student_id = student_uid;
   13|
     1 4 |      - -  2 .  T h ê m  d ï  l i Ç u  l e s s o n _ p r o g r e s s  ( 3 0  n g à y  g § n  â y )
   15|   FOR i IN 1..25 LOOP
   16|     INSERT INTO lesson_progress (student_id, lesson_id, status, completion_percentage, time_spent_seconds, las...
   17|     VALUES (
   18|       student_uid,
   19|       gen_random_uuid(), -- Mock lesson ID
   20|       CASE WHEN i <= 15 THEN 'completed' WHEN i <= 20 THEN 'in_progress' ELSE 'not_started' END,
   21|       CASE WHEN i <= 15 THEN 100 WHEN i <= 20 THEN (i * 5) ELSE 0 END,
   22|       CASE WHEN i <= 15 THEN 1200 + (i * 60) WHEN i <= 20 THEN 300 ELSE 0 END,
   23|       NOW() - (i || ' days')::INTERVAL,
   24|       CASE WHEN i <= 15 THEN NOW() - (i || ' days')::INTERVAL ELSE NULL END
   25|     );
   26|   END LOOP;
   27|
     2 8 |      - -  3 .  T h ê m  d ï  l i Ç u  q u i z _ a t t e m p t s
   29|   FOR i IN 1..5 LOOP
   30|     INSERT INTO quiz_attempts (id, student_id, quiz_id, status, score, created_at)
   31|     VALUES (
   32|       gen_random_uuid(),
   33|       student_uid,
   34|       gen_random_uuid(),
   35|       'graded',
     3 6 |          ( 6 0  +  ( i  *  8 ) ) ,  - -  i Ã m :  6 8 ,  7 6 ,  8 4 ,  9 2 ,  1 0 0
   37|       NOW() - (i * 2 || ' days')::INTERVAL
   38|     );
   39|   END LOOP;
   40|
     4 1 |      - -  4 .  T h ê m  d ï  l i Ç u  b u i l d e r _ s e s s i o n s  ( H e a t m a p  9 0  n g à y )
   42|   FOR i IN 1..40 LOOP
   43|     INSERT INTO builder_sessions (student_id, started_at, ended_at, components_used, tdp_calculated, compatibi...
   44|     VALUES (
   45|       student_uid,
   46|       NOW() - (i * 2 || ' days')::INTERVAL,
   47|       (NOW() - (i * 2 || ' days')::INTERVAL) + ((10 + (i % 50)) || ' minutes')::INTERVAL,
   48|       '[]'::jsonb,
   49|       350.5,
   50|       100
   51|     );
   52|   END LOOP;
   53|
   54| END $$;
   55|
------------------------------------------------------------------------------------------
```

File: database/20260513_dashboard_system.sql (1 lines, 0.0 KB)

```
==========================================================================================
    1| last_accessed
------------------------------------------------------------------------------------------
```

File: database/20260513_quiz_module.sql (132 lines, 5.2 KB)

```
==========================================================================================
    1| -- ========================================
    2| -- QUIZ & QUESTION BANK MODULE SETUP
    3| -- ========================================
    4|
      5 |  - -  1 .  Q u e s t i o n  B a n k s  ( N g â n  h à n g  Á  t h i )
    6| CREATE TABLE IF NOT EXISTS public.question_banks (
    7|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    8|   teacher_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE NOT NULL,
    9|   title TEXT NOT NULL,
   10|   subject TEXT,
   11|   created_at TIMESTAMPTZ DEFAULT NOW()
   12| );
   13|
     1 4 |  - -  2 .  Q u e s t i o n s  ( C â u  h Ï i )
   15| CREATE TABLE IF NOT EXISTS public.questions (
   16|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
   17|   bank_id UUID REFERENCES public.question_banks(id) ON DELETE CASCADE NOT NULL,
   18|   content TEXT NOT NULL,
   19|   type TEXT NOT NULL CHECK (type IN ('multiple_choice', 'true_false', 'fill_blank')),
   20|   points INTEGER DEFAULT 1,
   21|   "order" INTEGER DEFAULT 0,
   22|   created_at TIMESTAMPTZ DEFAULT NOW()
   23| );
   24|
     2 5 |  - -  3 .  Q u e s t i o n  O p t i o n s  (  á p  á n  t r ¯ c  n g h i Ç m )
   26| CREATE TABLE IF NOT EXISTS public.question_options (
   27|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
   28|   question_id UUID REFERENCES public.questions(id) ON DELETE CASCADE NOT NULL,
   29|   content TEXT NOT NULL,
   30|   is_correct BOOLEAN DEFAULT FALSE,
   31|   created_at TIMESTAMPTZ DEFAULT NOW()
   32| );
   33|
     3 4 |  - -  4 .  Q u i z z e s  ( B à i  k i Ã m  t r a )
   35| CREATE TABLE IF NOT EXISTS public.quizzes (
   36|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
     3 7 |      l e s s o n _ i d  U U I D  R E F E R E N C E S  p u b l i c . l e s s o n s ( i d )  O N  D E L E T E  S E T  N U L L ,  - -  L i
     3 8 |      a s s i g n m e n t _ i d  U U I D  R E F E R E N C E S  p u b l i c . a s s i g n m e n t s ( i d )  O N  D E L E T E  S E T  N U L
   39|   title TEXT NOT NULL,
   40|   time_limit_minutes INTEGER DEFAULT 15,
   41|   passing_score INTEGER DEFAULT 5,
   42|   randomize BOOLEAN DEFAULT TRUE,
   43|   max_attempts INTEGER DEFAULT 1,
   44|   created_at TIMESTAMPTZ DEFAULT NOW()
   45| );
   46|
     4 7 |  - -  5 .  Q u i z  A t t e m p t s  ( L § n  l à m  b à i )
   48| CREATE TABLE IF NOT EXISTS public.quiz_attempts (
   49|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
   50|   quiz_id UUID REFERENCES public.quizzes(id) ON DELETE CASCADE NOT NULL,
   51|   student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE NOT NULL,
   52|   started_at TIMESTAMPTZ DEFAULT NOW(),
   53|   submitted_at TIMESTAMPTZ,
   54|   score INTEGER DEFAULT 0,
   55|   status TEXT DEFAULT 'in_progress' CHECK (status IN ('in_progress', 'submitted', 'timed_out'))
   56| );
   57|
```

```
      5 8 |  - -  6 .  Q u i z  A n s w e r s  ( C h i  t i ¿ t  b à i  l à m )
   59| CREATE TABLE IF NOT EXISTS public.quiz_answers (
   60|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
   61|   attempt_id UUID REFERENCES public.quiz_attempts(id) ON DELETE CASCADE NOT NULL,
   62|   question_id UUID REFERENCES public.questions(id) ON DELETE CASCADE NOT NULL,
   63|   selected_option_id UUID REFERENCES public.question_options(id) ON DELETE SET NULL,
   64|   text_answer TEXT, -- Dùng cho fill_blank
   65|   is_correct BOOLEAN DEFAULT FALSE,
   66|   points_earned INTEGER DEFAULT 0
   67| );
   68|
   69| -- ========================================
   70| -- ROW LEVEL SECURITY (RLS)
   71| -- ========================================
   72|
   73| ALTER TABLE public.question_banks ENABLE ROW LEVEL SECURITY;
   74| ALTER TABLE public.questions ENABLE ROW LEVEL SECURITY;
   75| ALTER TABLE public.question_options ENABLE ROW LEVEL SECURITY;
   76| ALTER TABLE public.quizzes ENABLE ROW LEVEL SECURITY;
   77| ALTER TABLE public.quiz_attempts ENABLE ROW LEVEL SECURITY;
   78| ALTER TABLE public.quiz_answers ENABLE ROW LEVEL SECURITY;
   79|
   80| -- POLICIES FOR QUESTION BANKS (Teacher only)
   81| CREATE POLICY "Teachers can manage their own question banks" ON public.question_banks
   82|   FOR ALL USING (teacher_id = auth.uid());
   83|
   84| -- POLICIES FOR QUESTIONS (Inherit from Bank)
   85| CREATE POLICY "Teachers can manage questions in their banks" ON public.questions
   86|   FOR ALL USING (
   87|     EXISTS (SELECT 1 FROM public.question_banks WHERE id = bank_id AND teacher_id = auth.uid())
   88|   );
   89|
   90| -- POLICIES FOR OPTIONS (Inherit from Question)
   91| CREATE POLICY "Teachers can manage options for their questions" ON public.question_options
   92|   FOR ALL USING (
   93|     EXISTS (
   94|       SELECT 1 FROM public.questions q
   95|       JOIN public.question_banks b ON q.bank_id = b.id
   96|       WHERE q.id = question_id AND b.teacher_id = auth.uid()
   97|     )
   98|   );
   99|
  100| -- Students can only read options for quizzes they are part of (but NOT is_correct)
  101| CREATE POLICY "Students can view options" ON public.question_options
  102|   FOR SELECT USING (true); -- We will filter is_correct in the API/Server Action
  103|
  104| -- POLICIES FOR QUIZZES
  105| CREATE POLICY "Teachers can manage their quizzes" ON public.quizzes
  106|   FOR ALL USING (
  107|     EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
  108|   );
  109|
  110| CREATE POLICY "Students can view quizzes" ON public.quizzes
  111|   FOR SELECT USING (true);
  112|
  113| -- POLICIES FOR ATTEMPTS
  114| CREATE POLICY "Students can manage own attempts" ON public.quiz_attempts
  115|   FOR ALL USING (student_id = auth.uid());
  116|
  117| CREATE POLICY "Teachers can view class attempts" ON public.quiz_attempts
  118|   FOR SELECT USING (
  119|     EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
  120|   );
  121|
  122| -- POLICIES FOR ANSWERS
  123| CREATE POLICY "Students can manage own answers" ON public.quiz_answers
  124|   FOR ALL USING (
  125|     EXISTS (SELECT 1 FROM public.quiz_attempts WHERE id = attempt_id AND student_id = auth.uid())
  126|   );
  127|
  128| CREATE POLICY "Teachers can view answers" ON public.quiz_answers
  129|   FOR SELECT USING (
  130|     EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
  131|   );
  132|
```

File: database/20260516_certificates_system.sql (18 lines, 0.8 KB)

```
==========================================================================================
        1 |  - -  1 .  B £ n g  C h é n g  c h É  ( C e r t i f i c a t e s )
    2| CREATE TABLE IF NOT EXISTS public.certificates (
    3|     id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    4|     student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE NOT NULL,
    5|     course_name TEXT NOT NULL,
    6|     issue_date TIMESTAMPTZ DEFAULT NOW(),
        7 |          c e r t i f i c a t e _ u r l  T E X T ,  - -  L i n k  ¿ n  f i l e  P D F  h o · c  t r a n g  w e b  x á c  m i n h
    8|     verification_code TEXT UNIQUE NOT NULL
    9| );
   10|
   11| -- RLS cho certificates
   12| ALTER TABLE public.certificates ENABLE ROW LEVEL SECURITY;
   13| CREATE POLICY "Users can view their own certificates" ON public.certificates
   14|     FOR SELECT USING (auth.uid() = student_id);
   15|
      1 6 |  - -  2 .  C - p  n h - t  c Ù t  O n b o a r d e d  c h o  P r o f i l e  ( n ¿ u  c o m m a n d  t r ° Û c  c h ° a  c h ¡ y )
   17| ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS is_onboarded BOOLEAN DEFAULT FALSE;
   18|
```

File: database/20260516_dashboard_views.sql (48 lines, 1.8 KB)

```
==========================================================================================
        1 |  - -  1 .  V i e w  t í n h  t o á n  t i ¿ n  Ù  h Í c  t - p  c ç a  t ë n g  h Í c  s i n h
        2 |  - -  D ñ a  t r ê n  s Ñ  l ° ã n g  b à i  h Í c  ã  h o à n  t h à n h  v à  q u i z  ã  ¡ t
    3| CREATE OR REPLACE VIEW public.student_course_progress AS
    4| SELECT
    5|     p.id as student_id,
    6|     p.full_name,
    7|     l.id as lesson_id,
    8|     l.title as lesson_title,
    9|     EXISTS (
   10|         SELECT 1 FROM quiz_attempts qa
   11|         JOIN quizzes q ON qa.quiz_id = q.id
   12|         WHERE qa.student_id = p.id
   13|         AND q.lesson_id = l.id
   14|         AND qa.score >= q.passing_score
   15|     ) as is_completed,
   16|     COALESCE(
   17|         (SELECT MAX(score) FROM quiz_attempts qa
   18|          JOIN quizzes q ON qa.quiz_id = q.id
   19|          WHERE qa.student_id = p.id AND q.lesson_id = l.id),
   20|         0
   21|     ) as best_score
   22| FROM profiles p
```

```
   23| CROSS JOIN lessons l;
   24|
       2 5 |  - -  2 .  V i e w  t Õ n g  h ã p  h i Ç u  s u ¥ t  l Û p  h Í c  c h o  G i á o  v i ê n
   26| CREATE OR REPLACE VIEW public.teacher_class_stats AS
   27| SELECT
   28|     c.id as class_id,
   29|     c.name as class_name,
   30|     COUNT(DISTINCT cm.student_id) as total_students,
   31|     AVG(qa.score) as avg_quiz_score,
   32|     COUNT(DISTINCT qa.id) as total_submissions
   33| FROM classes c
   34| LEFT JOIN class_members cm ON c.id = cm.class_id
       3 5 |  L E F T  J O I N  q u i z z e s  q  O N  q . l e s s o n _ i d  I S  N O T  N U L L  - -  G i £  Ë n h  q u i z  g ¯ n  v Û i
   36| LEFT JOIN quiz_attempts qa ON qa.quiz_id = q.id AND qa.student_id = cm.student_id
   37| GROUP BY c.id, c.name;
   38|
       3 9 |  - -  3 .  B £ n g  l ° u  v ¿ t  h o ¡ t  Ù n g  g § n  â y  ( A c t i v i t y  L o g )
   40| CREATE TABLE IF NOT EXISTS public.activity_logs (
   41|     id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
   42|     user_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
   43|     action_type TEXT NOT NULL, -- 'login', 'complete_lesson', 'submit_quiz', 'join_class'
   44|     description TEXT,
   45|     metadata JSONB,
   46|     created_at TIMESTAMPTZ DEFAULT NOW()
   47| );
   48|
```

File: database/20260516_discussion_system.sql (19 lines, 1.0 KB)

```
    1 |  - -  1 .  £ m  b £ o  b £ n g  b ì n h  l u - n  t Ó n  t ¡ i  v à  c ó  c ¥ u  t r ú c  p h â n  t § n g
    2| CREATE TABLE IF NOT EXISTS public.lesson_comments (
    3|     id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    4|     lesson_id UUID REFERENCES public.lessons(id) ON DELETE CASCADE NOT NULL,
    5|     user_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE NOT NULL,
    6 |  p a r e n t _ i d  U U I D  R E F E R E N C E S  p u b l i c . l e s s o n _ c o m m e n t s ( i d )  O N  D E L E T E  C A S C A
    7|     content TEXT NOT NULL,
    8|     created_at TIMESTAMPTZ DEFAULT NOW()
    9| );
   10|
   1 1 |  - -  B - t  R e a l t i m e  c h o  b ì n h  l u - n
   12| ALTER PUBLICATION supabase_realtime ADD TABLE lesson_comments;
   13|
   1 4 |  - -  R L S  c h o  b ì n h  l u - n
   15| ALTER TABLE public.lesson_comments ENABLE ROW LEVEL SECURITY;
   16| CREATE POLICY "Anyone can view comments" ON public.lesson_comments FOR SELECT USING (true);
   17| CREATE POLICY "Authenticated users can insert comments" ON public.lesson_comments FOR INSERT WITH CHECK (auth....
   18| CREATE POLICY "Users can delete their own comments" ON public.lesson_comments FOR DELETE USING (auth.uid() = u...
   19|
```

File: database/20260516_notifications_system.sql (32 lines, 1.4 KB)

```
    1 |  - -  1 .  B £ n g  t h ô n g  b á o  ( N o t i f i c a t i o n s )
    2| CREATE TABLE IF NOT EXISTS public.notifications (
    3|     id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    4|     user_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE NOT NULL,
    5|     title TEXT NOT NULL,
    6|     message TEXT NOT NULL,
    7|     type TEXT DEFAULT 'info' CHECK (type IN ('info', 'success', 'warning', 'error', 'assignment', 'quiz')),
    8 |  l i n k  T E X T ,  - -  L i n k  d « n  ¿ n  b à i  h Í c / b à i  t - p  l i ê n  q u a n
    9|     is_read BOOLEAN DEFAULT FALSE,
   10|     created_at TIMESTAMPTZ DEFAULT NOW()
   11| );
   12|
   1 3 |  - -  B - t  r e a l t i m e  c h o  b £ n g  n o t i f i c a t i o n s
   14| ALTER PUBLICATION supabase_realtime ADD TABLE notifications;
   15|
   16| -- RLS cho notifications
   17| ALTER TABLE public.notifications ENABLE ROW LEVEL SECURITY;
   18| CREATE POLICY "Users can view their own notifications" ON public.notifications
   19|     FOR SELECT USING (auth.uid() = user_id);
   20| CREATE POLICY "System/Teachers can insert notifications" ON public.notifications
   21|     FOR INSERT WITH CHECK (true);
   22| CREATE POLICY "Users can update their own notifications (mark as read)" ON public.notifications
   23|     FOR UPDATE USING (auth.uid() = user_id);
   24|
   2 5 |  - -  2 .  C ¥ u  t r ú c  L Ù  t r ì n h  h Í c  t - p  ( P r e r e q u i s i t e s )
   2 6 |  - -  T h ê m  c Ù t  b à i  h Í c  t i ê n  q u y ¿ t  v à o  b £ n g  l e s s o n s
   27| ALTER TABLE public.lessons
   28| ADD COLUMN IF NOT EXISTS prerequisite_lesson_id UUID REFERENCES public.lessons(id) ON DELETE SET NULL;
   29|
   30| ALTER TABLE public.lessons
   31| ADD COLUMN IF NOT EXISTS min_score_to_unlock INTEGER DEFAULT 5;
   32|
```

File: database/20260517_achievements.sql (45 lines, 2.0 KB)

```
    1| -- ========================================
    2| -- ACHIEVEMENTS & BADGES DATABASE SETUP
    3| -- ========================================
    4|
    5| CREATE TABLE IF NOT EXISTS public.achievement_definitions (
    6|   id TEXT PRIMARY KEY,
    7|   title TEXT NOT NULL,
    8|   description TEXT,
    9|   icon TEXT,
   10|   points INT DEFAULT 0,
   11|   rarity TEXT CHECK (rarity IN ('common','uncommon','rare','legendary'))
   12| );
   13|
   14| CREATE TABLE IF NOT EXISTS public.student_achievements (
   15|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
   16|   student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
   17|   achievement_id TEXT REFERENCES public.achievement_definitions(id) ON DELETE CASCADE,
   18|   earned_at TIMESTAMPTZ DEFAULT NOW(),
   19|   UNIQUE(student_id, achievement_id)
   20| );
   21|
   22| -- Seed definitions
   23| INSERT INTO public.achievement_definitions (id, title, description, icon, points, rarity)
   24| VALUES
       2 5 |  ( ' f i r s t _ l e s s o n ' ,  ' K h ß i  § u  h à n h  t r ì n h ' ,  ' H o à n  t h à n h  b à i  g i £ n g  § u  t i ê n
       2 6 |  ( ' q u i z _ a c e ' ,  ' X u ¥ t  s ¯ c ' ,  ' ¡ t  i Ã m  t u y Ç t  Ñ i  ( 1 0 0 % )  t r o n g  m Ù t  b à i  g u i z
       2 7 |  ( ' w e e k _ s t r e a k ' ,  ' K i ê n  t r ì  7  n g à y ' ,  ' H Í c  l i ê n  t i ¿ p  7  n g à y  k h ô n g  n g h Ê ' ,
       2 8 |  ( ' p c _ m a s t e r ' ,  ' P C  M a s t e r ' ,  ' H o à n  t h à n h  t ¥ t  c £  b à i  t r o n g  l Ù  t r ì n h ' ,  'Ø=Ý¾
       2 9 |  ( ' l a b _ e x p e r t ' ,  ' C h u y ê n  g i a  L a b ' ,  ' D à n h  h ¡ n  1 0  g i Ý  t r o n g  B u i l d e r  L a b ' ,
       3 0 |  ( ' h e l p f u l _ m e m b e r ' ,  ' N h i Ç t  t ì n h ' ,  ' ° ã c  u p v o t e  1 0  l § n  t r o n g  d i Ã n  à n ' ,
   31| ON CONFLICT (id) DO UPDATE
   32| SET
   33|   title = EXCLUDED.title,
   34|   description = EXCLUDED.description,
```

```
  icon = EXCLUDED.icon,
  points = EXCLUDED.points,
  rarity = EXCLUDED.rarity;

-- Enable RLS
ALTER TABLE public.achievement_definitions ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.student_achievements ENABLE ROW LEVEL SECURITY;

CREATE POLICY "view_definitions" ON public.achievement_definitions FOR SELECT USING (true);
CREATE POLICY "view_student_achievements" ON public.student_achievements FOR SELECT USING (true);

```

File: database/20260517_certificates.sql (42 lines, 1.4 KB)

```
-- ========================================
-- CERTIFICATES DATABASE SETUP
-- ========================================

CREATE TABLE IF NOT EXISTS public.certificates (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  path_id UUID REFERENCES public.learning_paths(id) ON DELETE CASCADE,
  certificate_number TEXT UNIQUE NOT NULL,
  issued_at TIMESTAMPTZ DEFAULT NOW(),
  pdf_url TEXT,
  verify_url TEXT,
  student_name TEXT,
  course_title TEXT,
  completion_date DATE DEFAULT CURRENT_DATE,
  final_score NUMERIC(5,2),
  is_revoked BOOLEAN DEFAULT FALSE
);

-- Function to generate safe, random certificate number
CREATE OR REPLACE FUNCTION generate_cert_number()
RETURNS TEXT AS $$
DECLARE
  chars TEXT := 'ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789';
  result TEXT := 'PCM-2026-';
  i INT;
BEGIN
  FOR i IN 1..5 LOOP
    result := result || substr(chars, floor(random() * length(chars) + 1)::INT, 1);
  END LOOP;
  RETURN result;
END;
$$ LANGUAGE plpgsql;

-- Enable RLS
ALTER TABLE public.certificates ENABLE ROW LEVEL SECURITY;

CREATE POLICY "view_all_certificates" ON public.certificates FOR SELECT USING (true);
CREATE POLICY "manage_certificates" ON public.certificates FOR ALL USING (
  EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
);

```

File: database/20260517_discussion_forum.sql (81 lines, 3.2 KB)

```
-- ========================================
-- DISCUSSION FORUM SETUP
-- ========================================

CREATE TABLE IF NOT EXISTS public.discussion_threads (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  lesson_id UUID NOT NULL,
  author_id UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
  title TEXT NOT NULL,
  body TEXT NOT NULL,
  type TEXT DEFAULT 'question' CHECK (type IN ('question','discussion','announcement')),
  status TEXT DEFAULT 'open' CHECK (status IN ('open','resolved','pinned','closed')),
  upvote_count INT DEFAULT 0,
  reply_count INT DEFAULT 0,
  is_deleted BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  updated_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.discussion_replies (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  thread_id UUID REFERENCES public.discussion_threads(id) ON DELETE CASCADE,
  parent_reply_id UUID REFERENCES public.discussion_replies(id) ON DELETE CASCADE,
  author_id UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
  body TEXT NOT NULL,
  is_teacher_answer BOOLEAN DEFAULT FALSE,
  upvote_count INT DEFAULT 0,
  is_deleted BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.discussion_upvotes (
  user_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  thread_id UUID REFERENCES public.discussion_threads(id) ON DELETE CASCADE,
  reply_id UUID REFERENCES public.discussion_replies(id) ON DELETE CASCADE,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  CONSTRAINT one_target CHECK (
    (thread_id IS NULL) != (reply_id IS NULL)
  ),
  UNIQUE(user_id, thread_id),
  UNIQUE(user_id, reply_id)
);

-- Trigger to increment reply_count
CREATE OR REPLACE FUNCTION update_reply_count()
RETURNS TRIGGER AS $$
BEGIN
  UPDATE public.discussion_threads
  SET reply_count = reply_count + 1
  WHERE id = NEW.thread_id;
  RETURN NEW;
END;
$$ LANGUAGE plpgsql;

DROP TRIGGER IF EXISTS on_reply_insert ON public.discussion_replies;
CREATE TRIGGER on_reply_insert
  AFTER INSERT ON public.discussion_replies
  FOR EACH ROW EXECUTE FUNCTION update_reply_count();

-- RLS Enable
ALTER TABLE public.discussion_threads ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.discussion_replies ENABLE ROW LEVEL SECURITY;
```

```
ALTER TABLE public.discussion_upvotes ENABLE ROW LEVEL SECURITY;

-- Policies
CREATE POLICY "view_threads" ON public.discussion_threads FOR SELECT USING (true);
CREATE POLICY "create_thread" ON public.discussion_threads FOR INSERT WITH CHECK (author_id = auth.uid());
CREATE POLICY "delete_own_or_teacher_thread" ON public.discussion_threads FOR UPDATE USING (
  author_id = auth.uid() OR
  EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
);

CREATE POLICY "view_replies" ON public.discussion_replies FOR SELECT USING (true);
CREATE POLICY "create_reply" ON public.discussion_replies FOR INSERT WITH CHECK (author_id = auth.uid());
CREATE POLICY "delete_own_or_teacher_reply" ON public.discussion_replies FOR UPDATE USING (
  author_id = auth.uid() OR
  EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
);

CREATE POLICY "manage_upvotes" ON public.discussion_upvotes FOR ALL USING (user_id = auth.uid());

```

File: database/20260517_learning_path.sql (115 lines, 3.5 KB)

```
-- ==========================================
-- LEARNING PATH & PROGRESSIVE UNLOCKING SETUP
-- ==========================================

CREATE TABLE IF NOT EXISTS public.learning_paths (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  class_id UUID,
  title TEXT NOT NULL,
  description TEXT,
  is_active BOOLEAN DEFAULT TRUE,
  created_by UUID REFERENCES public.profiles(id),
  created_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.path_items (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  path_id UUID REFERENCES public.learning_paths(id) ON DELETE CASCADE,
  item_type TEXT CHECK (item_type IN ('lesson','quiz','lab_session','milestone')),
  item_id UUID,           -- Nullable if milestone
  title TEXT NOT NULL,
  description TEXT,
  "order" INT NOT NULL,
  unlock_condition JSONB,
  estimated_minutes INT,
  is_optional BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  UNIQUE(path_id, "order")
);

-- PostgreSQL Function to calculate unlock states server-side
CREATE OR REPLACE FUNCTION public.get_unlocked_items(
  p_student_id UUID,
  p_path_id UUID
) RETURNS TABLE (
  id UUID,
  item_id UUID,
  is_unlocked BOOLEAN,
  unlock_reason TEXT
) AS $$
DECLARE
  item RECORD;
  cond JSONB;
  cond_type TEXT;
  cond_item_id UUID;
  min_sc NUMERIC;
  prev_completed BOOLEAN;
  quiz_passed BOOLEAN;
BEGIN
  FOR item IN
    SELECT * FROM public.path_items WHERE path_id = p_path_id ORDER BY "order"
  LOOP
    cond := item.unlock_condition;
    is_unlocked := TRUE;
    unlock_reason := 'always_available';

    IF cond IS NOT NULL THEN
      cond_type := cond->>'type';

      -- 1. Complete previous item
      IF cond_type = 'complete_previous' THEN
        SELECT EXISTS (
          SELECT 1 FROM public.lesson_progress lp
          JOIN public.path_items pi ON pi.item_id = lp.lesson_id
          WHERE lp.student_id = p_student_id
            AND lp.status = 'completed'
            AND pi.path_id = p_path_id
            AND pi.order = item.order - 1
        ) INTO prev_completed;

        IF NOT prev_completed THEN
          is_unlocked := FALSE;
          unlock_reason := 'need_complete_previous';
        END IF;

      -- 2. Score quiz above threshold
      ELSIF cond_type = 'score_above' THEN
        cond_item_id := (cond->>'item_id')::UUID;
        min_sc := (cond->>'min_score')::NUMERIC;

        SELECT EXISTS (
          SELECT 1 FROM public.quiz_attempts
          WHERE student_id = p_student_id
            AND quiz_id = cond_item_id
            AND score >= min_sc
            AND status = 'submitted'
        ) INTO quiz_passed;

        IF NOT quiz_passed THEN
          is_unlocked := FALSE;
          unlock_reason := 'need_quiz_score_above_' || min_sc::TEXT;
        END IF;
      END IF;
    END IF;

    id := item.id;
    item_id := item.item_id;
    RETURN NEXT;
  END LOOP;
END;
$$ LANGUAGE plpgsql SECURITY DEFINER;

```

```
-- RLS Enable
ALTER TABLE public.learning_paths ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.path_items ENABLE ROW LEVEL SECURITY;

CREATE POLICY "view_paths" ON public.learning_paths FOR SELECT USING (true);
CREATE POLICY "manage_paths" ON public.learning_paths FOR ALL USING (
  EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
);

CREATE POLICY "view_path_items" ON public.path_items FOR SELECT USING (true);
CREATE POLICY "manage_path_items" ON public.path_items FOR ALL USING (
  EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
);

```

File: database/20260517_profile_settings.sql (37 lines, 1.6 KB)

```
-- ========================================
-- PROFILE EXTENSION & USER PREFERENCES SETUP
-- ========================================

-- 1. Extend profiles table safely (RULE 1)
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS bio TEXT;
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS school TEXT;
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS grade TEXT;
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS updated_at TIMESTAMPTZ DEFAULT NOW();

-- 2. Create User Preferences Table
CREATE TABLE IF NOT EXISTS public.user_preferences (
  user_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE PRIMARY KEY,
  email_notifications BOOLEAN DEFAULT TRUE,
  push_notifications BOOLEAN DEFAULT TRUE,
  weekly_digest BOOLEAN DEFAULT TRUE,
  show_profile_public BOOLEAN DEFAULT FALSE,
  theme TEXT DEFAULT 'dark' CHECK (theme IN ('dark', 'light', 'system')),
  language TEXT DEFAULT 'vi' CHECK (language IN ('vi', 'en')),
  updated_at TIMESTAMPTZ DEFAULT NOW()
);

-- Enable RLS on preferences
ALTER TABLE public.user_preferences ENABLE ROW LEVEL SECURITY;

-- Preferences Policy
DROP POLICY IF EXISTS "own_preferences" ON public.user_preferences;
CREATE POLICY "own_preferences" ON public.user_preferences
  FOR ALL USING (user_id = auth.uid());

-- 3. Storage Avatars policy setup (RULE 2)
-- Make sure the bucket 'avatars' is created under storage.buckets first.
-- This policy allows users to only upload inside their own folder.
-- Note: Create policy on storage.objects:
-- CREATE POLICY "own_avatar" ON storage.objects
--   FOR ALL USING (bucket_id = 'avatars' AND (storage.foldername(name))[1] = auth.uid()::text);

```

File: database/20260517_progress_seed_data.sql (115 lines, 5.2 KB)

```
-- ======================================================
-- SAMPLE PROGRESS SEED DATA FOR TESTING PROGRESS VIEW
-- Run this in the Supabase SQL Editor
-- ======================================================

-- 1. Insert sample lessons if they do not exist
INSERT INTO public.lessons (id, title, content, created_at)
VALUES
      ( '11111111-1111-1111-1111-111111111111',   'Bài 1: GiÛi thiÇu p§n céng
      ( '22222222-2222-2222-2222-222222222222',   'Bài 2: Thñc hành L¯p ráp CPU
      ( '33333333-3333-3333-3333-333333333333',   'Bài 3: Bo m¡ch chç (Mainboar
      ( '44444444-4444-4444-4444-444444444444',   'Quiz: Ph§n céng c¡ b£n',  'Bà
      ( '55555555-5555-5555-5555-555555555555',   'Bài 5: L¯p ráp RAM và T£n nh
ON CONFLICT (id) DO NOTHING;

-- 2. Insert sample quizzes if they do not exist
INSERT INTO public.quizzes (id, lesson_id, title, passing_score, created_at)
VALUES
      ( 'a1a1a1a1-a1a1-a1a1-a1a1-a1a1a1a1a1a1', '44444444-4444-4444-4444-4444
ON CONFLICT (id) DO NOTHING;

-- 3. Insert mock progress data for the CURRENT LOGGED-IN USER
-- Note: Replace 'YOUR_USER_UUID' with the actual user id if running manually,
-- or use the query below which automatically targets all profiles as sample data.

DO $$
DECLARE
    user_rec RECORD;
BEGIN
    FOR user_rec IN SELECT id FROM public.profiles LOOP

        -- Lesson 1: Completed 12 days ago
        INSERT INTO public.lesson_progress (student_id, lesson_id, status, completion_percentage, time_spent_s...
        VALUES (
            user_rec.id,
            '11111111-1111-1111-1111-111111111111',
            'completed',
            100,
            3600, -- 1 hour
            NOW() - INTERVAL '12 days',
            NOW() - INTERVAL '12 days'
        ) ON CONFLICT (student_id, lesson_id) DO UPDATE
        SET status = 'completed', completion_percentage = 100, completed_at = NOW() - INTERVAL '12 days';

        -- Lesson 2: Completed 10 days ago
        INSERT INTO public.lesson_progress (student_id, lesson_id, status, completion_percentage, time_spent_s...
        VALUES (
            user_rec.id,
            '22222222-2222-2222-2222-222222222222',
            'completed',
            100,
            4200, -- 1.16 hours
            NOW() - INTERVAL '10 days',
            NOW() - INTERVAL '10 days'
        ) ON CONFLICT (student_id, lesson_id) DO UPDATE
        SET status = 'completed', completion_percentage = 100, completed_at = NOW() - INTERVAL '10 days';

        -- Lesson 3: In progress
        INSERT INTO public.lesson_progress (student_id, lesson_id, status, completion_percentage, time_spent_s...
        VALUES (
            user_rec.id,
            '33333333-3333-3333-3333-333333333333',
            'in_progress',
            45,
```

```
 65|             1800,
 66|             NOW() - INTERVAL '2 days',
 67|             NULL
 68|         ) ON CONFLICT (student_id, lesson_id) DO UPDATE
 69|         SET status = 'in_progress', completion_percentage = 45;
 70|
 71|         -- Quiz Attempt
 72|         INSERT INTO public.quiz_attempts (quiz_id, student_id, started_at, submitted_at, score, status)
 73|         VALUES (
 74|             'a1a1a1a1-a1a1-a1a1-a1a1-a1a1a1a1a1a1',
 75|             user_rec.id,
 76|             NOW() - INTERVAL '3 days 1 hour',
 77|             NOW() - INTERVAL '3 days',
 78|             85, -- 85 score
 79|             'submitted' -- matches CHECK constraints or standard submitted status
 80|         );
 81|
 82|         -- Builder Lab Sessions (Past 3 months heatmap simulation)
 83|         -- Session 1: 5 days ago (45 minutes)
 84|         INSERT INTO public.builder_sessions (student_id, lesson_id, started_at, ended_at, compatibility_score)
 85|         VALUES (
 86|             user_rec.id,
 87|             '22222222-2222-2222-2222-222222222222',
 88|             NOW() - INTERVAL '5 days 45 minutes',
 89|             NOW() - INTERVAL '5 days',
 90|             95
 91|         );
 92|
 93|         -- Session 2: 3 days ago (75 minutes)
 94|         INSERT INTO public.builder_sessions (student_id, lesson_id, started_at, ended_at, compatibility_score)
 95|         VALUES (
 96|             user_rec.id,
 97|             '22222222-2222-2222-2222-222222222222',
 98|             NOW() - INTERVAL '3 days 75 minutes',
 99|             NOW() - INTERVAL '3 days',
100|             100
101|         );
102|
103|         -- Session 3: Today (20 minutes)
104|         INSERT INTO public.builder_sessions (student_id, lesson_id, started_at, ended_at, compatibility_score)
105|         VALUES (
106|             user_rec.id,
107|             '55555555-5555-5555-5555-555555555555',
108|             NOW() - INTERVAL '20 minutes',
109|             NOW(),
110|             90
111|         );
112|
113|     END LOOP;
114| END $$;
115|
```

File: database/20260517_quiz_engine_v2.sql (135 lines, 4.3 KB)

```
==========================================================================================
  1 |   - -  %P%P%P   N G Â N   H À N G   C Â U   H Ỉ I  %P%P%P
  2| CREATE TABLE IF NOT EXISTS public.question_banks (
  3|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  4|   teacher_id UUID REFERENCES public.profiles(id) NOT NULL,
  5|   title TEXT NOT NULL,
  6 |       s u b j e c t   T E X T   D E F A U L T   ' T i n   h Í c   -   L ¯ p   r á p   P C ' ,
  7|   description TEXT,
  8|   created_at TIMESTAMPTZ DEFAULT NOW(),
  9|   updated_at TIMESTAMPTZ DEFAULT NOW()
 10| );
 11|
 12| CREATE TABLE IF NOT EXISTS public.questions (
 13|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
 14|   bank_id UUID REFERENCES public.question_banks(id) ON DELETE CASCADE,
 15|   content TEXT NOT NULL,
 16|   type TEXT CHECK (type IN (
 17|     'single_choice',
 18|     'multiple_choice',
 19|     'true_false',
 20|     'fill_blank',
 21|     'ordering'
 22|   )) NOT NULL,
 23|   difficulty TEXT CHECK (difficulty IN ('easy','medium','hard')) DEFAULT 'medium',
 24|   points INT DEFAULT 10,
 25|   explanation TEXT,
 26|   image_url TEXT,
 27|   tags TEXT[],
 28|   "order" INT DEFAULT 0,
 29|   created_at TIMESTAMPTZ DEFAULT NOW()
 30| );
 31|
 32| CREATE TABLE IF NOT EXISTS public.question_options (
 33|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
 34|   question_id UUID REFERENCES public.questions(id) ON DELETE CASCADE,
 35|   content TEXT NOT NULL,
 36|   is_correct BOOLEAN DEFAULT FALSE,
 37|   "order" INT DEFAULT 0
 38| );
 39|
 4 0 |   - -  %P%P%P     À   T H I  %P%P%P
 41| CREATE TABLE IF NOT EXISTS public.quizzes (
 42|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
 43|   teacher_id UUID REFERENCES public.profiles(id) NOT NULL,
 44|   lesson_id UUID REFERENCES public.lessons(id),
 45|   class_id UUID,
 46|   title TEXT NOT NULL,
 47|   description TEXT,
 48|   time_limit_minutes INT,
 49|   passing_score INT DEFAULT 70,
 50|   randomize_questions BOOLEAN DEFAULT TRUE,
 51|   randomize_options BOOLEAN DEFAULT TRUE,
 52|   max_attempts INT DEFAULT 3,
 53|   show_answers_after TEXT DEFAULT 'after_submit'
 54|     CHECK (show_answers_after IN ('never', 'after_submit', 'after_deadline')),
 55|   available_from TIMESTAMPTZ,
 56|   available_until TIMESTAMPTZ,
 57|   is_published BOOLEAN DEFAULT FALSE,
 58|   created_at TIMESTAMPTZ DEFAULT NOW()
 59| );
 60|
 61| CREATE TABLE IF NOT EXISTS public.quiz_questions (
 62|   quiz_id UUID REFERENCES public.quizzes(id) ON DELETE CASCADE,
 63|   question_id UUID REFERENCES public.questions(id),
 64|   "order" INT,
 65|   PRIMARY KEY (quiz_id, question_id)
 66| );
 67|
 6 8 |   - -  %P%P%P   B À I   L À M  %P%P%P
 69| CREATE TABLE IF NOT EXISTS public.quiz_attempts (
```

```
  70|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  71|   quiz_id UUID REFERENCES public.quizzes(id),
  72|   student_id UUID REFERENCES public.profiles(id),
  73|   started_at TIMESTAMPTZ DEFAULT NOW(),
  74|   submitted_at TIMESTAMPTZ,
  75|   time_taken_seconds INT,
  76|   score NUMERIC(5,2),
  77|   max_score INT,
  78|   status TEXT DEFAULT 'in_progress'
  79|     CHECK (status IN ('in_progress','submitted','graded','expired')),
  80|   attempt_number INT DEFAULT 1
  81| );
  82|
  83| CREATE TABLE IF NOT EXISTS public.quiz_answers (
  84|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  85|   attempt_id UUID REFERENCES public.quiz_attempts(id) ON DELETE CASCADE,
  86|   question_id UUID REFERENCES public.questions(id),
  87|   selected_option_ids UUID[],
  88|   text_answer TEXT,
  89|   ordering_answer UUID[],
  90|   is_correct BOOLEAN,
  91|   points_earned NUMERIC(5,2) DEFAULT 0,
  92|   time_spent_seconds INT
  93| );
  94|
     9 5 |   - -  %P%P%P   R L S   P O L I C I E S  %P%P%P
  96| ALTER TABLE public.quiz_attempts ENABLE ROW LEVEL SECURITY;
  97| ALTER TABLE public.quiz_answers ENABLE ROW LEVEL SECURITY;
  98|
  99| CREATE POLICY "student_own_attempts" ON public.quiz_attempts
 100|   FOR ALL USING (student_id = auth.uid());
 101|
 102| CREATE POLICY "student_own_answers" ON public.quiz_answers
 103|   FOR ALL USING (
 104|     EXISTS (
 105|       SELECT 1 FROM public.quiz_attempts
 106|       WHERE id = attempt_id AND student_id = auth.uid()
 107|     )
 108|   );
 109|
 110| CREATE POLICY "teacher_view_attempts" ON public.quiz_attempts
 111|   FOR SELECT USING (
 112|     EXISTS (
 113|       SELECT 1 FROM public.profiles
 114|       WHERE id = auth.uid() AND role = 'teacher'
 115|     )
 116|   );
 117|
    1 1 8 |   - -   V I E W   a n   t o à n   c h o   h Í c   s i n h
 119| CREATE OR REPLACE VIEW public.quiz_questions_for_student AS
 120|   SELECT
 121|     q.id, q.content, q.type, q.points, q.image_url,
 122|     q.tags, qq.order,
 123|     json_agg(
 124|       json_build_object(
 125|         'id', qo.id,
 126|         'content', qo.content,
 127|         'order', qo.order
 128|       ) ORDER BY qo.order
 129|     ) AS options,
 130|     qq.quiz_id
 131|   FROM public.questions q
 132|   JOIN public.quiz_questions qq ON qq.question_id = q.id
 133|   JOIN public.question_options qo ON qo.question_id = q.id
 134|   GROUP BY q.id, q.content, q.type, q.points, q.image_url, q.tags, qq.order, qq.quiz_id;
 135|
```

File: database/20260517_user_flow_schema.sql (86 lines, 2.6 KB)

```
   1| -- Supabase SQL Migration: User Flow & Progress Tracking
   2|
   3| -- 1. Profiles Table (if not exists)
   4| CREATE TABLE IF NOT EXISTS profiles (
   5|   id UUID REFERENCES auth.users PRIMARY KEY,
   6|   full_name TEXT NOT NULL,
   7|   role TEXT CHECK (role IN ('student','teacher')) NOT NULL,
   8|   avatar_url TEXT,
   9|   class_id UUID,
  10|   created_at TIMESTAMPTZ DEFAULT NOW()
  11| );
  12|
  13| -- 2. Lessons Table (if not exists)
  14| CREATE TABLE IF NOT EXISTS lessons (
  15|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  16|   title TEXT NOT NULL,
  17|   content TEXT,
  18|   course_id UUID,
  19|   created_at TIMESTAMPTZ DEFAULT NOW()
  20| );
  21|
  22| -- DROP OLD TABLES TO AVOID COLUMN CONFLICTS
  23| DROP TABLE IF EXISTS lesson_progress CASCADE;
  24| DROP TABLE IF EXISTS builder_sessions CASCADE;
  25|
  26| -- 3. Lesson Progress
  27| CREATE TABLE IF NOT EXISTS lesson_progress (
  28|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  29|   student_id UUID REFERENCES profiles(id),
  30|   lesson_id UUID REFERENCES lessons(id),
  31|   status TEXT DEFAULT 'not_started',
  32|   completion_percentage INT DEFAULT 0,
  33|   time_spent_seconds INT DEFAULT 0,
  34|   last_accessed TIMESTAMPTZ,
  35|   completed_at TIMESTAMPTZ,
  36|   UNIQUE(student_id, lesson_id)
  37| );
  38|
  39| -- 4. Builder Lab Sessions
  40| CREATE TABLE IF NOT EXISTS builder_sessions (
  41|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  42|   student_id UUID REFERENCES profiles(id),
  43|   lesson_id UUID REFERENCES lessons(id),
  44|   started_at TIMESTAMPTZ DEFAULT NOW(),
  45|   ended_at TIMESTAMPTZ,
  46|   components_used JSONB,
  47|   tdp_calculated NUMERIC,
  48|   compatibility_score INT
  49| );
  50|
  51| -- 5. Row Level Security (RLS) Policies
  52| ALTER TABLE profiles ENABLE ROW LEVEL SECURITY;
  53| ALTER TABLE lesson_progress ENABLE ROW LEVEL SECURITY;
  54| ALTER TABLE builder_sessions ENABLE ROW LEVEL SECURITY;
```

```
   55|
   56| -- Profile Policies
   57| CREATE POLICY "Public profiles are viewable by everyone."
   58|   ON profiles FOR SELECT
   59|   USING ( true );
   60|
   61| CREATE POLICY "Users can insert their own profile."
   62|   ON profiles FOR INSERT
   63|   WITH CHECK ( auth.uid() = id );
   64|
   65| CREATE POLICY "Users can update own profile."
   66|   ON profiles FOR UPDATE
   67|   USING ( auth.uid() = id );
   68|
   69| -- Lesson Progress Policies
   70| CREATE POLICY "student_own_progress" ON lesson_progress
   71|   FOR ALL USING (student_id = auth.uid());
   72|
   73| CREATE POLICY "teacher_view_class" ON lesson_progress
   74|   FOR SELECT USING (
   75|     EXISTS (SELECT 1 FROM profiles WHERE id = auth.uid() AND role = 'teacher')
   76|   );
   77|
   78| -- Builder Sessions Policies
   79| CREATE POLICY "student_own_sessions" ON builder_sessions
   80|   FOR ALL USING (student_id = auth.uid());
   81|
   82| CREATE POLICY "teacher_view_sessions" ON builder_sessions
   83|   FOR SELECT USING (
   84|     EXISTS (SELECT 1 FROM profiles WHERE id = auth.uid() AND role = 'teacher')
   85|   );
   86|
```

File: database/20260518_parent_notifications.sql (187 lines, 6.9 KB)

```
==========================================================================================
    1| -- ==================================================================
    2| -- PROMPT 4 · PC MASTER LMS — PARENT NOTIFICATIONS & TRIGGERS
    3| -- Target Path: database/20260518_parent_notifications.sql
    4| -- ==================================================================
    5|
       6 |   - -  % % %    B ¯ Ú C   1 :   C ¬ P   N H ¬ T   U S E R   P R E F E R E N C E S    Â   H Ö   T R â   O P T - O U T  % % %
       7 |   - -   T h ê m   c Ù t   n o t i f i c a t i o n _ s e t t i n g s   ( J S O N B )   c h o   b £ n g   u s e r _ p r e f e r e n c e s
    8| ALTER TABLE public.user_preferences
    9|   ADD COLUMN IF NOT EXISTS notification_settings JSONB
   10|   DEFAULT '{"child_absent": true, "child_low_score": true, "child_completed_path": true, "lesson_completed": t...
   11|
       1 2 |   - -   T ¡ o   b £ n g   l ° u   t r ï   t h ô n g   t i n   c o o l d o w n   g í i   e m a i l
   13| CREATE TABLE IF NOT EXISTS public.parent_email_cooldown (
   14|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
   15|   student_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
   16|   parent_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
   17|   notification_type TEXT NOT NULL,
   18|   sent_at TIMESTAMPTZ DEFAULT NOW(),
   19|   UNIQUE(student_id, parent_id, notification_type)
   20| );
   21|
       2 2 |   - -   B - t   R L S   c h o   b £ n g   c o o l d o w n
   23| ALTER TABLE public.parent_email_cooldown ENABLE ROW LEVEL SECURITY;
   24|
   25| -- Cooldown Policy
   26| DROP POLICY IF EXISTS "system_all_cooldown" ON public.parent_email_cooldown;
   27| CREATE POLICY "system_all_cooldown" ON public.parent_email_cooldown
   28|   FOR ALL USING (true);
   29|
   30|
       3 1 |   - -  % % %    B ¯ Ú C   2 :   T R I G G E R   K H I   H Ì C   S I N H   H O À N   T H À N H   B À I   H Ì C  % % %
   32| CREATE OR REPLACE FUNCTION notify_parent_on_lesson_complete()
   33| RETURNS TRIGGER AS $$
   34| DECLARE
   35|   parent_rec RECORD;
   36|   lesson_rec RECORD;
   37|   pref_val BOOLEAN;
   38| BEGIN
   39|   IF NEW.status = 'completed' AND OLD.status != 'completed' THEN
       4 0 |           - -   L ¥ y   t ê n   b à i   h Í c
   41|     SELECT title INTO lesson_rec FROM lessons WHERE id = NEW.lesson_id;
   42|
       4 3 |           - -   T ì m   t ¥ t   c £   p h å   h u y n h    a n g   t h e o   d õ i   h Í c   s i n h   n à y
   44|     FOR parent_rec IN
   45|       SELECT psl.parent_id, up.notification_settings
   46|       FROM parent_student_links psl
   47|       LEFT JOIN user_preferences up ON up.user_id = psl.parent_id
   48|       WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
   49|     LOOP
   50|       -- Check opt-out setting
   51|       pref_val := TRUE;
   52|       IF parent_rec.notification_settings IS NOT NULL AND parent_rec.notification_settings ? 'lesson_completed...
   53|         pref_val := (parent_rec.notification_settings->>'lesson_completed')::boolean;
   54|       END IF;
   55|
   56|       IF pref_val THEN
   57|         INSERT INTO notifications (user_id, type, title, body, data, action_url)
   58|         VALUES (
   59|           parent_rec.parent_id,
   60|           'lesson_completed',
       6 1 |                        ' C o n   b ¡ n   h o à n   t h à n h   b à i   h Í c  Ø=ÜÖ ' ,
       6 2 |                        ' C o n   b ¡ n   v ë a   h o à n   t h à n h   b à i   " '   | |   C O A L E S C E ( l e s s o n _ r e c . t i t l e ,
   63|           jsonb_build_object(
   64|             'student_id', NEW.student_id,
   65|             'lesson_id', NEW.lesson_id
   66|           ),
   67|           '/parent/children/' || NEW.student_id
   68|         );
   69|       END IF;
   70|     END LOOP;
   71|   END IF;
   72|   RETURN NEW;
   73| END;
   74| $$ LANGUAGE plpgsql SECURITY DEFINER;
   75|
   76| DROP TRIGGER IF EXISTS on_lesson_completed ON lesson_progress;
   77| CREATE TRIGGER on_lesson_completed
   78|   AFTER UPDATE ON lesson_progress
   79|   FOR EACH ROW EXECUTE FUNCTION notify_parent_on_lesson_complete();
   80|
   81|
       8 2 |   - -  % % %    B ¯ Ú C   3 :   T R I G G E R   K H I   C Ó   K ¾ T   Q U ¢   Q U I Z  % % %
   83| CREATE OR REPLACE FUNCTION notify_parent_on_quiz_result()
   84| RETURNS TRIGGER AS $$
   85| DECLARE
   86|   parent_rec RECORD;
   87|   quiz_rec RECORD;
   88|   pref_val BOOLEAN;
```

```
  89|   notif_type TEXT;
  90|   notif_title TEXT;
  91| BEGIN
  92|   IF NEW.status = 'graded' THEN
  93|     SELECT title INTO quiz_rec FROM quizzes WHERE id = NEW.quiz_id;
  94|
     9 5 |          - -  Q u y ¿ t    Ë n h   l o ¡ i   t h ô n g   b á o   d ñ a   t r ê n    i Ã m   s Ñ
  96|     IF NEW.score < 50 THEN
  97|       notif_type := 'child_low_score';
     9 8 |             n o t i f _ t i t l e   : =   '& þ   C o n   b ¡ n   c ó    i Ã m   t h ¥ p ' ;
  99|     ELSE
 100|       notif_type := 'quiz_graded';
    1 0 1 |             n o t i f _ t i t l e   : =   ''   C o n   b ¡ n   c ó   k ¿ t   q u £   m Û i ' ;
 102|     END IF;
 103|
 104|     FOR parent_rec IN
 105|       SELECT psl.parent_id, up.notification_settings
 106|       FROM parent_student_links psl
 107|       LEFT JOIN user_preferences up ON up.user_id = psl.parent_id
 108|       WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
 109|     LOOP
    1 1 0 |             - -  C h e c k   o p t - o u t   s e t t i n g   c h o   l o ¡ i   t h ô n g   b á o   n à y
 111|       pref_val := TRUE;
 112|       IF parent_rec.notification_settings IS NOT NULL AND parent_rec.notification_settings ? notif_type THEN
 113|         pref_val := (parent_rec.notification_settings->>notif_type)::boolean;
 114|       END IF;
 115|
 116|       IF pref_val THEN
 117|         INSERT INTO notifications (user_id, type, title, body, data, action_url)
 118|         VALUES (
 119|           parent_rec.parent_id,
 120|           notif_type,
 121|           notif_title,
    1 2 2 |                 ' K ¿ t   q u £   " '   | |   C O A L E S C E ( q u i z _ r e c . t i t l e ,   ' B à i   t r ¯ c   n g h i Ç m ' )   | |
 123|           jsonb_build_object(
 124|             'student_id', NEW.student_id,
 125|             'attempt_id', NEW.id,
 126|             'score', NEW.score
 127|           ),
 128|           '/parent/children/' || NEW.student_id
 129|         );
 130|       END IF;
 131|     END LOOP;
 132|   END IF;
 133|   RETURN NEW;
 134| END;
 135| $$ LANGUAGE plpgsql SECURITY DEFINER;
 136|
 137| DROP TRIGGER IF EXISTS on_quiz_graded ON quiz_attempts;
 138| CREATE TRIGGER on_quiz_graded
 139|   AFTER UPDATE ON quiz_attempts
 140|   FOR EACH ROW EXECUTE FUNCTION notify_parent_on_quiz_result();
 141|
 142|
    1 4 3 |   - -  % % %   B ¯ Ú C   4 :   T R I G G E R   K H I      T   T H À N H   T Í C H   M Ú I   ( C H A M P I O N )  % % %
 144| CREATE OR REPLACE FUNCTION notify_parent_on_achievement_earned()
 145| RETURNS TRIGGER AS $$
 146| DECLARE
 147|   parent_rec RECORD;
 148|   ach_rec RECORD;
 149|   pref_val BOOLEAN;
 150| BEGIN
    1 5 1 |       - -   T ì m   t ¥ t   c £   p h å   h u y n h    a n g   t h e o   d õ i   h Í c   s i n h   n à y
 152|   FOR parent_rec IN
 153|     SELECT psl.parent_id, up.notification_settings
 154|     FROM parent_student_links psl
 155|     LEFT JOIN user_preferences up ON up.user_id = psl.parent_id
 156|     WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
 157|   LOOP
 158|     -- Check opt-out setting
 159|     pref_val := TRUE;
 160|     IF parent_rec.notification_settings IS NOT NULL AND parent_rec.notification_settings ? 'achievement_earned...
 161|       pref_val := (parent_rec.notification_settings->>'achievement_earned')::boolean;
 162|     END IF;
 163|
 164|     IF pref_val THEN
 165|       INSERT INTO notifications (user_id, type, title, body, data, action_url)
 166|       VALUES (
 167|         parent_rec.parent_id,
 168|         'achievement_earned',
    1 6 9 |                   ' C o n   b ¡ n    ¡ t   t h à n h   t í c h   m Û i !  Ø<ßÆ ' ,
    1 7 0 |                   ' C o n   b ¡ n   v ë a   x u ¥ t   s ¯ c   m ß   k h ó a   h u ý   h i Ç u   t h à n h   t í c h   m Û i   t r o n g   h Í c
 171|         jsonb_build_object(
 172|           'student_id', NEW.student_id,
 173|           'achievement_id', NEW.achievement_id
 174|         ),
 175|         '/parent/children/' || NEW.student_id
 176|       );
 177|     END IF;
 178|   END LOOP;
 179|   RETURN NEW;
 180| END;
 181| $$ LANGUAGE plpgsql SECURITY DEFINER;
 182|
 183| DROP TRIGGER IF EXISTS on_achievement_earned ON student_achievements;
 184| CREATE TRIGGER on_achievement_earned
 185|   AFTER INSERT ON student_achievements
 186|   FOR EACH ROW EXECUTE FUNCTION notify_parent_on_achievement_earned();
 187|
```

File: database/20260518_profiles_insert_policy.sql (21 lines, 0.9 KB)

```
==========================================================================================
     1 |   - -   1 .   S í a   l × i    Ç   q u y   v ô   h ¡ n   ( I n f i n i t e   R e c u r s i o n )   c ç a   b £ n g   p r o f i l e s
   2| DROP POLICY IF EXISTS "Admin read all profiles" ON public.profiles;
   3| CREATE POLICY "Admin read all profiles" ON public.profiles
   4|   FOR SELECT USING (
   5|     (auth.jwt() -> 'user_metadata' ->> 'role') = 'admin'
   6|   );
   7|
     8 |   - -   2 .   T h ê m   P o l i c y   c h o   p h é p   I N S E R T   v à o   b £ n g   p r o f i l e s
   9| DROP POLICY IF EXISTS "Users insert own profile" ON public.profiles;
  10| CREATE POLICY "Users insert own profile" ON public.profiles
  11|   FOR INSERT WITH CHECK (auth.uid() = id);
  12|
    1 3 |   - -   3 .    £ m   b £ o   R L S   c ç a   p r o f i l e s   c h o   p h é p   S E L E C T   v à   U P D A T E   h o à n   c h É n h
  14| DROP POLICY IF EXISTS "Users read own profile" ON public.profiles;
  15| CREATE POLICY "Users read own profile" ON public.profiles
  16|   FOR SELECT USING (auth.uid() = id);
  17|
  18| DROP POLICY IF EXISTS "Users update own profile" ON public.profiles;
  19| CREATE POLICY "Users update own profile" ON public.profiles
  20|   FOR UPDATE USING (auth.uid() = id);
  21|
```

File: database/20260525_daily_quiz.sql (30 lines, 1.0 KB)

```
--%%%  THÊM CØT is_daily CHO B¢NG quizzes %%%
ALTER TABLE public.quizzes
ADD COLUMN IF NOT EXISTS is_daily BOOLEAN DEFAULT FALSE;

--%%%  VIEW: daily_quiz_info (l¥y bài quiz h±ng ngày cho hôm nay) %%%
CREATE OR REPLACE VIEW public.daily_quiz_info AS
SELECT
  q.id,
  q.title,
  q.description,
  q.time_limit_minutes,
  q.passing_score,
  q.created_at,
  (SELECT COUNT(*)::int FROM public.quiz_attempts qa
   WHERE qa.quiz_id = q.id AND qa.student_id = auth.uid()
   AND qa.status = 'submitted')::int AS student_attempts
FROM public.quizzes q
WHERE q.is_daily = TRUE
  AND q.is_published = TRUE
  AND q.created_at::date = CURRENT_DATE
ORDER BY q.created_at DESC
LIMIT 1;

--%%%  RLS: cho phép tài khoÉn service role và admin t¡o quiz daily %%%
CREATE POLICY IF NOT EXISTS "service_role_insert_daily" ON public.quizzes
  FOR INSERT WITH CHECK (is_daily = TRUE);

CREATE POLICY IF NOT EXISTS "select_daily_quiz" ON public.quizzes
  FOR SELECT USING (is_daily = TRUE OR is_daily = FALSE);
```

File: database/20260525_enable_realtime.sql (14 lines, 0.6 KB)

```
--%%%  B¬T REALTIME CHO CÁC B¢NG %%%

--  BÉng profiles (dùng cho leaderboard, online status)
ALTER PUBLICATION supabase_realtime ADD TABLE IF NOT EXISTS profiles;

--  BÉng messages cho discussion (n¿u dùng postgres_changes)
ALTER PUBLICATION supabase_realtime ADD TABLE IF NOT EXISTS discussion_messages;

--  BÉng quiz_attempts (dùng cho dashboard realtime)
ALTER PUBLICATION supabase_realtime ADD TABLE IF NOT EXISTS quiz_attempts;

--  BÉng lesson_progress (dùng cho dashboard realtime)
ALTER PUBLICATION supabase_realtime ADD TABLE IF NOT EXISTS lesson_progress;
```

File: database/20260529_cpu_video_sources.sql (56 lines, 2.1 KB)

```
-- ====================================================
--  THÊM CØT NGUÒN (SOURCE) CHO LESSON_SECTIONS
--  THÊM VIDEO CPU I GÐC VÀO BÀI 2
--  Chiy trong Supabase SQL Editor
-- ====================================================

--  1. Thêm cÙt source (nguÓn tham khÉo) n¿u chºa có
ALTER TABLE public.lesson_sections
ADD COLUMN IF NOT EXISTS source TEXT;

--  2. C-p nh-t nguÓn cho các section hiÇn có (n¿u có dï liÇu)
UPDATE public.lesson_sections
SET source = 'Sách giáo khoa Tin hÍc 10 - K¿t nÑi tri théc, Bài 2'
WHERE lesson_id IN (SELECT id FROM public.lessons WHERE title LIKE '%CPU
AND (source IS NULL OR source = '');

UPDATE public.lesson_sections
SET source = 'Intel ARK Database & Tài liÇu kù thu-t'
WHERE lesson_id IN (SELECT id FROM public.lessons WHERE title LIKE '%CPU
AND (source IS NULL OR source = '');

--  3. Thêm section video CPU Intel Core i vào Bài 2 (Thñc hành L¯p ráp C
--  N¿u bài 2 chºa có section video CPU
DO $$
DECLARE
    lesson2_id UUID;
    existing_count INT;
BEGIN
    SELECT id INTO lesson2_id FROM public.lessons
        WHERE title LIKE '%L¯p ráp CPU%' OR title LIKE '%CPU%'
    LIMIT 1;

    IF lesson2_id IS NOT NULL THEN
        SELECT COUNT(*) INTO existing_count
        FROM public.lesson_sections
        WHERE lesson_id = lesson2_id AND title LIKE '%Intel Core%';

        IF existing_count = 0 THEN
            INSERT INTO public.lesson_sections (lesson_id, title, type, content, order_index, source)
            VALUES (
                lesson2_id,
                'Video: CPU Intel Core i thi hÇ mÛi nh¥t',
                'video',
                'https://www.youtube.com/watch?v=6PAh4WYIqJY',
                0,
                'Intel Official - YouTube Channel'
            );
        END IF;
    END IF;
END $$;

--  4. C-p nh-t nguÓn cho t¥t cÉ các section khác
UPDATE public.lesson_sections
SET source = 'Sách giáo khoa Tin hÍc 10 - K¿t nÑi tri théc'
WHERE source IS NULL OR source = '';
```

File: database/20260610_products_full_specs.sql (378 lines, 14.8 KB)

```
-- ========================================================
-- PC Master Builder — Products Table with Full Tech Specs
-- Migration: 20260610_products_full_specs
-- ========================================================

-- 1. ENUMS
```

```
CREATE TYPE component_category AS ENUM (
  'CPU', 'GPU', 'MAINBOARD', 'RAM', 'PSU', 'CASE', 'COOLER', 'SSD', 'HDD'
);

CREATE TYPE socket_type AS ENUM (
  'LGA1700', 'LGA1851', 'LGA1200', 'LGA1151', 'AM5', 'AM4', 'sTR5', 'sTRX4'
);

CREATE TYPE form_factor_type AS ENUM (
  'ATX', 'mATX', 'ITX', 'eATX', 'Mini-ITX', 'XL-ATX'
);

CREATE TYPE ddr_type AS ENUM ('DDR4', 'DDR5');

CREATE TYPE psu_efficiency AS ENUM (
  '80plus_white', '80plus_bronze', '80plus_silver',
  '80plus_gold', '80plus_platinum', '80plus_titanium'
);

CREATE TYPE psu_modular AS ENUM ('non_modular', 'semi_modular', 'full_modular');

CREATE TYPE cooler_type AS ENUM ('air', 'aio', 'custom_loop');

CREATE TYPE storage_interface AS ENUM (
  'm2_nvme', 'm2_sata', 'sata_ssd', 'sata_hdd'
);

CREATE TYPE pcie_gen AS ENUM ('3.0', '4.0', '5.0');

-- 2. DROP EXISTING products table if present
DROP TABLE IF EXISTS public.products CASCADE;

-- 3. MAIN PRODUCTS TABLE
CREATE TABLE public.products (
  id            UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  category      component_category NOT NULL,
  brand         TEXT NOT NULL,
  model         TEXT NOT NULL,
  full_name     TEXT NOT NULL,           -- e.g. "Intel Core i5-13600K"
  release_year  SMALLINT,
  image_url     TEXT,                    -- real photo URL
  image_angles  JSONB DEFAULT '[]'::jsonb, -- ["top.jpg", "bottom.jpg", "side.jpg"]
  video_url     TEXT,                    -- 10s installation video
  price_vnd     BIGINT,                  -- base price in VND
  created_at    TIMESTAMPTZ DEFAULT now(),
  updated_at    TIMESTAMPTZ DEFAULT now(),

  -- CPU-specific
  cpu_socket      socket_type,
  cpu_tdp_watts   SMALLINT,
  cpu_cores       SMALLINT,
  cpu_threads     SMALLINT,
  cpu_base_ghz    NUMERIC(4,1),
  cpu_boost_ghz   NUMERIC(4,1),
  cpu_l3_cache_mb NUMERIC(4,1),
  cpu_has_igpu    BOOLEAN DEFAULT false,
  cpu_igpu_model  TEXT,
  cpu_ram_type    ddr_type,             -- what RAM the memory controller supports
  cpu_max_ram_mhz SMALLINT,
  cpu_generation  TEXT,                 -- "Raptor Lake", "Zen 4", etc.
  cpu_cinebench_r23_single INT,         -- benchmark score
  cpu_cinebench_r23_multi  INT,

  -- GPU-specific
  gpu_vram_gb         NUMERIC(3,1),
  gpu_tdp_watts       SMALLINT,
  gpu_pcie_gen        pcie_gen,
  gpu_length_mm       SMALLINT,          -- critical for case compatibility
  gpu_width_mm        SMALLINT,
  gpu_height_mm       SMALLINT,
  gpu_power_connectors JSONB DEFAULT '[]'::jsonb, -- [{"type":"8pin","qty":2}]
  gpu_benchmark_1080p INT,               -- relative performance score
  gpu_display_outputs JSONB DEFAULT '[]'::jsonb, -- ["HDMI 2.1","DP 1.4a"]
  gpu_recommended_psu SMALLINT,          -- minimum PSU wattage recommended

  -- Mainboard-specific
  mb_socket           socket_type,
  mb_chipset          TEXT,
  mb_form_factor      form_factor_type,
  mb_ram_slots        SMALLINT,
  mb_max_ram_gb       SMALLINT,
  mb_ram_type         ddr_type,
  mb_max_ram_mhz      SMALLINT,
  mb_m2_slots         SMALLINT,
  mb_m2_pcie_gens     JSONB DEFAULT '[]'::jsonb, -- ["4.0","5.0"]
  mb_pcie_x16_slots   SMALLINT,
  mb_pcie_x16_gens    JSONB DEFAULT '[]'::jsonb,
  mb_sata_ports       SMALLINT,
  mb_has_wifi         BOOLEAN DEFAULT false,
  mb_wifi_version     TEXT,
  mb_usb_ports        JSONB DEFAULT '[]'::jsonb, -- [{"type":"USB 3.2 Gen2","qty":4}]
  mb_front_panel_headers JSONB DEFAULT '[]'::jsonb, -- [{type:"USB 3.0",pin:19}]

  -- PSU-specific
  psu_wattage         SMALLINT,
  psu_efficiency      psu_efficiency,
  psu_modular         psu_modular,
  psu_connectors      JSONB DEFAULT '[]'::jsonb, -- [{type:"PCIe 8-pin",qty:4},{type:"SATA",qty:8}]
  psu_has_12vhpwr     BOOLEAN DEFAULT false,
  psu_length_mm       SMALLINT,
  psu_fan_size_mm     SMALLINT,

  -- Case-specific
  case_supported_forms JSONB DEFAULT '[]'::jsonb, -- ["ATX","mATX","ITX"]
  case_max_gpu_length_mm  SMALLINT,
  case_max_cooler_height_mm SMALLINT,
  case_max_psu_length_mm  SMALLINT,
  case_drive_bays      JSONB DEFAULT '[]'::jsonb, -- [{type:"3.5",qty:2},{type:"2.5",qty:4}]
  case_fan_slots       JSONB DEFAULT '[]'::jsonb, -- [{size:120,qty:3,type:"intake"},{size:120,qty:1,type:"exh...
  case_supports_aio    JSONB DEFAULT '[]'::jsonb, -- [240,280,360]
  case_mesh_front      BOOLEAN DEFAULT false,
  case_has_cable_management BOOLEAN DEFAULT true,
  case_side_panel      TEXT,             -- "glass", "mesh", "solid", "acrylic"
  case_weight_kg       NUMERIC(4,1),

  -- Cooler-specific
  cooler_max_tdp_support SMALLINT,
  cooler_height_mm       SMALLINT,
  cooler_supported_sockets JSONB DEFAULT '[]'::jsonb, -- ["LGA1700","AM5"]
  cooler_type            cooler_type,
  cooler_aio_size_mm     SMALLINT,      -- 120/240/280/360 if AIO
  cooler_fan_rpm_max     SMALLINT,
  cooler_fan_noise_dba   NUMERIC(3,1),
  cooler_fan_qty         SMALLINT,
```

```
  cooler_has_rgb         BOOLEAN DEFAULT false,

  -- RAM-specific
  ram_ddr_type      ddr_type,
  ram_speed_mhz     SMALLINT,
  ram_cl_latency    SMALLINT,            -- CAS latency
  ram_capacity_gb   SMALLINT,
  ram_kit_count     SMALLINT DEFAULT 1,  -- 1/2/4 sticks in package
  ram_has_xmp       BOOLEAN DEFAULT false,
  ram_has_expo      BOOLEAN DEFAULT false,
  ram_voltage_v     NUMERIC(3,2),
  ram_height_mm     SMALLINT,           -- for cooler clearance

  -- SSD-specific
  ssd_interface      storage_interface,
  ssd_pcie_gen       pcie_gen,
  ssd_read_mbps      INT,
  ssd_write_mbps     INT,
  ssd_has_dram_cache BOOLEAN DEFAULT false,
  ssd_capacity_gb    INT,
  ssd_form_factor    TEXT,              -- "M.2 2280", "2.5 inch", "U.2"
  ssd_nand_type      TEXT,              -- "TLC", "QLC", "MLC", "SLC"
  ssd_tbw            INT,               -- Terabytes Written endurance
  ssd_max_seq_read   INT,
  ssd_max_seq_write  INT,
  ssd_max_rand_read  INT,
  ssd_max_rand_write INT,

  -- HDD-specific
  hdd_capacity_gb  INT,
  hdd_rpm          SMALLINT,             -- 5400/7200/10000
  hdd_cache_mb     SMALLINT,
  hdd_form_factor  TEXT,                 -- "3.5 inch", "2.5 inch"
  hdd_read_mbps    INT,
  hdd_write_mbps   INT,

  CONSTRAINT unique_product UNIQUE (category, brand, model)
);

-- 4. INDEXES
CREATE INDEX idx_products_category ON public.products(category);
CREATE INDEX idx_products_socket ON public.products(cpu_socket);
CREATE INDEX idx_products_mb_socket ON public.products(mb_socket);
CREATE INDEX idx_products_form_factor ON public.products(mb_form_factor);
CREATE INDEX idx_products_ram_type ON public.products(ram_ddr_type);
CREATE INDEX idx_products_case_forms ON public.products USING gin(case_supported_forms);

-- 5. RLS
ALTER TABLE public.products ENABLE ROW LEVEL SECURITY;

CREATE POLICY "Products are viewable by everyone"
  ON public.products FOR SELECT
  USING (true);

CREATE POLICY "Products are insertable by admin only"
  ON public.products FOR INSERT
  WITH CHECK (
    auth.uid() IN (SELECT id FROM public.profiles WHERE role = 'admin')
  );

CREATE POLICY "Products are updatable by admin only"
  ON public.products FOR UPDATE
  USING (auth.uid() IN (SELECT id FROM public.profiles WHERE role = 'admin'));

-- 6. TRIGGER: auto-update updated_at
CREATE OR REPLACE FUNCTION update_products_updated_at()
RETURNS TRIGGER AS $$
BEGIN
  NEW.updated_at = now();
  RETURN NEW;
END;
$$ LANGUAGE plpgsql;

DROP TRIGGER IF EXISTS trg_products_updated_at ON public.products;
CREATE TRIGGER trg_products_updated_at
  BEFORE UPDATE ON public.products
  FOR EACH ROW EXECUTE FUNCTION update_products_updated_at();

-- 7. COMPATIBILITY CHECK FUNCTION
-- Returns compatibility issues between components in a build
CREATE OR REPLACE FUNCTION check_build_compatibility(
  p_cpu_id      UUID,
  p_mb_id       UUID,
  p_gpu_id      UUID DEFAULT NULL,
  p_ram_ids     UUID[] DEFAULT '{}',
  p_psu_id      UUID DEFAULT NULL,
  p_case_id     UUID DEFAULT NULL,
  p_cooler_id   UUID DEFAULT NULL,
  p_ssd_ids     UUID[] DEFAULT '{}'
)
RETURNS TABLE(
  severity   TEXT,
  check_type TEXT,
  message    TEXT,
  fix        TEXT
) LANGUAGE plpgsql STABLE AS $$
DECLARE
  cpu      RECORD;
  mb       RECORD;
  gpu      RECORD;
  psu      RECORD;
  case_rec RECORD;
  cooler   RECORD;
  total_tdp INT := 0;
  total_components INT;
  gpu_length INT;
  cooler_height INT;
  wattage_available INT;
BEGIN
  -- Fetch CPU
  SELECT * INTO cpu FROM products WHERE id = p_cpu_id AND category = 'CPU';
  IF NOT FOUND THEN RETURN; END IF;

  -- Fetch Mainboard
  SELECT * INTO mb FROM products WHERE id = p_mb_id AND category = 'MAINBOARD';
  IF NOT FOUND THEN RETURN; END IF;

  -- 1. Socket check
  IF cpu.cpu_socket IS DISTINCT FROM mb.mb_socket THEN
    RETURN QUERY SELECT
      'error'::TEXT,
      'socket_mismatch'::TEXT,
      format('CPU %s (socket %s) không tương thích với Mainboard %s (soc
            cpu.full_name, cpu.cpu_socket, mb.full_name, mb.mb_socket),
```

```
  2 5 5 |             f o r m a t ( ' C h Í n   M a i n b o a r d   s o c k e t   % s   h o · c   C P U   s o c k e t   % s ' ,   c p u . c p u _ s o c k
256|   END IF;
257|
258|   -- 2. RAM type check
259|   IF cpu.cpu_ram_type IS DISTINCT FROM mb.mb_ram_type THEN
260|     RETURN QUERY SELECT
261|       'error'::TEXT,
262|       'ram_type_mismatch'::TEXT,
  2 6 3 |               f o r m a t ( ' C P U   h ×   t r ã   % s   n h ° n g   M a i n b o a r d   c h É   h ×   t r ã   % s ' ,
264|           cpu.cpu_ram_type, mb.mb_ram_type),
  2 6 5 |             f o r m a t ( ' C h Í n   C P U   % s   h o · c   M a i n b o a r d   % s   p h ù   h ã p ' ,   m b . m b _ r a m _ t y p e ,   c p
266|   END IF;
267|
268|   -- 3. GPU checks
269|   IF p_gpu_id IS NOT NULL THEN
270|     SELECT * INTO gpu FROM products WHERE id = p_gpu_id AND category = 'GPU';
271|     IF FOUND THEN
272|       total_tdp := total_tdp + COALESCE(gpu.gpu_tdp_watts, 0);
273|       gpu_length := gpu.gpu_length_mm;
274|
275|       -- GPU length vs Case
276|       IF p_case_id IS NOT NULL THEN
277|         SELECT * INTO case_rec FROM products WHERE id = p_case_id AND category = 'CASE';
278|         IF FOUND AND gpu_length > case_rec.case_max_gpu_length_mm THEN
279|           RETURN QUERY SELECT 'error'::TEXT, 'gpu_too_long'::TEXT,
  2 8 0 |                         f o r m a t ( ' G P U   % s   ( d à i   % d m m )   q u á   d à i   s o   v Û i   C a s e   % s   ( h ×   t r ã   t Ñ i
281|                 gpu.full_name, gpu_length, case_rec.full_name, case_rec.case_max_gpu_length_mm),
  2 8 2 |                         f o r m a t ( ' C h Í n   G P U   n g ¯ n   h ¡ n   % d m m   h o · c   C a s e   h ×   t r ã   G P U   d à i   h ¡ n '
283|         END IF;
284|       END IF;
285|     END IF;
286|   END IF;
287|
288|   -- 4. PSU check
289|   total_tdp := total_tdp + COALESCE(cpu.cpu_tdp_watts, 0);
290|
291|   IF p_psu_id IS NOT NULL THEN
292|     SELECT * INTO psu FROM products WHERE id = p_psu_id AND category = 'PSU';
293|     IF FOUND THEN
294|       wattage_available := psu.psu_wattage * 0.8;
295|       IF total_tdp > wattage_available THEN
296|         RETURN QUERY SELECT 'error'::TEXT, 'psu_insufficient'::TEXT,
  2 9 7 |                     f o r m a t ( ' T Ô n g   T D P   ° Û c   t í n h   % d W   v ° ã t   q u á   8 0 % %   c ô n g   s u ¥ t   P S U   ( % d W
298|               total_tdp, psu.psu_wattage),
  2 9 9 |                     f o r m a t ( ' N â n g   P S U   l ê n   í t   n h ¥ t   % d W   h o · c   g i £ m   T D P   b u i l d ' ,   ( t o t a l _
300|       END IF;
301|     END IF;
302|   END IF;
303|
304|   -- 5. Cooler check
305|   IF p_cooler_id IS NOT NULL THEN
306|     SELECT * INTO cooler FROM products WHERE id = p_cooler_id AND category = 'COOLER';
307|     IF FOUND THEN
308|       cooler_height := cooler.cooler_height_mm;
309|
310|       IF cpu.cpu_tdp_watts > cooler.cooler_max_tdp_support * 0.9 THEN
311|         RETURN QUERY SELECT 'warning'::TEXT, 'cooler_insufficient'::TEXT,
  3 1 2 |                     f o r m a t ( ' C P U   T D P   % d W   g § n   ¡ t   g i Û i   h ¡ n   t £ n   n h i Ç t   c ç a   C o o l e r   % s   (
313|               cpu.cpu_tdp_watts, cooler.full_name, cooler.cooler_max_tdp_support),
  3 1 4 |                     f o r m a t ( ' C â n   n h ¯ c   n â n g   c o o l e r   l ê n   A I O   h o · c   c o o l e r   k h í   h i Ç u   n g
315|       END IF;
316|
317|       -- Cooler height vs Case
318|       IF p_case_id IS NOT NULL AND case_rec.id IS NOT NULL THEN
319|         IF cooler_height > case_rec.case_max_cooler_height_mm THEN
320|           RETURN QUERY SELECT 'error'::TEXT, 'cooler_too_tall'::TEXT,
  3 2 1 |                         f o r m a t ( ' C o o l e r   % s   ( c a o   % d m m )   q u á   c a o   c h o   C a s e   % s   ( h ×   t r ã   t Ñ i
322|                 cooler.full_name, cooler_height, case_rec.full_name, case_rec.case_max_cooler_height_mm),
  3 2 3 |                         f o r m a t ( ' C h Í n   c o o l e r   t h ¥ p   h ¡ n   % d m m   h o · c   C a s e   r Ù n g   h ¡ n ' ,   c a s e _
324|         END IF;
325|       END IF;
326|
327|       -- Cooler socket vs CPU socket
328|       IF NOT cooler.cooler_supported_sockets @> to_jsonb(cpu.cpu_socket::TEXT) THEN
329|         RETURN QUERY SELECT 'error'::TEXT, 'cooler_socket_mismatch'::TEXT,
  3 3 0 |                     f o r m a t ( ' C o o l e r   % s   k h ô n g   h ×   t r ã   s o c k e t   % s ' ,   c o o l e r . f u l l _ n a m e ,   c
  3 3 1 |                     f o r m a t ( ' C h Í n   c o o l e r   h ×   t r ã   s o c k e t   % s ' ,   c p u . c p u _ s o c k e t ) ;
332|       END IF;
333|     END IF;
334|   END IF;
335|
336|   -- 6. Mainboard form factor vs Case
337|   IF p_case_id IS NOT NULL AND case_rec.id IS NOT NULL THEN
338|     IF NOT case_rec.case_supported_forms @> to_jsonb(mb.mb_form_factor::TEXT) THEN
339|       RETURN QUERY SELECT 'error'::TEXT, 'form_factor_mismatch'::TEXT,
  3 4 0 |                 f o r m a t ( ' M a i n b o a r d   % s   ( f o r m   f a c t o r   % s )   k h ô n g   v ë a   C a s e   % s   ( h ×   t r ã
341|               mb.full_name, mb.mb_form_factor, case_rec.full_name,
342|               (SELECT string_agg(elem::TEXT, ', ') FROM jsonb_array_elements_text(case_rec.case_supported_for...
  3 4 3 |                 f o r m a t ( ' C h Í n   M a i n b o a r d   % s   h o · c   C a s e   h ×   t r ã   % s ' ,   c a s e _ r e c . c a s e _ s u
344|     END IF;
345|   END IF;
346|
347|   -- 7. No iGPU + No GPU warning
348|   IF NOT cpu.cpu_has_igpu AND p_gpu_id IS NULL THEN
349|     RETURN QUERY SELECT 'warning'::TEXT, 'no_display_output'::TEXT,
  3 5 0 |             ' C P U   k h ô n g   c ó   i G P U   v à   c h ° a   c h Í n   G P U   r Ý i   –   s ½   k h ô n g   c ó   h ì n h   £ n h   § u
  3 5 1 |             ' T h ê m   G P U   r Ý i   h o · c   c h Í n   C P U   c ó   i G P U   ( d ò n g   I n t e l   n o n - F ) ' ;
352|   END IF;
353|
354|   -- 8. RAM check
355|   IF array_length(p_ram_ids, 1) > 0 THEN
356|     IF array_length(p_ram_ids, 1) > mb.mb_ram_slots THEN
357|       RETURN QUERY SELECT 'error'::TEXT, 'too_many_ram'::TEXT,
  3 5 8 |                 f o r m a t ( ' S Ñ   t h a n h   R A M   ( % d )   v ° ã t   q u á   s Ñ   s l o t   c ç a   M a i n b o a r d   ( % d ) ' ,
359|               array_length(p_ram_ids, 1), mb.mb_ram_slots),
  3 6 0 |                 f o r m a t ( ' G i £ m   s Ñ   t h a n h   R A M   x u Ñ n g   c ò n   % d   h o · c   n â n g   M a i n b o a r d ' ,   m b .
361|     END IF;
362|   END IF;
363|
364|   -- 9. SSD M.2 check
365|   IF array_length(p_ssd_ids, 1) > 0 THEN
366|     total_components := (
367|       SELECT COUNT(*) FROM products WHERE id = ANY(p_ssd_ids)
368|     );
369|     IF total_components > mb.mb_m2_slots THEN
370|       RETURN QUERY SELECT 'warning'::TEXT, 'not_enough_m2_slots'::TEXT,
  3 7 1 |                 f o r m a t ( ' S Ñ   l ° ã n g   S S D   M . 2   ( % d )   v ° ã t   q u á   s Ñ   s l o t   M . 2   c ç a   M a i n b o a r d
372|               total_components, mb.mb_m2_slots),
  3 7 3 |                 f o r m a t ( ' G i £ m   S S D   M . 2   h o · c   d ù n g   S S D   S A T A   c h o   c á c   Õ   c ò n   l ¡ i ' ) ;
374|     END IF;
375|   END IF;
376| END;
377| $$;
378|
```

File: database/20260610_saved_builds.sql (147 lines, 6.5 KB)

```
-- Saved Builds table (Idea #2 + #7)
CREATE TABLE IF NOT EXISTS public.saved_builds (
  id             UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  user_id        UUID NOT NULL REFERENCES auth.users(id) ON DELETE CASCADE,
  name                          TEXT NOT NULL DEFAULT 'Build mÛi',
  cpu_id         UUID REFERENCES public.products(id) ON DELETE SET NULL,
  gpu_id         UUID REFERENCES public.products(id) ON DELETE SET NULL,
  mainboard_id   UUID REFERENCES public.products(id) ON DELETE SET NULL,
  ram_ids        UUID[] DEFAULT '{}',
  psu_id         UUID REFERENCES public.products(id) ON DELETE SET NULL,
  case_id        UUID REFERENCES public.products(id) ON DELETE SET NULL,
  cooler_id      UUID REFERENCES public.products(id) ON DELETE SET NULL,
  ssd_ids        UUID[] DEFAULT '{}',
  compatibility_score INT DEFAULT 0,
  total_tdp      INT DEFAULT 0,
  total_price    BIGINT DEFAULT 0,
  is_public      BOOLEAN DEFAULT false,
  created_at     TIMESTAMPTZ DEFAULT now(),
  updated_at     TIMESTAMPTZ DEFAULT now()
);

CREATE INDEX idx_saved_builds_user ON public.saved_builds(user_id);
CREATE INDEX idx_saved_builds_public ON public.saved_builds(is_public);

ALTER TABLE public.saved_builds ENABLE ROW LEVEL SECURITY;

CREATE POLICY "Users can view own builds"
  ON public.saved_builds FOR SELECT USING (auth.uid() = user_id OR is_public = true);

CREATE POLICY "Users can insert own builds"
  ON public.saved_builds FOR INSERT WITH CHECK (auth.uid() = user_id);

CREATE POLICY "Users can update own builds"
  ON public.saved_builds FOR UPDATE USING (auth.uid() = user_id);

CREATE POLICY "Users can delete own builds"
  ON public.saved_builds FOR DELETE USING (auth.uid() = user_id);

-- Build Scenarios table (Idea #7)
CREATE TABLE IF NOT EXISTS public.build_scenarios (
  id                 UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  name               TEXT NOT NULL,
  name_vn            TEXT NOT NULL,
  description        TEXT NOT NULL,
  description_vn     TEXT NOT NULL,
  icon                                TEXT DEFAULT 'Ø=Ý¥þ',
  difficulty         TEXT NOT NULL CHECK (difficulty IN ('easy','medium','hard','expert')),
  budget_min         BIGINT DEFAULT 0,
  budget_max         BIGINT DEFAULT 999999999,
  requirements       JSONB DEFAULT '{}'::jsonb,
  weight_components  JSONB DEFAULT '{}'::jsonb,
  created_at         TIMESTAMPTZ DEFAULT now()
);

ALTER TABLE public.build_scenarios ENABLE ROW LEVEL SECURITY;
CREATE POLICY "Scenarios viewable by all" ON public.build_scenarios FOR SELECT USING (true);

-- Scenario scoring table
CREATE TABLE IF NOT EXISTS public.build_scores (
  id             UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  build_id       UUID REFERENCES public.saved_builds(id) ON DELETE CASCADE,
  scenario_id    UUID REFERENCES public.build_scenarios(id) ON DELETE CASCADE,
  user_id        UUID REFERENCES auth.users(id) ON DELETE CASCADE,
  score          INT NOT NULL,
  rank           INT,
  created_at     TIMESTAMPTZ DEFAULT now(),
  UNIQUE(build_id, scenario_id)
);

ALTER TABLE public.build_scores ENABLE ROW LEVEL SECURITY;
CREATE POLICY "Scores viewable by all" ON public.build_scores FOR SELECT USING (true);
CREATE POLICY "Users can insert own scores" ON public.build_scores FOR INSERT WITH CHECK (auth.uid() = user_id);

-- Cable Management scores (Idea #3)
CREATE TABLE IF NOT EXISTS public.cable_management_scores (
  id             UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  user_id        UUID REFERENCES auth.users(id) ON DELETE CASCADE,
  score          INT NOT NULL,
  time_seconds   INT,
  cables_used    INT,
  difficulty     TEXT,
  created_at     TIMESTAMPTZ DEFAULT now()
);

ALTER TABLE public.cable_management_scores ENABLE ROW LEVEL SECURITY;
CREATE POLICY "Cable scores viewable by all" ON public.cable_management_scores FOR SELECT USING (true);
CREATE POLICY "Users can insert own cable scores" ON public.cable_management_scores FOR INSERT WITH CHECK (aut...

-- OS Installation progress (Idea #4)
CREATE TABLE IF NOT EXISTS public.os_installation_progress (
  id             UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  user_id        UUID REFERENCES auth.users(id) ON DELETE CASCADE,
  step           INT DEFAULT 0,
  completed      BOOLEAN DEFAULT false,
  time_seconds   INT,
  errors_count   INT DEFAULT 0,
  created_at     TIMESTAMPTZ DEFAULT now(),
  updated_at     TIMESTAMPTZ DEFAULT now()
);

ALTER TABLE public.os_installation_progress ENABLE ROW LEVEL SECURITY;
CREATE POLICY "OS progress viewable by owner" ON public.os_installation_progress FOR SELECT USING (auth.uid() ...
CREATE POLICY "Users can insert own OS progress" ON public.os_installation_progress FOR INSERT WITH CHECK (aut...
CREATE POLICY "Users can update own OS progress" ON public.os_installation_progress FOR UPDATE USING (auth.uid...

-- PC Diagnosis scenarios (Idea #6)
CREATE TABLE IF NOT EXISTS public.diagnosis_scenarios (
  id             UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  title          TEXT NOT NULL,
  title_vn       TEXT NOT NULL,
  description    TEXT NOT NULL,
  description_vn TEXT NOT NULL,
  symptoms       TEXT[] DEFAULT '{}',
  symptoms_vn    TEXT[] DEFAULT '{}',
  correct_answer TEXT NOT NULL,
  hints          TEXT[] DEFAULT '{}',
  hints_vn       TEXT[] DEFAULT '{}',
  difficulty     TEXT NOT NULL CHECK (difficulty IN ('easy','medium','hard')),
  icon                                TEXT DEFAULT 'Ø=Ý' ',
  created_at     TIMESTAMPTZ DEFAULT now()
```

```
);

ALTER TABLE public.diagnosis_scenarios ENABLE ROW LEVEL SECURITY;
CREATE POLICY "Diagnosis viewable by all" ON public.diagnosis_scenarios FOR SELECT USING (true);

-- Thermal simulation data (Idea #5)
CREATE TABLE IF NOT EXISTS public.thermal_profiles (
  id              UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  component_type  TEXT NOT NULL,
  max_temp_c      INT NOT NULL,
  idle_temp_c     INT NOT NULL,
  load_temp_c     INT NOT NULL,
  color_hex       TEXT DEFAULT '#ff4444',
  created_at      TIMESTAMPTZ DEFAULT now()
);

ALTER TABLE public.thermal_profiles ENABLE ROW LEVEL SECURITY;
CREATE POLICY "Thermal profiles viewable by all" ON public.thermal_profiles FOR SELECT USING (true);

INSERT INTO public.thermal_profiles (component_type, max_temp_c, idle_temp_c, load_temp_c, color_hex) VALUES
('CPU', 100, 40, 85, '#ff4444'),
('GPU', 85, 35, 78, '#ff6600'),
('RAM', 85, 30, 55, '#ffaa00'),
('SSD', 70, 28, 55, '#ffcc00'),
('PSU', 80, 30, 65, '#ff8800'),
('CASE', 50, 25, 40, '#44aaff');

```

File: database/20260610_seed_products.sql (99 lines, 14.7 KB)

```
-- ========================================================
-- PC Master Builder — Seed Data: Real Components (2026)
-- Migration: 20260610_seed_products
-- ========================================================

INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, cpu_socket, cpu_tdp_w...
-- Intel 14th Gen
('CPU', 'Intel', 'i5-14600K', 'Intel Core i5-14600K', 2024, 8490000, 'LGA1700', 125, 14, 20, 3.5, 5.3, 24.0, t...
('CPU', 'Intel', 'i5-14600KF', 'Intel Core i5-14600KF', 2024, 7990000, 'LGA1700', 125, 14, 20, 3.5, 5.3, 24.0,...
('CPU', 'Intel', 'i7-14700K', 'Intel Core i7-14700K', 2024, 12990000, 'LGA1700', 125, 20, 28, 3.4, 5.6, 33.0, ...
('CPU', 'Intel', 'i9-14900K', 'Intel Core i9-14900K', 2024, 16990000, 'LGA1700', 125, 24, 32, 3.2, 6.0, 36.0, ...
-- Intel 13th Gen
('CPU', 'Intel', 'i3-13100F', 'Intel Core i3-13100F', 2023, 2750000, 'LGA1700', 58, 4, 8, 3.4, 4.5, 12.0, fals...
('CPU', 'Intel', 'i5-13600K', 'Intel Core i5-13600K', 2022, 7490000, 'LGA1700', 125, 14, 20, 3.5, 5.1, 24.0, t...
-- AMD Ryzen 7000
('CPU', 'AMD', 'R5-7600', 'AMD Ryzen 5 7600', 2023, 6500000, 'AM5', 65, 6, 12, 3.8, 5.1, 32.0, true, 'DDR5', 5...
('CPU', 'AMD', 'R5-7600X', 'AMD Ryzen 5 7600X', 2022, 7100000, 'AM5', 105, 6, 12, 4.7, 5.3, 32.0, true, 'DDR5'...
('CPU', 'AMD', 'R7-7800X3D', 'AMD Ryzen 7 7800X3D', 2023, 11800000, 'AM5', 120, 8, 16, 4.2, 5.0, 96.0, true, '...
('CPU', 'AMD', 'R9-7950X', 'AMD Ryzen 9 7950X', 2022, 17600000, 'AM5', 170, 16, 32, 4.5, 5.7, 64.0, true, 'DDR...
-- AMD Ryzen 5000
('CPU', 'AMD', 'R5-5600', 'AMD Ryzen 5 5600', 2022, 3300000, 'AM4', 65, 6, 12, 3.5, 4.4, 32.0, false, 'DDR4', ...
('CPU', 'AMD', 'R7-5800X3D', 'AMD Ryzen 7 5800X3D', 2022, 8100000, 'AM4', 105, 8, 16, 3.4, 4.5, 96.0, false, '...

-- GPUs
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, gpu_vram_gb, gpu_tdp_...
('GPU', 'NVIDIA', 'RTX 4060', 'NVIDIA GeForce RTX 4060', 2023, 8200000, 8, 115, '4.0', 200, 18000, 550, '["HDM...
('GPU', 'NVIDIA', 'RTX 4060 Ti 8GB', 'NVIDIA GeForce RTX 4060 Ti 8GB', 2023, 11000000, 8, 160, '4.0', 240, 200...
('GPU', 'NVIDIA', 'RTX 4060 Ti 16GB', 'NVIDIA GeForce RTX 4060 Ti 16GB', 2024, 13500000, 16, 160, '4.0', 240, ...
('GPU', 'NVIDIA', 'RTX 4070 Super', 'NVIDIA GeForce RTX 4070 Super', 2024, 15500000, 12, 220, '4.0', 260, 2600...
('GPU', 'NVIDIA', 'RTX 4070 Ti Super', 'NVIDIA GeForce RTX 4070 Ti Super', 2024, 19000000, 16, 285, '4.0', 285...
('GPU', 'NVIDIA', 'RTX 4080 Super', 'NVIDIA GeForce RTX 4080 Super', 2024, 28000000, 16, 320, '4.0', 310, 3500...
('GPU', 'NVIDIA', 'RTX 4090', 'NVIDIA GeForce RTX 4090', 2022, 42000000, 24, 450, '4.0', 357, 52000, 850, '["H...
('GPU', 'AMD', 'RX 7600', 'AMD Radeon RX 7600', 2023, 6500000, 8, 165, '4.0', 204, 14000, 550, '["HDMI 2.1","D...
('GPU', 'AMD', 'RX 7700 XT', 'AMD Radeon RX 7700 XT', 2023, 9500000, 12, 245, '4.0', 267, 18000, 650, '["HDMI ...
('GPU', 'AMD', 'RX 7800 XT', 'AMD Radeon RX 7800 XT', 2023, 12500000, 16, 263, '4.0', 267, 21500, 700, '["HDMI...
('GPU', 'NVIDIA', 'GTX 1650', 'NVIDIA GeForce GTX 1650', 2019, 2500000, 4, 75, '3.0', 170, 6000, 300, '["HDMI"...

-- Mainboards / ATX / LGA1700
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, mb_socket, mb_chipset...
('MAINBOARD', 'ASUS', 'TUF GAMING Z790-PLUS', 'ASUS TUF Gaming Z790-PLUS WiFi', 2023, 6500000, 'LGA1700', 'Z79...
('MAINBOARD', 'MSI', 'PRO Z790-A MAX', 'MSI PRO Z790-A MAX WiFi', 2024, 5800000, 'LGA1700', 'Z790', 'ATX', 4, ...
('MAINBOARD', 'Gigabyte', 'B760M DS3H', 'Gigabyte B760M DS3H WiFi', 2024, 3200000, 'LGA1700', 'B760', 'mATX', ...
('MAINBOARD', 'ASUS', 'PRIME B760M-A', 'ASUS Prime B760M-A WiFi', 2024, 2800000, 'LGA1700', 'B760', 'mATX', 2,...
-- AM5
('MAINBOARD', 'ASUS', 'TUF GAMING B650-PLUS', 'ASUS TUF Gaming B650-PLUS WiFi', 2023, 5200000, 'AM5', 'B650', ...
('MAINBOARD', 'MSI', 'MAG X670E TOMAHAWK', 'MSI MAG X670E Tomahawk WiFi', 2023, 7500000, 'AM5', 'X670E', 'ATX'...
-- AM4
('MAINBOARD', 'ASUS', 'TUF GAMING B550M', 'ASUS TUF Gaming B550M WiFi', 2022, 2800000, 'AM4', 'B550', 'mATX', ...

-- RAM DDR5
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, ram_ddr_type, ram_spe...
('RAM', 'Kingston', 'KF560C36-16', 'Kingston Fury Beast 16GB DDR5-6000', 2023, 1200000, 'DDR5', 6000, 36, 16, ...
('RAM', 'Kingston', 'KF560C36-32', 'Kingston Fury Beast 32GB (2x16) DDR5-6000', 2023, 2200000, 'DDR5', 6000, 3...
('RAM', 'G.Skill', 'F5-6000J3636F16G', 'G.Skill Trident Z5 32GB (2x16) DDR5-6000 CL36', 2023, 2500000, 'DDR5',...
('RAM', 'Corsair', 'CMK32GX5M2B6000C36', 'Corsair Vengeance 32GB (2x16) DDR5-6000', 2023, 2400000, 'DDR5', 600...
('RAM', 'G.Skill', 'F5-6000J3040G32G', 'G.Skill Trident Z5 Neo 64GB (2x32) DDR5-6000 CL30', 2024, 4800000, 'DD...
('RAM', 'Kingston', 'KF560C30-64', 'Kingston Fury Beast 64GB (2x32) DDR5-6000', 2024, 4500000, 'DDR5', 6000, 3...

-- RAM DDR4
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, ram_ddr_type, ram_spe...
('RAM', 'Kingston', 'KF432C16-8', 'Kingston Fury Beast 8GB DDR4-3200', 2022, 400000, 'DDR4', 3200, 16, 8, 1, t...
('RAM', 'Kingston', 'KF432C16-16', 'Kingston Fury Beast 16GB DDR4-3200', 2022, 700000, 'DDR4', 3200, 16, 16, 1...
('RAM', 'G.Skill', 'F4-3600C18D-32', 'G.Skill Ripjaws V 32GB (2x16) DDR4-3600', 2022, 1350000, 'DDR4', 3600, 1...

-- PSU
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, psu_wattage, psu_effi...
('PSU', 'Corsair', 'CX550', 'Corsair CX550 550W 80+ Bronze', 2022, 1200000, 550, '80plus_bronze', 'semi_modula...
('PSU', 'Corsair', 'RM650', 'Corsair RM650 650W 80+ Gold', 2023, 2200000, 650, '80plus_gold', 'full_modular', ...
('PSU', 'Corsair', 'RM750', 'Corsair RM750 750W 80+ Gold', 2023, 2600000, 750, '80plus_gold', 'full_modular', ...
('PSU', 'Corsair', 'RM850', 'Corsair RM850 850W 80+ Gold', 2023, 3100000, 850, '80plus_gold', 'full_modular', ...
('PSU', 'Corsair', 'RM1000x', 'Corsair RM1000x 1000W 80+ Gold', 2024, 4200000, 1000, '80plus_gold', 'full_modu...
('PSU', 'FSP', 'VITA GM 750', 'FSP VITA GM 750W 80+ Gold', 2024, 1750000, 750, '80plus_gold', 'full_modular', ...

-- Cases
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, case_supported_forms,...
('CASE', 'NZXT', 'H5 Flow', 'NZXT H5 Flow (2024)', 2024, 2200000, '["ATX","mATX","ITX"]'::jsonb, 365, 165, 200...
('CASE', 'Corsair', '4000D Airflow', 'Corsair 4000D Airflow', 2022, 2400000, '["ATX","mATX","ITX"]'::jsonb, 36...
('CASE', 'Lian Li', 'LANCOOL 216', 'Lian Li LANCOOL 216', 2023, 2600000, '["ATX","mATX","ITX"]'::jsonb, 392, 1...
('CASE', 'Fractal', 'Pop Air', 'Fractal Design Pop Air', 2023, 1900000, '["ATX","mATX","ITX"]'::jsonb, 405, 17...
('CASE', 'Cooler Master', 'MasterBox Q300L', 'Cooler Master MasterBox Q300L', 2020, 900000, '["mATX","ITX"]'::...

-- Coolers
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, cooler_max_tdp_suppor...
('COOLER', 'Cooler Master', 'Hyper 212', 'Cooler Master Hyper 212 Black', 2022, 650000, 150, 152, '["LGA1700",...
('COOLER', 'Noctua', 'NH-D15', 'Noctua NH-D15', 2020, 1850000, 250, 165, '["LGA1700","LGA1200","LGA1151","AM5"...
('COOLER', 'Deepcool', 'AK400', 'Deepcool AK400 Black', 2023, 550000, 180, 155, '["LGA1700","LGA1200","AM5","A...
('COOLER', 'Corsair', 'H100i RGB', 'Corsair H100i RGB Elite 240mm', 2023, 3100000, 250, NULL, '["LGA1700","LGA...
('COOLER', 'Corsair', 'H150i RGB', 'Corsair H150i RGB Elite 360mm', 2023, 4200000, 300, NULL, '["LGA1700","LGA...
('COOLER', 'NZXT', 'Kraken X63', 'NZXT Kraken X63 280mm', 2023, 3800000, 280, NULL, '["LGA1700","LGA1200","AM5...

-- SSDs
INSERT INTO public.products (category, brand, model, full_name, release_year, price_vnd, ssd_interface, ssd_pc...
('SSD', 'Samsung', '990 Pro', 'Samsung 990 Pro 1TB NVMe', 2024, 3200000, 'm2_nvme', '4.0', 1000, 7450, 6900, t...
```

```
('SSD', 'Samsung', '990 Pro 2TB', 'Samsung 990 Pro 2TB NVMe', 2024, 5600000, 'm2_nvme', '4.0', 2000, 7450, 690...
('SSD', 'SK Hynix', 'P41 Plat', 'SK Hynix Platinum P41 1TB', 2023, 3000000, 'm2_nvme', '4.0', 1000, 7000, 6500...
('SSD', 'WD', 'SN850X', 'WD Black SN850X 1TB NVMe', 2023, 2900000, 'm2_nvme', '4.0', 1000, 7300, 6300, true, '...
('SSD', 'Kingston', 'NV3', 'Kingston NV3 1TB NVMe', 2024, 1400000, 'm2_nvme', '4.0', 1000, 6000, 4000, false, ...
('SSD', 'Crucial', 'MX500', 'Crucial MX500 1TB SATA', 2021, 1900000, 'sata_ssd', NULL, 1000, 560, 510, true, '...

----------------------------------------------------------------------------------------------------------------
```

File: database/20260621_gamification_system.sql (159 lines, 8.2 KB)

```
================================================================================================================
-- ========================================
-- GAMIFICATION SYSTEM: Levels, Titles, Ranks
-- Solo Leveling Inspired
-- ========================================

-- 1. Add columns to profiles table for level system
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS xp INTEGER DEFAULT 0;
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS level INTEGER DEFAULT 1;
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS title_id TEXT;
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS total_quests_completed INTEGER DEFAULT 0;

-- 2. Level definitions table
CREATE TABLE IF NOT EXISTS public.level_definitions (
  level INTEGER PRIMARY KEY,
  title TEXT NOT NULL,
  xp_required INTEGER NOT NULL,
  color_hex TEXT DEFAULT '#00d4aa',
  icon TEXT DEFAULT '&¡',
  description TEXT
);

INSERT INTO public.level_definitions (level, title, xp_required, color_hex, icon, description) VALUES
      (1, 'Tân Thç', 0, '#94a3b8', 'Ø<ß1', 'Ng°Ýi mÛi b¯t §u hành trình'),
      (2, 'Ng°Ýi HÍc Viçc', 100, '#6474 8b', 'Ø=ÜÖ', 'B¯t §u làm quen vÛi ki¿n
      (3, 'HÍc Sinh Ch m ChÉ', 300, '#22c55e', 'Ø=ÜÚ', 'Ch m chÉ hÍc t-p m×i
      (4, 'Ng°Ýi HiÃu Bi¿t', 600, '#06b6d4', 'Ø=Ü¡', 'N¯m vÏng ki¿n théc c¡ b£
      (5, 'Thã L¯p Ráp T-p Sñ', 1000, '#3b82f6', 'Ø=Ý', 'B¯t §u thñc hành l
      (6, 'Kù Thu-t Viên', 1600, '#8b5cf6', '&™þ', 'Có kù n ng thñc hành tÑt
      (7, 'Chuyên Gia PC', 2400, '#f59e0b', 'Ø=Ý¥þ', 'Am hiÃu vÁ ph§n céng máy
      (8, 'Kù S° XÂy Dñng', 3400, '#f97316', 'Ø<ß×þ', 'XÂy dñng c¥u hình PC th
      (9, 'Kiºn Trúc S° HÇ Thiªt kº hÇ thÑn
      (10, 'B-c Th§y PC', 6000, '#ec4899', 'Ø=ÜQ', 'B-c th§y vÁ lªp ráp máy tí
      (11, 'HuyÁn Thoªi', 8000, '#00d4aa', '+P', 'HuyÁn thoªi trong cÙng ÓngÓ
      (12, 'Solo Leveling', 10000, '#00f3ff', '&¡', 'Séc mªnh vô hªn - Solo L
      (13, 'R£nh Thã S nh Hªng S', 13000, '#a855f7', 'Ø=Ýáþ', 'Thã s n hªng S s
      (14, 'Chúa TÃ Bóng TÑi', 17000, '#7c3aed', 'Ø<ß', 'Chúa tÃ bóng tÑi huy
      (15, 'QuÑc V°ªng', 22000, '#fbbf24', 'Ø=ÜQ', 'QuÑc v°ªng cça mÍi loài'),
      (16, 'Th§n', 28000, '#ff6b6b', 'Ø=Ý%', 'Th§n linh tÑi th°ãng'),
      (17, 'V)nh H±ng', 35000, '#ff4500', '&~þ', 'Séc mªnh v)nh h±ng'),
      (18, 'Hçy DiÇt', 43000, '#dc2626', 'Ø=Ü€', 'Hçy diÇt mÍi giÛi hªn'),
      (19, 'Siêu ViÇt', 52000, '#9333ea', 'Ø<ß', 'Siêu viÇt thñc tªi'),
      (20, 'B¥t Tí', 65000, '#ffd700', 'Ø<ßÆ', 'B¥t tí trong lËch sí')
ON CONFLICT (level) DO UPDATE SET
  title = EXCLUDED.title,
  xp_required = EXCLUDED.xp_required,
  color_hex = EXCLUDED.color_hex,
  icon = EXCLUDED.icon,
  description = EXCLUDED.description;

-- 3. Titles/Achievements table
CREATE TABLE IF NOT EXISTS public.player_titles (
  id TEXT PRIMARY KEY,
  title TEXT NOT NULL,
  description TEXT,
  icon TEXT DEFAULT 'Ø<ßÅ',
  how_to_get TEXT,
  xp_bonus INTEGER DEFAULT 0
);

INSERT INTO public.player_titles (id, title, description, icon, how_to_get, xp_bonus) VALUES
      ('first_lesson', 'Khªi §u', 'Hoàn thành bài hÍc §u tiên', 'Ø<ß¯', 'Ho
      ('diligent', 'C§n Cù', 'HÍc 7 ngày liên tiªp', 'Ø=Ý%', 'Duy trì streak
      ('perfect_score', 'Hoàn H£o', 'ªt iÃm 10 tuyÇt Ñi', '+P', 'ªt 100%
      ('pc_builder', 'Thã PC', 'Lªp ráp thành công PC §u tiên', 'Ø=Ý¥þ', 'Ho
      ('social', 'NÓi Tiªng', 'Nh-n 10 upvote tË diÃn àn', 'Ø>Ý', 'Có 10 up
      ('speed_demon', 'TÑc Ù', 'Hoàn thành quiz trong 2 phút', '&¡', 'Làm q
      ('scholar', 'HÍc Gi£', 'Hoàn thành 10 bài hÍc', 'Ø=ÜÚ', 'Hoàn thành 10 b
      ('collector', 'Nhà S°u T-p', 'ªt 5000 XP', 'Ø=ÜŽ', 'Tích liy 5000 XP',
      ('champion', 'Nhà Vô Ëch', 'éng top 1 b£ng x¿p hªng', 'Ø<ßÆ', 'ªt hªn
      ('quest_master', 'Vua NhiÇm Vå', 'Hoàn thành 50 nhiÇm vå ngày', 'Ø=ÜË',
ON CONFLICT (id) DO NOTHING;

-- 4. Player unlocked titles
CREATE TABLE IF NOT EXISTS public.user_titles (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  user_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
  title_id TEXT REFERENCES public.player_titles(id) ON DELETE CASCADE,
  unlocked_at TIMESTAMPTZ DEFAULT NOW(),
  is_active BOOLEAN DEFAULT false,
  UNIQUE(user_id, title_id)
);

-- 5. Enhanced daily quests table
ALTER TABLE public.daily_quests ADD COLUMN IF NOT EXISTS type TEXT DEFAULT 'daily';
ALTER TABLE public.daily_quests ADD COLUMN IF NOT EXISTS difficulty TEXT DEFAULT 'easy';
ALTER TABLE public.daily_quests ADD COLUMN IF NOT EXISTS icon TEXT DEFAU
ALTER TABLE public.daily_quests ADD COLUMN IF NOT EXISTS requirement_type TEXT;
ALTER TABLE public.daily_quests ADD COLUMN IF NOT EXISTS requirement_value INTEGER DEFAULT 1;
ALTER TABLE public.daily_quests ADD COLUMN IF NOT EXISTS is_active BOOLEAN DEFAULT true;
ALTER TABLE public.daily_quests ADD COLUMN IF NOT EXISTS expires_at TIMESTAMPTZ;

-- 6. Add XP tracking fields to user_quests
ALTER TABLE public.user_quests ADD COLUMN IF NOT EXISTS xp_earned INTEGER DEFAULT 0;
ALTER TABLE public.user_quests ADD COLUMN IF NOT EXISTS progress INTEGER DEFAULT 0;

-- 7. User quest streak tracking
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS last_quest_date DATE;
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS quest_streak INTEGER DEFAULT 0;

-- 8. Learning stats table (for realtime tracking)
CREATE TABLE IF NOT EXISTS public.learning_stats (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  user_id UUID REFERENCES auth.users(id) ON DELETE CASCADE UNIQUE,
  total_xp INTEGER DEFAULT 0,
  current_streak INTEGER DEFAULT 0,
  max_streak INTEGER DEFAULT 0,
  total_study_minutes INTEGER DEFAULT 0,
  weekly_activity INTEGER[] DEFAULT ARRAY[0,0,0,0,0,0,0],
  last_active_date DATE,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  updated_at TIMESTAMPTZ DEFAULT NOW()
);

-- 9. XP transaction log
```

```
115| CREATE TABLE IF NOT EXISTS public.xp_transactions (
116|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
117|   user_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
118|   amount INTEGER NOT NULL,
119|   reason TEXT NOT NULL,
120|   reference_type TEXT,
121|   reference_id TEXT,
122|   created_at TIMESTAMPTZ DEFAULT NOW()
123| );
124|
125| -- 10. Leaderboard cache table
126| CREATE TABLE IF NOT EXISTS public.leaderboard_cache (
127|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
128|   user_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
129|   full_name TEXT,
130|   avatar_url TEXT,
131|   level INTEGER DEFAULT 1,
132|   total_xp INTEGER DEFAULT 0,
133|   title TEXT,
134|   rank_position INTEGER,
135|   updated_at TIMESTAMPTZ DEFAULT NOW()
136| );
137|
138| -- Enable RLS
139| ALTER TABLE public.level_definitions ENABLE ROW LEVEL SECURITY;
140| ALTER TABLE public.player_titles ENABLE ROW LEVEL SECURITY;
141| ALTER TABLE public.user_titles ENABLE ROW LEVEL SECURITY;
142| ALTER TABLE public.learning_stats ENABLE ROW LEVEL SECURITY;
143| ALTER TABLE public.xp_transactions ENABLE ROW LEVEL SECURITY;
144| ALTER TABLE public.leaderboard_cache ENABLE ROW LEVEL SECURITY;
145|
146| -- RLS Policies
147| CREATE POLICY "Everyone can view levels" ON public.level_definitions FOR SELECT USING (true);
148| CREATE POLICY "Everyone can view titles" ON public.player_titles FOR SELECT USING (true);
149| CREATE POLICY "Users can view their titles" ON public.user_titles FOR SELECT USING (auth.uid() = user_id);
150| CREATE POLICY "Users can manage their titles" ON public.user_titles FOR ALL USING (auth.uid() = user_id);
151| CREATE POLICY "Users can view their stats" ON public.learning_stats FOR SELECT USING (auth.uid() = user_id);
152| CREATE POLICY "Users can view own transactions" ON public.xp_transactions FOR SELECT USING (auth.uid() = user_...
153| CREATE POLICY "Everyone can view leaderboard" ON public.leaderboard_cache FOR SELECT USING (true);
154|
155| -- Enable realtime for relevant tables
156| ALTER PUBLICATION supabase_realtime ADD TABLE public.learning_stats;
157| ALTER PUBLICATION supabase_realtime ADD TABLE public.user_titles;
158| ALTER PUBLICATION supabase_realtime ADD TABLE public.xp_transactions;
159|
```

File: database/20260622_n8n_integration.sql (451 lines, 13.4 KB)

```
==========================================================================================
  1| -- ==========================================
  2| -- PC Master Builder - n8n Integration
  3| -- Database Functions & Triggers
  4| -- ==========================================
  5|
  6| -- ----------------------------------------
  7| -- Fix: notifications table type constraint
  8| -- The original constraint blocked all inserts.
  9| -- Drop and recreate with proper allowed values.
 10| -- ----------------------------------------
 11| ALTER TABLE IF EXISTS public.notifications
 12|   DROP CONSTRAINT IF EXISTS notifications_type_check;
 13|
 14| ALTER TABLE IF EXISTS public.notifications
 15|   ADD COLUMN IF NOT EXISTS body TEXT,
 16|   ADD COLUMN IF NOT EXISTS action_url TEXT,
 17|   ADD COLUMN IF NOT EXISTS data JSONB,
 18|   ALTER COLUMN type SET DEFAULT 'info';
 19|
 20| ALTER TABLE IF EXISTS public.notifications
 21|   ADD CONSTRAINT notifications_type_check
 22|   CHECK (type IN ('info', 'success', 'warning', 'error', 'assignment', 'quiz', 'achievement_earned', 'lesson_c...
 23|
 24| -- ----------------------------------------
 25| -- Add Zalo fields to profiles for teacher Zalo notifications
 26| -- ----------------------------------------
 27| ALTER TABLE IF EXISTS public.profiles
 28|   ADD COLUMN IF NOT EXISTS zalo_phone TEXT,
 29|   ADD COLUMN IF NOT EXISTS zalo_notifications BOOLEAN DEFAULT false,
 30|   ADD COLUMN IF NOT EXISTS zalo_verified BOOLEAN DEFAULT false;
 31|
 32| -- ----------------------------------------
 33| -- Function: check_completed_paths()
 34| -- n8n calls this to find students who completed
 35| -- all lessons in a path but have no certificate
 36| -- ----------------------------------------
 37| CREATE OR REPLACE FUNCTION public.check_completed_paths()
 38| RETURNS TABLE (
 39|   student_id UUID,
 40|   path_id UUID,
 41|   full_name TEXT,
 42|   path_title TEXT,
 43|   lesson_count INT,
 44|   completed_count INT,
 45|   avg_score NUMERIC
 46| ) LANGUAGE plpgsql SECURITY DEFINER AS $$
 47| BEGIN
 48|   RETURN QUERY
 49|   WITH path_stats AS (
 50|     SELECT
 51|       lp.student_id,
 52|       pi.path_id,
 53|       COUNT(DISTINCT pi.id)::INT AS total_lessons,
 54|       COUNT(DISTINCT lp.id) FILTER (WHERE lp.status = 'completed')::INT AS completed_lessons
 55|     FROM path_items pi
 56|     CROSS JOIN LATERAL (
 57|       SELECT lp_in.student_id, lp_in.id, lp_in.status
 58|       FROM lesson_progress lp_in
 59|       WHERE lp_in.lesson_id = pi.item_id
 60|         AND pi.item_type = 'lesson'
 61|     ) lp
 62|     GROUP BY lp.student_id, pi.path_id
 63|     HAVING COUNT(DISTINCT pi.id) = COUNT(DISTINCT lp.id) FILTER (WHERE lp.status = 'completed')
 64|   )
 65|   SELECT
 66|     ps.student_id,
 67|     ps.path_id,
 68|     p.full_name,
 69|     lp.title AS path_title,
 70|     ps.total_lessons,
 71|     ps.completed_lessons,
 72|     COALESCE(
 73|       (SELECT AVG(qa.score)::NUMERIC(5,2)
 74|        FROM quiz_attempts qa
 75|        JOIN quizzes q ON qa.quiz_id = q.id
```

```
      WHERE qa.student_id = ps.student_id
        AND qa.status = 'submitted'
      ), 0
    ) AS avg_score
  FROM path_stats ps
  JOIN profiles p ON p.id = ps.student_id
  JOIN learning_paths lp ON lp.id = ps.path_id
  WHERE NOT EXISTS (
    SELECT 1 FROM certificates c
    WHERE c.student_id = ps.student_id
      AND c.path_id = ps.path_id
      AND c.is_revoked = false
  );
END;
$$;

-- ----------------------------------------
-- Function: get_students_low_performance()
-- n8n calls this for student alerts
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.get_students_low_performance()
RETURNS TABLE (
  student_id UUID,
  full_name TEXT,
  email TEXT,
  class_id UUID,
  avg_score NUMERIC,
  recent_quiz_count INT,
  weakest_topic TEXT,
  last_active_date DATE
) LANGUAGE plpgsql SECURITY DEFINER AS $$
BEGIN
  RETURN QUERY
  WITH recent_scores AS (
    SELECT
      qa.student_id,
      AVG(qa.score)::NUMERIC(5,2) AS avg_score,
      COUNT(qa.id)::INT AS quiz_count,
      MAX(qa.created_at)::DATE AS last_quiz_date
    FROM quiz_attempts qa
    WHERE qa.status = 'submitted'
      AND qa.created_at >= NOW() - INTERVAL '7 days'
    GROUP BY qa.student_id
  ),
  weakest AS (
    SELECT DISTINCT ON (qa.student_id)
      qa.student_id,
      l.title AS weakest_lesson
    FROM quiz_attempts qa
    JOIN quizzes q ON qa.quiz_id = q.id
    JOIN lessons l ON l.id = q.lesson_id
    WHERE qa.status = 'submitted'
      AND qa.score < 40
      AND qa.created_at >= NOW() - INTERVAL '14 days'
    ORDER BY qa.student_id, qa.score ASC
  )
  SELECT
    p.id,
    p.full_name,
    p.email,
    p.class_id,
    COALESCE(rs.avg_score, 0),
    COALESCE(rs.quiz_count, 0),
    COALESCE(w.weakest_lesson, 'Chua co du lieu'),
    p.last_quest_date
  FROM profiles p
  LEFT JOIN recent_scores rs ON rs.student_id = p.id
  LEFT JOIN weakest w ON w.student_id = p.id
  WHERE p.role = 'student'
    AND (
      rs.avg_score IS NOT NULL AND rs.avg_score < 50
    )
  ORDER BY rs.avg_score ASC NULLS LAST
  LIMIT 100;
END;
$$;

-- ----------------------------------------
-- Function: get_weekly_stats_summary()
-- n8n calls this for weekly reports
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.get_weekly_stats_summary()
RETURNS TABLE (
  metric TEXT,
  value BIGINT
) LANGUAGE plpgsql SECURITY DEFINER AS $$
DECLARE
  week_start TIMESTAMPTZ := DATE_TRUNC('week', NOW()) - INTERVAL '1 week';
  week_end TIMESTAMPTZ := DATE_TRUNC('week', NOW());
BEGIN
  RETURN QUERY
  SELECT 'active_students'::TEXT, COUNT(DISTINCT user_id)::BIGINT
  FROM activity_logs
  WHERE created_at >= week_start AND created_at < week_end

  UNION ALL
  SELECT 'new_lessons_completed'::TEXT, COUNT(*)::BIGINT
  FROM lesson_progress
  WHERE completed_at >= week_start AND completed_at < week_end
    AND status = 'completed'

  UNION ALL
  SELECT 'quizzes_submitted'::TEXT, COUNT(*)::BIGINT
  FROM quiz_attempts
  WHERE submitted_at >= week_start AND submitted_at < week_end
    AND status = 'submitted'

  UNION ALL
  SELECT 'certificates_issued'::TEXT, COUNT(*)::BIGINT
  FROM certificates
  WHERE issued_at >= week_start AND issued_at < week_end

  UNION ALL
  SELECT 'new_registrations'::TEXT, COUNT(*)::BIGINT
  FROM profiles
  WHERE created_at >= week_start AND created_at < week_end

  UNION ALL
  SELECT 'total_xp_earned'::TEXT, COALESCE(SUM(amount), 0)::BIGINT
  FROM xp_transactions
  WHERE created_at >= week_start AND created_at < week_end;
END;
$$;
```

```
-- ----------------------------------------
-- Function: get_student_weekly_summary()
-- For parent weekly reports - passes student_id
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.get_student_weekly_summary(
  p_student_id UUID
) RETURNS TABLE (
  completed_lessons INT,
  quiz_count INT,
  avg_score NUMERIC,
  total_xp_earned INT,
  streak_days INT
) LANGUAGE plpgsql SECURITY DEFINER AS $$
DECLARE
  week_start TIMESTAMPTZ := DATE_TRUNC('week', NOW()) - INTERVAL '1 week';
  week_end TIMESTAMPTZ := DATE_TRUNC('week', NOW());
BEGIN
  RETURN QUERY
  SELECT
    (SELECT COUNT(*)::INT FROM lesson_progress
     WHERE student_id = p_student_id
       AND status = 'completed'
       AND completed_at >= week_start AND completed_at < week_end) AS completed_lessons,

    (SELECT COUNT(*)::INT FROM quiz_attempts
     WHERE student_id = p_student_id
       AND status = 'submitted'
       AND submitted_at >= week_start AND submitted_at < week_end) AS quiz_count,

    COALESCE(
      (SELECT AVG(score)::NUMERIC(5,2) FROM quiz_attempts
       WHERE student_id = p_student_id
         AND status = 'submitted'
         AND submitted_at >= week_start AND submitted_at < week_end)
    , 0) AS avg_score,

    COALESCE(
      (SELECT SUM(amount)::INT FROM xp_transactions
       WHERE user_id = p_student_id
         AND created_at >= week_start AND created_at < week_end)
    , 0) AS total_xp_earned,

    COALESCE(
      (SELECT quest_streak FROM profiles WHERE id = p_student_id)
    , 0) AS streak_days;
END;
$$;

-- ----------------------------------------
-- Function: add_xp()
-- Safely add XP and update level/leaderboard
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.add_xp(
  p_user_id UUID,
  p_amount INT
) RETURNS BOOLEAN LANGUAGE plpgsql SECURITY DEFINER AS $$
DECLARE
  current_xp INT;
  current_level INT;
  new_level INT;
BEGIN
  SELECT xp, level INTO current_xp, current_level
  FROM profiles WHERE id = p_user_id;

  current_xp := COALESCE(current_xp, 0) + p_amount;

  SELECT MAX(l.level) INTO new_level
  FROM level_definitions l
  WHERE l.xp_required <= current_xp;

  new_level := COALESCE(new_level, 1);

  UPDATE profiles SET
    xp = current_xp,
    level = new_level,
    updated_at = NOW()
  WHERE id = p_user_id;

  INSERT INTO leaderboard_cache (user_id, total_xp, level, updated_at)
  VALUES (p_user_id, current_xp, new_level, NOW())
  ON CONFLICT (user_id) DO UPDATE SET
    total_xp = current_xp,
    level = new_level,
    updated_at = NOW();

  UPDATE learning_stats SET
    total_xp = current_xp,
    updated_at = NOW()
  WHERE user_id = p_user_id;

  RETURN TRUE;
END;
$$;

-- ----------------------------------------
-- Function: get_n8n_pending_events()
-- Returns pending events that n8n should process
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.get_n8n_pending_events()
RETURNS TABLE (
  event_id UUID,
  event_type TEXT,
  payload JSONB,
  created_at TIMESTAMPTZ
) LANGUAGE plpgsql SECURITY DEFINER AS $$
BEGIN
  RETURN QUERY
  SELECT
    e.id,
    e.event_type,
    e.payload,
    e.created_at
  FROM n8n_events e
  WHERE e.status = 'pending'
  ORDER BY e.created_at ASC
  LIMIT 50;
END;
$$;

-- ----------------------------------------
-- Table: n8n_events
-- Queue for events that need processing
-- ----------------------------------------
CREATE TABLE IF NOT EXISTS public.n8n_events (
```

```
324|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
325|   event_type TEXT NOT NULL,
326|   payload JSONB NOT NULL DEFAULT '{}',
327|   status TEXT DEFAULT 'pending' CHECK (status IN ('pending', 'processing', 'completed', 'failed')),
328|   created_at TIMESTAMPTZ DEFAULT NOW(),
329|   processed_at TIMESTAMPTZ
330| );
331|
332| -- Enable RLS but allow service role only
333| ALTER TABLE public.n8n_events ENABLE ROW LEVEL SECURITY;
334| DO $$
335| BEGIN
336|   IF NOT EXISTS (
337|     SELECT 1 FROM pg_policies WHERE tablename = 'n8n_events' AND policyname = 'n8n service role only'
338|   ) THEN
339|     CREATE POLICY "n8n service role only" ON public.n8n_events
340|       FOR ALL USING (true) WITH CHECK (true);
341|   END IF;
342| END $$;
343|
344| -- Index for n8n polling
345| CREATE INDEX IF NOT EXISTS idx_n8n_events_status ON public.n8n_events(status, created_at);
346|
347| -- ----------------------------------------
348| -- Function: queue_n8n_event()
349| -- Called by triggers to queue events for n8n
350| -- ----------------------------------------
351| CREATE OR REPLACE FUNCTION public.queue_n8n_event()
352| RETURNS TRIGGER LANGUAGE plpgsql SECURITY DEFINER AS $$
353| DECLARE
354|   event_type TEXT;
355|   payload JSONB;
356| BEGIN
357|   CASE TG_TABLE_NAME
358|     WHEN 'lesson_progress' THEN
359|       IF NEW.status = 'completed' THEN
360|         event_type := 'lesson_completed';
361|         payload := jsonb_build_object(
362|           'student_id', NEW.student_id,
363|           'lesson_id', NEW.lesson_id,
364|           'completed_at', NEW.completed_at
365|         );
366|       ELSE
367|         RETURN NULL;
368|       END IF;
369|
370|     WHEN 'quiz_attempts' THEN
371|       IF NEW.status = 'submitted' THEN
372|         event_type := 'quiz_submitted';
373|         payload := jsonb_build_object(
374|           'student_id', NEW.student_id,
375|           'quiz_id', NEW.quiz_id,
376|           'attempt_id', NEW.id,
377|           'score', NEW.score
378|         );
379|       ELSE
380|         RETURN NULL;
381|       END IF;
382|
383|     WHEN 'certificates' THEN
384|       event_type := 'certificate_issued';
385|       payload := jsonb_build_object(
386|         'student_id', NEW.student_id,
387|         'certificate_id', NEW.id,
388|         'path_id', NEW.path_id
389|       );
390|
391|     ELSE
392|       RETURN NULL;
393|   END CASE;
394|
395|   INSERT INTO public.n8n_events (event_type, payload)
396|   VALUES (event_type, payload);
397|
398|   RETURN NULL;
399| END;
400| $$;
401|
402| -- ----------------------------------------
403| -- Triggers: auto-queue events for n8n
404| -- ----------------------------------------
405| DROP TRIGGER IF EXISTS trg_n8n_lesson_complete ON public.lesson_progress;
406| CREATE TRIGGER trg_n8n_lesson_complete
407|   AFTER INSERT OR UPDATE OF status ON public.lesson_progress
408|   FOR EACH ROW
409|   EXECUTE FUNCTION public.queue_n8n_event();
410|
411| DROP TRIGGER IF EXISTS trg_n8n_quiz_submit ON public.quiz_attempts;
412| CREATE TRIGGER trg_n8n_quiz_submit
413|   AFTER INSERT OR UPDATE OF status ON public.quiz_attempts
414|   FOR EACH ROW
415|   EXECUTE FUNCTION public.queue_n8n_event();
416|
417| DROP TRIGGER IF EXISTS trg_n8n_certificate ON public.certificates;
418| CREATE TRIGGER trg_n8n_certificate
419|   AFTER INSERT ON public.certificates
420|   FOR EACH ROW
421|   EXECUTE FUNCTION public.queue_n8n_event();
422|
423| -- ----------------------------------------
424| -- Function: mark_event_processed()
425| -- n8n calls this after processing an event
426| -- ----------------------------------------
427| CREATE OR REPLACE FUNCTION public.mark_event_processed(
428|   p_event_id UUID,
429|   p_status TEXT DEFAULT 'completed'
430| ) RETURNS BOOLEAN LANGUAGE plpgsql SECURITY DEFINER AS $$
431| BEGIN
432|   UPDATE n8n_events
433|   SET status = p_status, processed_at = NOW()
434|   WHERE id = p_event_id;
435|   RETURN FOUND;
436| END;
437| $$;
438|
439| -- ----------------------------------------
440| -- Grant permissions for n8n
441| -- ----------------------------------------
442| GRANT USAGE ON SCHEMA public TO anon, authenticated, service_role;
443| GRANT EXECUTE ON FUNCTION public.check_completed_paths() TO service_role;
444| GRANT EXECUTE ON FUNCTION public.get_students_low_performance() TO service_role;
445| GRANT EXECUTE ON FUNCTION public.get_weekly_stats_summary() TO service_role;
446| GRANT EXECUTE ON FUNCTION public.get_student_weekly_summary(UUID) TO service_role;
447| GRANT EXECUTE ON FUNCTION public.add_xp(UUID, INT) TO service_role;
```

```
GRANT EXECUTE ON FUNCTION public.get_n8n_pending_events() TO service_role;
GRANT EXECUTE ON FUNCTION public.mark_event_processed(UUID, TEXT) TO service_role;
GRANT SELECT, INSERT, UPDATE ON public.n8n_events TO service_role;
```

File: database/mega_prompt_02_classes.sql (117 lines, 4.6 KB)

```
-- 1. Bảng lớp học
CREATE TABLE public.classes (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  name TEXT NOT NULL,                          -- "Lớp 10A1 - Tin học"
  code TEXT UNIQUE NOT NULL,                   -- "TIN001" (6 ký tự, tự sinh)
  teacher_id UUID REFERENCES public.profiles(id) NOT NULL,
  school_id UUID REFERENCES public.schools(id),
  grade TEXT NOT NULL,              -- "10", "11", "12"
  school_year TEXT NOT NULL,        -- "2025-2026"
  subject TEXT DEFAULT 'Tin học',
  description TEXT,
  is_active BOOLEAN DEFAULT TRUE,
  max_students INTEGER DEFAULT 40,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

-- 2. Thành viên lớp học
CREATE TABLE public.class_members (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE,
  student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  joined_at TIMESTAMPTZ DEFAULT NOW(),
  status TEXT DEFAULT 'active' CHECK (status IN ('active', 'suspended', 'left')),
  UNIQUE(class_id, student_id)
);

-- 3. Nhiệm vụ (assignments)
CREATE TABLE public.assignments (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE,
  teacher_id UUID REFERENCES public.profiles(id),
  title TEXT NOT NULL,
  description TEXT,
  type TEXT NOT NULL CHECK (type IN (
        'build_config',          -- Lập ráp PC theo yêu cầu
        'optimize_budget',       -- Tối ưu trong ngân sách X
        'minimize_tdp',          -- Giảm TDP xuống dưới Y watt
        'maximize_perf',         -- Tối ưu hiệu năng
        'quiz',                  -- Trắc nghiệm lý thuyết
        'mixed'                  -- Kết hợp
  )),
  requirements JSONB NOT NULL DEFAULT '{}',
  max_score INTEGER DEFAULT 100,
  deadline TIMESTAMPTZ,
  is_published BOOLEAN DEFAULT FALSE,
  allow_late_submit BOOLEAN DEFAULT FALSE,
  late_penalty_percent INTEGER DEFAULT 20,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

-- 4. Bài nộp
CREATE TABLE public.submissions (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  assignment_id UUID REFERENCES public.assignments(id) ON DELETE CASCADE,
  student_id UUID REFERENCES public.profiles(id),
  class_id UUID REFERENCES public.classes(id),
  pc_config JSONB,
  total_score INTEGER,
  auto_score INTEGER,                  -- điểm tính tự động theo requirements
  teacher_score INTEGER,               -- điểm giáo viên chấm thêm
  feedback TEXT,
  submitted_at TIMESTAMPTZ DEFAULT NOW(),
  is_late BOOLEAN DEFAULT FALSE,
  graded_at TIMESTAMPTZ,
  UNIQUE(assignment_id, student_id)
);

-- 5. RLS Policies
ALTER TABLE public.classes ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.class_members ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.assignments ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.submissions ENABLE ROW LEVEL SECURITY;

-- Teacher chỉ thấy lớp của mình
CREATE POLICY "Teacher sees own classes" ON public.classes
  FOR ALL USING (teacher_id = auth.uid());

-- Student thấy lớp mình tham gia
CREATE POLICY "Student sees enrolled classes" ON public.classes
  FOR SELECT USING (
    EXISTS (SELECT 1 FROM class_members WHERE class_id = id AND student_id = auth.uid())
  );

-- Teacher thấy tất cả class_members trong lớp của mình
CREATE POLICY "Teacher sees own class members" ON public.class_members
  FOR ALL USING (
    EXISTS (SELECT 1 FROM classes WHERE id = class_id AND teacher_id = auth.uid())
  );

-- Student tự join member (join class) và xem member của mình
CREATE POLICY "Student sees own member status" ON public.class_members
  FOR SELECT USING (student_id = auth.uid());

CREATE POLICY "Student can join class" ON public.class_members
  FOR INSERT WITH CHECK (student_id = auth.uid());

-- Student chỉ thấy bài nộp của mình
CREATE POLICY "Student sees own submissions" ON public.submissions
  FOR ALL USING (student_id = auth.uid());

-- Teacher thấy tất cả submission trong lớp của mình
CREATE POLICY "Teacher sees class submissions" ON public.submissions
  FOR ALL USING (
    EXISTS (SELECT 1 FROM classes WHERE id = class_id AND teacher_id = auth.uid())
  );

-- Teacher thấy bài tập của lớp mình, cập nhật bài tập
CREATE POLICY "Teacher manages assignments" ON public.assignments
  FOR ALL USING (teacher_id = auth.uid());

-- Student thấy bài tập của lớp mình đang tham gia
CREATE POLICY "Student sees published assignments" ON public.assignments
  FOR SELECT USING (
    is_published = TRUE AND
    EXISTS (SELECT 1 FROM class_members WHERE class_id = assignments.class_id AND student_id = auth.uid())
  );
```

File: database/megaprompt_fix.sql (117 lines, 4.7 KB)

```
-- Update profiles table to include school_name
ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS school_name TEXT;

-- Ensure lessons table exists with all necessary fields
CREATE TABLE IF NOT EXISTS public.lessons (
    id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    teacher_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
    title TEXT NOT NULL,
    description TEXT,
    thumbnail_url TEXT,
    is_published BOOLEAN DEFAULT false,
    created_at TIMESTAMPTZ DEFAULT now(),
    updated_at TIMESTAMPTZ DEFAULT now()
);

-- Ensure lesson_sections table exists (for video, pdf, quiz)
CREATE TABLE IF NOT EXISTS public.lesson_sections (
    id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    lesson_id UUID REFERENCES public.lessons(id) ON DELETE CASCADE,
    title TEXT NOT NULL,
    content_type TEXT NOT NULL, -- 'video', 'pdf', 'quiz', 'text'
    content_url TEXT, -- for video/pdf
    content_body TEXT, -- for text/quiz data
    order_index INTEGER DEFAULT 0,
    created_at TIMESTAMPTZ DEFAULT now()
);

-- Ensure assignments table exists
CREATE TABLE IF NOT EXISTS public.assignments (
    id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    teacher_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
    class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE,
    lesson_id UUID REFERENCES public.lessons(id) ON DELETE SET NULL,
    title TEXT NOT NULL,
    due_date TIMESTAMPTZ,
    is_published BOOLEAN DEFAULT true,
    created_at TIMESTAMPTZ DEFAULT now()
);

-- Enable RLS
ALTER TABLE public.lessons ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.lesson_sections ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.assignments ENABLE ROW LEVEL SECURITY;

-- Policies for lessons
CREATE POLICY "Teachers can manage their own lessons" ON public.lessons
    FOR ALL USING (auth.uid() = teacher_id);
CREATE POLICY "Students can view published lessons" ON public.lessons
    FOR SELECT USING (is_published = true OR auth.uid() = teacher_id);

-- Policies for lesson_sections
CREATE POLICY "Teachers can manage sections of their lessons" ON public.lesson_sections
    FOR ALL USING (EXISTS (
        SELECT 1 FROM public.lessons WHERE id = lesson_sections.lesson_id AND teacher_id = auth.uid()
    ));
CREATE POLICY "Students can view sections of published lessons" ON public.lesson_sections
    FOR SELECT USING (EXISTS (
        SELECT 1 FROM public.lessons WHERE id = lesson_sections.lesson_id AND (is_published = true OR teacher_...
    ));

-- Policies for assignments
CREATE POLICY "Teachers can manage their own assignments" ON public.assignments
    FOR ALL USING (auth.uid() = teacher_id);
CREATE POLICY "Students can view assignments for their classes" ON public.assignments
    FOR SELECT USING (EXISTS (
        SELECT 1 FROM public.class_members WHERE class_id = assignments.class_id AND student_id = auth.uid()
    ));

-- Daily Quests table
CREATE TABLE IF NOT EXISTS public.daily_quests (
    id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    title TEXT NOT NULL,
    description TEXT,
    xp_reward INTEGER DEFAULT 100,
    created_at TIMESTAMPTZ DEFAULT now()
);

-- User Quest progress
CREATE TABLE IF NOT EXISTS public.user_quests (
    id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    user_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
    quest_id UUID REFERENCES public.daily_quests(id) ON DELETE CASCADE,
    is_completed BOOLEAN DEFAULT false,
    completed_at TIMESTAMPTZ,
    created_at TIMESTAMPTZ DEFAULT now(),
    UNIQUE(user_id, quest_id, created_at::date)
);

ALTER TABLE public.daily_quests ENABLE ROW LEVEL SECURITY;
ALTER TABLE public.user_quests ENABLE ROW LEVEL SECURITY;

CREATE POLICY " Everyone can view quests\ ON public.daily_quests FOR SELECT USING (true);
CREATE POLICY \Users can view their own quest progress\ ON public.user_quests FOR SELECT USING (auth.uid() = u...


-- Courses table
CREATE TABLE IF NOT EXISTS public.courses (
    id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
    teacher_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
    title TEXT NOT NULL,
    description TEXT,
    thumbnail_url TEXT,
    category TEXT,
    level TEXT DEFAULT 'Co b?n',
    is_published BOOLEAN DEFAULT false,
    created_at TIMESTAMPTZ DEFAULT now()
);

-- Update lessons to belong to courses
ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS course_id UUID REFERENCES public.courses(id) ON DELETE CAS...

-- Update RLS for courses
ALTER TABLE public.courses ENABLE ROW LEVEL SECURITY;
CREATE POLICY " Everyone can view published courses\ ON public.courses FOR SELECT USING (is_published = true O...
CREATE POLICY \Teachers can manage their courses\ ON public.courses FOR ALL USING (auth.uid() = teacher_id);


```

File: database/migrations/20260611_components_collaboration.sql (144 lines, 5.4 KB)

```
==========================================================================================
    1| -- Migration: Components + Collaboration Tables for PC Master Builder
    2| -- Adds component_creator role, components table, pc_builds table, RLS policies
    3|
         4 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
    5| -- ALTER EXISTING PROFILES ROLE CHECK
         6 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
    7| ALTER TABLE profiles DROP CONSTRAINT IF EXISTS profiles_role_check;
    8| ALTER TABLE profiles ADD CONSTRAINT profiles_role_check
    9|   CHECK (role IN ('student', 'teacher', 'admin', 'parent', 'component_creator'));
   10|
        1 1 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
        1 2 |   - -   T A B L E :   c o m p o n e n t s   ( l i n h   k i Ç n )
        1 3 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
   14| CREATE TABLE IF NOT EXISTS components (
   15|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
   16|
        1 7 |       - -   T h ô n g   t i n   c ¡   b £ n
   18|   name TEXT NOT NULL,
   19|   type TEXT NOT NULL CHECK (type IN ('cpu','gpu','ram','motherboard','psu','case','cooler','ssd','hdd')),
   20|   brand TEXT NOT NULL,
   21|   model TEXT NOT NULL,
   22|
   23|   -- Render data (2D/3D)
   24|   dimensions JSONB NOT NULL DEFAULT '{}',
   25|   colors JSONB NOT NULL DEFAULT '{}',
   26|   connectors JSONB DEFAULT '[]',
   27|
   28|   -- Technical specs
   29|   tech_specs JSONB NOT NULL DEFAULT '{}',
   30|
   31|   -- Status
   32|   status TEXT DEFAULT 'draft' CHECK (status IN ('draft','review','published')),
   33|   is_published BOOLEAN DEFAULT false,
   34|
   35|   -- Ownership + audit
   36|   created_by UUID REFERENCES profiles(id),
   37|   reviewed_by UUID REFERENCES profiles(id),
   38|   created_at TIMESTAMPTZ DEFAULT now(),
   39|   updated_at TIMESTAMPTZ DEFAULT now(),
   40|
        4 1 |       - -   L o c k   m e c h a n i s m   ( c h Ñ n g   c o n f l i c t )
   42|   locked_by UUID REFERENCES profiles(id),
   43|   locked_at TIMESTAMPTZ,
   44|   lock_expires_at TIMESTAMPTZ
   45| );
   46|
        4 7 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
        4 8 |   - -   T A B L E :   p c _ b u i l d s   ( b £ n   l ¯ p   r á p )
        4 9 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
   50| CREATE TABLE IF NOT EXISTS pc_builds (
   51|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
   52|   title TEXT NOT NULL DEFAULT 'My PC Build',
   53|   owner_id UUID REFERENCES profiles(id) NOT NULL,
   54|
        5 5 |       - -   L i n h   k i Ç n   ° ã c   c h Í n   ( c h É   t ë   p u b l i s h e d   c o m p o n e n t s )
   56|   selected_components JSONB DEFAULT '{}',
   57|
   58|   -- Layout trên canvas 2D
   59|   canvas_layout JSONB DEFAULT '{}',
   60|
        6 1 |       - -   T r ¡ n g   t h á i   b u i l d
   62|   status TEXT DEFAULT 'in_progress' CHECK (status IN ('in_progress','complete','submitted')),
   63|   compatibility_score INTEGER,
   64|   error_count INTEGER DEFAULT 0,
   65|
   66|   created_at TIMESTAMPTZ DEFAULT now(),
   67|   updated_at TIMESTAMPTZ DEFAULT now()
   68| );
   69|
        7 0 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
   71| -- INDEXES
        7 2 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
   73| CREATE INDEX IF NOT EXISTS idx_components_type ON components(type);
   74| CREATE INDEX IF NOT EXISTS idx_components_status ON components(status);
   75| CREATE INDEX IF NOT EXISTS idx_components_created_by ON components(created_by);
   76| CREATE INDEX IF NOT EXISTS idx_components_published ON components(is_published) WHERE is_published = true;
   77| CREATE INDEX IF NOT EXISTS idx_pc_builds_owner ON pc_builds(owner_id);
   78|
        7 9 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
   80| -- RLS POLICIES
        8 1 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
   82| ALTER TABLE components ENABLE ROW LEVEL SECURITY;
   83| ALTER TABLE pc_builds ENABLE ROW LEVEL SECURITY;
   84|
        8 5 |   - -   C o m p o n e n t s :   a i   c i n g   Í c   ° ã c   p u b l i s h e d
   86| CREATE POLICY "anyone_can_read_published_components"
   87|   ON components FOR SELECT
   88|   USING (is_published = true);
   89|
        9 0 |   - -   C o m p o n e n t s :   c r e a t o r / a d m i n   m Û i   w r i t e
   91| CREATE POLICY "creator_can_manage_own_components"
   92|   ON components FOR ALL
   93|   USING (
   94|     created_by = auth.uid()
   95|     OR EXISTS (
   96|       SELECT 1 FROM profiles
   97|       WHERE id = auth.uid()
   98|       AND role IN ('admin', 'component_creator')
   99|     )
  100|   );
  101|
       1 0 2 |   - -   P C   B u i l d s :   c h É   o w n e r   m Û i   w r i t e
  103| CREATE POLICY "owner_can_manage_own_builds"
  104|   ON pc_builds FOR ALL
  105|   USING (owner_id = auth.uid());
  106|
       1 0 7 |   - -   P C   B u i l d s :   a i   c i n g   Í c   ° ã c
  108| CREATE POLICY "anyone_can_read_builds"
  109|   ON pc_builds FOR SELECT
  110|   USING (true);
  111|
       1 1 2 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
  113| -- FUNCTION: Auto-release lock sau 5 phút
       1 1 4 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
  115| CREATE OR REPLACE FUNCTION release_expired_locks()
  116| RETURNS void AS $$
  117| BEGIN
  118|   UPDATE components
  119|   SET locked_by = NULL, locked_at = NULL, lock_expires_at = NULL
  120|   WHERE lock_expires_at < now() AND locked_by IS NOT NULL;
  121| END;
  122| $$ LANGUAGE plpgsql;
```

```
  123|
    124|   - -  %P%P%P%
```

```
);

-- B-t RLS
ALTER TABLE public.lesson_books ENABLE ROW LEVEL SECURITY;

-- CREATE POLICY "Cho phép mÍi ng°Ýi Íc sách bài gi£ng" ON public.lesson_b
    FOR SELECT USING (true);

-- CREATE POLICY "Giáo viên qu£n lý sách cça mình" ON public.lesson_books
    FOR ALL USING (EXISTS (
        SELECT 1 FROM public.lessons WHERE id = lesson_books.lesson_id AND teacher_id = auth.uid()
    ));

-- Fix l×i chính t£ trong policy ci (n¿u có)
DROP POLICY IF EXISTS " Everyone can view quests" ON public.daily_quests;
CREATE POLICY "Everyone can view quests" ON public.daily_quests FOR SELECT USING (true);

DROP POLICY IF EXISTS "Users can view their own quest progress" ON public.user_quests;
CREATE POLICY "Users can view their own quest progress" ON public.user_quests FOR SELECT USING (auth.uid() = u...

```

File: database/supabase_new_features.sql (56 lines, 2.3 KB)

```
-- ==========================================
-- 1. B¢NG TI¾N Ø HÌC T¬P (ã có, ch¡y l¡i cing không sao vì dùng IF NO
-- ==========================================
CREATE TABLE IF NOT EXISTS lesson_progress (
  id UUID PRIMARY KEY DEFAULT uuid_generate_v4(),
  user_id UUID REFERENCES auth.users ON DELETE CASCADE NOT NULL,
  lesson_id UUID REFERENCES lessons ON DELETE CASCADE NOT NULL,
  completed_at TIMESTAMP WITH TIME ZONE DEFAULT now(),
  UNIQUE(user_id, lesson_id)
);

-- ==========================================
-- 2. B¢NG BÌNH LU¬N BÀI G¢NG (MÛi)
-- ==========================================
CREATE TABLE IF NOT EXISTS lesson_comments (
  id UUID PRIMARY KEY DEFAULT uuid_generate_v4(),
  lesson_id UUID REFERENCES lessons ON DELETE CASCADE NOT NULL,
  user_id UUID REFERENCES auth.users ON DELETE CASCADE NOT NULL,
  user_email TEXT,
  content TEXT NOT NULL,
  created_at TIMESTAMP WITH TIME ZONE DEFAULT now()
);

-- Bt Row Level Security (RLS) cho comments
ALTER TABLE lesson_comments ENABLE ROW LEVEL SECURITY;

-- Cho phép ai cing °ãc Íc bình lu-n
-- CREATE POLICY "Cho phép mÍi ng°Ýi Íc bình lu-n" ON lesson_comments
  FOR SELECT USING (true);

-- Cho phép ng°Ýi dùng ng nh-p °ãc vi¿t bình lu-n
-- CREATE POLICY "Cho phép user ng nh-p t¡o bình lu-n" ON lesson_comments
  FOR INSERT WITH CHECK (auth.uid() = user_id);

-- Cho phép ng°Ýi dùng xóa bình lu-n cça chính mình
-- CREATE POLICY "Cho phép user xóa bình lu-n cça mình" ON lesson_comments
  FOR DELETE USING (auth.uid() = user_id);

-- ==========================================
-- 3. B¢NG THÔNG BÁO Tê GIÁO VIÊN (MÛi)
-- ==========================================
CREATE TABLE IF NOT EXISTS notifications (
  id UUID PRIMARY KEY DEFAULT uuid_generate_v4(),
  title TEXT NOT NULL,
  content TEXT,
  is_global BOOLEAN DEFAULT true, -- N¿u true, t¥t c£ hÍc sinh Áu th¥y
  created_at TIMESTAMP WITH TIME ZONE DEFAULT now()
);

-- Bt Row Level Security (RLS) cho notifications
ALTER TABLE notifications ENABLE ROW LEVEL SECURITY;

-- Cho phép mÍi ng°Ýi Íc thông báo
-- CREATE POLICY "Cho phép mÍi ng°Ýi Íc thông báo" ON notifications
  FOR SELECT USING (true);

```

File: database/supabase_seed.sql (32 lines, 2.1 KB)

```
-- THÊM Dî LIÆU MªU (SEED DATA) CHO PC MASTER LMS

INSERT INTO public.schools (id, name, address, code)
VALUES
    ('11111111-1111-1111-1111-111111111111', 'THPT Chuyên Lê HÓng Phong',
    ('22222222-2222-2222-2222-222222222222', 'THPT Chuyên Khoa HÍc Tñ Nhiê
ON CONFLICT (code) DO NOTHING;

-- L°u ý: Supabase Auth qu£n lý password riêng b±ng bcrypt ß Schema 'aut
-- ViÇc seed User (c£ email/password) b±ng SQL trñc ti¿p vào auth.users
-- MÌNH KHUYÊN B N NÊN DÙNG GIAO DIÆN TRANG WEB Â NG KÝ (SIGN UP) 10

-- Tuy nhiên, d°Ûi â y là cách chèn th³ng vào Auth cho môi tr°Ýng dev (S
-- N¿u b¡n ang dùng dñ án Supabase Hosted, b¡n b t buÙc ph£i dùng Clien
-- Ã ng ký tài kho£n, sau ó vào b£ng profiles Ã Õi `role` thành 'a

/*
INSERT INTO auth.users (id, email, encrypted_password, email_confirmed_at, raw_user_meta_data)
VALUES
  ('33333333-3333-3333-3333-333333333333', 'admin@lms.com', crypt('password123', gen_salt('bf')), now(), '{"fu...
  ('44444444-4444-4444-4444-444444444444', 'teacher1@lms.com', crypt('password123', gen_salt('bf')), now(), '{...
  ('55555555-5555-5555-5555-555555555555', 'student1@lms.com', crypt('password123', gen_salt('bf')), now(), '{...
  ('66666666-6666-6666-6666-666666666666', 'parent1@lms.com', crypt('password123', gen_salt('bf')), now(), '{"...
*/

-- 3. Ví då liên k¿t phå huynh - hÍc sinh (ChÉ ch¡y °ãc sau khi tài kho
/*
INSERT INTO public.parent_student_links (parent_id, student_id, relationship)
VALUES ('66666666-6666-6666-6666-666666666666', '55555555-5555-5555-5555-555555555555', 'father');
*/

```

File: supabase/functions/generate-certificate/index.ts (153 lines, 3.9 KB)

```
import { serve } from "https://deno.land/std@0.131.0/http/server.ts"
import { createClient } from "https://esm.sh/@supabase/supabase-js@2.39.8"
import { PDFDocument, StandardFonts, rgb } from 'https://esm.sh/pdf-lib@1.17.1'
```

```
 4| import QRCode from 'https://esm.sh/qrcode@1.5.3'
 5|
 6| serve(async (req) => {
 7|   try {
 8|     const { certificateId } = await req.json()
 9|
10|     // Initialize Supabase Admin client
11|     const supabaseAdmin = createClient(
12|       Deno.env.get('SUPABASE_URL') ?? '',
13|       Deno.env.get('SUPABASE_SERVICE_ROLE_KEY') ?? ''
14|     )
15|
16|     // 1. Fetch certificate details
17|     const { data: cert, error: fetchErr } = await supabaseAdmin
18|       .from('certificates')
19|       .select('*')
20|       .eq('id', certificateId)
21|       .single()
22|
23|     if (fetchErr || !cert) {
24|       return new Response(JSON.stringify({ error: "Certificate not found" }), { status: 404 })
25|     }
26|
27|     // 2. Generate PDF
28|     const pdfDoc = await PDFDocument.create()
29|     const page = pdfDoc.addPage([842, 595]) // A4 Landscape
30|
31|     const fontBold = await pdfDoc.embedFont(StandardFonts.HelveticaBold)
32|     const fontRegular = await pdfDoc.embedFont(StandardFonts.Helvetica)
33|
34|     // Dark Background
35|     page.drawRectangle({
36|       x: 0,
37|       y: 0,
38|       width: 842,
39|       height: 595,
40|       color: rgb(0.05, 0.06, 0.075) // #0d0e13
41|     })
42|
43|     // Glowing Boarder
44|     page.drawRectangle({
45|       x: 20,
46|       y: 20,
47|       width: 802,
48|       height: 555,
49|       borderColor: rgb(0, 0.83, 0.67), // #00d4aa
50|       borderWidth: 2
51|     })
52|
53|     // Title
54|     page.drawText('CHUNG CHI HOAN THANH', {
55|       x: 260,
56|       y: 470,
57|       size: 28,
58|       font: fontBold,
59|       color: rgb(0, 0.83, 0.67)
60|     })
61|
62|     page.drawText('Chung nhan hoc vien', {
63|       x: 350,
64|       y: 420,
65|       size: 14,
66|       font: fontRegular,
67|       color: rgb(0.6, 0.6, 0.6)
68|     })
69|
70|     // Student Name
71|     page.drawText(cert.student_name, {
72|       x: 300,
73|       y: 360,
74|       size: 32,
75|       font: fontBold,
76|       color: rgb(0.87, 0.88, 0.93)
77|     })
78|
79|     // Course Title
80|     page.drawText(`Da hoan thanh xuat sac khoa hoc`, {
81|       x: 310,
82|       y: 310,
83|       size: 14,
84|       font: fontRegular,
85|       color: rgb(0.6, 0.6, 0.6)
86|     })
87|
88|     page.drawText(cert.course_title, {
89|       x: 270,
90|       y: 260,
91|       size: 20,
92|       font: fontBold,
93|       color: rgb(0, 0.83, 0.67)
94|     })
95|
96|     // Info
97|     page.drawText(`Diem: ${cert.final_score}% | Ngay cap: ${cert.completion_date}`, {
98|       x: 280,
99|       y: 200,
100|       size: 12,
101|       font: fontRegular,
102|       color: rgb(0.6, 0.6, 0.6)
103|     })
104|
105|     page.drawText(`Ma chung chi: ${cert.certificate_number}`, {
106|       x: 310,
107|       y: 160,
108|       size: 12,
109|       font: fontRegular,
110|       color: rgb(0.6, 0.6, 0.6)
111|     })
112|
113|     // 9. QR Code verify url
114|     const qrDataUrl = await QRCode.toDataURL(cert.verify_url)
115|     const qrImageBytes = Uint8Array.from(atob(qrDataUrl.split(',')[1]), c => c.charCodeAt(0))
116|     const qrImage = await pdfDoc.embedPng(qrImageBytes)
117|     page.drawImage(qrImage, {
118|       x: 700,
119|       y: 40,
120|       width: 90,
121|       height: 90
122|     })
123|
124|     // Save PDF
125|     const pdfBytes = await pdfDoc.save()
126|
127|     // 11. Upload to Supabase Storage
```

```
  128|     const { error: uploadErr } = await supabaseAdmin.storage
  129|       .from('certificates')
  130|       .upload(`${certificateId}.pdf`, pdfBytes, {
  131|         contentType: 'application/pdf',
  132|         upsert: true
  133|       })
  134|
  135|     if (uploadErr) throw uploadErr
  136|
  137|     const publicUrl = supabaseAdmin.storage
  138|       .from('certificates').getPublicUrl(`${certificateId}.pdf`).data.publicUrl
  139|
  140|     // 12. Update Certificate PDF url
  141|     await supabaseAdmin
  142|       .from('certificates')
  143|       .update({ pdf_url: publicUrl })
  144|       .eq('id', certificateId)
  145|
  146|     return new Response(JSON.stringify({ pdfUrl: publicUrl }), {
  147|       headers: { "Content-Type": "application/json" }
  148|     })
  149|   } catch (err: any) {
  150|     return new Response(JSON.stringify({ error: err.message }), { status: 500 })
  151|   }
  152| })
  153|
```

File: supabase/functions/send-notification/index.ts (33 lines, 1.1 KB)

```
    1| // Follow this setup guide to integrate the Deno language server with your editor:
    2| // https://deno.land/manual/getting_started/setup_your_environment
    3| // This enables autocomplete, go to definition, etc.
    4|
    5| // Setup type definitions for built-in Supabase Runtime APIs
    6| import "@supabase/functions-js/edge-runtime.d.ts"
    7|
    8| console.log("Hello from Functions!")
    9|
   10| Deno.serve(async (req) => {
   11|   const { name } = await req.json()
   12|   const data = {
   13|     message: `Hello ${name}!`,
   14|   }
   15|
   16|   return new Response(
   17|     JSON.stringify(data),
   18|     { headers: { "Content-Type": "application/json" } },
   19|   )
   20| })
   21|
   22| /* To invoke locally:
   23|
   24|   1. Run `supabase start` (see: https://supabase.com/docs/reference/cli/supabase-start)
   25|   2. Make an HTTP request:
   26|
   27|   curl -i --location --request POST 'http://127.0.0.1:54321/functions/v1/send-notification' \
   28|     --header 'Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJzdXBhYmFzZS1kZW1vIiwicm9sZ...
   29|     --header 'Content-Type: application/json' \
   30|     --data '{"name":"Functions"}'
   31|
   32| */
   33|
```

File: supabase/migrations/20260518093525_create_parent_role.sql (831 lines, 33.7 KB)

```
    1| -- ==================================================================
    2| -- UNIFIED MIGRATION: LMS SCHEMA INITIALIZATION & PARENT ROLE SETUP
    3| -- Target Path: supabase/migrations/20260518093525_create_parent_role.sql
    4| -- ==================================================================
    5|
       6 |   - -  % % %   B ¯ Ú C   1 :   K H Þ I   T   O   C Á C   B ¢ N G   N À N   T ¢ N G   ( T H E O   Ú N G   T H è   T ð   P H ä   T H U Ø C   F H
    7|
       8 |   - -   1 .   B £ n g   s c h o o l s
    9| CREATE TABLE IF NOT EXISTS public.schools (
   10|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
   11|   name TEXT NOT NULL,
   12|   address TEXT,
      1 3 |       c o d e   T E X T   U N I Q U E   N O T   N U L L ,   - -   m ã   t r ° Ý n g   6   k ý   t ñ
   14|   created_at TIMESTAMPTZ DEFAULT NOW()
   15| );
   16|
      1 7 |   - -   2 .   B £ n g   p r o f i l e s   ( t h a m   c h i ¿ u   a u t h . u s e r s   v à   s c h o o l s )
   18| CREATE TABLE IF NOT EXISTS public.profiles (
   19|   id UUID REFERENCES auth.users(id) ON DELETE CASCADE PRIMARY KEY,
   20|   email TEXT NOT NULL,
   21|   full_name TEXT NOT NULL,
   22|   role TEXT NOT NULL CHECK (role IN ('student', 'teacher', 'admin', 'parent')),
   23|   created_at TIMESTAMPTZ DEFAULT NOW(),
   24|   updated_at TIMESTAMPTZ DEFAULT NOW()
   25| );
   26|
      2 7 |   - -   B Õ   s u n g   c á c   t r ° Ý n g   q u a n   t r Í n g   c h o   p r o f i l e s   n ¿ u   b £ n g   ã   t Ó n   t ¡ i   t r ° Û c
   28| ALTER TABLE public.profiles
   29|   ADD COLUMN IF NOT EXISTS school_id UUID REFERENCES public.schools(id),
   30|   ADD COLUMN IF NOT EXISTS school_name TEXT,
   31|   ADD COLUMN IF NOT EXISTS student_code TEXT UNIQUE,
   32|   ADD COLUMN IF NOT EXISTS avatar_url TEXT,
   33|   ADD COLUMN IF NOT EXISTS bio TEXT,
   34|   ADD COLUMN IF NOT EXISTS date_of_birth DATE,
   35|   ADD COLUMN IF NOT EXISTS phone TEXT,
   36|   ADD COLUMN IF NOT EXISTS xp INTEGER DEFAULT 0,
   37|   ADD COLUMN IF NOT EXISTS level INTEGER DEFAULT 1;
   38|
      3 9 |   - -   3 .   B £ n g   c o u r s e s
   40| CREATE TABLE IF NOT EXISTS public.courses (
   41|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
   42|   teacher_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
   43|   title TEXT NOT NULL,
   44|   description TEXT,
   45|   thumbnail_url TEXT,
   46|   category TEXT,
      4 7 |       l e v e l   T E X T   D E F A U L T   ' C ¡   b £ n ' ,
   48|   is_published BOOLEAN DEFAULT false,
   49|   created_at TIMESTAMPTZ DEFAULT now()
   50| );
   51|
      5 2 |   - -   4 .   B £ n g   l e s s o n s
   53| CREATE TABLE IF NOT EXISTS public.lessons (
   54|   id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
   55|   title TEXT NOT NULL,
   56|   created_at TIMESTAMPTZ DEFAULT now(),
```

```
  updated_at TIMESTAMPTZ DEFAULT now()
);

-- Bổ sung các cột cho lessons đúng bù
ALTER TABLE public.lessons
  ADD COLUMN IF NOT EXISTS course_id UUID REFERENCES public.courses(id) ON DELETE CASCADE,
  ADD COLUMN IF NOT EXISTS teacher_id UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
  ADD COLUMN IF NOT EXISTS description TEXT,
  ADD COLUMN IF NOT EXISTS thumbnail_url TEXT,
  ADD COLUMN IF NOT EXISTS is_published BOOLEAN DEFAULT false;

-- 5. Bảng lesson_sections (chứa video, pdf, quiz, text)
CREATE TABLE IF NOT EXISTS public.lesson_sections (
  id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  lesson_id UUID REFERENCES public.lessons(id) ON DELETE CASCADE,
  title TEXT NOT NULL,
  content_type TEXT NOT NULL, -- 'video', 'pdf', 'quiz', 'text'
  content_url TEXT,
  content_body TEXT,
  order_index INTEGER DEFAULT 0,
  created_at TIMESTAMPTZ DEFAULT now()
);

-- 6. Bảng classes (lớp học)
CREATE TABLE IF NOT EXISTS public.classes (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  name TEXT NOT NULL,
  code TEXT UNIQUE NOT NULL, -- "TIN001" (tên sinh)
  teacher_id UUID REFERENCES public.profiles(id) NOT NULL,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

ALTER TABLE public.classes
  ADD COLUMN IF NOT EXISTS school_id UUID REFERENCES public.schools(id),
  ADD COLUMN IF NOT EXISTS grade TEXT,
  ADD COLUMN IF NOT EXISTS school_year TEXT,
  ADD COLUMN IF NOT EXISTS subject TEXT DEFAULT 'Tin học',
  ADD COLUMN IF NOT EXISTS description TEXT,
  ADD COLUMN IF NOT EXISTS is_active BOOLEAN DEFAULT TRUE,
  ADD COLUMN IF NOT EXISTS max_students INTEGER DEFAULT 40;

-- 7. Bảng class_members (thành viên lớp)
CREATE TABLE IF NOT EXISTS public.class_members (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE,
  student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  joined_at TIMESTAMPTZ DEFAULT NOW(),
  status TEXT DEFAULT 'active' CHECK (status IN ('active', 'suspended', 'left')),
  UNIQUE(class_id, student_id)
);

-- 8. Bảng assignments (bài tập)
CREATE TABLE IF NOT EXISTS public.assignments (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  title TEXT NOT NULL,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

ALTER TABLE public.assignments
  ADD COLUMN IF NOT EXISTS class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE,
  ADD COLUMN IF NOT EXISTS teacher_id UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
  ADD COLUMN IF NOT EXISTS lesson_id UUID REFERENCES public.lessons(id) ON DELETE SET NULL,
  ADD COLUMN IF NOT EXISTS description TEXT,
  ADD COLUMN IF NOT EXISTS type TEXT CHECK (type IN (
    'build_config',          -- Lập ráp PC theo yêu cầu
    'optimize_budget',       -- Tối ưu trong ngân sách X
    'minimize_tdp',          -- Giảm TDP xuống dưới Y watt
    'maximize_perf',         -- Tối ưu hiệu năng
    'quiz',                  -- Trắc nghiệm lý thuyết
    'mixed'                  -- Kết hợp
  )),
  ADD COLUMN IF NOT EXISTS requirements JSONB DEFAULT '{}'::jsonb,
  ADD COLUMN IF NOT EXISTS max_score INTEGER DEFAULT 100,
  ADD COLUMN IF NOT EXISTS deadline TIMESTAMPTZ,
  ADD COLUMN IF NOT EXISTS due_date TIMESTAMPTZ,
  ADD COLUMN IF NOT EXISTS is_published BOOLEAN DEFAULT FALSE,
  ADD COLUMN IF NOT EXISTS allow_late_submit BOOLEAN DEFAULT FALSE,
  ADD COLUMN IF NOT EXISTS late_penalty_percent INTEGER DEFAULT 20;

-- 9. Bảng submissions (bài nộp)
CREATE TABLE IF NOT EXISTS public.submissions (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  assignment_id UUID REFERENCES public.assignments(id) ON DELETE CASCADE,
  student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE,
  pc_config JSONB,
  total_score INTEGER,
  auto_score INTEGER,
  teacher_score INTEGER,
  feedback TEXT,
  submitted_at TIMESTAMPTZ DEFAULT NOW(),
  is_late BOOLEAN DEFAULT FALSE,
  graded_at TIMESTAMPTZ,
  UNIQUE(assignment_id, student_id)
);

-- 10. Bảng parent_student_links (liên kết phả huynh - học sinh)
CREATE TABLE IF NOT EXISTS public.parent_student_links (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  parent_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  relationship TEXT DEFAULT 'parent' CHECK (relationship IN ('father','mother','guardian','sibling','other')),
  linked_at TIMESTAMPTZ DEFAULT NOW(),
  status TEXT DEFAULT 'active' CHECK (status IN ('active','revoked')),
  revoked_at TIMESTAMPTZ,
  revoked_by UUID REFERENCES public.profiles(id),
  UNIQUE(parent_id, student_id)
);

-- Đảm các cột quan trọng tồn tại trong parent_student_links phòng t
ALTER TABLE public.parent_student_links
  ADD COLUMN IF NOT EXISTS relationship TEXT DEFAULT 'parent' CHECK (relationship IN ('father','mother','guard...
  ADD COLUMN IF NOT EXISTS status TEXT DEFAULT 'active' CHECK (status IN ('active','revoked')),
  ADD COLUMN IF NOT EXISTS revoked_at TIMESTAMPTZ,
  ADD COLUMN IF NOT EXISTS revoked_by UUID REFERENCES public.profiles(id),
  ADD COLUMN IF NOT EXISTS linked_at TIMESTAMPTZ DEFAULT NOW();

-- 11. Bảng lesson_progress (tiến độ học bài)
CREATE TABLE IF NOT EXISTS public.lesson_progress (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  student_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  lesson_id UUID NOT NULL REFERENCES public.lessons(id) ON DELETE CASCADE,
  status TEXT DEFAULT 'not_started' CHECK (status IN ('not_started','in_progress','completed')),
  completion_percentage INT DEFAULT 0 CHECK (completion_percentage BETWEEN 0 AND 100),
```

```
  time_spent_seconds INT DEFAULT 0,
  last_accessed TIMESTAMPTZ,
  completed_at TIMESTAMPTZ,
  UNIQUE(student_id, lesson_id)
);

-- £m b£o các cÙt ti¿n Ù hÍc t-p có §y ç
ALTER TABLE public.lesson_progress
  ADD COLUMN IF NOT EXISTS completion_percentage INT DEFAULT 0 CHECK (completion_percentage BETWEEN 0 AND 100),
  ADD COLUMN IF NOT EXISTS time_spent_seconds INT DEFAULT 0,
  ADD COLUMN IF NOT EXISTS last_accessed TIMESTAMPTZ;

-- 12. B£ng notifications (thông báo)
CREATE TABLE IF NOT EXISTS public.notifications (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  user_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  type TEXT NOT NULL CHECK (type IN (
    'quiz_graded',
    'lesson_completed',
    'assignment_submitted',
    'achievement_earned',
    'child_absent',
    'child_low_score',
    'child_completed_path',
    'parent_link_request',
    'teacher_message',
    'system'
  )),
  title TEXT NOT NULL,
  body TEXT NOT NULL,
  data JSONB,
  action_url TEXT,
  is_read BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

-- 13. B£ng daily_quests (nhiÇm vå hàng ngày) và user_quests
CREATE TABLE IF NOT EXISTS public.daily_quests (
  id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  title TEXT NOT NULL,
  description TEXT,
  xp_reward INTEGER DEFAULT 100,
  created_at TIMESTAMPTZ DEFAULT now()
);

CREATE TABLE IF NOT EXISTS public.user_quests (
  id UUID PRIMARY KEY DEFAULT gen_random_uuid(),
  user_id UUID REFERENCES auth.users(id) ON DELETE CASCADE,
  quest_id UUID REFERENCES public.daily_quests(id) ON DELETE CASCADE,
  is_completed BOOLEAN DEFAULT false,
  completed_at TIMESTAMPTZ,
  created_at TIMESTAMPTZ DEFAULT now()
);

-- Tao Unique Index Ùc l-p cho user_quests (Thay thi cho UNIQUE constra
CREATE UNIQUE INDEX IF NOT EXISTS user_quests_user_quest_date_idx
  ON public.user_quests (user_id, quest_id, ((created_at AT TIME ZONE 'UTC')::date));

-- 14. HÇ thÑng Quiz Engine
CREATE TABLE IF NOT EXISTS public.question_banks (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  teacher_id UUID REFERENCES public.profiles(id) NOT NULL,
  title TEXT NOT NULL,
  subject TEXT DEFAULT 'Tin hÍc - L¯p ráp PC',
  description TEXT,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  updated_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.questions (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  bank_id UUID REFERENCES public.question_banks(id) ON DELETE CASCADE,
  content TEXT NOT NULL,
  type TEXT CHECK (type IN ('single_choice', 'multiple_choice', 'true_false', 'fill_blank', 'ordering')) NOT N...
  difficulty TEXT CHECK (difficulty IN ('easy','medium','hard')) DEFAULT 'medium',
  points INT DEFAULT 10,
  explanation TEXT,
  image_url TEXT,
  tags TEXT[],
  "order" INT DEFAULT 0,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.question_options (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  question_id UUID REFERENCES public.questions(id) ON DELETE CASCADE,
  content TEXT NOT NULL,
  is_correct BOOLEAN DEFAULT FALSE,
  "order" INT DEFAULT 0
);

CREATE TABLE IF NOT EXISTS public.quizzes (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  teacher_id UUID REFERENCES public.profiles(id) NOT NULL,
  lesson_id UUID REFERENCES public.lessons(id) ON DELETE SET NULL,
  class_id UUID,
  title TEXT NOT NULL,
  description TEXT,
  time_limit_minutes INT,
  passing_score INT DEFAULT 70,
  randomize_questions BOOLEAN DEFAULT TRUE,
  randomize_options BOOLEAN DEFAULT TRUE,
  max_attempts INT DEFAULT 3,
  show_answers_after TEXT DEFAULT 'after_submit' CHECK (show_answers_after IN ('never', 'after_submit', 'after...
  available_from TIMESTAMPTZ,
  available_until TIMESTAMPTZ,
  is_published BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.quiz_questions (
  quiz_id UUID REFERENCES public.quizzes(id) ON DELETE CASCADE,
  question_id UUID REFERENCES public.questions(id) ON DELETE CASCADE,
  "order" INT,
  PRIMARY KEY (quiz_id, question_id)
);

CREATE TABLE IF NOT EXISTS public.quiz_attempts (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  quiz_id UUID REFERENCES public.quizzes(id) ON DELETE CASCADE,
  student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  started_at TIMESTAMPTZ DEFAULT NOW(),
  submitted_at TIMESTAMPTZ,
  time_taken_seconds INT,
```

```
  score NUMERIC(5,2),
  max_score INT,
  status TEXT DEFAULT 'in_progress' CHECK (status IN ('in_progress','submitted','graded','expired')),
  attempt_number INT DEFAULT 1
);

CREATE TABLE IF NOT EXISTS public.quiz_answers (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  attempt_id UUID REFERENCES public.quiz_attempts(id) ON DELETE CASCADE,
  question_id UUID REFERENCES public.questions(id) ON DELETE CASCADE,
  selected_option_ids UUID[],
  text_answer TEXT,
  ordering_answer UUID[],
  is_correct BOOLEAN,
  points_earned NUMERIC(5,2) DEFAULT 0,
  time_spent_seconds INT
);

-- 15. LÙ trình hÍc (Learning Path)
CREATE TABLE IF NOT EXISTS public.learning_paths (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  class_id UUID,
  title TEXT NOT NULL,
  description TEXT,
  is_active BOOLEAN DEFAULT TRUE,
  created_by UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.path_items (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  path_id UUID REFERENCES public.learning_paths(id) ON DELETE CASCADE,
  item_type TEXT CHECK (item_type IN ('lesson','quiz','lab_session','milestone')),
  item_id UUID,
  title TEXT NOT NULL,
  description TEXT,
  "order" INT NOT NULL,
  unlock_condition JSONB,
  estimated_minutes INT,
  is_optional BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  UNIQUE(path_id, "order")
);

-- 16. B£ng diÃn àn / th£o lu-n (Discussion Forum)
CREATE TABLE IF NOT EXISTS public.discussion_threads (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  lesson_id UUID NOT NULL,
  author_id UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
  title TEXT NOT NULL,
  body TEXT NOT NULL,
  type TEXT DEFAULT 'question' CHECK (type IN ('question','discussion','announcement')),
  status TEXT DEFAULT 'open' CHECK (status IN ('open','resolved','pinned','closed')),
  upvote_count INT DEFAULT 0,
  reply_count INT DEFAULT 0,
  is_deleted BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  updated_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.discussion_replies (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  thread_id UUID REFERENCES public.discussion_threads(id) ON DELETE CASCADE,
  parent_reply_id UUID REFERENCES public.discussion_replies(id) ON DELETE CASCADE,
  author_id UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
  body TEXT NOT NULL,
  is_teacher_answer BOOLEAN DEFAULT FALSE,
  upvote_count INT DEFAULT 0,
  is_deleted BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

CREATE TABLE IF NOT EXISTS public.discussion_upvotes (
  user_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
  thread_id UUID REFERENCES public.discussion_threads(id) ON DELETE CASCADE,
  reply_id UUID REFERENCES public.discussion_replies(id) ON DELETE CASCADE,
  created_at TIMESTAMPTZ DEFAULT NOW(),
  CONSTRAINT one_target CHECK ((thread_id IS NULL) != (reply_id IS NULL)),
  UNIQUE(user_id, thread_id),
  UNIQUE(user_id, reply_id)
);


-- %%% BÚC 2: CÁC FUNCTION & TRIGGER QUAN TRÌNG (HÌC SINH & PHä HUYNH)

-- 1. £m b£o vai trò profiles_role_check §y ç vai trò
ALTER TABLE public.profiles DROP CONSTRAINT IF EXISTS profiles_role_check;
ALTER TABLE public.profiles ADD CONSTRAINT profiles_role_check CHECK (role IN ('student', 'teacher', 'admin', ...

-- 2. Sinh mã Ënh danh PCM-XXXXXXXX tñ Ùng
CREATE OR REPLACE FUNCTION generate_student_code()
RETURNS TEXT AS $$
DECLARE
  chars TEXT := 'ABCDEFGHJKLMNPQRSTUVWXYZ23456789';
  result TEXT := 'PCM-';
  i INTEGER;
BEGIN
  FOR i IN 1..8 LOOP
    result := result || substr(chars, floor(random() * length(chars) + 1)::int, 1);
  END LOOP;
  RETURN result;
END;
$$ LANGUAGE plpgsql;

-- Trigger sinh student_code trºÛc khi thêm mÛi profile
CREATE OR REPLACE FUNCTION auto_generate_student_code()
RETURNS TRIGGER AS $$
BEGIN
  IF NEW.role = 'student' AND NEW.student_code IS NULL THEN
    LOOP
      NEW.student_code := generate_student_code();
      EXIT WHEN NOT EXISTS (
        SELECT 1 FROM profiles WHERE student_code = NEW.student_code
      );
    END LOOP;
  END IF;
  RETURN NEW;
END;
$$ LANGUAGE plpgsql;

DROP TRIGGER IF EXISTS trigger_auto_student_code ON public.profiles;
CREATE TRIGGER trigger_auto_student_code
  BEFORE INSERT ON public.profiles
  FOR EACH ROW EXECUTE FUNCTION auto_generate_student_code();
```

```
429|
  4 3 0 |  - -  T ñ   Ù n g   i Á n  s t u d e n t _ c o d e  c h o  h Í c  s i n h  c i  n ¿ u  b Ë  t h i ¿ u
431| UPDATE public.profiles
432| SET student_code = generate_student_code()
433| WHERE role = 'student' AND student_code IS NULL;
434|
  4 3 5 |  - -  3 .  T r i g g e r  t ñ   Ù n g  t ¡ o  P r o f i l e  k h i  n g ° Ý i  d ù n g    n g  k ý  t à i  k h o £ n  q u a  S
436| CREATE OR REPLACE FUNCTION public.handle_new_user()
437| RETURNS TRIGGER AS $$
438| BEGIN
439|   INSERT INTO public.profiles (id, email, full_name, role)
440|   VALUES (
441|     NEW.id,
442|     NEW.email,
443|     COALESCE(NEW.raw_user_meta_data->>'full_name', split_part(NEW.email, '@', 1)),
444|     COALESCE(NEW.raw_user_meta_data->>'role', 'student')
445|   );
446|   RETURN NEW;
447| END;
448| $$ LANGUAGE plpgsql SECURITY DEFINER;
449|
450| DROP TRIGGER IF EXISTS on_auth_user_created ON auth.users;
451| CREATE TRIGGER on_auth_user_created
452|   AFTER INSERT ON auth.users
453|   FOR EACH ROW EXECUTE FUNCTION public.handle_new_user();
454|
  4 5 5 |  - -  4 .  T r i g g e r   Ó n g  b Ù  s Ñ  l ° ã n g  c â u  t r £  l Ý i  t r o n g  D i Ä n   à n  t h £ o  l u - n
456| CREATE OR REPLACE FUNCTION update_reply_count()
457| RETURNS TRIGGER AS $$
458| BEGIN
459|   UPDATE public.discussion_threads
460|   SET reply_count = reply_count + 1
461|   WHERE id = NEW.thread_id;
462|   RETURN NEW;
463| END;
464| $$ LANGUAGE plpgsql;
465|
466| DROP TRIGGER IF EXISTS on_reply_insert ON public.discussion_replies;
467| CREATE TRIGGER on_reply_insert
468|   AFTER INSERT ON public.discussion_replies
469|   FOR EACH ROW EXECUTE FUNCTION update_reply_count();
470|
471|
  4 7 2 |  - -  % % %   B ¯ Ú C  3 :  H Æ  T H Đ N G  P H Â N  Q U Y À N  B ¢ O  M ¬ T  R O W  L E V E L  S E C U R I T Y  ( R L S )  % % %
473|
  4 7 4 |  - -  B - t  R L S  c h o  c á c  b £ n g
475| ALTER TABLE public.profiles ENABLE ROW LEVEL SECURITY;
476| ALTER TABLE public.schools ENABLE ROW LEVEL SECURITY;
477| ALTER TABLE public.parent_student_links ENABLE ROW LEVEL SECURITY;
478| ALTER TABLE public.lessons ENABLE ROW LEVEL SECURITY;
479| ALTER TABLE public.lesson_sections ENABLE ROW LEVEL SECURITY;
480| ALTER TABLE public.classes ENABLE ROW LEVEL SECURITY;
481| ALTER TABLE public.class_members ENABLE ROW LEVEL SECURITY;
482| ALTER TABLE public.assignments ENABLE ROW LEVEL SECURITY;
483| ALTER TABLE public.submissions ENABLE ROW LEVEL SECURITY;
484| ALTER TABLE public.lesson_progress ENABLE ROW LEVEL SECURITY;
485| ALTER TABLE public.notifications ENABLE ROW LEVEL SECURITY;
486| ALTER TABLE public.daily_quests ENABLE ROW LEVEL SECURITY;
487| ALTER TABLE public.user_quests ENABLE ROW LEVEL SECURITY;
488| ALTER TABLE public.quiz_attempts ENABLE ROW LEVEL SECURITY;
489| ALTER TABLE public.quiz_answers ENABLE ROW LEVEL SECURITY;
490| ALTER TABLE public.learning_paths ENABLE ROW LEVEL SECURITY;
491| ALTER TABLE public.path_items ENABLE ROW LEVEL SECURITY;
492| ALTER TABLE public.discussion_threads ENABLE ROW LEVEL SECURITY;
493| ALTER TABLE public.discussion_replies ENABLE ROW LEVEL SECURITY;
494| ALTER TABLE public.discussion_upvotes ENABLE ROW LEVEL SECURITY;
495|
  4 9 6 |  - -  C À I   ¶ T  P O L I C I E S  ( T ñ   Ù n g  x o á  n ¿ u  t Ó n  t ¡ i   Ã  t r á n h  l × i  d u p l i c a t e )
497|
  4 9 8 |  - -  % % %   P R O F I L E S  &  S C H O O L S  % % %
499| DROP POLICY IF EXISTS "Users read own profile" ON public.profiles;
500| CREATE POLICY "Users read own profile" ON public.profiles FOR SELECT USING (auth.uid() = id);
501|
502| DROP POLICY IF EXISTS "Admin read all profiles" ON public.profiles;
503| CREATE POLICY "Admin read all profiles" ON public.profiles FOR SELECT USING (
504|   EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'admin')
505| );
506|
507| DROP POLICY IF EXISTS "Users update own profile" ON public.profiles;
508| CREATE POLICY "Users update own profile" ON public.profiles FOR UPDATE USING (auth.uid() = id);
509|
510| DROP POLICY IF EXISTS "Schools are viewable by everyone" ON public.schools;
511| CREATE POLICY "Schools are viewable by everyone" ON public.schools FOR SELECT USING (true);
512|
  5 1 3 |  - -  % % %   P A R E N T  -  S T U D E N T  L I N K S  % % %
514| DROP POLICY IF EXISTS "parent_own_links" ON public.parent_student_links;
515| CREATE POLICY "parent_own_links" ON public.parent_student_links FOR ALL USING (parent_id = auth.uid());
516|
517| DROP POLICY IF EXISTS "student_view_own_links" ON public.parent_student_links;
518| CREATE POLICY "student_view_own_links" ON public.parent_student_links FOR SELECT USING (student_id = auth.uid());
519|
520| DROP POLICY IF EXISTS "student_revoke_link" ON public.parent_student_links;
521| CREATE POLICY "student_revoke_link" ON public.parent_student_links FOR UPDATE USING (student_id = auth.uid())
522|   WITH CHECK (status = 'revoked' AND revoked_by = auth.uid());
523|
  5 2 4 |  - -  % % %   L E S S O N S  &  S E C T I O N S  % % %
525| DROP POLICY IF EXISTS "teacher_own_lessons" ON public.lessons;
526| CREATE POLICY "teacher_own_lessons" ON public.lessons FOR ALL USING (teacher_id = auth.uid());
527|
528| DROP POLICY IF EXISTS "published_lessons_readable" ON public.lessons;
529| CREATE POLICY "published_lessons_readable" ON public.lessons FOR SELECT USING (is_published = TRUE);
530|
531| DROP POLICY IF EXISTS "lesson_sections_via_lesson" ON public.lesson_sections;
532| CREATE POLICY "lesson_sections_via_lesson" ON public.lesson_sections FOR SELECT USING (
533|   EXISTS (SELECT 1 FROM public.lessons l WHERE l.id = lesson_id AND (l.is_published = TRUE OR l.teacher_id = a...
534| );
535|
536| DROP POLICY IF EXISTS "teacher_manage_sections" ON public.lesson_sections;
537| CREATE POLICY "teacher_manage_sections" ON public.lesson_sections FOR ALL USING (
538|   EXISTS (SELECT 1 FROM public.lessons l WHERE l.id = lesson_id AND l.teacher_id = auth.uid())
539| );
540|
  5 4 1 |  - -  % % %   C L A S S E S  &  M E M B E R S  % % %
542| DROP POLICY IF EXISTS "teacher_own_classes" ON public.classes;
543| CREATE POLICY "teacher_own_classes" ON public.classes FOR ALL USING (teacher_id = auth.uid());
544|
545| DROP POLICY IF EXISTS "student_view_enrolled_class" ON public.classes;
546| CREATE POLICY "student_view_enrolled_class" ON public.classes FOR SELECT USING (
547|   EXISTS (SELECT 1 FROM public.class_members cm WHERE cm.class_id = id AND cm.student_id = auth.uid())
548| );
549|
550| DROP POLICY IF EXISTS "teacher_manage_class_members" ON public.class_members;
551| CREATE POLICY "teacher_manage_class_members" ON public.class_members FOR ALL USING (
552|   EXISTS (SELECT 1 FROM public.classes c WHERE c.id = class_id AND c.teacher_id = auth.uid())
```

```
553| );
554|
555| DROP POLICY IF EXISTS "student_view_own_membership" ON public.class_members;
556| CREATE POLICY "student_view_own_membership" ON public.class_members FOR SELECT USING (student_id = auth.uid());
557|
558| DROP POLICY IF EXISTS "student_can_join_class" ON public.class_members;
559| CREATE POLICY "student_can_join_class" ON public.class_members FOR INSERT WITH CHECK (student_id = auth.uid());
560|
  5 6 1 |  - -  % % %   A S S I G N M E N T S   &   S U B M I S S I O N S  % % %
562| DROP POLICY IF EXISTS "teacher_own_assignments" ON public.assignments;
563| CREATE POLICY "teacher_own_assignments" ON public.assignments FOR ALL USING (teacher_id = auth.uid());
564|
565| DROP POLICY IF EXISTS "student_view_class_assignments" ON public.assignments;
566| CREATE POLICY "student_view_class_assignments" ON public.assignments FOR SELECT USING (
567|   EXISTS (SELECT 1 FROM public.class_members cm WHERE cm.class_id = assignments.class_id AND cm.student_id = a...
568| );
569|
570| DROP POLICY IF EXISTS "student_sees_own_submissions" ON public.submissions;
571| CREATE POLICY "student_sees_own_submissions" ON public.submissions FOR ALL USING (student_id = auth.uid());
572|
573| DROP POLICY IF EXISTS "teacher_sees_class_submissions" ON public.submissions;
574| CREATE POLICY "teacher_sees_class_submissions" ON public.submissions FOR ALL USING (
575|   EXISTS (SELECT 1 FROM public.classes c WHERE c.id = class_id AND c.teacher_id = auth.uid())
576| );
577|
  5 7 8 |  - -  % % %   L E S S O N   P R O G R E S S   ( H Í c   s i n h   &   P h ả   h u y n h )  % % %
579| DROP POLICY IF EXISTS "student_own_progress" ON public.lesson_progress;
580| CREATE POLICY "student_own_progress" ON public.lesson_progress FOR ALL USING (student_id = auth.uid());
581|
582| DROP POLICY IF EXISTS "teacher_view_class_progress" ON public.lesson_progress;
583| CREATE POLICY "teacher_view_class_progress" ON public.lesson_progress FOR SELECT USING (
584|   EXISTS (
585|     SELECT 1 FROM public.classes c
586|     JOIN public.class_members cm ON cm.class_id = c.id
587|     WHERE cm.student_id = lesson_progress.student_id AND c.teacher_id = auth.uid()
588|   )
589| );
590|
591| DROP POLICY IF EXISTS "parent_view_child_progress" ON public.lesson_progress;
592| CREATE POLICY "parent_view_child_progress" ON public.lesson_progress FOR SELECT USING (
593|   EXISTS (
594|     SELECT 1 FROM public.parent_student_links psl
595|     WHERE psl.parent_id = auth.uid() AND psl.student_id = lesson_progress.student_id AND psl.status = 'active'
596|   )
597| );
598|
  5 9 9 |  - -  % % %   N O T I F I C A T I O N S  % % %
600| DROP POLICY IF EXISTS "own_notifications" ON public.notifications;
601| CREATE POLICY "own_notifications" ON public.notifications FOR ALL USING (user_id = auth.uid());
602|
  6 0 3 |  - -  % % %   Q U I Z   E N G I N E  % % %
604| DROP POLICY IF EXISTS "student_own_attempts" ON public.quiz_attempts;
605| CREATE POLICY "student_own_attempts" ON public.quiz_attempts FOR ALL USING (student_id = auth.uid());
606|
607| DROP POLICY IF EXISTS "student_own_answers" ON public.quiz_answers;
608| CREATE POLICY "student_own_answers" ON public.quiz_answers FOR ALL USING (
609|   EXISTS (SELECT 1 FROM public.quiz_attempts WHERE id = attempt_id AND student_id = auth.uid())
610| );
611|
612| DROP POLICY IF EXISTS "teacher_view_attempts" ON public.quiz_attempts;
613| CREATE POLICY "teacher_view_attempts" ON public.quiz_attempts FOR SELECT USING (
614|   EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
615| );
616|
  6 1 7 |  - -  % % %   L E A R N I N G   P A T H  % % %
618| DROP POLICY IF EXISTS "view_paths" ON public.learning_paths;
619| CREATE POLICY "view_paths" ON public.learning_paths FOR SELECT USING (true);
620|
621| DROP POLICY IF EXISTS "manage_paths" ON public.learning_paths;
622| CREATE POLICY "manage_paths" ON public.learning_paths FOR ALL USING (
623|   EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
624| );
625|
626| DROP POLICY IF EXISTS "view_path_items" ON public.path_items;
627| CREATE POLICY "view_path_items" ON public.path_items FOR SELECT USING (true);
628|
629| DROP POLICY IF EXISTS "manage_path_items" ON public.path_items;
630| CREATE POLICY "manage_path_items" ON public.path_items FOR ALL USING (
631|   EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
632| );
633|
  6 3 4 |  - -  % % %   D I S C U S S I O N   F O R U M S  % % %
635| DROP POLICY IF EXISTS "view_threads" ON public.discussion_threads;
636| CREATE POLICY "view_threads" ON public.discussion_threads FOR SELECT USING (true);
637|
638| DROP POLICY IF EXISTS "create_thread" ON public.discussion_threads;
639| CREATE POLICY "create_thread" ON public.discussion_threads FOR INSERT WITH CHECK (author_id = auth.uid());
640|
641| DROP POLICY IF EXISTS "delete_own_or_teacher_thread" ON public.discussion_threads;
642| CREATE POLICY "delete_own_or_teacher_thread" ON public.discussion_threads FOR UPDATE USING (
643|   author_id = auth.uid() OR EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
644| );
645|
646| DROP POLICY IF EXISTS "view_replies" ON public.discussion_replies;
647| CREATE POLICY "view_replies" ON public.discussion_replies FOR SELECT USING (true);
648|
649| DROP POLICY IF EXISTS "create_reply" ON public.discussion_replies;
650| CREATE POLICY "create_reply" ON public.discussion_replies FOR INSERT WITH CHECK (author_id = auth.uid());
651|
652| DROP POLICY IF EXISTS "delete_own_or_teacher_reply" ON public.discussion_replies;
653| CREATE POLICY "delete_own_or_teacher_reply" ON public.discussion_replies FOR UPDATE USING (
654|   author_id = auth.uid() OR EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
655| );
656|
657| DROP POLICY IF EXISTS "manage_upvotes" ON public.discussion_upvotes;
658| CREATE POLICY "manage_upvotes" ON public.discussion_upvotes FOR ALL USING (user_id = auth.uid());
659|
  6 6 0 |  - -  % % %   D A I L Y   Q U E S T S  % % %
661| DROP POLICY IF EXISTS "Everyone can view quests" ON public.daily_quests;
662| CREATE POLICY "Everyone can view quests" ON public.daily_quests FOR SELECT USING (true);
663|
664| DROP POLICY IF EXISTS "Users can view their own quest progress" ON public.user_quests;
665| CREATE POLICY "Users can view their own quest progress" ON public.user_quests FOR SELECT USING (auth.uid() = u...
666|
667|
  6 6 8 |  - -  % % %   B ¯ Ú C   4 :   V I E W S   &   F U N C T I O N S   T I Æ N   Í C H   D À N H   C H O   C L I E N T S  % % %
669|
  6 7 0 |  - -   1 .   V i e w   x e m   t Õ n g   q u a n   t i ¿ n   Ù   c ç a   C o n   ( d à n h   c h o   P h ả   h u y n h )
671| CREATE OR REPLACE VIEW public.child_summary_for_parent AS
672|   SELECT
673|     p.id AS student_id,
674|     p.full_name AS student_name,
675|     p.student_code,
676|     p.school_name,
```

```
    p.xp,
    p.level,
    p.avatar_url,
    COUNT(DISTINCT lp.lesson_id) FILTER (WHERE lp.status = 'completed') AS lessons_completed,
    COUNT(DISTINCT lp.lesson_id) AS lessons_started,
    SUM(lp.time_spent_seconds) AS total_time_seconds,
    MAX(lp.last_accessed) AS last_active,
    psl.parent_id
  FROM public.profiles p
  JOIN public.parent_student_links psl ON psl.student_id = p.id
  LEFT JOIN public.lesson_progress lp ON lp.student_id = p.id
  WHERE psl.status = 'active' AND p.role = 'student'
  GROUP BY p.id, p.full_name, p.student_code, p.school_name,
           p.xp, p.level, p.avatar_url, psl.parent_id;

692 |  - -  2 .  V i e w  l ¥ y  d a n h  s á c h  c â u  h Ï i  Q u i z  ° ã c  l Í c  s µ n  ( c h o  H Í c  s i n h  l à m  b à i
CREATE OR REPLACE VIEW public.quiz_questions_for_student AS
  SELECT
    q.id, q.content, q.type, q.points, q.image_url,
    q.tags, qq.order,
    json_agg(
      json_build_object(
        'id', qo.id,
        'content', qo.content,
        'order', qo.order
      ) ORDER BY qo.order
    ) AS options,
    qq.quiz_id
  FROM public.questions q
  JOIN public.quiz_questions qq ON qq.question_id = q.id
  JOIN public.question_options qo ON qo.question_id = q.id
  GROUP BY q.id, q.content, q.type, q.points, q.image_url, q.tags, qq.order, qq.quiz_id;

710 |  - -  3 .  F u n c t i o n  c h o  p h å  h u y n h  t ì m  h Í c  s i n h  b ± n g  m ã  P C M - X X X X X X X
CREATE OR REPLACE FUNCTION public.find_student_by_code(input_code TEXT)
RETURNS TABLE (
  student_id UUID,
  student_name TEXT,
  school_name TEXT,
  avatar_url TEXT
)
LANGUAGE plpgsql SECURITY DEFINER AS $$
BEGIN
  RETURN QUERY
    SELECT p.id, p.full_name, p.school_name, p.avatar_url
    FROM public.profiles p
    WHERE p.student_code = UPPER(TRIM(input_code))
      AND p.role = 'student';
END;
$$;

GRANT EXECUTE ON FUNCTION public.find_student_by_code TO authenticated;

730 |  - -  4 .  F u n c t i o n  t í n h  t r ¡ n g  t h á i  m ß  k h o á  l Ù  t r ì n h  h Í c  ( L e a r n i n g  P a t h )
CREATE OR REPLACE FUNCTION public.get_unlocked_items(
  p_student_id UUID,
  p_path_id UUID
) RETURNS TABLE (
  id UUID,
  item_id UUID,
  is_unlocked BOOLEAN,
  unlock_reason TEXT
) AS $$
DECLARE
  item RECORD;
  cond JSONB;
  cond_type TEXT;
  cond_item_id UUID;
  min_sc NUMERIC;
  prev_completed BOOLEAN;
  quiz_passed BOOLEAN;
BEGIN
  FOR item IN
    SELECT * FROM public.path_items WHERE path_id = p_path_id ORDER BY "order"
  LOOP
    cond := item.unlock_condition;
    is_unlocked := TRUE;
    unlock_reason := 'always_available';

    IF cond IS NOT NULL THEN
      cond_type := cond->>'type';

759 |  - -  H o à n  t h à n h  b à i  h Í c  t r ° Û c  ó
      IF cond_type = 'complete_previous' THEN
        SELECT EXISTS (
          SELECT 1 FROM public.lesson_progress lp
          JOIN public.path_items pi ON pi.item_id = lp.lesson_id
          WHERE lp.student_id = p_student_id
            AND lp.status = 'completed'
            AND pi.path_id = p_path_id
            AND pi.order = item.order - 1
        ) INTO prev_completed;

        IF NOT prev_completed THEN
          is_unlocked := FALSE;
          unlock_reason := 'need_complete_previous';
        END IF;

775 |  - -  ¡ t  i Ã m  q u i z  t Ñ i  t h i Ã u
      ELSIF cond_type = 'score_above' THEN
        cond_item_id := (cond->>'item_id')::UUID;
        min_sc := (cond->>'min_score')::NUMERIC;

        SELECT EXISTS (
          SELECT 1 FROM public.quiz_attempts
          WHERE student_id = p_student_id
            AND quiz_id = cond_item_id
            AND score >= min_sc
            AND status = 'submitted'
        ) INTO quiz_passed;

        IF NOT quiz_passed THEN
          is_unlocked := FALSE;
          unlock_reason := 'need_quiz_score_above_' || min_sc::TEXT;
        END IF;
      END IF;
    END IF;

    id := item.id;
    item_id := item.item_id;
    RETURN NEXT;
  END LOOP;
END;
$$ LANGUAGE plpgsql SECURITY DEFINER;
```

```
801|
802|
  803|  - -  % % %   B ¯ Ú C   5 :   H À N G    â I   C R O N   J O B   T ð    Ø N G   T H Ô N G   B Á O   C H O   P H ä   H U Y N H   % % %
804| DO $do$
805| BEGIN
806|   IF EXISTS (SELECT 1 FROM pg_extension WHERE extname = 'pg_cron') THEN
807|     PERFORM cron.schedule(
808|       'notify-parent-absent',
809|       '0 20 * * *',
810|       $cron$
811|         INSERT INTO public.notifications (user_id, type, title, body, data, action_url)
812|         SELECT
813|           psl.parent_id,
814|           'child_absent',
  815|                     ' C o n   b ¡ n   c h ° a   h Í c   t r o n g   3   n g à y ' ,
  816|                     p . f u l l _ n a m e   | |   '   c h ° a     n g   n h - p   h Í c   t r o n g   3   n g à y   q u a .   H ã y   n h ¯ c
817|           jsonb_build_object('student_id', p.id, 'student_name', p.full_name),
818|           '/parent/children/' || p.id
819|         FROM public.profiles p
820|         JOIN public.parent_student_links psl ON psl.student_id = p.id
821|         LEFT JOIN public.lesson_progress lp ON lp.student_id = p.id
822|           AND lp.last_accessed > NOW() - INTERVAL '3 days'
823|         WHERE psl.status = 'active'
824|           AND p.role = 'student'
825|           AND lp.id IS NULL
826|         GROUP BY psl.parent_id, p.id, p.full_name;
827|       $cron$
828|     );
829|   END IF;
830| END $do$;
831|
```

File: supabase/migrations/20260518094500_add_remaining_features.sql (134 lines, 5.9 KB)

```
==========================================================================================
  1| -- ==============================================================
  2| -- MIGRATION: ADD REMAINING FEATURES (PREFERENCES, BUILDER LAB, ACHIEVEMENTS & CERTIFICATES)
  3| -- Target Path: supabase/migrations/20260518094500_add_remaining_features.sql
  4| -- ==============================================================
  5|
    6 |  - -  1 .  B £ n g   u s e r _ p r e f e r e n c e s   ( T ù y   c h Í n   g i a o   d i Ç n   &   t h ô n g   b á o )
  7| CREATE TABLE IF NOT EXISTS public.user_preferences (
  8|   user_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE PRIMARY KEY,
  9|   email_notifications BOOLEAN DEFAULT TRUE,
 10|   push_notifications BOOLEAN DEFAULT TRUE,
 11|   weekly_digest BOOLEAN DEFAULT TRUE,
 12|   show_profile_public BOOLEAN DEFAULT FALSE,
 13|   theme TEXT DEFAULT 'dark' CHECK (theme IN ('dark', 'light', 'system')),
 14|   language TEXT DEFAULT 'vi' CHECK (language IN ('vi', 'en')),
 15|   updated_at TIMESTAMPTZ DEFAULT NOW()
 16| );
 17|
  1 8 |  - -  2 .  B £ n g   b u i l d e r _ s e s s i o n s   ( L Ë c h   s í   l ¯ p   r á p   P C   t h ñ c   h à n h   t ¡ i   B u i l d e r   L a
 19| CREATE TABLE IF NOT EXISTS public.builder_sessions (
 20|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
 21|   student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
 22|   lesson_id UUID REFERENCES public.lessons(id) ON DELETE SET NULL,
 23|   started_at TIMESTAMPTZ DEFAULT NOW(),
 24|   ended_at TIMESTAMPTZ,
 25|   components_used JSONB DEFAULT '[]'::jsonb,
 26|   tdp_calculated NUMERIC,
 27|   compatibility_score INT DEFAULT 100
 28| );
 29|
  3 0 |  - -  3 .  B £ n g   a c h i e v e m e n t _ d e f i n i t i o n s   &   s t u d e n t _ a c h i e v e m e n t s   ( T h à n h   t í c h   &
 31| CREATE TABLE IF NOT EXISTS public.achievement_definitions (
 32|   id TEXT PRIMARY KEY,
 33|   title TEXT NOT NULL,
 34|   description TEXT,
 35|   icon TEXT,
 36|   points INT DEFAULT 0,
 37|   rarity TEXT CHECK (rarity IN ('common','uncommon','rare','legendary')),
 38|   created_at TIMESTAMPTZ DEFAULT NOW()
 39| );
 40|
 41| CREATE TABLE IF NOT EXISTS public.student_achievements (
 42|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
 43|   student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
 44|   achievement_id TEXT REFERENCES public.achievement_definitions(id) ON DELETE CASCADE,
 45|   earned_at TIMESTAMPTZ DEFAULT NOW(),
 46|   UNIQUE(student_id, achievement_id)
 47| );
 48|
  4 9 |  - -  N ¡ p   h ¡ t   d ï   l i Ç u   ( S e e d )   c h o   A c h i e v e m e n t s
 50| INSERT INTO public.achievement_definitions (id, title, description, icon, points, rarity)
 51| VALUES
  5 2 |       ( ' f i r s t _ l e s s o n ' ,   ' K h ß i   §  u   h à n h   t r ì n h ' ,   ' H o à n   t h à n h   b à i   g i £ n g   §  u   t i ê n
  5 3 |       ( ' q u i z _ a c e ' ,   ' X u ¥ t   s ¯ c ' ,   ' ¡ t   i Ã m   t u y Ç t   Ñ i   ( 1 0 0 % )   t r o n g   m Ù t   b à i   q u i z
  5 4 |       ( ' w e e k _ s t r e a k ' ,   ' K i ê n   t r ì   7   n g à y ' ,   ' H Í c   l i ê n   t i ¿ p   7   n g à y   k h ô n g   n g h Ê ' ,
  5 5 |       ( ' p c _ m a s t e r ' ,   ' P C   M a s t e r ' ,   ' H o à n   t h à n h   t ¥ t   c £   b à i   t r o n g   l Ù   t r ì n h ' ,   'Ø=Ý¥
  5 6 |       ( ' l a b _ e x p e r t ' ,   ' C h u y ê n   g i a   L a b ' ,   ' D à n h   h ¡ n   1 0   g i Ý   t r o n g   B u i l d e r   L a b ' ,
  5 7 |       ( ' h e l p f u l _ m e m b e r ' ,   ' N h i Ç t   t ì n h ' ,   ' ° ã c   u p v o t e   1 0   l § n   t r o n g   d i Ã n   à n ' ,
 58| ON CONFLICT (id) DO UPDATE
 59| SET
 60|   title = EXCLUDED.title,
 61|   description = EXCLUDED.description,
 62|   icon = EXCLUDED.icon,
 63|   points = EXCLUDED.points,
 64|   rarity = EXCLUDED.rarity;
 65|
  6 6 |  - -  4 .  B £ n g   c e r t i f i c a t e s   ( C h é n g   n h - n   h o à n   t h à n h   l Ù   t r ì n h   h Í c )
 67| CREATE TABLE IF NOT EXISTS public.certificates (
 68|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
 69|   student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
 70|   path_id UUID REFERENCES public.learning_paths(id) ON DELETE CASCADE,
 71|   certificate_number TEXT UNIQUE NOT NULL,
 72|   issued_at TIMESTAMPTZ DEFAULT NOW(),
 73|   pdf_url TEXT,
 74|   verify_url TEXT,
 75|   student_name TEXT,
 76|   course_title TEXT,
 77|   completion_date DATE DEFAULT CURRENT_DATE,
 78|   final_score NUMERIC(5,2),
 79|   is_revoked BOOLEAN DEFAULT FALSE
 80| );
 81|
  8 2 |  - -  H à m   t ñ    Ù n g   s i n h   s Ñ   c h é n g   c h É   n g « u   n h i ê n
 83| CREATE OR REPLACE FUNCTION public.generate_cert_number()
 84| RETURNS TEXT AS $$
 85| DECLARE
 86|   chars TEXT := 'ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789';
 87|   result TEXT := 'PCM-2026-';
 88|   i INT;
 89| BEGIN
```

```
  90|   FOR i IN 1..5 LOOP
  91|     result := result || substr(chars, floor(random() * length(chars) + 1)::INT, 1);
  92|   END LOOP;
  93|   RETURN result;
  94| END;
  95| $$ LANGUAGE plpgsql;
  96|
  97|
      9 8 |   - -  % % %   H Æ   T H Đ N G   P H Â N   Q U Y À N   R O W   L E V E L   S E C U R I T Y   ( R L S )   &   P O L I C I E S   % % %
  99|
 100| ALTER TABLE public.user_preferences ENABLE ROW LEVEL SECURITY;
 101| ALTER TABLE public.builder_sessions ENABLE ROW LEVEL SECURITY;
 102| ALTER TABLE public.achievement_definitions ENABLE ROW LEVEL SECURITY;
 103| ALTER TABLE public.student_achievements ENABLE ROW LEVEL SECURITY;
 104| ALTER TABLE public.certificates ENABLE ROW LEVEL SECURITY;
 105|
 106| -- Preferences Policies
 107| DROP POLICY IF EXISTS "own_preferences" ON public.user_preferences;
 108| CREATE POLICY "own_preferences" ON public.user_preferences FOR ALL USING (user_id = auth.uid());
 109|
 110| -- Builder Sessions Policies
 111| DROP POLICY IF EXISTS "student_own_sessions" ON public.builder_sessions;
 112| CREATE POLICY "student_own_sessions" ON public.builder_sessions FOR ALL USING (student_id = auth.uid());
 113|
 114| DROP POLICY IF EXISTS "teacher_view_sessions" ON public.builder_sessions;
 115| CREATE POLICY "teacher_view_sessions" ON public.builder_sessions FOR SELECT USING (
 116|   EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
 117| );
 118|
 119| -- Achievement Policies
 120| DROP POLICY IF EXISTS "view_definitions" ON public.achievement_definitions;
 121| CREATE POLICY "view_definitions" ON public.achievement_definitions FOR SELECT USING (true);
 122|
 123| DROP POLICY IF EXISTS "view_student_achievements" ON public.student_achievements;
 124| CREATE POLICY "view_student_achievements" ON public.student_achievements FOR SELECT USING (true);
 125|
 126| -- Certificate Policies
 127| DROP POLICY IF EXISTS "view_all_certificates" ON public.certificates;
 128| CREATE POLICY "view_all_certificates" ON public.certificates FOR SELECT USING (true);
 129|
 130| DROP POLICY IF EXISTS "manage_certificates" ON public.certificates;
 131| CREATE POLICY "manage_certificates" ON public.certificates FOR ALL USING (
 132|   EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
 133| );
 134|
```

File: supabase/migrations/20260518095000_parent_notifications.sql (187 lines, 6.9 KB)

```
==========================================================================================
   1| -- ==============================================================
   2| -- PROMPT 4 · PC MASTER LMS — PARENT NOTIFICATIONS & TRIGGERS
   3| -- Target Path: supabase/migrations/20260518095000_parent_notifications.sql
   4| -- ==============================================================
   5|
      6 |   - -  % % %   B ¯ Ú C   1 :   C ¬ P   N H ¬ T   U S E R   P R E F E R E N C E S   Â   H Ö   T R â   O P T - O U T   % % %
      7 |   - -   T h ê m   c Ù t   n o t i f i c a t i o n _ s e t t i n g s   ( J S O N B )   c h o   b £ n g   u s e r _ p r e f e r e n c e s
   8| ALTER TABLE public.user_preferences
   9|   ADD COLUMN IF NOT EXISTS notification_settings JSONB
  10|   DEFAULT '{"child_absent": true, "child_low_score": true, "child_completed_path": true, "lesson_completed": t...
  11|
      1 2 |   - -   T ¡ o   b £ n g   l ° u   t r ï   t h ô n g   t i n   c o o l d o w n   g í i   e m a i l
  13| CREATE TABLE IF NOT EXISTS public.parent_email_cooldown (
  14|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  15|   student_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  16|   parent_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  17|   notification_type TEXT NOT NULL,
  18|   sent_at TIMESTAMPTZ DEFAULT NOW(),
  19|   UNIQUE(student_id, parent_id, notification_type)
  20| );
  21|
      2 2 |   - -   B - t   R L S   c h o   b £ n g   c o o l d o w n
  23| ALTER TABLE public.parent_email_cooldown ENABLE ROW LEVEL SECURITY;
  24|
  25| -- Cooldown Policy
  26| DROP POLICY IF EXISTS "system_all_cooldown" ON public.parent_email_cooldown;
  27| CREATE POLICY "system_all_cooldown" ON public.parent_email_cooldown
  28|   FOR ALL USING (true);
  29|
  30|
      3 1 |   - -  % % %   B ¯ Ú C   2 :   T R I G G E R   K H I   H Ì C   S I N H   H O À N   T H À N H   B À I   H Ì C   % % %
  32| CREATE OR REPLACE FUNCTION notify_parent_on_lesson_complete()
  33| RETURNS TRIGGER AS $$
  34| DECLARE
  35|   parent_rec RECORD;
  36|   lesson_rec RECORD;
  37|   pref_val BOOLEAN;
  38| BEGIN
  39|   IF NEW.status = 'completed' AND OLD.status != 'completed' THEN
      4 0 |           - -   L ¥ y   t ê n   b à i   h Í c
  41|     SELECT title INTO lesson_rec FROM lessons WHERE id = NEW.lesson_id;
  42|
      4 3 |           - -   T ì m   t ¥ t   c £   p h å   h u y n h   a n g   t h e o   d õ i   h Í c   s i n h   n à y
  44|     FOR parent_rec IN
  45|       SELECT psl.parent_id, up.notification_settings
  46|       FROM parent_student_links psl
  47|       LEFT JOIN user_preferences up ON up.user_id = psl.parent_id
  48|       WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
  49|     LOOP
  50|       -- Check opt-out setting
  51|       pref_val := TRUE;
  52|       IF parent_rec.notification_settings IS NOT NULL AND parent_rec.notification_settings ? 'lesson_completed...
  53|         pref_val := (parent_rec.notification_settings->>'lesson_completed')::boolean;
  54|       END IF;
  55|
  56|       IF pref_val THEN
  57|         INSERT INTO notifications (user_id, type, title, body, data, action_url)
  58|         VALUES (
  59|           parent_rec.parent_id,
  60|           'lesson_completed',
      6 1 |                       ' C o n   b ¡ n   h o à n   t h à n h   b à i   h Í c   Ø=ÜÖ ' ,
      6 2 |                       ' C o n   b ¡ n   v ë a   h o à n   t h à n h   b à i   " '   | |   C O A L E S C E ( l e s s o n _ r e c . t i t l e ,   '
  63|           jsonb_build_object(
  64|             'student_id', NEW.student_id,
  65|             'lesson_id', NEW.lesson_id
  66|           ),
  67|           '/parent/children/' || NEW.student_id
  68|         );
  69|       END IF;
  70|     END LOOP;
  71|   END IF;
  72|   RETURN NEW;
  73| END;
  74| $$ LANGUAGE plpgsql SECURITY DEFINER;
  75|
```

```
DROP TRIGGER IF EXISTS on_lesson_completed ON lesson_progress;
CREATE TRIGGER on_lesson_completed
  AFTER UPDATE ON lesson_progress
  FOR EACH ROW EXECUTE FUNCTION notify_parent_on_lesson_complete();


-- BÚC 3: TRIGGER KHI CÓ KẾT QUẢ QUIZ ###
CREATE OR REPLACE FUNCTION notify_parent_on_quiz_result()
RETURNS TRIGGER AS $$
DECLARE
  parent_rec RECORD;
  quiz_rec RECORD;
  pref_val BOOLEAN;
  notif_type TEXT;
  notif_title TEXT;
BEGIN
  IF NEW.status = 'graded' THEN
    SELECT title INTO quiz_rec FROM quizzes WHERE id = NEW.quiz_id;
    -- Quyết định loại thông báo dựa trên điểm số
    IF NEW.score < 50 THEN
      notif_type := 'child_low_score';
      notif_title := 'Con bạn có điểm thấp';
    ELSE
      notif_type := 'quiz_graded';
      notif_title := 'Con bạn có kết quả mới';
    END IF;

    FOR parent_rec IN
      SELECT psl.parent_id, up.notification_settings
      FROM parent_student_links psl
      LEFT JOIN user_preferences up ON up.user_id = psl.parent_id
      WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
    LOOP
      -- Check opt-out setting
      pref_val := TRUE;
      IF parent_rec.notification_settings IS NOT NULL AND parent_rec.notification_settings ? notif_type THEN
        pref_val := (parent_rec.notification_settings->>notif_type)::boolean;
      END IF;

      IF pref_val THEN
        INSERT INTO notifications (user_id, type, title, body, data, action_url)
        VALUES (
          parent_rec.parent_id,
          notif_type,
          notif_title,
          'Kết quả "' || COALESCE(quiz_rec.title, 'Bài trắc nghiệm') || '"',
          jsonb_build_object(
            'student_id', NEW.student_id,
            'attempt_id', NEW.id,
            'score', NEW.score
          ),
          '/parent/children/' || NEW.student_id
        );
      END IF;
    END LOOP;
  END IF;
  RETURN NEW;
END;
$$ LANGUAGE plpgsql SECURITY DEFINER;

DROP TRIGGER IF EXISTS on_quiz_graded ON quiz_attempts;
CREATE TRIGGER on_quiz_graded
  AFTER UPDATE ON quiz_attempts
  FOR EACH ROW EXECUTE FUNCTION notify_parent_on_quiz_result();


-- BÚC 4: TRIGGER KHI THÀNH TÍCH MỚI (CHAMPION) ###
CREATE OR REPLACE FUNCTION notify_parent_on_achievement_earned()
RETURNS TRIGGER AS $$
DECLARE
  parent_rec RECORD;
  ach_rec RECORD;
  pref_val BOOLEAN;
BEGIN
  -- Tìm tất cả phụ huynh đang theo dõi học sinh này
  FOR parent_rec IN
    SELECT psl.parent_id, up.notification_settings
    FROM parent_student_links psl
    LEFT JOIN user_preferences up ON up.user_id = psl.parent_id
    WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
  LOOP
    -- Check opt-out setting
    pref_val := TRUE;
    IF parent_rec.notification_settings IS NOT NULL AND parent_rec.notification_settings ? 'achievement_earned...
      pref_val := (parent_rec.notification_settings->>'achievement_earned')::boolean;
    END IF;

    IF pref_val THEN
      INSERT INTO notifications (user_id, type, title, body, data, action_url)
      VALUES (
        parent_rec.parent_id,
        'achievement_earned',
        'Con bạn đã đạt thành tích mới! Ø<ßÆ',
        'Con bạn vừa xuất sắc mở khóa huy hiệu thành tích mới trong học
        jsonb_build_object(
          'student_id', NEW.student_id,
          'achievement_id', NEW.achievement_id
        ),
        '/parent/children/' || NEW.student_id
      );
    END IF;
  END LOOP;
  RETURN NEW;
END;
$$ LANGUAGE plpgsql SECURITY DEFINER;

DROP TRIGGER IF EXISTS on_achievement_earned ON student_achievements;
CREATE TRIGGER on_achievement_earned
  AFTER INSERT ON student_achievements
  FOR EACH ROW EXECUTE FUNCTION notify_parent_on_achievement_earned();

```

File: supabase/migrations/20260524110500_parent_realtime_v2.sql (357 lines, 13.0 KB)

```
-- Path: supabase/migrations/20260524110500_parent_realtime_v2.sql
-- ==============================================================
-- SYSTEM UPGRADE: PARENT MONITORING REALTIME SYSTEM
-- ==============================================================

-- BÚC 1: THÊM STUDENT_CODE VÀ PARENT ROLE VÀO PROFILES ###
ALTER TABLE public.profiles
  DROP CONSTRAINT IF EXISTS profiles_role_check;
```

```

ALTER TABLE public.profiles
  ADD CONSTRAINT profiles_role_check
  CHECK (role IN ('student', 'teacher', 'admin', 'parent'));

-- Thêm các cột bổ sung người chưa tồn tại
ALTER TABLE public.profiles
  ADD COLUMN IF NOT EXISTS student_code TEXT UNIQUE,
  ADD COLUMN IF NOT EXISTS avatar_url TEXT,
  ADD COLUMN IF NOT EXISTS phone TEXT,
  ADD COLUMN IF NOT EXISTS is_online BOOLEAN DEFAULT FALSE,
  ADD COLUMN IF NOT EXISTS last_seen_at TIMESTAMPTZ DEFAULT NOW();

-- Function sinh student_code ngẫu nhiên 8 ký tự không nhầm lẫn
CREATE OR REPLACE FUNCTION generate_student_code()
RETURNS TEXT AS $$
DECLARE
  chars TEXT := 'ABCDEFGHJKLMNPQRSTUVWXYZ23456789';  -- Loại bỏ I, O, 0,
  result TEXT := 'PCM-';
  i INTEGER;
BEGIN
  FOR i IN 1..8 LOOP
    result := result || substr(chars, floor(random() * length(chars) + 1)::int, 1);
  END LOOP;
  RETURN result;
END;
$$ LANGUAGE plpgsql;

-- Trigger: tự sinh student_code khi đăng ký role student
CREATE OR REPLACE FUNCTION trigger_auto_student_code()
RETURNS TRIGGER AS $$
BEGIN
  IF NEW.role = 'student' AND NEW.student_code IS NULL THEN
    LOOP
      NEW.student_code := generate_student_code();
      EXIT WHEN NOT EXISTS (
        SELECT 1 FROM public.profiles WHERE student_code = NEW.student_code
      );
    END LOOP;
  END IF;
  RETURN NEW;
END;
$$ LANGUAGE plpgsql;

DROP TRIGGER IF EXISTS auto_student_code ON public.profiles;
CREATE TRIGGER auto_student_code
  BEFORE INSERT ON public.profiles
  FOR EACH ROW EXECUTE FUNCTION trigger_auto_student_code();

-- Backfill mã cho các học sinh chưa có
UPDATE public.profiles
SET student_code = generate_student_code()
WHERE role = 'student' AND student_code IS NULL;


-- %%% BẢNG 2: BẢNG LIÊN KẾT PHỤ HUYNH - HỌC SINH %%%
CREATE TABLE IF NOT EXISTS public.parent_student_links (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  parent_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  student_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  relationship TEXT DEFAULT 'parent'
    CHECK (relationship IN ('father','mother','guardian','sibling','other')),
  status TEXT DEFAULT 'pending'
    CHECK (status IN ('pending','active','revoked')),
  linked_at TIMESTAMPTZ DEFAULT NOW(),
  confirmed_at TIMESTAMPTZ,
  revoked_at TIMESTAMPTZ,
  revoked_by UUID REFERENCES public.profiles(id),
  UNIQUE(parent_id, student_id)
);

-- Bật RLS
ALTER TABLE public.parent_student_links ENABLE ROW LEVEL SECURITY;

-- Các RLS Policies
DROP POLICY IF EXISTS "parent_manage_own_links" ON public.parent_student_links;
CREATE POLICY "parent_manage_own_links" ON public.parent_student_links
  FOR ALL USING (parent_id = auth.uid());

DROP POLICY IF EXISTS "student_view_own_links" ON public.parent_student_links;
CREATE POLICY "student_view_own_links" ON public.parent_student_links
  FOR SELECT USING (student_id = auth.uid());

DROP POLICY IF EXISTS "student_update_link_status" ON public.parent_student_links;
CREATE POLICY "student_update_link_status" ON public.parent_student_links
  FOR UPDATE USING (student_id = auth.uid())
  WITH CHECK (status IN ('active','revoked'));


-- %%% BẢNG 3: BẢNG THEO DÕI TIẾN ĐỘ HỌC TẬP (LESSON PROGRESS) %%%
CREATE TABLE IF NOT EXISTS public.lesson_progress (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  student_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  lesson_id UUID NOT NULL,
  status TEXT DEFAULT 'not_started'
    CHECK (status IN ('not_started','in_progress','completed')),
  completion_percentage INT DEFAULT 0 CHECK (completion_percentage BETWEEN 0 AND 100),
  time_spent_seconds INT DEFAULT 0,
  last_accessed TIMESTAMPTZ DEFAULT NOW(),
  completed_at TIMESTAMPTZ,
  UNIQUE(student_id, lesson_id)
);

ALTER TABLE public.lesson_progress ENABLE ROW LEVEL SECURITY;

DROP POLICY IF EXISTS "student_own_progress" ON public.lesson_progress;
CREATE POLICY "student_own_progress" ON public.lesson_progress
  FOR ALL USING (student_id = auth.uid());

DROP POLICY IF EXISTS "parent_view_child_progress" ON public.lesson_progress;
CREATE POLICY "parent_view_child_progress" ON public.lesson_progress
  FOR SELECT USING (
    EXISTS (
      SELECT 1 FROM public.parent_student_links psl
      WHERE psl.parent_id = auth.uid()
        AND psl.student_id = lesson_progress.student_id
        AND psl.status = 'active'
    )
  );

DROP POLICY IF EXISTS "teacher_view_class_progress" ON public.lesson_progress;
CREATE POLICY "teacher_view_class_progress" ON public.lesson_progress
  FOR SELECT USING (
    EXISTS (
```

```
      SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher'
    )
  );


-- %%% BÚC 4: BẢNG KẾT QUẢ THI CỦA HỌC SINH (QUIZ ATTEMPTS) %%%
CREATE TABLE IF NOT EXISTS public.quiz_attempts (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  student_id UUID NOT NULL REFERENCES public.profiles(id),
  quiz_id UUID NOT NULL,
  quiz_title TEXT NOT NULL,
  started_at TIMESTAMPTZ DEFAULT NOW(),
  submitted_at TIMESTAMPTZ,
  score NUMERIC(5,2),
  max_score INT DEFAULT 100,
  status TEXT DEFAULT 'in_progress'
    CHECK (status IN ('in_progress','submitted','graded')),
  attempt_number INT DEFAULT 1
);

ALTER TABLE public.quiz_attempts ENABLE ROW LEVEL SECURITY;

DROP POLICY IF EXISTS "student_own_attempts" ON public.quiz_attempts;
CREATE POLICY "student_own_attempts" ON public.quiz_attempts
  FOR ALL USING (student_id = auth.uid());

DROP POLICY IF EXISTS "parent_view_child_quiz" ON public.quiz_attempts;
CREATE POLICY "parent_view_child_quiz" ON public.quiz_attempts
  FOR SELECT USING (
    EXISTS (
      SELECT 1 FROM public.parent_student_links psl
      WHERE psl.parent_id = auth.uid()
        AND psl.student_id = quiz_attempts.student_id
        AND psl.status = 'active'
    )
  );


-- %%% BÚC 5: BẢNG THÔNG BÁO (NOTIFICATIONS) %%%
CREATE TABLE IF NOT EXISTS public.notifications (
  id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
  user_id UUID NOT NULL REFERENCES public.profiles(id) ON DELETE CASCADE,
  type TEXT NOT NULL CHECK (type IN (
    'quiz_graded','lesson_completed','achievement_earned',
    'child_absent_3days','child_low_score','child_completed_path',
    'parent_link_request','parent_link_confirmed','teacher_message','system'
  )),
  title TEXT NOT NULL,
  body TEXT NOT NULL,
  data JSONB DEFAULT '{}',
  action_url TEXT,
  is_read BOOLEAN DEFAULT FALSE,
  created_at TIMESTAMPTZ DEFAULT NOW()
);

ALTER TABLE public.notifications ENABLE ROW LEVEL SECURITY;

DROP POLICY IF EXISTS "own_notifications" ON public.notifications;
CREATE POLICY "own_notifications" ON public.notifications
  FOR ALL USING (user_id = auth.uid());


-- %%% BÚC 6: HÀM TÌM HỌC SINH QUA MÃ AN TOÀN %%%
-- Drop trước nếu tồn tại với signature cũ (tránh lỗi "cannot change ret
DROP FUNCTION IF EXISTS public.find_student_by_code(TEXT);

CREATE OR REPLACE FUNCTION public.find_student_by_code(input_code TEXT)
RETURNS TABLE (
  student_id UUID,
  student_name TEXT,
  school_name TEXT,
  avatar_url TEXT,
  class_info TEXT
)
LANGUAGE plpgsql SECURITY DEFINER AS $$
BEGIN
  RETURN QUERY
    SELECT
      p.id,
      p.full_name,
      p.school_name,
      p.avatar_url,
      COALESCE(c.name, 'Chưa có lớp') as class_info
    FROM public.profiles p
    LEFT JOIN public.class_members cm ON cm.student_id = p.id
    LEFT JOIN public.classes c ON c.id = cm.class_id
    WHERE p.student_code = UPPER(TRIM(input_code))
      AND p.role = 'student';
END;
$$;

GRANT EXECUTE ON FUNCTION public.find_student_by_code TO authenticated;


-- %%% BÚC 7: TRIGGERS BẮN THÔNG BÁO TỚI PHỤ HUYNH %%%

-- Trigger 1: Thông báo khi con hoàn thành bài học
CREATE OR REPLACE FUNCTION notify_parents_on_lesson_complete()
RETURNS TRIGGER AS $$
DECLARE parent_rec RECORD;
BEGIN
  IF NEW.status = 'completed' AND (OLD.status IS NULL OR OLD.status != 'completed') THEN
    FOR parent_rec IN
      SELECT psl.parent_id, p.full_name as student_name
      FROM public.parent_student_links psl
      JOIN public.profiles p ON p.id = NEW.student_id
      WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
    LOOP
      INSERT INTO public.notifications
        (user_id, type, title, body, data, action_url)
      VALUES (
        parent_rec.parent_id,
        'lesson_completed',
        'Ø=ÜÖ Con bịn hoàn thành bài học',
        parent_rec.student_name || ' vừa hoàn thành 1 bài học mới',
        jsonb_build_object('student_id', NEW.student_id, 'lesson_id', NEW.lesson_id),
        '/parent/children/' || NEW.student_id::text
      );
    END LOOP;
  END IF;
  RETURN NEW;
END;
$$ LANGUAGE plpgsql SECURITY DEFINER;
```

```
257| DROP TRIGGER IF EXISTS on_lesson_completed ON public.lesson_progress;
258| CREATE TRIGGER on_lesson_completed
259|   AFTER INSERT OR UPDATE ON public.lesson_progress
260|   FOR EACH ROW EXECUTE FUNCTION notify_parents_on_lesson_complete();
261|
262|   - -   T r i g g e r   2 :   T h ô n g   b á o    i Ã m   t h i
263| CREATE OR REPLACE FUNCTION notify_parents_on_quiz_graded()
264| RETURNS TRIGGER AS $$
265| DECLARE parent_rec RECORD;
266| BEGIN
267|   IF NEW.status = 'graded' AND (OLD.status IS NULL OR OLD.status != 'graded') THEN
268|     FOR parent_rec IN
269|       SELECT psl.parent_id, p.full_name as student_name
270|       FROM public.parent_student_links psl
271|       JOIN public.profiles p ON p.id = NEW.student_id
272|       WHERE psl.student_id = NEW.student_id AND psl.status = 'active'
273|     LOOP
274|       INSERT INTO public.notifications
275|         (user_id, type, title, body, data, action_url)
276|       VALUES (
277|         parent_rec.parent_id,
278|         CASE WHEN NEW.score < 50 THEN 'child_low_score' ELSE 'quiz_graded' END,
279|         CASE WHEN NEW.score < 50
280|                     T H E N   '& þ   C o n   b ¡ n   c ó    i Ã m   t h ¥ p :   '   | |   R O U N D ( N E W . s c o r e )   | |   ' / '   | |
281|                     E L S E   ''    K ¿ t   q u £   b à i   t h i :   '   | |   R O U N D ( N E W . s c o r e )   | |   ' / '   | |   N E W . m
282|         END,
283|         parent_rec.student_name || ' ' ||
284|                 C A S E   W H E N   N E W . s c o r e   <   5 0   T H E N   ' c h É   ¡ t   '   E L S E   '   ¡ t   '   E N D   | |
285|                 R O U N D ( N E W . s c o r e )   | |   '    i Ã m   t r o n g   b à i   " '   | |   N E W . q u i z _ t i t l e   | |   ' " '
286|         jsonb_build_object(
287|           'student_id', NEW.student_id,
288|           'attempt_id', NEW.id,
289|           'score', NEW.score,
290|           'quiz_title', NEW.quiz_title
291|         ),
292|         '/parent/children/' || NEW.student_id::text
293|       );
294|     END LOOP;
295|   END IF;
296|   RETURN NEW;
297| END;
298| $$ LANGUAGE plpgsql SECURITY DEFINER;
299|
300| DROP TRIGGER IF EXISTS on_quiz_graded ON public.quiz_attempts;
301| CREATE TRIGGER on_quiz_graded
302|   AFTER INSERT OR UPDATE ON public.quiz_attempts
303|   FOR EACH ROW EXECUTE FUNCTION notify_parents_on_quiz_graded();
304|
305|
306|   - -   % % %   B ¯ Ú C   8 :   E N A B L E   R E A L T I M E   C H O   C Á C   B ¢ N G   L I Ê N   Q U A N   % % %
307|   - -   B - t   r e a l t i m e   c h o   l e s s o n _ p r o g r e s s ,   q u i z _ a t t e m p t s ,   p r o f i l e s ,   n o t i f i c a t i
308|   - -   A n   t o à n :   K i Ã m   t r a   t ë n g   b £ n g   t r ° Û c   k h i   t h ê m ,   t r á n h   l × i   " a l r e a d y   m e m b e r
309| DO $$
310| DECLARE
311|   pub_exists BOOLEAN;
312| BEGIN
313|   SELECT EXISTS (SELECT 1 FROM pg_publication WHERE pubname = 'supabase_realtime') INTO pub_exists;
314|
315|   IF pub_exists THEN
316|     -- lesson_progress
317|     IF NOT EXISTS (
318|       SELECT 1 FROM pg_publication_tables
319|       WHERE pubname = 'supabase_realtime' AND schemaname = 'public' AND tablename = 'lesson_progress'
320|     ) THEN
321|       ALTER PUBLICATION supabase_realtime ADD TABLE public.lesson_progress;
322|     END IF;
323|
324|     -- quiz_attempts
325|     IF NOT EXISTS (
326|       SELECT 1 FROM pg_publication_tables
327|       WHERE pubname = 'supabase_realtime' AND schemaname = 'public' AND tablename = 'quiz_attempts'
328|     ) THEN
329|       ALTER PUBLICATION supabase_realtime ADD TABLE public.quiz_attempts;
330|     END IF;
331|
332|     -- notifications
333|     IF NOT EXISTS (
334|       SELECT 1 FROM pg_publication_tables
335|       WHERE pubname = 'supabase_realtime' AND schemaname = 'public' AND tablename = 'notifications'
336|     ) THEN
337|       ALTER PUBLICATION supabase_realtime ADD TABLE public.notifications;
338|     END IF;
339|
340|     -- profiles
341|     IF NOT EXISTS (
342|       SELECT 1 FROM pg_publication_tables
343|       WHERE pubname = 'supabase_realtime' AND schemaname = 'public' AND tablename = 'profiles'
344|     ) THEN
345|       ALTER PUBLICATION supabase_realtime ADD TABLE public.profiles;
346|     END IF;
347|
348|     -- parent_student_links
349|     IF NOT EXISTS (
350|       SELECT 1 FROM pg_publication_tables
351|       WHERE pubname = 'supabase_realtime' AND schemaname = 'public' AND tablename = 'parent_student_links'
352|     ) THEN
353|       ALTER PUBLICATION supabase_realtime ADD TABLE public.parent_student_links;
354|     END IF;
355|   END IF;
356| END $$;
357|
```

File: supabase/migrations/20260524120000_fix_profiles_rls_and_recursion.sql (128 lines, 5.9 KB)

```
==========================================================================================
1| -- Path: supabase/migrations/20260524120000_fix_profiles_rls_and_recursion.sql
2| -- ==============================================================
3| -- SYSTEM UPGRADE: FIX PROFILES RLS INFINITE RECURSION & SIGNUP ERROR
4| -- ==============================================================
5|
6|   - -   % % %   B ¯ Ú C   1 :   S ì A    Ô I   R L S   C H O   B ¢ N G   P R O F I L E S    Â   T R Á N H   I N F I N I T E   R E C U R S I O N
7|
8|   - -   G á   b Ï   t ¥ t   c £   p o l i c i e s   c i   t r ê n   b £ n g   p r o f i l e s    Ã   t r á n h   x u n g    Ù t
9| DROP POLICY IF EXISTS "Users read own profile" ON public.profiles;
10| DROP POLICY IF EXISTS "Admin read all profiles" ON public.profiles;
11| DROP POLICY IF EXISTS "Users update own profile" ON public.profiles;
12| DROP POLICY IF EXISTS "Allow public insert" ON public.profiles;
13| DROP POLICY IF EXISTS "profiles_select_own" ON public.profiles;
14| DROP POLICY IF EXISTS "profiles_select_admin" ON public.profiles;
15| DROP POLICY IF EXISTS "profiles_select_teacher" ON public.profiles;
16| DROP POLICY IF EXISTS "profiles_select_parent" ON public.profiles;
17| DROP POLICY IF EXISTS "profiles_insert_own" ON public.profiles;
18| DROP POLICY IF EXISTS "profiles_update_own" ON public.profiles;
19|
```

```
20|  --  B-t  Row  Level  Security  cho  profiles  (  £m  b£o  ch¯c  ch¯n   ã  b-t)
21| ALTER TABLE public.profiles ENABLE ROW LEVEL SECURITY;
22|
23|  --  1.1.  Policy  SELECT:  Cho  phép  ng°Ýi  dùng  xem  profile  cça  chính  mình
24| CREATE POLICY "profiles_select_own" ON public.profiles
25|   FOR SELECT USING (auth.uid() = id);
26|
27|  --  1.2.  Policy  SELECT:  Cho  phép  Admin  xem  t¥t  c£  profile  (Sí  dång  JWT  me
28| CREATE POLICY "profiles_select_admin" ON public.profiles
29|   FOR SELECT USING (
30|     COALESCE(auth.jwt() -> 'user_metadata' ->> 'role', '') = 'admin'
31|   );
32|
33|  --  1.3.  Policy  SELECT:  Cho  phép  Giáo  viên  xem  profile  cça  HÍc  sinh  trong
34| CREATE POLICY "profiles_select_teacher" ON public.profiles
35|   FOR SELECT USING (
36|     COALESCE(auth.jwt() -> 'user_metadata' ->> 'role', '') = 'teacher'
37|     AND role = 'student'
38|   );
39|
40|  --  1.4.  Policy  SELECT:  Cho  phép  Phå  huynh  xem  profile  cça  con   ã  liên  k
41| CREATE POLICY "profiles_select_parent" ON public.profiles
42|   FOR SELECT USING (
43|     COALESCE(auth.jwt() -> 'user_metadata' ->> 'role', '') = 'parent'
44|     AND EXISTS (
45|       SELECT 1 FROM public.parent_student_links psl
46|       WHERE psl.parent_id = auth.uid()
47|         AND psl.student_id = public.profiles.id
48|         AND psl.status = 'active'
49|     )
50|   );
51|
52|  --  2.  Policy  INSERT:  Cho  phép  chèn  profile  mÛi  (  Ã  tránh  l×i  'Database  e
53|  --  Cho  phép  insert  n¿u  user  ID  trùng  vÛi  auth.uid()  ho·c  chèn  të  hÇ  thÑn
54| CREATE POLICY "profiles_insert_own" ON public.profiles
55|   FOR INSERT WITH CHECK (
56|     auth.uid() = id
57|     OR auth.uid() IS NULL
58|     OR (auth.jwt() ->> 'role') = 'service_role'
59|   );
60|
61|  --  3.  Policy  UPDATE:  Cho  phép  ng°Ýi  dùng  tñ  c-p  nh-t  thông  tin  cá  nhân  c
62| CREATE POLICY "profiles_update_own" ON public.profiles
63|   FOR UPDATE USING (auth.uid() = id)
64|   WITH CHECK (auth.uid() = id);
65|
66|
67|  --  %%%   B¯ÚC  2:  C¬P  NH¬T  RLS  CHO  CÁC  B¢NG  LÚP  HÌC  &  BÀI  GI¢NG   Â   ¢M  B¢O
68|
69|  --   £m  b£o  giáo  viên  toàn  quyÁn  qu£n  lý  lÛp  hÍc  (INSERT,  SELECT,  UPDATE,
70| DROP POLICY IF EXISTS "Teacher sees own classes" ON public.classes;
71| DROP POLICY IF EXISTS "teacher_own_classes" ON public.classes;
72| CREATE POLICY "teacher_own_classes" ON public.classes
73|   FOR ALL USING (teacher_id = auth.uid())
74|   WITH CHECK (teacher_id = auth.uid());
75|
76|  --   £m  b£o  giáo  viên  toàn  quyÁn  qu£n  lý  bài  gi£ng  (INSERT,  SELECT,  UPDAT
77| DROP POLICY IF EXISTS "teacher_own_lessons" ON public.lessons;
78| CREATE POLICY "teacher_own_lessons" ON public.lessons
79|   FOR ALL USING (teacher_id = auth.uid())
80|   WITH CHECK (teacher_id = auth.uid());
81|
82|
83|  --  %%%   B¯ÚC  3:  CÀI   ¶T  RLS  VÀ  C¤U  TRÚC  QUIZ   Â  SìA  LÕI  T  O   À  THI  &  CÂU
84|
85|  --   £m  b£o  giáo  viên  toàn  quyÁn  qu£n  lý  quizzes
86| DROP POLICY IF EXISTS "Teachers can manage their quizzes" ON public.quizzes;
87| DROP POLICY IF EXISTS "teachers_manage_quizzes" ON public.quizzes;
88| CREATE POLICY "teachers_manage_quizzes" ON public.quizzes
89|   FOR ALL USING (teacher_id = auth.uid())
90|   WITH CHECK (teacher_id = auth.uid());
91|
92|  --   £m  b£o  giáo  viên  toàn  quyÁn  qu£n  lý  câu  hÏi  trong   Á  thi  và  ngân  hàn
93| ALTER TABLE public.questions ENABLE ROW LEVEL security;
94| ALTER TABLE public.question_options ENABLE ROW LEVEL security;
95| ALTER TABLE public.quiz_questions ENABLE ROW LEVEL security;
96|
97| DROP POLICY IF EXISTS "teachers_manage_quizzes" ON public.quizzes;
98|
99| DROP POLICY IF EXISTS "teachers_manage_questions" ON public.questions;
100| CREATE POLICY "teachers_manage_questions" ON public.questions
101|   FOR ALL USING (
102|          --  Giáo  viên  sß  hïu  ngân  hàng  câu  hÏi
103|     EXISTS (
104|       SELECT 1 FROM public.question_banks qb
105|       WHERE qb.id = bank_id AND qb.teacher_id = auth.uid()
106|     )
107|          OR  bank_id  IS  NULL  --  Cho  phép  t¡o  câu  hÏi  tñ  do  trong   Á  thi
108|   );
109|
110| DROP POLICY IF EXISTS "teachers_manage_question_options" ON public.question_options;
111| CREATE POLICY "teachers_manage_question_options" ON public.question_options
112|   FOR ALL USING (
113|     EXISTS (
114|       SELECT 1 FROM public.questions q
115|       LEFT JOIN public.question_banks qb ON qb.id = q.bank_id
116|       WHERE q.id = question_id AND (qb.teacher_id = auth.uid() OR qb.id IS NULL)
117|     )
118|   );
119|
120| DROP POLICY IF EXISTS "teachers_manage_quiz_questions" ON public.quiz_questions;
121| CREATE POLICY "teachers_manage_quiz_questions" ON public.quiz_questions
122|   FOR ALL USING (
123|     EXISTS (
124|       SELECT 1 FROM public.quizzes q
125|       WHERE q.id = quiz_id AND q.teacher_id = auth.uid()
126|     )
127|   );
128|
```

File: supabase/migrations/20260524123000_fix_classes_rls_and_lesson_sections.sql (112 lines, 3.7 KB)

```
==========================================================================================
1| -- ========================================================
2| -- EMERGENCY FIX: Infinite recursion in classes RLS
3|  --  Ch¡y  file  này  trong  Supabase  SQL  Editor
4| -- ========================================================
5|
6|  --  B¯ÚC  1:  T¯t  RLS  t¡m  thÝi   Ã  xóa  policy  không  bË  ch·n
7| ALTER TABLE public.classes DISABLE ROW LEVEL SECURITY;
8| ALTER TABLE public.class_members DISABLE ROW LEVEL SECURITY;
9| ALTER TABLE public.submissions DISABLE ROW LEVEL SECURITY;
10| ALTER TABLE public.assignments DISABLE ROW LEVEL SECURITY;
11|
```

```
    1 2 |  - -  B ¯ Ú C  2 :  X ó a  T O À N  B Ø  p o l i c i e s  c i  t r ê n  c á c  b £ n g  n à y  ( b ¯ t  b u Ù c )
   13| DO $$
   14| DECLARE
   15|   pol RECORD;
   16| BEGIN
   17|   FOR pol IN
   18|     SELECT policyname, tablename
   19|     FROM pg_policies
   20|     WHERE schemaname = 'public'
   21|       AND tablename IN ('classes', 'class_members', 'submissions', 'assignments')
   22|   LOOP
   23|     EXECUTE format('DROP POLICY IF EXISTS %I ON public.%I', pol.policyname, pol.tablename);
   24|   END LOOP;
   25| END $$;
   26|
    2 7 |  - -  B ¯ Ú C  3 :  T ¡ o  h e l p e r  f u n c t i o n s  v Û i  S E C U R I T Y  D E F I N E R  ( b y p a s s  R L S ,  p h á  v ò
   28| CREATE OR REPLACE FUNCTION public.fn_get_my_class_ids_as_teacher()
   29| RETURNS UUID[]
   30| LANGUAGE sql
   31| SECURITY DEFINER
   32| STABLE
   33| SET search_path = public
   34| AS $$
   35|   SELECT ARRAY(SELECT id FROM public.classes WHERE teacher_id = auth.uid());
   36| $$;
   37|
   38| CREATE OR REPLACE FUNCTION public.fn_get_my_class_ids_as_student()
   39| RETURNS UUID[]
   40| LANGUAGE sql
   41| SECURITY DEFINER
   42| STABLE
   43| SET search_path = public
   44| AS $$
   45|   SELECT ARRAY(SELECT class_id FROM public.class_members WHERE student_id = auth.uid());
   46| $$;
   47|
    4 8 |  - -  B ¯ Ú C  4 :  B - t  l ¡ i  R L S
   49| ALTER TABLE public.classes ENABLE ROW LEVEL SECURITY;
   50| ALTER TABLE public.class_members ENABLE ROW LEVEL SECURITY;
   51| ALTER TABLE public.submissions ENABLE ROW LEVEL SECURITY;
   52| ALTER TABLE public.assignments ENABLE ROW LEVEL SECURITY;
   53|
    5 4 |  - -  B ¯ Ú C  5 :  T ¡ o  p o l i c i e s  m Û i  K H Ô N G  Æ  Q U Y  c h o  b £ n g  c l a s s e s
    5 5 |  - -  T e a c h e r :  D ù n g  c Ù t  t r ñ c  t i ¿ p ,  k h ô n g  j o i n
   56| CREATE POLICY "cls_teacher" ON public.classes
   57|   FOR ALL
   58|   USING (teacher_id = auth.uid())
   59|   WITH CHECK (teacher_id = auth.uid());
   60|
   61| -- Student: Dùng function SECURITY DEFINER (bypass RLS class_members)
   62| CREATE POLICY "cls_student" ON public.classes
   63|   FOR SELECT
   64|   USING (id = ANY(public.fn_get_my_class_ids_as_student()));
   65|
    6 6 |  - -  B ¯ Ú C  6 :  T ¡ o  p o l i c i e s  m Û i  c h o  c l a s s _ m e m b e r s
   67| -- Teacher: Dùng function SECURITY DEFINER (bypass RLS classes)
   68| CREATE POLICY "cm_teacher" ON public.class_members
   69|   FOR ALL
   70|   USING (class_id = ANY(public.fn_get_my_class_ids_as_teacher()));
   71|
    7 2 |  - -  S t u d e n t :  D ù n g  c Ù t  t r ñ c  t i ¿ p ,  k h ô n g  j o i n
   73| CREATE POLICY "cm_student_select" ON public.class_members
   74|   FOR SELECT
   75|   USING (student_id = auth.uid());
   76|
   77| CREATE POLICY "cm_student_insert" ON public.class_members
   78|   FOR INSERT
   79|   WITH CHECK (student_id = auth.uid());
   80|
    8 1 |  - -  B ¯ Ú C  7 :  T ¡ o  p o l i c i e s  m Û i  c h o  s u b m i s s i o n s
   82| CREATE POLICY "sub_student" ON public.submissions
   83|   FOR ALL
   84|   USING (student_id = auth.uid());
   85|
   86| CREATE POLICY "sub_teacher" ON public.submissions
   87|   FOR ALL
   88|   USING (class_id = ANY(public.fn_get_my_class_ids_as_teacher()));
   89|
    9 0 |  - -  B ¯ Ú C  8 :  T ¡ o  p o l i c i e s  m Û i  c h o  a s s i g n m e n t s
   91| CREATE POLICY "asgn_teacher" ON public.assignments
   92|   FOR ALL
   93|   USING (teacher_id = auth.uid())
   94|   WITH CHECK (teacher_id = auth.uid());
   95|
   96| CREATE POLICY "asgn_student" ON public.assignments
   97|   FOR SELECT
   98|   USING (
   99|     is_published = TRUE
  100|     AND class_id = ANY(public.fn_get_my_class_ids_as_student())
  101|   );
  102|
  103| -- XONG: Thông báo cho PostgREST reload schema cache
  104| NOTIFY pgrst, 'reload schema';
  105|
   1 0 6 |  - -  K i Ã m  t r a  k ¿ t  q u £ :  X e m  d a n h  s á c h  p o l i c i e s  m Û i
  107| SELECT tablename, policyname, cmd, qual
  108| FROM pg_policies
  109| WHERE schemaname = 'public'
  110|   AND tablename IN ('classes', 'class_members', 'submissions', 'assignments')
  111| ORDER BY tablename, policyname;
  112|
```

File: supabase/migrations/20260524130000_all_in_one_fix.sql (212 lines, 8.7 KB)

```
==========================================================================================
    1| -- ============================================================
       2 |  - -  D E F I N I T I V E  F I X  v 3  -  F i x  t ¥ t  c £  l × i  t ë  g Ñ c
       3 |  - -  C h ¡ y  t r o n g  S u p a b a s e  S Q L  E d i t o r
    4| -- ============================================================
    5|
       6 |  - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
       7 |  - -  P H ¦ N  1 :  R E B U I L D  T R I G G E R  h a n d l e _ n e w _ u s e r  ( R o o t  c a u s e )
       8 |  - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
    9|
       1 0 |  - -  X ó a  t r i g g e r  c i
   11| DROP TRIGGER IF EXISTS on_auth_user_created ON auth.users;
   12|
       1 3 |  - -  R e b u i l d  f u n c t i o n  v Û i  E X C E P T I O N  h a n d l e r  +  O N  C O N F L I C T  D O  U P D A T E
       1 4 |  - -  â y  l à  n g u y ê n  n h â n  g Ñ c  r Å  c ç a  " D a t a b a s e  e r r o r  s a v i n g  n e w  u s e r "
   15| CREATE OR REPLACE FUNCTION public.handle_new_user()
   16| RETURNS TRIGGER
   17| LANGUAGE plpgsql
   18| SECURITY DEFINER
   19| SET search_path = public
```

```
 20| AS $$
 21| BEGIN
    2 2 |      - -   T h ê m   E X C E P T I O N    Ã   t r i g g e r   k h ô n g   b a o   g i Ý   c r a s h   d ù   p r o f i l e s   c ó   l × i   g i
 23|   BEGIN
 24|     INSERT INTO public.profiles (id, email, full_name, role, created_at, updated_at)
 25|     VALUES (
 26|       NEW.id,
 27|       COALESCE(NEW.email, ''),
 28|       COALESCE(NEW.raw_user_meta_data->>'full_name', split_part(COALESCE(NEW.email, 'user@'), '@', 1)),
 29|       COALESCE(NEW.raw_user_meta_data->>'role', 'student'),
 30|       NOW(),
 31|       NOW()
 32|     )
    3 3 |          - -   N ¿ u   p r o f i l e    ã   t Ồ n   t ¡ i   t h ì   u p d a t e ,   k h ô n g   c r a s h
 34|     ON CONFLICT (id) DO UPDATE SET
 35|       full_name = COALESCE(EXCLUDED.full_name, public.profiles.full_name),
 36|       role = COALESCE(EXCLUDED.role, public.profiles.role),
 37|       updated_at = NOW();
 38|   EXCEPTION WHEN OTHERS THEN
    3 9 |          - -   G h i   l o g   n h ° n g   K H Ô N G   f a i l   t r i g g e r   !’   k h ô n g   b a o   g i Ý   b l o c k      n g   k ý
 40|     RAISE WARNING 'handle_new_user failed for user %: %', NEW.id, SQLERRM;
 41|   END;
 42|
 43|   RETURN NEW;
 44| END;
 45| $$;
 46|
 47| -- Recreate trigger
 48| CREATE TRIGGER on_auth_user_created
 49|   AFTER INSERT ON auth.users
 50|   FOR EACH ROW EXECUTE FUNCTION public.handle_new_user();
 51|
    5 2 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
    5 3 |   - -   P H ¦ N   2 :   F I X   p r o f i l e s   R L S   -   m ß   i n s e r t   c h o   t r i g g e r
    5 4 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
 55|
    5 6 |   - -   X ó a   T O À N   B Ø   p o l i c i e s   p r o f i l e s
 57| DO $$
 58| DECLARE pol RECORD;
 59| BEGIN
 60|   FOR pol IN
 61|     SELECT policyname FROM pg_policies
 62|     WHERE schemaname = 'public' AND tablename = 'profiles'
 63|   LOOP
 64|     EXECUTE format('DROP POLICY IF EXISTS %I ON public.profiles', pol.policyname);
 65|   END LOOP;
 66| END $$;
 67|
 68| ALTER TABLE public.profiles ENABLE ROW LEVEL SECURITY;
 69|
    7 0 |   - -   I N S E R T :   C h o   p h é p   t ¥ t   c £   ( t r i g g e r   +   c l i e n t    Á u   c § n )
 71| CREATE POLICY "profiles_insert_open" ON public.profiles
 72|   FOR INSERT WITH CHECK (true);
 73|
    7 4 |   - -   S E L E C T :   C h É   x e m   c ç a   c h í n h   m ì n h
 75| CREATE POLICY "profiles_select_own" ON public.profiles
 76|   FOR SELECT USING (auth.uid() = id);
 77|
 78| -- SELECT: Admin dùng JWT metadata (tránh recursion)
 79| CREATE POLICY "profiles_select_admin" ON public.profiles
 80|   FOR SELECT USING (
 81|     COALESCE(auth.jwt() -> 'user_metadata' ->> 'role', '') = 'admin'
 82|   );
 83|
    8 4 |   - -   S E L E C T :   T e a c h e r   x e m   h Í c   s i n h
 85| CREATE POLICY "profiles_select_teacher" ON public.profiles
 86|   FOR SELECT USING (
 87|     COALESCE(auth.jwt() -> 'user_metadata' ->> 'role', '') = 'teacher'
 88|     AND role = 'student'
 89|   );
 90|
    9 1 |   - -   S E L E C T :   P h å   h u y n h   x e m   c o n
 92| CREATE POLICY "profiles_select_parent" ON public.profiles
 93|   FOR SELECT USING (
 94|     COALESCE(auth.jwt() -> 'user_metadata' ->> 'role', '') = 'parent'
 95|     AND EXISTS (
 96|       SELECT 1 FROM public.parent_student_links psl
 97|       WHERE psl.parent_id = auth.uid()
 98|         AND psl.student_id = public.profiles.id
 99|     )
100|   );
101|
   1 0 2 |   - -   U P D A T E :   C h É   t ñ   c - p   n h - t   c ç a   m ì n h
103| CREATE POLICY "profiles_update_own" ON public.profiles
104|   FOR UPDATE USING (auth.uid() = id)
105|   WITH CHECK (auth.uid() = id);
106|
   1 0 7 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
   1 0 8 |   - -   P H ¦ N   3 :   F I X   c l a s s e s   R L S   -   i n f i n i t e   r e c u r s i o n
   1 0 9 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
110|
111| ALTER TABLE public.classes DISABLE ROW LEVEL SECURITY;
112| ALTER TABLE public.class_members DISABLE ROW LEVEL SECURITY;
113| ALTER TABLE public.submissions DISABLE ROW LEVEL SECURITY;
114| ALTER TABLE public.assignments DISABLE ROW LEVEL SECURITY;
115|
   1 1 6 |   - -   X ó a   T O À N   B Ø   p o l i c i e s
117| DO $$
118| DECLARE pol RECORD;
119| BEGIN
120|   FOR pol IN
121|     SELECT policyname, tablename FROM pg_policies
122|     WHERE schemaname = 'public'
123|       AND tablename IN ('classes', 'class_members', 'submissions', 'assignments')
124|   LOOP
125|     EXECUTE format('DROP POLICY IF EXISTS %I ON public.%I', pol.policyname, pol.tablename);
126|   END LOOP;
127| END $$;
128|
   1 2 9 |   - -   S E C U R I T Y   D E F I N E R   f u n c t i o n s   ( b y p a s s   R L S   -   p h á   v ò n g   l · p )
130| CREATE OR REPLACE FUNCTION public.fn_teacher_class_ids()
131| RETURNS UUID[] LANGUAGE sql SECURITY DEFINER STABLE
132| SET search_path = public AS $$
133|   SELECT ARRAY(SELECT id FROM public.classes WHERE teacher_id = auth.uid());
134| $$;
135|
136| CREATE OR REPLACE FUNCTION public.fn_student_class_ids()
137| RETURNS UUID[] LANGUAGE sql SECURITY DEFINER STABLE
138| SET search_path = public AS $$
139|   SELECT ARRAY(SELECT class_id FROM public.class_members WHERE student_id = auth.uid());
140| $$;
141|
   1 4 2 |   - -   B - t   l ¡ i   R L S
143| ALTER TABLE public.classes ENABLE ROW LEVEL SECURITY;
```

```
144| ALTER TABLE public.class_members ENABLE ROW LEVEL SECURITY;
145| ALTER TABLE public.submissions ENABLE ROW LEVEL SECURITY;
146| ALTER TABLE public.assignments ENABLE ROW LEVEL SECURITY;
147|
148| -- Classes policies
149| CREATE POLICY "cls_teacher" ON public.classes
150|   FOR ALL USING (teacher_id = auth.uid()) WITH CHECK (teacher_id = auth.uid());
151|
152| CREATE POLICY "cls_student" ON public.classes
153|   FOR SELECT USING (id = ANY(public.fn_student_class_ids()));
154|
155| -- Class members policies
156| CREATE POLICY "cm_teacher" ON public.class_members
157|   FOR ALL USING (class_id = ANY(public.fn_teacher_class_ids()));
158|
159| CREATE POLICY "cm_student_select" ON public.class_members
160|   FOR SELECT USING (student_id = auth.uid());
161|
162| CREATE POLICY "cm_student_insert" ON public.class_members
163|   FOR INSERT WITH CHECK (student_id = auth.uid());
164|
165| -- Submissions policies
166| CREATE POLICY "sub_student" ON public.submissions
167|   FOR ALL USING (student_id = auth.uid());
168|
169| CREATE POLICY "sub_teacher" ON public.submissions
170|   FOR ALL USING (class_id = ANY(public.fn_teacher_class_ids()));
171|
172| -- Assignments policies
173| CREATE POLICY "asgn_teacher" ON public.assignments
174|   FOR ALL USING (teacher_id = auth.uid()) WITH CHECK (teacher_id = auth.uid());
175|
176| CREATE POLICY "asgn_student" ON public.assignments
177|   FOR SELECT USING (
178|     is_published = TRUE AND class_id = ANY(public.fn_student_class_ids())
179|   );
180|
    1 8 1 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
    1 8 2 |   - -   P H ¦ N   4 :   F I X   l e s s o n _ s e c t i o n s   -   c o l u m n   m i s m a t c h
    1 8 3 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
184|
185| ALTER TABLE public.lesson_sections
186|   ADD COLUMN IF NOT EXISTS type TEXT DEFAULT 'text',
187|   ADD COLUMN IF NOT EXISTS content TEXT DEFAULT '';
188|
189| UPDATE public.lesson_sections
190| SET
191|   type = COALESCE(NULLIF(type,''), content_type, 'text'),
192|   content = COALESCE(NULLIF(content,''), content_body, content_url, '')
193| WHERE (type IS NULL OR type = '') OR (content IS NULL OR content = '');
194|
    1 9 5 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
    1 9 6 |   - -   P H ¦ N   5 :   T h ê m   s c h o o l _ n a m e   n ¿ u   p r o f i l e s   c h º a   c ó   c o l u m n
    1 9 7 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
198| ALTER TABLE public.profiles
199|   ADD COLUMN IF NOT EXISTS school_name TEXT;
200|
    2 0 1 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
202| -- XONG: Reload PostgREST schema cache
    2 0 3 |   - -  %P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P%P
204| NOTIFY pgrst, 'reload schema';
205|
    2 0 6 |   - -   K i Ã m   t r a :   x e m   p o l i c i e s   m Û i   t r ê n   p r o f i l e s
207| SELECT tablename, policyname, cmd
208| FROM pg_policies
209| WHERE schemaname = 'public'
210|   AND tablename IN ('profiles', 'classes', 'class_members')
211| ORDER BY tablename, policyname;
212|
```

File: supabase/migrations/20260524165000_add_student_dashboard_achievements.sql (53 lines, 2.5 KB)

```
1| -- ==============================================================
2| -- MIGRATION: ADD ACHIEVEMENT TABLES FOR STUDENT DASHBOARD
3| -- Target Path: supabase/migrations/20260524165000_add_student_dashboard_achievements.sql
4| -- ==============================================================
5|
    6 |   - -   1 .   B £ n g   a c h i e v e m e n t _ d e f i n i t i o n s
7| CREATE TABLE IF NOT EXISTS public.achievement_definitions (
8|   id TEXT PRIMARY KEY,
9|   title TEXT NOT NULL,
10|   description TEXT,
11|   icon TEXT,
12|   points INT DEFAULT 0,
13|   rarity TEXT CHECK (rarity IN ('common','uncommon','rare','legendary')),
14|   created_at TIMESTAMPTZ DEFAULT NOW()
15| );
16|
    1 7 |   - -   2 .   B £ n g   s t u d e n t _ a c h i e v e m e n t s
18| CREATE TABLE IF NOT EXISTS public.student_achievements (
19|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
20|   student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
21|   achievement_id TEXT REFERENCES public.achievement_definitions(id) ON DELETE CASCADE,
22|   earned_at TIMESTAMPTZ DEFAULT NOW(),
23|   UNIQUE(student_id, achievement_id)
24| );
25|
    2 6 |   - -   3 .   S e e d   d ï   l i Ç u   a c h i e v e m e n t _ d e f i n i t i o n s
27| INSERT INTO public.achievement_definitions (id, title, description, icon, points, rarity)
28| VALUES
    2 9 |       ( ' f i r s t _ l e s s o n ' ,   ' K h ß i   §  u   h à n h   t r ì n h ' ,   ' H o à n   t h à n h   b à i   g i £ n g   §  u   t i ê n
    3 0 |       ( ' q u i z _ a c e ' ,   ' X u ¥ t   s  c ' ,   ' ¡ t   i Ã m   t u y Ç t   Ñ i   ( 1 0 0 % )   t r o n g   m Ù t   b à i   g u i z
    3 1 |       ( ' w e e k _ s t r e a k ' ,   ' K i ê n   t r ì   7   n g à y ' ,   ' H Ï c   l i ê n   t i ¿ p   7   n g à y   k h ô n g   n g h Ê ' ,
    3 2 |       ( ' p c _ m a s t e r ' ,   ' P C   M a s t e r ' ,   ' H o à n   t h à n h   t ¥ t   c £   b à i   t r o n g   l Ù   t r i n h ' ,   'Ø=Ý¥
    3 3 |       ( ' l a b _ e x p e r t ' ,   ' C h u y ê n   g i a   L a b ' ,   ' D à n h   h ¡ n   1 0   g i Ý   t r o n g   B u i l d e r   L a b ' ,
    3 4 |       ( ' h e l p f u l _ m e m b e r ' ,   ' N h i Ç t   t ì n h ' ,   '  º ã c   u p v o t e   1 0   l § n   t r o n g   d i Ã n   à n ' ,
35| ON CONFLICT (id) DO UPDATE
36| SET
37|   title = EXCLUDED.title,
38|   description = EXCLUDED.description,
39|   icon = EXCLUDED.icon,
40|   points = EXCLUDED.points,
41|   rarity = EXCLUDED.rarity;
42|
43| -- 4. Enable RLS for these tables
44| ALTER TABLE public.achievement_definitions ENABLE ROW LEVEL SECURITY;
45| ALTER TABLE public.student_achievements ENABLE ROW LEVEL SECURITY;
46|
47| -- 5. Policies
48| DROP POLICY IF EXISTS "view_definitions" ON public.achievement_definitions;
49| CREATE POLICY "view_definitions" ON public.achievement_definitions FOR SELECT USING (true);
50|
51| DROP POLICY IF EXISTS "view_student_achievements" ON public.student_achievements;
```

```
CREATE POLICY "view_student_achievements" ON public.student_achievements FOR SELECT USING (true);

```

File: supabase/migrations/20260525190000_lessons_extra_columns_and_seed.sql (130 lines, 10.6 KB)

```
-- ============================================================
-- Thêm columns mÛi cho lessons table
-- ============================================================
ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS subject TEXT DEFAULT
ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS chapter TEXT;
ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS tags TEXT[];
ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS estimated_minutes INT DEFAULT 30;
ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS view_count INT DEFAULT 0;

-- Function increment view_count
CREATE OR REPLACE FUNCTION public.increment_lesson_views(lesson_id UUID)
RETURNS void
LANGUAGE plpgsql
SECURITY DEFINER
AS $$
BEGIN
  UPDATE public.lessons SET view_count = view_count + 1 WHERE id = lesson_id;
END;
$$;

-- ============================================================
-- Seed data: bài giÊng m«u (chÉ chiy n¿u chºa có bài nào)
-- ============================================================
DO $$
DECLARE
  teacher_id UUID;
  lesson_id UUID;
BEGIN
  -- ChÉ seed n¿u chºa có bài giÊng nào
  IF (SELECT COUNT(*) FROM public.lessons) > 0 THEN
    RETURN;
  END IF;

  -- Lªy teacher §u tiên
  SELECT id INTO teacher_id FROM public.profiles WHERE role = 'teacher' LIMIT 1;

  -- Nếu không có teacher th-t, dùng user §u tiên
  IF teacher_id IS NULL THEN
    SELECT id INTO teacher_id FROM auth.users LIMIT 1;
  END IF;

  -- Bài 1: GiÛi thiÇu vÁ Ph§n céng Máy tính
  INSERT INTO public.lessons (id, teacher_id, title, description, is_published, subject, estimated_minutes, vi...
  VALUES (gen_random_uuid(), teacher_id, 'GiÛi thiÇu vÁ Ph§n céng Máy ti
  RETURNING id INTO lesson_id;

  INSERT INTO public.lesson_sections (lesson_id, title, type, content, order_index) VALUES
          (lesson_id, 'PC là gì?', 'text', 'Máy tính cá nhân (PC) là mÙt hÇ th
          (lesson_id, 'Các linh kiÇn c¡ b£n', 'video', 'https://www.youtube.co
          (lesson_id, 'S¡ Ó khÑi hÇ thÑng', 'image', 'https://images.unsplash
          (lesson_id, 'TÕng k¿t', 'text', 'MÙt PC hoàn chÉnh gÓm:\n- **CPU**:

  -- Bài 2: CPU - BÙ xí lý Trung tâm
  INSERT INTO public.lessons (id, teacher_id, title, description, is_published, subject, estimated_minutes, vi...
  VALUES (gen_random_uuid(), teacher_id, 'CPU - BÙ xí lý Trung tâm', 'Ki
  RETURNING id INTO lesson_id;

  INSERT INTO public.lesson_sections (lesson_id, title, type, content, order_index) VALUES
          (lesson_id, 'CPU là gì?', 'text', 'CPU (Central Processing Unit) là
          (lesson_id, 'C¥u t¡o CPU', 'video', 'https://www.youtube.com/watch?v
          (lesson_id, 'Các hãng s£n xu¥t', 'text', '**Intel** và **AMD** là ha
          (lesson_id, 'Cách chÍn CPU', 'text', 'Khi chÍn CPU c§n quan tâm:\n1.

  -- Bài 3: RAM - BÙ nhÛ T¡m thÝi
  INSERT INTO public.lessons (id, teacher_id, title, description, is_published, subject, estimated_minutes, vi...
  VALUES (gen_random_uuid(), teacher_id, 'RAM - BÙ nhÛ T¡m thÝi', 'DDR4
  RETURNING id INTO lesson_id;

  INSERT INTO public.lesson_sections (lesson_id, title, type, content, order_index) VALUES
          (lesson_id, 'RAM là gì?', 'text', 'RAM (Random Access Memory) là bÙ
    (lesson_id, 'DDR4 vs DDR5', 'video', 'https://www.youtube.com/watch?v=8s2y7i6Qa1E', 1),
          (lesson_id, 'Thông sÑ quan trÍng', 'text', 'Các thông sÑ c§n bi¿t:\n

  -- Bài 4: Mainboard - Bo m¡ch Chç
  INSERT INTO public.lessons (id, teacher_id, title, description, is_published, subject, estimated_minutes, vi...
  VALUES (gen_random_uuid(), teacher_id, 'Mainboard - Bo m¡ch Chç', 'Chi
  RETURNING id INTO lesson_id;

  INSERT INTO public.lesson_sections (lesson_id, title, type, content, order_index) VALUES
          (lesson_id, 'Mainboard là gì?', 'text', 'Mainboard (bo m¡ch chç) là
          (lesson_id, 'Các thành ph§n trên Mainboard', 'image', 'https://image
          (lesson_id, 'Form Factor', 'text', 'Các kích thºÛc mainboard phÕ bi¿

  -- Bài 5: GPU - Card Ó hÍa
  INSERT INTO public.lesson_sections (lesson_id, title, type, content, order_index) VALUES
          (lesson_id, 'GPU là gì?', 'text', 'GPU (Graphics Processing Unit) là
    (lesson_id, 'NVIDIA vs AMD', 'video', 'https://www.youtube.com/watch?v=3Ua4Gk7R0Vc', 1),
          (lesson_id, 'ChÍn GPU theo nhu c§u', 'text', '- **HÍc t-p/V n phòng'

  -- Bài 6: NguÓn iÇn (PSU) và Case
  INSERT INTO public.lessons (id, teacher_id, title, description, is_published, subject, estimated_minutes, vi...
  VALUES (gen_random_uuid(), teacher_id, 'NguÓn iÇn (PSU) và Case máy t
  RETURNING id INTO lesson_id;

  INSERT INTO public.lesson_sections (lesson_id, title, type, content, order_index) VALUES
          (lesson_id, 'PSU - NguÓn iÇn', 'text', 'PSU (Power Supply Unit) cun
          (lesson_id, 'Case máy tính', 'text', 'Case b£o vÇ các linh kiÇn và
          (lesson_id, 'LºÛu ý khi ráp máy', 'text', 'MÙt sÑ lºÛu ý quan trÍng:\n
END;
$$;

-- ============================================================
-- Fix: content_type column NOT NULL nhºng không có DEFAULT
ALTER TABLE public.lesson_sections
  ALTER COLUMN content_type SET DEFAULT 'text',
  ALTER COLUMN content_type SET NOT NULL;

-- ============================================================
-- Fix: Cho phép tìm lÛp theo mã code khi tham gia (RLS)
DROP POLICY IF EXISTS "students_lookup_class_by_code" ON public.classes;
CREATE POLICY "students_lookup_class_by_code" ON public.classes
  FOR SELECT USING (true);

-- ============================================================
-- B-t realtime cho các b£ng chính
DO $$
DECLARE tbl text;
```

```
 119| BEGIN
 120|   FOREACH tbl IN ARRAY ARRAY['public.lesson_progress','public.quiz_attempts','public.lessons','public.lesson_s...
 121|   LOOP
 122|     BEGIN
 123|       EXECUTE format('ALTER PUBLICATION supabase_realtime ADD TABLE %s', tbl);
 124|     EXCEPTION WHEN OTHERS THEN
 125|       RAISE NOTICE 'Table % already in publication, skipping', tbl;
 126|     END;
 127|   END LOOP;
 128| END;
 129| $$;
 130|
```

File: supabase/migrations/20260526100000_fix_join_class_lookup.sql (15 lines, 0.4 KB)

```
==========================================================================================
        1 |  - -  F i x :  C h o  p h é p  h Í c  s i n h  t ì m  l Û p  t h e o  m ã  c o d e   Ã  j o i n
        2 |  - -  T ¡ o  S E C U R I T Y  D E F I N E R  f u n c t i o n  ( b y p a s s  R L S )   Ã  l o o k u p  c l a s s  b y  c o d e  a
    3|
    4| CREATE OR REPLACE FUNCTION public.fn_lookup_class_by_code(p_code TEXT)
    5| RETURNS TABLE(id UUID, name TEXT)
    6| LANGUAGE sql
    7| SECURITY DEFINER
    8| STABLE
    9| SET search_path = public
   10| AS $$
   11|   SELECT id, name FROM public.classes WHERE code = p_code;
   12| $$;
   13|
   14| NOTIFY pgrst, 'reload schema';
   15|
```

File: supabase/migrations/20260527034907_enable-realtime-missing-tables.sql (22 lines, 0.6 KB)

```
==========================================================================================
    1| -- Enable Realtime for admin dashboard tables
    2| DO $$
    3| BEGIN
    4|   IF NOT EXISTS (
    5|     SELECT 1 FROM pg_publication_tables
    6|     WHERE pubname = 'supabase_realtime' AND schemaname = 'public' AND tablename = 'profiles'
    7|   ) THEN
    8|     ALTER PUBLICATION supabase_realtime ADD TABLE profiles;
    9|   END IF;
   10| END $$;
   11| DO $$
   12| BEGIN
   13|   IF EXISTS (SELECT 1 FROM pg_class WHERE relname = 'lessons' AND relkind = 'r') THEN
   14|     IF NOT EXISTS (
   15|       SELECT 1 FROM pg_publication_tables
   16|       WHERE pubname = 'supabase_realtime' AND schemaname = 'public' AND tablename = 'lessons'
   17|     ) THEN
   18|       ALTER PUBLICATION supabase_realtime ADD TABLE lessons;
   19|     END IF;
   20|   END IF;
   21| END $$;
   22|
```

File: supabase/migrations/20260527035134_enable-realtime-final.sql (26 lines, 0.9 KB)

```
==========================================================================================
    1| -- Enable Realtime for admin dashboard tables
    2| DO $$
    3| BEGIN
    4|   IF EXISTS (SELECT 1 FROM pg_tables WHERE schemaname = 'public' AND tablename = 'profiles') THEN
    5|     BEGIN
    6|       EXECUTE 'ALTER PUBLICATION supabase_realtime ADD TABLE public.profiles';
    7|     EXCEPTION WHEN OTHERS THEN
    8|       RAISE NOTICE 'profiles: %', SQLERRM;
    9|     END;
   10|   END IF;
   11|   IF EXISTS (SELECT 1 FROM pg_tables WHERE schemaname = 'public' AND tablename = 'lessons') THEN
   12|     BEGIN
   13|       EXECUTE 'ALTER PUBLICATION supabase_realtime ADD TABLE public.lessons';
   14|     EXCEPTION WHEN OTHERS THEN
   15|       RAISE NOTICE 'lessons: %', SQLERRM;
   16|     END;
   17|   END IF;
   18|   IF EXISTS (SELECT 1 FROM pg_tables WHERE schemaname = 'public' AND tablename = 'exams') THEN
   19|     BEGIN
   20|       EXECUTE 'ALTER PUBLICATION supabase_realtime ADD TABLE public.exams';
   21|     EXCEPTION WHEN OTHERS THEN
   22|       RAISE NOTICE 'exams: %', SQLERRM;
   23|     END;
   24|   END IF;
   25| END $$;
   26|
```

File: supabase/migrations/20260527040000_add_require_camera.sql (2 lines, 0.1 KB)

```
==========================================================================================
    1| ALTER TABLE public.quizzes ADD COLUMN IF NOT EXISTS require_camera BOOLEAN DEFAULT false;
    2|
```

File: supabase/migrations/20260527050000_add_certificates_and_discussion.sql (95 lines, 3.1 KB)

```
==========================================================================================
        1 |  - -  B £ n g  d i s c u s s i o n _ m e s s a g e s  c h o  r e a l t i m e  c h a t
    2| CREATE TABLE IF NOT EXISTS public.discussion_messages (
    3|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
    4|   channel TEXT NOT NULL DEFAULT 'global' CHECK (channel IN ('global', 'class')),
    5|   class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE,
    6|   sender_id UUID REFERENCES public.profiles(id) ON DELETE SET NULL,
    7|   sender_name TEXT,
    8|   content TEXT NOT NULL,
    9|   created_at TIMESTAMPTZ DEFAULT NOW()
   10| );
   11|
   12| ALTER TABLE public.discussion_messages ENABLE ROW LEVEL SECURITY;
   13|
   14| DO $$ BEGIN DROP POLICY IF EXISTS "view_messages" ON public.discussion_messages; EXCEPTION WHEN OTHERS THEN RA...
   15| CREATE POLICY "view_messages" ON public.discussion_messages
   16|   FOR SELECT USING (true);
   17| DO $$ BEGIN DROP POLICY IF EXISTS "insert_messages" ON public.discussion_messages; EXCEPTION WHEN OTHERS THEN ...
   18| CREATE POLICY "insert_messages" ON public.discussion_messages
   19|   FOR INSERT WITH CHECK (sender_id = auth.uid());
   20|
       2 1 |  - -  B £ n g  c e r t i f i c a t e s
   22| CREATE TABLE IF NOT EXISTS public.certificates (
   23|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
   24|   student_id UUID REFERENCES public.profiles(id) ON DELETE CASCADE,
   25|   path_id UUID REFERENCES public.learning_paths(id) ON DELETE CASCADE,
```

```
  26|   certificate_number TEXT UNIQUE NOT NULL,
  27|   issued_at TIMESTAMPTZ DEFAULT NOW(),
  28|   pdf_url TEXT,
  29|   verify_url TEXT,
  30|   student_name TEXT,
  31|   course_title TEXT,
  32|   completion_date DATE DEFAULT CURRENT_DATE,
  33|   final_score NUMERIC(5,2),
  34|   is_revoked BOOLEAN DEFAULT FALSE
  35| );
  36|
  37| -- Function to generate safe, random certificate number
  38| CREATE OR REPLACE FUNCTION generate_cert_number()
  39| RETURNS TEXT AS $$
  40| DECLARE
  41|   chars TEXT := 'ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789';
  42|   result TEXT := 'PCM-2026-';
  43|   i INT;
  44| BEGIN
  45|   FOR i IN 1..5 LOOP
  46|     result := result || substr(chars, floor(random() * length(chars) + 1)::INT, 1);
  47|   END LOOP;
  48|   RETURN result;
  49| END;
  50| $$ LANGUAGE plpgsql;
  51|
  52| -- Enable RLS on certificates
  53| ALTER TABLE public.certificates ENABLE ROW LEVEL SECURITY;
  54|
  55| DO $$
  56| BEGIN
  57|   DROP POLICY IF EXISTS "view_all_certificates" ON public.certificates;
  58| EXCEPTION WHEN OTHERS THEN
  59|   RAISE NOTICE 'view_all_certificates drop: %', SQLERRM;
  60| END;
  61| $$;
  62|
  63| CREATE POLICY "view_all_certificates" ON public.certificates
  64|   FOR SELECT USING (true);
  65|
  66| DO $$
  67| BEGIN
  68|   DROP POLICY IF EXISTS "manage_certificates" ON public.certificates;
  69| EXCEPTION WHEN OTHERS THEN
  70|   RAISE NOTICE 'manage_certificates drop: %', SQLERRM;
  71| END;
  72| $$;
  73|
  74| CREATE POLICY "manage_certificates" ON public.certificates
  75|   FOR ALL USING (
  76|     EXISTS (SELECT 1 FROM public.profiles WHERE id = auth.uid() AND role = 'teacher')
  77|   );
  78|
      7 9 |   - -   B - t   r e a l t i m e   c h o   t ¥ t   c £   b £ n g   m Û i
  80| DO $$
  81| BEGIN
  82|   ALTER PUBLICATION supabase_realtime ADD TABLE discussion_messages;
  83| EXCEPTION WHEN duplicate_object THEN
  84|   RAISE NOTICE 'discussion_messages already in publication';
  85| END;
  86| $$;
  87|
  88| DO $$
  89| BEGIN
  90|   ALTER PUBLICATION supabase_realtime ADD TABLE certificates;
  91| EXCEPTION WHEN duplicate_object THEN
  92|   RAISE NOTICE 'certificates already in publication';
  93| END;
  94| $$;
  95|
```

File: supabase/migrations/20260528000000_add_lesson_class_assignment.sql (26 lines, 1.1 KB)

```
   1| -- Add lesson-class assignment junction table
   2| CREATE TABLE IF NOT EXISTS public.lesson_class_assignments (
   3|     id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
   4|     lesson_id UUID REFERENCES public.lessons(id) ON DELETE CASCADE NOT NULL,
   5|     class_id UUID REFERENCES public.classes(id) ON DELETE CASCADE NOT NULL,
   6|     assigned_at TIMESTAMPTZ DEFAULT NOW(),
   7|     UNIQUE(lesson_id, class_id)
   8| );
   9|
  10| ALTER TABLE public.lesson_class_assignments ENABLE ROW LEVEL SECURITY;
  11|
  12| -- Teachers can manage assignments for their lessons
  13| CREATE POLICY "Teacher manages lesson class assignments" ON public.lesson_class_assignments
  14|     FOR ALL USING (
  15|         EXISTS (SELECT 1 FROM public.lessons WHERE id = lesson_id AND teacher_id = auth.uid())
  16|     );
  17|
  18| -- Students see assignments for classes they belong to
  19| CREATE POLICY "Student sees own class lesson assignments" ON public.lesson_class_assignments
  20|     FOR SELECT USING (
  21|         EXISTS (SELECT 1 FROM public.class_members WHERE class_id = lesson_class_assignments.class_id AND stud...
  22|     );
  23|
  24| -- Add to realtime publication
  25| ALTER PUBLICATION supabase_realtime ADD TABLE public.lesson_class_assignments;
  26|
```

File: supabase/migrations/20260530000000_add_lessons_category_and_source.sql (5 lines, 0.3 KB)

```
   1| -- Add missing columns to lessons table for save functionality
   2| ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS category TEXT DEFAULT 'extended';
   3| ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS source_name TEXT;
   4| ALTER TABLE public.lessons ADD COLUMN IF NOT EXISTS source_url TEXT;
   5|
```

File: supabase/migrations/20260622_n8n_integration.sql (451 lines, 13.4 KB)

```
   1| -- ============================================
   2| -- PC Master Builder - n8n Integration
   3| -- Database Functions & Triggers
   4| -- ============================================
   5|
   6| -- ----------------------------------------
   7| -- Fix: notifications table type constraint
   8| -- The original constraint blocked all inserts.
   9| -- Drop and recreate with proper allowed values.
  10| -- ----------------------------------------
```

```
ALTER TABLE IF EXISTS public.notifications
  DROP CONSTRAINT IF EXISTS notifications_type_check;

ALTER TABLE IF EXISTS public.notifications
  ADD COLUMN IF NOT EXISTS body TEXT,
  ADD COLUMN IF NOT EXISTS action_url TEXT,
  ADD COLUMN IF NOT EXISTS data JSONB,
  ALTER COLUMN type SET DEFAULT 'info';

ALTER TABLE IF EXISTS public.notifications
  ADD CONSTRAINT notifications_type_check
  CHECK (type IN ('info', 'success', 'warning', 'error', 'assignment', 'quiz', 'achievement_earned', 'lesson_c...

-- ----------------------------------------
-- Add Zalo fields to profiles for teacher Zalo notifications
-- ----------------------------------------
ALTER TABLE IF EXISTS public.profiles
  ADD COLUMN IF NOT EXISTS zalo_phone TEXT,
  ADD COLUMN IF NOT EXISTS zalo_notifications BOOLEAN DEFAULT false,
  ADD COLUMN IF NOT EXISTS zalo_verified BOOLEAN DEFAULT false;

-- ----------------------------------------
-- Function: check_completed_paths()
-- n8n calls this to find students who completed
-- all lessons in a path but have no certificate
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.check_completed_paths()
RETURNS TABLE (
  student_id UUID,
  path_id UUID,
  full_name TEXT,
  path_title TEXT,
  lesson_count INT,
  completed_count INT,
  avg_score NUMERIC
) LANGUAGE plpgsql SECURITY DEFINER AS $$
BEGIN
  RETURN QUERY
  WITH path_stats AS (
    SELECT
      lp.student_id,
      pi.path_id,
      COUNT(DISTINCT pi.id)::INT AS total_lessons,
      COUNT(DISTINCT lp.id) FILTER (WHERE lp.status = 'completed')::INT AS completed_lessons
    FROM path_items pi
    CROSS JOIN LATERAL (
      SELECT lp_in.student_id, lp_in.id, lp_in.status
      FROM lesson_progress lp_in
      WHERE lp_in.lesson_id = pi.item_id
        AND pi.item_type = 'lesson'
    ) lp
    GROUP BY lp.student_id, pi.path_id
    HAVING COUNT(DISTINCT pi.id) = COUNT(DISTINCT lp.id) FILTER (WHERE lp.status = 'completed')
  )
  SELECT
    ps.student_id,
    ps.path_id,
    p.full_name,
    lp.title AS path_title,
    ps.total_lessons,
    ps.completed_lessons,
    COALESCE(
      (SELECT AVG(qa.score)::NUMERIC(5,2)
       FROM quiz_attempts qa
       JOIN quizzes q ON qa.quiz_id = q.id
       WHERE qa.student_id = ps.student_id
         AND qa.status = 'submitted'
      ), 0
    ) AS avg_score
  FROM path_stats ps
  JOIN profiles p ON p.id = ps.student_id
  JOIN learning_paths lp ON lp.id = ps.path_id
  WHERE NOT EXISTS (
    SELECT 1 FROM certificates c
    WHERE c.student_id = ps.student_id
      AND c.path_id = ps.path_id
      AND c.is_revoked = false
  );
END;
$$;

-- ----------------------------------------
-- Function: get_students_low_performance()
-- n8n calls this for student alerts
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.get_students_low_performance()
RETURNS TABLE (
  student_id UUID,
  full_name TEXT,
  email TEXT,
  class_id UUID,
  avg_score NUMERIC,
  recent_quiz_count INT,
  weakest_topic TEXT,
  last_active_date DATE
) LANGUAGE plpgsql SECURITY DEFINER AS $$
BEGIN
  RETURN QUERY
  WITH recent_scores AS (
    SELECT
      qa.student_id,
      AVG(qa.score)::NUMERIC(5,2) AS avg_score,
      COUNT(qa.id)::INT AS quiz_count,
      MAX(qa.created_at)::DATE AS last_quiz_date
    FROM quiz_attempts qa
    WHERE qa.status = 'submitted'
      AND qa.created_at >= NOW() - INTERVAL '7 days'
    GROUP BY qa.student_id
  ),
  weakest AS (
    SELECT DISTINCT ON (qa.student_id)
      qa.student_id,
      l.title AS weakest_lesson
    FROM quiz_attempts qa
    JOIN quizzes q ON qa.quiz_id = q.id
    JOIN lessons l ON l.id = q.lesson_id
    WHERE qa.status = 'submitted'
      AND qa.score < 40
      AND qa.created_at >= NOW() - INTERVAL '14 days'
    ORDER BY qa.student_id, qa.score ASC
  )
  SELECT
    p.id,
    p.full_name,
```

```
    p.email,
    p.class_id,
    COALESCE(rs.avg_score, 0),
    COALESCE(rs.quiz_count, 0),
    COALESCE(w.weakest_lesson, 'Chua co du lieu'),
    p.last_quest_date
  FROM profiles p
  LEFT JOIN recent_scores rs ON rs.student_id = p.id
  LEFT JOIN weakest w ON w.student_id = p.id
  WHERE p.role = 'student'
    AND (
      rs.avg_score IS NOT NULL AND rs.avg_score < 50
    )
  ORDER BY rs.avg_score ASC NULLS LAST
  LIMIT 100;
END;
$$;

-- ----------------------------------------
-- Function: get_weekly_stats_summary()
-- n8n calls this for weekly reports
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.get_weekly_stats_summary()
RETURNS TABLE (
  metric TEXT,
  value BIGINT
) LANGUAGE plpgsql SECURITY DEFINER AS $$
DECLARE
  week_start TIMESTAMPTZ := DATE_TRUNC('week', NOW()) - INTERVAL '1 week';
  week_end TIMESTAMPTZ := DATE_TRUNC('week', NOW());
BEGIN
  RETURN QUERY
  SELECT 'active_students'::TEXT, COUNT(DISTINCT user_id)::BIGINT
  FROM activity_logs
  WHERE created_at >= week_start AND created_at < week_end

  UNION ALL
  SELECT 'new_lessons_completed'::TEXT, COUNT(*)::BIGINT
  FROM lesson_progress
  WHERE completed_at >= week_start AND completed_at < week_end
    AND status = 'completed'

  UNION ALL
  SELECT 'quizzes_submitted'::TEXT, COUNT(*)::BIGINT
  FROM quiz_attempts
  WHERE submitted_at >= week_start AND submitted_at < week_end
    AND status = 'submitted'

  UNION ALL
  SELECT 'certificates_issued'::TEXT, COUNT(*)::BIGINT
  FROM certificates
  WHERE issued_at >= week_start AND issued_at < week_end

  UNION ALL
  SELECT 'new_registrations'::TEXT, COUNT(*)::BIGINT
  FROM profiles
  WHERE created_at >= week_start AND created_at < week_end

  UNION ALL
  SELECT 'total_xp_earned'::TEXT, COALESCE(SUM(amount), 0)::BIGINT
  FROM xp_transactions
  WHERE created_at >= week_start AND created_at < week_end;
END;
$$;

-- ----------------------------------------
-- Function: get_student_weekly_summary()
-- For parent weekly reports - passes student_id
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.get_student_weekly_summary(
  p_student_id UUID
) RETURNS TABLE (
  completed_lessons INT,
  quiz_count INT,
  avg_score NUMERIC,
  total_xp_earned INT,
  streak_days INT
) LANGUAGE plpgsql SECURITY DEFINER AS $$
DECLARE
  week_start TIMESTAMPTZ := DATE_TRUNC('week', NOW()) - INTERVAL '1 week';
  week_end TIMESTAMPTZ := DATE_TRUNC('week', NOW());
BEGIN
  RETURN QUERY
  SELECT
    (SELECT COUNT(*)::INT FROM lesson_progress
     WHERE student_id = p_student_id
       AND status = 'completed'
       AND completed_at >= week_start AND completed_at < week_end) AS completed_lessons,

    (SELECT COUNT(*)::INT FROM quiz_attempts
     WHERE student_id = p_student_id
       AND status = 'submitted'
       AND submitted_at >= week_start AND submitted_at < week_end) AS quiz_count,

    COALESCE(
      (SELECT AVG(score)::NUMERIC(5,2) FROM quiz_attempts
       WHERE student_id = p_student_id
         AND status = 'submitted'
         AND submitted_at >= week_start AND submitted_at < week_end)
    , 0) AS avg_score,

    COALESCE(
      (SELECT SUM(amount)::INT FROM xp_transactions
       WHERE user_id = p_student_id
         AND created_at >= week_start AND created_at < week_end)
    , 0) AS total_xp_earned,

    COALESCE(
      (SELECT quest_streak FROM profiles WHERE id = p_student_id)
    , 0) AS streak_days;
END;
$$;

-- ----------------------------------------
-- Function: add_xp()
-- Safely add XP and update level/leaderboard
-- ----------------------------------------
CREATE OR REPLACE FUNCTION public.add_xp(
  p_user_id UUID,
  p_amount INT
) RETURNS BOOLEAN LANGUAGE plpgsql SECURITY DEFINER AS $$
DECLARE
  current_xp INT;
  current_level INT;
```

```
259|   new_level INT;
260| BEGIN
261|   SELECT xp, level INTO current_xp, current_level
262|   FROM profiles WHERE id = p_user_id;
263|
264|   current_xp := COALESCE(current_xp, 0) + p_amount;
265|
266|   SELECT MAX(l.level) INTO new_level
267|   FROM level_definitions l
268|   WHERE l.xp_required <= current_xp;
269|
270|   new_level := COALESCE(new_level, 1);
271|
272|   UPDATE profiles SET
273|     xp = current_xp,
274|     level = new_level,
275|     updated_at = NOW()
276|   WHERE id = p_user_id;
277|
278|   INSERT INTO leaderboard_cache (user_id, total_xp, level, updated_at)
279|   VALUES (p_user_id, current_xp, new_level, NOW())
280|   ON CONFLICT (user_id) DO UPDATE SET
281|     total_xp = current_xp,
282|     level = new_level,
283|     updated_at = NOW();
284|
285|   UPDATE learning_stats SET
286|     total_xp = current_xp,
287|     updated_at = NOW()
288|   WHERE user_id = p_user_id;
289|
290|   RETURN TRUE;
291| END;
292| $$;
293|
294| -- ----------------------------------------
295| -- Function: get_n8n_pending_events()
296| -- Returns pending events that n8n should process
297| -- ----------------------------------------
298| CREATE OR REPLACE FUNCTION public.get_n8n_pending_events()
299| RETURNS TABLE (
300|   event_id UUID,
301|   event_type TEXT,
302|   payload JSONB,
303|   created_at TIMESTAMPTZ
304| ) LANGUAGE plpgsql SECURITY DEFINER AS $$
305| BEGIN
306|   RETURN QUERY
307|   SELECT
308|     e.id,
309|     e.event_type,
310|     e.payload,
311|     e.created_at
312|   FROM n8n_events e
313|   WHERE e.status = 'pending'
314|   ORDER BY e.created_at ASC
315|   LIMIT 50;
316| END;
317| $$;
318|
319| -- ----------------------------------------
320| -- Table: n8n_events
321| -- Queue for events that need processing
322| -- ----------------------------------------
323| CREATE TABLE IF NOT EXISTS public.n8n_events (
324|   id UUID DEFAULT gen_random_uuid() PRIMARY KEY,
325|   event_type TEXT NOT NULL,
326|   payload JSONB NOT NULL DEFAULT '{}',
327|   status TEXT DEFAULT 'pending' CHECK (status IN ('pending', 'processing', 'completed', 'failed')),
328|   created_at TIMESTAMPTZ DEFAULT NOW(),
329|   processed_at TIMESTAMPTZ
330| );
331|
332| -- Enable RLS but allow service role only
333| ALTER TABLE public.n8n_events ENABLE ROW LEVEL SECURITY;
334| DO $$
335| BEGIN
336|   IF NOT EXISTS (
337|     SELECT 1 FROM pg_policies WHERE tablename = 'n8n_events' AND policyname = 'n8n service role only'
338|   ) THEN
339|     CREATE POLICY "n8n service role only" ON public.n8n_events
340|       FOR ALL USING (true) WITH CHECK (true);
341|   END IF;
342| END $$;
343|
344| -- Index for n8n polling
345| CREATE INDEX IF NOT EXISTS idx_n8n_events_status ON public.n8n_events(status, created_at);
346|
347| -- ----------------------------------------
348| -- Function: queue_n8n_event()
349| -- Called by triggers to queue events for n8n
350| -- ----------------------------------------
351| CREATE OR REPLACE FUNCTION public.queue_n8n_event()
352| RETURNS TRIGGER LANGUAGE plpgsql SECURITY DEFINER AS $$
353| DECLARE
354|   event_type TEXT;
355|   payload JSONB;
356| BEGIN
357|   CASE TG_TABLE_NAME
358|     WHEN 'lesson_progress' THEN
359|       IF NEW.status = 'completed' THEN
360|         event_type := 'lesson_completed';
361|         payload := jsonb_build_object(
362|           'student_id', NEW.student_id,
363|           'lesson_id', NEW.lesson_id,
364|           'completed_at', NEW.completed_at
365|         );
366|       ELSE
367|         RETURN NULL;
368|       END IF;
369|
370|     WHEN 'quiz_attempts' THEN
371|       IF NEW.status = 'submitted' THEN
372|         event_type := 'quiz_submitted';
373|         payload := jsonb_build_object(
374|           'student_id', NEW.student_id,
375|           'quiz_id', NEW.quiz_id,
376|           'attempt_id', NEW.id,
377|           'score', NEW.score
378|         );
379|       ELSE
380|         RETURN NULL;
381|       END IF;
382|
```

```
383|     WHEN 'certificates' THEN
384|       event_type := 'certificate_issued';
385|       payload := jsonb_build_object(
386|         'student_id', NEW.student_id,
387|         'certificate_id', NEW.id,
388|         'path_id', NEW.path_id
389|       );
390|
391|     ELSE
392|       RETURN NULL;
393|   END CASE;
394|
395|   INSERT INTO public.n8n_events (event_type, payload)
396|   VALUES (event_type, payload);
397|
398|   RETURN NULL;
399| END;
400| $$;
401|
402| -- ----------------------------------------
403| -- Triggers: auto-queue events for n8n
404| -- ----------------------------------------
405| DROP TRIGGER IF EXISTS trg_n8n_lesson_complete ON public.lesson_progress;
406| CREATE TRIGGER trg_n8n_lesson_complete
407|   AFTER INSERT OR UPDATE OF status ON public.lesson_progress
408|   FOR EACH ROW
409|   EXECUTE FUNCTION public.queue_n8n_event();
410|
411| DROP TRIGGER IF EXISTS trg_n8n_quiz_submit ON public.quiz_attempts;
412| CREATE TRIGGER trg_n8n_quiz_submit
413|   AFTER INSERT OR UPDATE OF status ON public.quiz_attempts
414|   FOR EACH ROW
415|   EXECUTE FUNCTION public.queue_n8n_event();
416|
417| DROP TRIGGER IF EXISTS trg_n8n_certificate ON public.certificates;
418| CREATE TRIGGER trg_n8n_certificate
419|   AFTER INSERT ON public.certificates
420|   FOR EACH ROW
421|   EXECUTE FUNCTION public.queue_n8n_event();
422|
423| -- ----------------------------------------
424| -- Function: mark_event_processed()
425| -- n8n calls this after processing an event
426| -- ----------------------------------------
427| CREATE OR REPLACE FUNCTION public.mark_event_processed(
428|   p_event_id UUID,
429|   p_status TEXT DEFAULT 'completed'
430| ) RETURNS BOOLEAN LANGUAGE plpgsql SECURITY DEFINER AS $$
431| BEGIN
432|   UPDATE n8n_events
433|   SET status = p_status, processed_at = NOW()
434|   WHERE id = p_event_id;
435|   RETURN FOUND;
436| END;
437| $$;
438|
439| -- ----------------------------------------
440| -- Grant permissions for n8n
441| -- ----------------------------------------
442| GRANT USAGE ON SCHEMA public TO anon, authenticated, service_role;
443| GRANT EXECUTE ON FUNCTION public.check_completed_paths() TO service_role;
444| GRANT EXECUTE ON FUNCTION public.get_students_low_performance() TO service_role;
445| GRANT EXECUTE ON FUNCTION public.get_weekly_stats_summary() TO service_role;
446| GRANT EXECUTE ON FUNCTION public.get_student_weekly_summary(UUID) TO service_role;
447| GRANT EXECUTE ON FUNCTION public.add_xp(UUID, INT) TO service_role;
448| GRANT EXECUTE ON FUNCTION public.get_n8n_pending_events() TO service_role;
449| GRANT EXECUTE ON FUNCTION public.mark_event_processed(UUID, TEXT) TO service_role;
450| GRANT SELECT, INSERT, UPDATE ON public.n8n_events TO service_role;
451|
```

File: supabase/migrations/20260623_cleanup_new_exam_system.sql (74 lines, 2.8 KB)

```
==========================================================================================
  1 |  - -  %P%P%P  C L E A N U P :  X ó a  Z a l o  c o l u m n s  %P%P%P
  2| ALTER TABLE public.profiles DROP COLUMN IF EXISTS zalo_phone;
  3| ALTER TABLE public.profiles DROP COLUMN IF EXISTS zalo_notifications;
  4| ALTER TABLE public.profiles DROP COLUMN IF EXISTS zalo_verified;
  5|
  6 |  - -  %P%P%P  A D D :  e x a m _ p u b l i s h e d  n o t i f i c a t i o n  t y p e  %P%P%P
  7| ALTER TABLE public.notifications DROP CONSTRAINT IF EXISTS notifications_type_check;
  8| ALTER TABLE public.notifications ADD CONSTRAINT notifications_type_check CHECK (
  9|   type IN (
 10|     'info', 'success', 'warning', 'error',
 11|     'assignment', 'quiz', 'quiz_published',
 12|     'achievement_earned', 'lesson_completed',
 13|     'child_low_score', 'quiz_graded',
 14|     'exam_published', 'class_announcement'
 15|   )
 16| );
 17|
 1 8 |  - -  %P%P%P  A D D :  s t r e a k  t r a c k i n g  c o l u m n s  %P%P%P
 19| ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS streak_daily INT DEFAULT 0;
 20| ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS streak_last_date DATE;
 21| ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS total_exams_done INT DEFAULT 0;
 22| ALTER TABLE public.profiles ADD COLUMN IF NOT EXISTS total_exams_passed INT DEFAULT 0;
 23|
 2 4 |  - -  %P%P%P  F U N C T I O N :  U p d a t e  s t r e a k  o n  q u i z  c o m p l e t i o n  %P%P%P
 25| CREATE OR REPLACE FUNCTION public.update_streak_on_attempt()
 26| RETURNS TRIGGER AS $$
 27| BEGIN
 28|   IF NEW.status = 'submitted' OR NEW.status = 'graded' THEN
 29|     UPDATE public.profiles
 30|     SET
 31|       streak_daily = CASE
 32|         WHEN streak_last_date = CURRENT_DATE - INTERVAL '1 day' THEN streak_daily + 1
 33|         WHEN streak_last_date = CURRENT_DATE THEN streak_daily
 34|         ELSE 1
 35|       END,
 36|       streak_last_date = CURRENT_DATE,
 37|       total_exams_done = total_exams_done + 1,
 38|       total_exams_passed = total_exams_passed + CASE WHEN NEW.score >= (SELECT passing_score FROM quizzes WHER...
 39|     WHERE id = NEW.student_id;
 40|   END IF;
 41|   RETURN NEW;
 42| END;
 43| $$ LANGUAGE plpgsql SECURITY DEFINER;
 44|
 45| DROP TRIGGER IF EXISTS on_quiz_attempt_submit ON public.quiz_attempts;
 46| CREATE TRIGGER on_quiz_attempt_submit
 47|   AFTER UPDATE OF status ON public.quiz_attempts
 48|   FOR EACH ROW
 49|   WHEN (NEW.status = 'submitted' OR NEW.status = 'graded')
 50|   EXECUTE FUNCTION public.update_streak_on_attempt();
 51|
```

```
52 |  - -  %P%P%P  V I E W :  q u i z _ q u e s t i o n s _ f o r _ s t u d e n t  ( s a f e ,  h i d e s  i s _ c o r r e c t )  %P%P%P
53| CREATE OR REPLACE VIEW public.quiz_questions_for_student AS
54| SELECT
55|   qq.quiz_id,
56|   q.id AS question_id,
57|   q.content,
58|   q.type,
59|   q.points,
60|   q.difficulty,
61|   q.explanation,
62|   qq."order",
63|   COALESCE(
64|     JSONB_AGG(
65|       JSONB_BUILD_OBJECT('id', qo.id, 'content', qo.content, 'order', qo."order")
66|       ORDER BY qo."order"
67|     ) FILTER (WHERE qo.id IS NOT NULL),
68|     '[]'::jsonb
69|   ) AS options
70| FROM public.quiz_questions qq
71| JOIN public.questions q ON q.id = qq.question_id
72| LEFT JOIN public.question_options qo ON qo.question_id = q.id
73| GROUP BY qq.quiz_id, q.id, q.content, q.type, q.points, q.difficulty, q.explanation, qq."order";
74|
```

File: scripts/generate-components.mjs (547 lines, 26.6 KB)

```
1| import fs from 'fs';
2| import path from 'path';
3|
4| import { fileURLToPath } from 'url';
5| const __dirname = path.dirname(fileURLToPath(import.meta.url));
6|
7| const CPU_CORES = [2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 28, 32, 64];
8| const CPU_THREADS = [4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 48, 56, 64, 128];
9| const BASE_TDP = [35, 45, 55, 60, 65, 75, 85, 95, 105, 120, 125, 140, 150, 170, 200, 230, 250, 280, 350];
10|
11| function rand(min, max) { return Math.floor(Math.random() * (max - min + 1)) + min; }
12| function pick(arr) { return arr[rand(0, arr.length - 1)]; }
13| function roundPrice(n) { return Math.round(n / 10000) * 10000; }
14|
15 |  / /  % % %  C P U s  % % %
16| const CPU_BRANDS = ['Intel', 'AMD'];
17| const INTEL_LINES = [
18|   { name: 'Core i3', genStart: 12, genEnd: 15, suffix: ['F', 'T', ''], base: [12100, 13100, 14100, 15100] },
19|   { name: 'Core i5', genStart: 12, genEnd: 15, suffix: ['K', 'KF', 'T', 'F', ''], base: [12400, 12600, 13400, ...
20|   { name: 'Core i7', genStart: 12, genEnd: 15, suffix: ['K', 'KF', 'T', 'F', ''], base: [12700, 13700, 14700, ...
21|   { name: 'Core i9', genStart: 12, genEnd: 15, suffix: ['K', 'KF', 'KS', 'T', 'F', ''], base: [12900, 13900, 1...
22|   { name: 'Core Ultra 5', genStart: 1, genEnd: 2, suffix: ['K', 'F', ''], base: [125, 225, 235] },
23|   { name: 'Core Ultra 7', genStart: 1, genEnd: 2, suffix: ['K', 'F', ''], base: [165, 265, 275] },
24|   { name: 'Core Ultra 9', genStart: 1, genEnd: 2, suffix: ['K', 'F', ''], base: [185, 285] },
25|   { name: 'Pentium Gold', genStart: 7, genEnd: 9, suffix: ['', 'T'], base: [7400, 7500, 8500] },
26|   { name: 'Celeron', genStart: 6, genEnd: 9, suffix: ['', 'T'], base: [6900, 7300, 7305] },
27| ];
28|
29| const AMD_LINES = [
30|   { name: 'Ryzen 3', gen: ['5000', '7000', '8000', '9000'], models: ['5300G', '5400G', '7300X', '8300G', '9300...
31|   { name: 'Ryzen 5', gen: ['5000', '7000', '8000', '9000'], models: ['5500', '5600', '5600X', '7500F', '7600',...
32|   { name: 'Ryzen 7', gen: ['5000', '7000', '8000', '9000'], models: ['5700X', '5700X3D', '5800X', '5800X3D', '...
33|   { name: 'Ryzen 9', gen: ['5000', '7000', '9000'], models: ['5900X', '5950X', '7900', '7900X', '7950X', '7950...
34|   { name: 'Ryzen Threadripper', gen: ['7000'], models: ['7960X', '7970X', '7980X', '7990X', '7965WX', '7975WX'...
35|   { name: 'EPYC', gen: ['4004', '8004', '9004'], models: ['4124P', '4344P', '4484PX', '9124', '9254', '9374F',...
36| ];
37|
38| function generateCPUs() {
39|   const cpus = [];
40|   let id = 1;
41|
42|   // Intel
43|   for (const line of INTEL_LINES) {
44|     for (const gen of [12, 13, 14, 15]) {
45|       if (gen < line.genStart || gen > line.genEnd) continue;
46|       for (const base of line.base) {
47|         const genPrefix = String(gen) + String(base).slice(-3);
48|         for (const sfx of line.suffix) {
49|           const name = `${line.name}-${genPrefix}${sfx}`;
50|           const cores = pick(CPU_CORES.slice(0, 9));
51|           const threads = cores * 2;
52|           const tdp = pick(BASE_TDP.slice(2, 11));
53|           const price = roundPrice(rand(800000, line.name.includes('i9') ? 25000000 : line.name.includes('i7')...
54|           const socket = gen >= 14 ? 'LGA1851' : 'LGA1700';
55|           cpus.push({
56|             id: `cpu_intel_${genprefix}${sfx || 'std'}_${id++}`,
57|             name: `Intel ${name}`,
58|             type: 'CPU',
59|             price,
60|             socket,
61|             power: tdp,
62 |                        d e s c :  `$ { c o r e s }  n h â n  /  $ { t h r e a d s }  l u Ó n g ,  $ { t d p } W  T D P ,  S o c k e t
63|           });
64|         }
65|       }
66|     }
67|   }
68|
69|   // AMD
70|   for (const line of AMD_LINES) {
71|     for (const gen of line.gen) {
72|       for (const model of line.models) {
73|         const name = `AMD ${line.name} ${gen}${model}`;
74|         const cores = line.name.includes('Threadripper') || line.name.includes('EPYC') ? pick([16, 24, 32, 64,...
75|         const threads = line.name.includes('Threadripper') || line.name.includes('EPYC') ? cores * 2 : cores * 2;
76|         const tdp = line.name.includes('Threadripper') ? pick([250, 280, 300, 350]) : line.name.includes('EPYC...
77|         const isX3D = model.includes('X3D');
78|         const price = roundPrice(
79|           line.name.includes('Threadripper') ? rand(10000000, 80000000) :
80|           line.name.includes('EPYC') ? rand(15000000, 120000000) :
81|           line.name.includes('Ryzen 9') ? rand(8000000, 25000000) :
82|           line.name.includes('Ryzen 7') ? rand(5000000, 15000000) :
83|           line.name.includes('Ryzen 5') ? rand(2500000, 8000000) :
84|           rand(1500000, 5000000)
85|         );
86|         const socket = gen.startsWith('9') ? 'AM5' : gen.startsWith('8') ? 'AM5' : gen.startsWith('7') ? (line...
87|         cpus.push({
88|           id: `cpu_amd_${line.name.toLowerCase().replace(/ /g, '_')}_${gen}_${model.toLowerCase()}_${id++}`,
89|           name,
90|           type: 'CPU',
91|           price: isX3D ? price * 1.2 : price,
92|           socket,
93|           power: tdp,
94 |                        d e s c :  `$ { c o r e s }  n h â n  /  $ { t h r e a d s }  l u Ó n g ,  $ { t d p } W  T D P ,  S o c k e t  $
95|         });
96|       }
97|     }
```

```
  }

  return cpus;
}

// %%% GPUs %%%
function generateGPUs() {
  const gpus = [];
  const lines = [
    { brand: 'NVIDIA', prefix: 'RTX', models: ['3050', '3060', '3060 Ti', '3070', '3070 Ti', '3080', '3080 Ti'...
    { brand: 'NVIDIA', prefix: 'GTX', models: ['1630', '1650', '1650 Super', '1660', '1660 Super', '1660 Ti'],...
    { brand: 'AMD', prefix: 'RX', models: ['6400', '6500 XT', '6600', '6600 XT', '6650 XT', '6700 XT', '6750 X...
    { brand: 'Intel', prefix: 'Arc', models: ['A310', 'A380', 'A580', 'A750', 'A770', 'B580', 'B770', 'B780'],...
  ];

  const brands = ['ASUS', 'MSI', 'Gigabyte', 'Colorful', 'ZOTAC', 'PNY', 'Palit', 'Galax', 'Inno3D', 'PowerCol...
  let id = 1;

  for (const line of lines) {
    for (let i = 0; i < line.models.length; i++) {
      const model = line.models[i];
      const vram = line.vram[i];
      for (const brand of brands) {
        const name = `${brand} NVIDIA ${line.prefix} ${model} ${vram}GB`; // default, will fix for AMD/Intel
        const isHighEnd = model.includes('90') || model.includes('80') || model.includes('70 Ti Super') || mod...
        const isMid = model.includes('70') || model.includes('60 Ti') || model.includes('7800') || model.inclu...
        const price = roundPrice(
          line.brand === 'NVIDIA' ?
            (isHighEnd ? rand(15000000, 75000000) : isMid ? rand(7000000, 16000000) : rand(3000000, 8000000)) :
          line.brand === 'AMD' ?
            (isHighEnd ? rand(12000000, 60000000) : isMid ? rand(6000000, 14000000) : rand(2500000, 7000000)) :
            rand(2000000, 10000000)
        );
        const tdp = isHighEnd ? pick([250, 300, 350, 400, 450]) : isMid ? pick([150, 180, 200, 220, 250]) : pi...

        let fullName;
        if (line.brand === 'Intel') {
          fullName = `${brand} Intel Arc ${model}`;
        } else {
          fullName = `${brand} ${line.brand === 'NVIDIA' ? `GeForce ${line.prefix}` : `Radeon ${line.prefix}`}...
        }

        gpus.push({
          id: `gpu_${line.brand.toLowerCase()}_${model.toLowerCase().replace(/ /g, '_')}_${brand.toLowerCase...
          name: fullName,
          type: 'GPU',
          price,
          power: tdp,
          desc: `${
            line.brand === 'NVIDIA' ? `${line.prefix} ${model}` :
            line.brand === 'AMD' ? `Radeon ${line.prefix} ${model}` :
            `Intel Arc ${model}`
          } ${vram}GB VRAM, ${tdp}W TDP`,
        });
      }
    }
  }
  return gpus;
}

// %%% RAM %%%
function generateRAM() {
  const rams = [];
  const brands = ['Corsair', 'G.Skill', 'Kingston', 'Crucial', 'TeamGroup', 'ADATA', 'Patriot', 'Samsung', 'SK...
  const ddr4Speeds = [2133, 2400, 2666, 2933, 3000, 3200, 3333, 3400, 3466, 3600, 3733, 3800, 4000, 4133, 4266...
  const ddr5Speeds = [4800, 5200, 5400, 5600, 6000, 6200, 6400, 6600, 6800, 7000, 7200, 7400, 7600, 7800, 8000...
  const sizes = [4, 8, 12, 16, 24, 32, 48, 64, 96, 128];
  const sticks = [1, 2, 4, 8];
  const lines = ['Value', 'Vengeance', 'Trident Z', 'Ripjaws', 'Fury', 'Ballistix', 'T-Force', 'XPG', 'Viper',...
  let id = 1;

  for (const brand of brands) {
    for (const ddrType of ['DDR4', 'DDR5']) {
      const speeds = ddrType === 'DDR4' ? ddr4Speeds : ddr5Speeds;
      for (let si = 0; si < Math.min(sizes.length, 8); si++) {
        const sizeGB = sizes[si];
        for (const stick of [1, 2]) {
          const totalGB = sizeGB * stick;
          const speed = pick(speeds);
          const line = pick(lines);
          const price = roundPrice(ddrType === 'DDR5' ? rand(totalGB * 50000, totalGB * 120000) : rand(totalGB...
          const name = `${brand} ${line} ${totalGB}GB (${stick}x${sizeGB}GB) ${ddrType}-${speed}`;
          rams.push({
            id: `ram_${ddrType.toLowerCase()}_${brand.toLowerCase()}_${totalGB}gb_${id++}`,
            name,
            type: 'RAM',
            price,
            socket: ddrType === 'DDR4' ? 'DDR4' : 'DDR5',
            ramType: ddrType,
            size: `${totalGB}GB (${stick}x${sizeGB}GB)`,
            desc: `${ddrType}-${speed}MHz, CAS ${pick([14, 15, 16, 17, 18, 19, 20, 22, 24, 26, 28, 30, 32, 34,...
          });
        }
      }
    }
  }
  return rams;
}

// %%% Mainboards %%%
function generateMainboards() {
  const boards = [];
  const brands = ['ASUS', 'MSI', 'Gigabyte', 'ASRock', 'Biostar', 'Maxsun', 'Colorful'];
  const chipsets = [
    { name: 'H610', socket: 'LGA1700', ddr: ['DDR4', 'DDR5'] },
    { name: 'B660', socket: 'LGA1700', ddr: ['DDR4', 'DDR5'] },
    { name: 'B760', socket: 'LGA1700', ddr: ['DDR4', 'DDR5'] },
    { name: 'Z690', socket: 'LGA1700', ddr: ['DDR4', 'DDR5'] },
    { name: 'Z790', socket: 'LGA1700', ddr: ['DDR4', 'DDR5'] },
    { name: 'W680', socket: 'LGA1700', ddr: ['DDR5'] },
    { name: 'B860', socket: 'LGA1851', ddr: ['DDR5'] },
    { name: 'Z890', socket: 'LGA1851', ddr: ['DDR5'] },
    { name: 'A520', socket: 'AM4', ddr: ['DDR4'] },
    { name: 'B550', socket: 'AM4', ddr: ['DDR4'] },
    { name: 'X570', socket: 'AM4', ddr: ['DDR4'] },
    { name: 'A620', socket: 'AM5', ddr: ['DDR5'] },
    { name: 'B650', socket: 'AM5', ddr: ['DDR5'] },
    { name: 'B650E', socket: 'AM5', ddr: ['DDR5'] },
    { name: 'X670', socket: 'AM5', ddr: ['DDR5'] },
    { name: 'X670E', socket: 'AM5', ddr: ['DDR5'] },
    { name: 'X870', socket: 'AM5', ddr: ['DDR5'] },
    { name: 'X870E', socket: 'AM5', ddr: ['DDR5'] },
    { name: 'TRX50', socket: 'sTR5', ddr: ['DDR5'] },
    { name: 'WRX90', socket: 'sTR5', ddr: ['DDR5'] },
```

```
  ];
  const formFactors = ['Mini-ITX', 'Micro-ATX', 'ATX', 'E-ATX', 'Mini-DTX'];
  let id = 1;

  for (const brand of brands) {
    for (const chip of chipsets) {
      for (const ddr of chip.ddr) {
        const ff = pick(formFactors);
        const series = pick(['Prime', 'TUF Gaming', 'ROG Strix', 'Pro', 'MAG', 'MPG', 'MEG', 'Aorus', 'Master'...
        const name = `${brand} ${series} ${chip.name} ${ddr} ${ff}`;
        const price = roundPrice(
          chip.name.startsWith('Z') || chip.name.startsWith('X') ? rand(3000000, 25000000) :
          chip.name.startsWith('B') ? rand(1500000, 8000000) :
          chip.name.startsWith('A') || chip.name.startsWith('H') ? rand(800000, 3500000) :
          rand(5000000, 50000000)
        );
        boards.push({
          id: `mb_${brand.toLowerCase()}_${chip.name.toLowerCase()}_${ddr.toLowerCase()}_${id++}`,
          name,
          type: 'Mainboard',
          price,
          socket: chip.socket,
          ramType: ddr,
          desc: `Chipset ${chip.name}, Socket ${chip.socket}, ${ff}, H×
        });
      }
    }
  }
  return boards;
}

// %%% Storage %%%
function generateStorage() {
  const storage = [];
  const brands = ['Samsung', 'Western Digital', 'Seagate', 'Crucial', 'Kingston', 'SK Hynix', 'Solidigm', 'Tea...
  let id = 1;

  // NVMe SSDs
  const nvmeLines = ['980', '990 EVO', '990 PRO', 'SN580', 'SN770', 'SN850X', 'T500', 'T700', 'KC3000', 'NV3',...
  for (const brand of brands) {
    for (const line of nvmeLines) {
      for (const capacity of [256, 512, 1024, 2048, 4096, 8192]) {
        if (Math.random() > 0.3) continue; // thin out
        const gen = capacity >= 2048 ? pick([4, 5]) : pick([3, 4, 5]);
        const name = `${brand} ${line} ${capacity >= 1024 ? capacity / 1024 + 'TB' : capacity + 'GB'} NVMe Gen...
        const price = roundPrice(capacity * [60, 80, 100, 120, 150, 200][Math.min(gen, 5)]);
        storage.push({
          id: `ssd_nvme_${brand.toLowerCase()}_${line.toLowerCase()}_${capacity}gb_${id++}`,
          name,
          type: 'Storage',
          price,
          desc: `NVMe M.2 Gen${gen}, ${capacity >= 1024 ? capacity / 1024 + 'TB' : capacity + 'GB'}`,
        });
      }
    }
  }

  // SATA SSDs
  const sataLines = ['870 EVO', '870 QVO', 'BX500', 'MX500', 'SA400', 'A400', 'SU630', 'SU650', 'SU750', 'UV50...
  for (const brand of brands.slice(0, 10)) {
    for (const line of sataLines) {
      for (const capacity of [240, 480, 960, 1920, 3840]) {
        if (Math.random() > 0.3) continue;
        const name = `${brand} ${line} ${capacity >= 1000 ? capacity / 1000 + 'TB' : capacity + 'GB'} SATA SSD`;
        storage.push({
          id: `ssd_sata_${brand.toLowerCase()}_${line.toLowerCase()}_${capacity}gb_${id++}`,
          name,
          type: 'Storage',
          price: roundPrice(capacity * 40),
          desc: `SATA III 2.5", ${capacity >= 1000 ? capacity / 1000 + 'TB' : capacity + 'GB'}`,
        });
      }
    }
  }

  // HDDs
  const hddBrands = ['Seagate', 'Western Digital', 'Toshiba'];
  const hddLines = ['Barracuda', 'IronWolf', 'SkyHawk', 'WD Blue', 'WD Black', 'WD Red', 'WD Purple', 'Gold', ...
  const hddCapacities = [500, 1000, 2000, 4000, 6000, 8000, 10000, 12000, 14000, 16000, 18000, 20000, 22000, 2...
  for (const brand of hddBrands) {
    for (const line of hddLines) {
      for (const cap of hddCapacities) {
        if (Math.random() > 0.25) continue;
        const rpm = cap >= 4000 ? pick([5400, 7200]) : 7200;
        const name = `${brand} ${line} ${cap >= 1000 ? cap / 1000 + 'TB' : cap + 'GB'} ${rpm}rpm`;
        storage.push({
          id: `hdd_${brand.toLowerCase()}_${line.toLowerCase()}_${cap}gb_${id++}`,
          name,
          type: 'Storage',
          price: roundPrice(cap * [10, 15, 20, 25, 30, 35, 40][Math.min(Math.floor(cap / 2000), 6)]),
          desc: `HDD ${rpm}rpm, ${cap >= 1000 ? cap / 1000 + 'TB' : cap + 'GB'}, SATA III`,
        });
      }
    }
  }

  return storage;
}

// %%% PSU %%%
function generatePSUs() {
  const psus = [];
  const brands = ['Corsair', 'EVGA', 'Seasonic', 'Cooler Master', 'be quiet!', 'Thermaltake', 'FSP', 'SilverSt...
  const wattages = [300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 1000, 1050, 1100, 1200, 1...
  const ratings = ['80+ White', '80+ Bronze', '80+ Gold', '80+ Platinum', '80+ Titanium'];
  const series_map = {
    'Corsair': ['CV', 'CX', 'RM', 'RMx', 'RMx Shift', 'HX', 'AX', 'SF'],
    'EVGA': ['W1', 'GD', 'G5', 'G6', 'G7', 'P2', 'T2', 'SuperNOVA'],
    'Seasonic': ['S12', 'Focus', 'Core', 'Prime', 'Vertex', 'Prime TX'],
    'Cooler Master': ['Elite', 'MWE', 'V', 'XG'],
    'be quiet!': ['System Power', 'Pure Power', 'Straight Power', 'Dark Power'],
    'Thermaltake': ['Smart', 'Toughpower', 'Toughpower GF', 'Toughpower iRGB'],
    'FSP': ['Hydro', 'Hydro G', 'Hydro PTM'],
    'SilverStone': ['Strider', 'Strider Gold', 'Nightjar', 'SX'],
    'NZXT': ['C', 'E'],
    'Antec': ['Earthwatts', 'NeoECO', 'High Current', 'Signature'],
    'Super Flower': ['Leadex', 'Leadex Platinum', 'Leadex Titanium'],
    'Lian Li': ['SP'],
    'MSI': ['MAG', 'MPG', 'A-G'],
    'ASUS': ['TUF', 'ROG', 'ROG Thor'],
    'Gigabyte': ['GP', 'UD', 'Aorus'],
    'DeepCool': ['PF', 'DQ', 'PQ'],
    'XPG': ['Core Reactor', 'CyberCore', 'Fusion'],
  };
```

```
346|   let id = 1;
347|
348|   for (const brand of brands) {
349|     const series = series_map[brand] || ['Standard'];
350|     for (const s of series) {
351|       for (const rating of ratings.slice(0, brand.includes('Corsair') || brand.includes('Seasonic') || brand.i...
352|         for (const watt of wattages) {
353|           if (Math.random() > 0.2) continue;
354|           if (rating === '80+ Titanium' && watt < 600) continue;
355|           if (rating === '80+ Platinum' && watt < 400) continue;
356|           const name = `${brand} ${s} ${watt}W ${rating}`;
357|           const price = roundPrice(
358|             rating.includes('Titanium') ? watt * 500 :
359|             rating.includes('Platinum') ? watt * 400 :
360|             rating.includes('Gold') ? watt * 300 :
361|             rating.includes('Bronze') ? watt * 200 :
362|             watt * 120
363|           );
364|           psus.push({
365|             id: `psu_${brand.toLowerCase()}_${s.toLowerCase().replace(/ /g, '_')}_${watt}w_${id++}`,
366|             name,
367|             type: 'PSU',
368|             price,
369|             wattage: watt,
370|             desc: `${watt}W ${rating}, Fully Modular`,
371|           });
372|         }
373|       }
374|     }
375|   }
376|   return psus;
377| }
378|
   3 7 9 |   / /  % % %    C o o l e r s  % % %
380| function generateCoolers() {
381|   const coolers = [];
382|   const brands = ['Noctua', 'Cooler Master', 'NZXT', 'Corsair', 'be quiet!', 'DeepCool', 'Thermalright', 'ID-C...
383|   let id = 1;
384|
385|   // Air coolers
386|   const airLines = ['NH-D15', 'NH-U12S', 'NH-L9i', 'Hyper 212', 'Hyper 620S', 'MA620P', 'Pure Rock 2', 'Dark R...
387|   for (const brand of brands.slice(0, 10)) {
388|     for (const line of airLines) {
389|       if (Math.random() > 0.5) continue;
390|       const price = roundPrice(rand(150000, 2500000));
391|       const name = `${brand} ${line} (Air Cooler)`;
392|       coolers.push({
393|         id: `cooler_air_${brand.toLowerCase()}_${line.toLowerCase().replace(/ /g, '_')}_${id++}`,
394|         name,
395|         type: 'Cooler',
396|         price,
   3 9 7 |                 d e s c :   ` T £ n   n h i Ç t   k h í ,   $ { p i c k ( [ ' 1 2 0 m m ' ,   ' 1 4 0 m m ' ,   ' 9 2 m m ' ,   ' 8 0 m m ' ] )
398|       });
399|     }
400|   }
401|
402|   // AIO liquid coolers
403|   const aioLines = ['Kraken', 'Kraken Elite', 'Kraken X', 'iCUE H100i', 'iCUE H150i', 'iCUE H170i', 'Liquid Fr...
404|   const radiatorSizes = [120, 240, 280, 360, 420, 480];
405|   for (const brand of brands) {
406|     for (const line of aioLines) {
407|       if (Math.random() > 0.4) continue;
408|       for (const rad of radiatorSizes) {
409|         if (Math.random() > 0.5) continue;
410|         const price = roundPrice(rand(800000, 12000000));
411|         const name = `${brand} ${line} ${rad}mm AIO`;
412|         coolers.push({
413|           id: `cooler_aio_${brand.toLowerCase()}_${line.toLowerCase().replace(/ /g, '_')}_${rad}mm_${id++}`,
414|           name,
415|           type: 'Cooler',
416|           price,
   4 1 7 |                     d e s c :   ` T £ n   n h i Ç t   n ° Û c   A I O   $ { r a d } m m ,   $ { p i c k ( [ ' R G B ' ,   ' A R G B ' ,   ' k h
418|         });
419|       }
420|     }
421|   }
422|   return coolers;
423| }
424|
   4 2 5 |   / /  % % %    C a s e s  % % %
426| function generateCases() {
427|   const cases = [];
428|   const brands = ['Corsair', 'NZXT', 'Lian Li', 'Fractal Design', 'Cooler Master', 'Phanteks', 'be quiet!', 'T...
429|   const formFactors = ['Mini-ITX', 'Micro-ATX', 'Mid Tower', 'Full Tower', 'Super Tower', 'Mini Tower', 'SFF',...
430|   let id = 1;
431|
432|   const caseSeries = {
433|     'Corsair': ['4000D', '5000D', '7000D', 'iCUE 220T', 'iCUE 465X', 'Crystal 280X', 'Crystal 570X', 'Obsidian...
434|     'NZXT': ['H5 Flow', 'H7 Flow', 'H9 Flow', 'H9 Elite', 'H510', 'H710', 'H700i', 'H1'],
435|     'Lian Li': ['O11 Dynamic', 'O11 Dynamic EVO', 'O11 Dynamic XL', 'Lancool 205', 'Lancool 216', 'Lancool III...
436|     'Fractal Design': ['Meshify 2', 'Define 7', 'North', 'Pop Air', 'Focus 2', 'Torrent', 'Era ITX', 'Terra'],
437|     'Cooler Master': ['MasterBox Q300L', 'MasterBox MB520', 'MasterCase H500', 'COSMOS C700M', 'HAF 700', 'NR2...
438|     'Phanteks': ['Eclipse G360A', 'Eclipse P400A', 'Eclipse P500A', 'Enthoo Pro 2', 'Evolv X', 'NV5', 'NV7', '...
439|     'be quiet!': ['Pure Base 500', 'Pure Base 500DX', 'Shadow Base 800', 'Dark Base 701', 'Dark Base Pro 901'],
440|     'Thermaltake': ['Core P3', 'Core P8', 'Level 20', 'Tower 100', 'Tower 200', 'Tower 300', 'Tower 500', 'Tow...
441|     'SilverStone': ['Seta A1', 'Seta Q1', 'Seta H1', 'ALTA G1M', 'ALTA F2', 'Sugo 16', 'GD11', 'RM42'],
442|     'DeepCool': ['CH370', 'CH510', 'CH560', 'CH780', 'MATREXX 40', 'MATREXX 50', 'MATREXX 70', 'LS520'],
443|     'Jonsbo': ['D31', 'D41', 'D300', 'TK-1', 'TK-2', 'UMX6', 'VR4', 'N2', 'N3', 'N5'],
444|   };
445|
446|   for (const brand of brands) {
447|     const series = caseSeries[brand] || ['Standard', 'Pro', 'Elite'];
448|     for (const s of series) {
449|       const ff = pick(formFactors);
450|       const name = `${brand} ${s} ${ff}`;
451|       const price = roundPrice(
452|         ff.includes('Full Tower') || ff.includes('Super Tower') ? rand(2000000, 25000000) :
453|         ff.includes('Mid Tower') ? rand(500000, 5000000) :
454|         rand(300000, 3000000)
455|       );
456|       cases.push({
457|         id: `case_${brand.toLowerCase()}_${s.toLowerCase().replace(/[ ]/g, '_')}_${id++}`,
458|         name,
459|         type: 'Case',
460|         price,
461|         desc: `${ff}, ${pick(['Tempered Glass', 'Mesh', 'Solid Panel', 'Dual Chamber'])}, ${pick(['ATX', 'E-AT...
462|       });
463|     }
464|   }
465|   return cases;
466| }
467|
   4 6 8 |   / /  % % %    M o n i t o r s  % % %
469| function generateMonitors() {
```

```
  470|   const monitors = [];
  471|   const brands = ['Dell', 'LG', 'Samsung', 'ASUS', 'AOC', 'BenQ', 'ViewSonic', 'Acer', 'MSI', 'Gigabyte', 'HP'...
  472|   let id = 1;
  473|
  474|   const monitorSeries = {
  475|     'Dell': ['UltraSharp', 'P Series', 'S Series', 'Alienware', 'Gaming'],
  476|     'LG': ['UltraGear', 'UltraFine', 'UltraWide', 'Gram +view', 'MyView'],
  477|     'Samsung': ['Odyssey', 'Smart Monitor', 'ViewFinity', 'CRG9', 'G Series'],
  478|     'ASUS': ['ROG Swift', 'TUF Gaming', 'ProArt', 'Designo', 'VA'],
  479|     'AOC': ['Gaming', 'U Series', 'C Series', 'Agon', 'E Series', '24G2', '27G2'],
  480|   };
  481|
  482|   const resolutions = ['1920x1080', '2560x1080', '2560x1440', '3440x1440', '3840x1600', '3840x2160', '5120x216...
  483|   const sizes_inch = [21.5, 23.8, 24, 24.5, 25, 27, 28, 31.5, 32, 34, 38, 40, 42, 43, 48, 49, 54, 55, 57];
  484|   const refreshRates = [60, 75, 100, 120, 144, 165, 175, 200, 240, 360, 480, 540];
  485|   const panelTypes = ['IPS', 'VA', 'TN', 'OLED', 'QLED', 'Mini-LED', 'PLS', 'AHVA'];
  486|
  487|   for (const brand of brands) {
  488|     const series = monitorSeries[brand] || ['Standard', 'Pro', 'Ultra'];
  489|     for (const s of series) {
  490|       for (let i = 0; i < 3; i++) {
  491|         const size = pick(sizes_inch);
  492|         const res = pick(resolutions);
  493|         const hz = res.includes('2160') ? pick(refreshRates.slice(0, 5)) : res.includes('1440') ? pick(refresh...
  494|         const panel = pick(panelTypes);
  495|         const isUltrawide = res.includes('3440') || res.includes('3840x1600') || res.includes('5120');
  496|         const name = `${brand} ${s} ${size}" ${res} ${hz}Hz ${panel}`;
  497|         const price = roundPrice(
  498|           res.includes('4320') ? rand(30000000, 150000000) :
  499|           res.includes('2160') ? rand(6000000, 50000000) :
  500|           res.includes('1440') ? rand(3000000, 25000000) :
  501|           rand(1500000, 12000000)
  502|         );
  503|         monitors.push({
  504|           id: `monitor_${brand.toLowerCase()}_${s.toLowerCase().replace(/ /g, '_')}_${size}_${id++}`,
  505|           name,
  506|           type: 'Monitor',
  507|           price,
  508|           desc: `${size}" ${panel}, ${res}, ${hz}Hz`,
  509|         });
  510|       }
  511|     }
  512|   }
  513|   return monitors;
  514| }
  515|
     5 1 6 |   / /  % % %    M a i n  % % %
  517| function main() {
  518|   const cpus = generateCPUs();
  519|   const gpus = generateGPUs();
  520|   const rams = generateRAM();
  521|   const boards = generateMainboards();
  522|   const storage = generateStorage();
  523|   const psus = generatePSUs();
  524|   const coolers = generateCoolers();
  525|   const cases = generateCases();
  526|   const monitors = generateMonitors();
  527|
  528|   const all = [...cpus, ...gpus, ...rams, ...boards, ...storage, ...psus, ...coolers, ...cases, ...monitors];
  529|
  530|   console.log(`Generated ${all.length} components:`);
  531|   console.log(`  CPUs: ${cpus.length}`);
  532|   console.log(`  GPUs: ${gpus.length}`);
  533|   console.log(`  RAM: ${rams.length}`);
  534|   console.log(`  Mainboards: ${boards.length}`);
  535|   console.log(`  Storage: ${storage.length}`);
  536|   console.log(`  PSUs: ${psus.length}`);
  537|   console.log(`  Coolers: ${coolers.length}`);
  538|   console.log(`  Cases: ${cases.length}`);
  539|   console.log(`  Monitors: ${monitors.length}`);
  540|
  541|   const outputPath = path.join(__dirname, '..', 'data', 'componentsData.json');
  542|   fs.writeFileSync(outputPath, JSON.stringify(all, null, 2), 'utf-8');
  543|   console.log(`\nWritten to: ${outputPath}`);
  544| }
  545|
  546| main();
  547|
```

File: scripts/seed.mjs (36 lines, 2.5 KB)

```
    1| import { createClient } from '@supabase/supabase-js'
    2|
    3| const supabaseUrl = 'https://ojjmdhrvivwvfgomonzd.supabase.co'
    4| const supabaseKey = 'eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJzdXBhYmFzZSIsInJlZiI6Im9qam1kaHJ2aXZ3dmZn...
    5|
    6| const supabase = createClient(supabaseUrl, supabaseKey)
    7|
    8| const QUESTS = [
    9|   { title: 'Hoan thanh 1 bai hoc', description: 'Xem het 1 bai giang bat ky', xp_reward: 50, type: 'daily', di...
   10|   { title: 'Lam bai trac nghiem', description: 'Hoan thanh 1 bai quiz bat ky', xp_reward: 30, type: 'daily', d...
   11|   { title: 'Tham gia thao luan', description: 'Dat cau hoi hoac tra loi trong dien dan', xp_reward: 20, type: ...
   12|   { title: 'Dat streak 3 ngay', description: 'Hoc lien tiep 3 ngay khong bo lo', xp_reward: 150, type: 'daily'...
   13|   { title: 'Kiem tra tuong thich', description: 'Chay kiem tra tuong thich cho 1 cau hinh PC', xp_reward: 40, ...
   14|   { title: 'Luyen tap 15 phut', description: 'Danh 15 phut trong PC Builder', xp_reward: 60, type: 'daily', di...
   15|   { title: 'Hoan thanh 3 bai hoc', description: 'Hoc lien tuc 3 bai giang trong ngay', xp_reward: 120, type: '...
   16| ]
   17|
   18| async function seed() {
      1 9 |       c o n s o l e . l o g ( 'Ø=Ý   B a t   d a u   s e e d   d u   l i e u . . . ' )
   20|
   21|   const { data: existing } = await supabase.from('daily_quests').select('id').limit(1)
   22|   if (existing && existing.length > 0) {
      2 3 |           c o n s o l e . l o g ( ''   d a i l y _ q u e s t s   d a   c o   d u   l i e u ,   b o   q u a ' )
   24|     return
   25|   }
   26|
   27|   const { error } = await supabase.from('daily_quests').insert(QUESTS)
   28|   if (error) {
      2 9 |           c o n s o l e . l o g ( ''L   L o i : ' ,   e r r o r . m e s s a g e )
   30|   } else {
      3 1 |           c o n s o l e . l o g ( ''   D a   t h e m   '   +   Q U E S T S . l e n g t h   +   '   n h i e m   v u   h a n g   n g a y ' )
   32|   }
   33| }
   34|
   35| seed().catch(console.error)
   36|
```

File: scripts/seed.sql (46 lines, 3.6 KB)

```
    1| -- ========================================
```

```
-- ============================================
-- SEED: Daily Quests
-- ============================================
INSERT INTO daily_quests (title, description, xp_reward, type, difficulty, icon, requirement_type, requirement...
SELECT * FROM (VALUES
      ('Hoàn thành 1 bài hÍc', 'Xem h¿t 1 bài gi£ng b¥t kó', 50, 'daily', 'e
      ('Lp ráp PC hoàn chÉnh', 'Lp §y ç linh kiÇn trong PC Builder', 80,
      ('Làm bài tr c nghiÇm', 'Hoàn thành 1 bài quiz b¥t kó', 30, 'daily',
      ('Tham gia th£o lu-n', '·t câu hÎi ho·c tr£ lÝi trong diÃn àn', 20,
      ('¡t streak 3 ngày', 'HÍc liên ti¿p 3 ngày không bÎ lá', 150, 'daily'
      ('KiÃm tra t°¡ng thích', 'Ch¡y kiÃm tra t°¡ng thích cho 1 c¥u hình PC'
      ('Hoàn thành 3 bài hÍc', 'HÍc liên tåc 3 bài gi£ng trong ngày', 120,
      ('LuyÇn t-p 15 phút', 'Dành 15 phút trong PC Builder', 60, 'daily', 'm
) AS q(title, description, xp_reward, type, difficulty, icon, requirement_type, requirement_value, is_active)
WHERE NOT EXISTS (SELECT 1 FROM daily_quests LIMIT 1);

-- ============================================
-- Verify
-- ============================================
SELECT COUNT(*) AS quest_count FROM daily_quests;
SELECT level, title, icon FROM level_definitions ORDER BY level;
```

File: eslint.config.mjs (17 lines, 0.4 KB)

```
import { defineConfig, globalIgnores } from "eslint/config";
import nextVitals from "eslint-config-next/core-web-vitals";

const eslintConfig = defineConfig([
  ...nextVitals,
  // Override default ignores of eslint-config-next.
  globalIgnores([
    // Default ignores of eslint-config-next:
    ".next/**",
    "out/**",
    "build/**",
    "next-env.d.ts",
  ]),
]);

export default eslintConfig;
```

File: generate-pdf.mjs (179 lines, 4.3 KB)

```
import { readFileSync, existsSync } from 'fs';
import { glob } from 'tinyglobby';
import { jsPDF } from 'jspdf';
import path from 'path';
import { fileURLToPath } from 'url';

const __dirname = path.dirname(fileURLToPath(import.meta.url));
const ROOT = __dirname;

const includePatterns = [
  'app/**/*.{ts,tsx,js,jsx,css}',
  'components/**/*.{ts,tsx,js,jsx}',
  'lib/**/*.{ts,tsx,js}',
  'utils/**/*.{ts,js}',
  'types/**/*.ts',
  'hooks/**/*.ts',
  'hooks/**/*.tsx',
  'providers/**/*.tsx',
  'data/**/*.{ts,js,json}',
  'database/**/*.sql',
  'supabase/migrations/**/*.sql',
  'supabase/functions/**/*.ts',
  'scripts/**/*.{mjs,js,sql}',
  '*.{ts,js,mjs}',
  'next.config.mjs',
  'tailwind.config.js',
  'postcss.config.js',
  'tsconfig.json',
  'eslint.config.mjs',
  'vercel.json',
  'package.json',
];

const excludePatterns = [
  'node_modules/**',
  '.git/**',
  '.next/**',
  '.vercel/**',
  '.vercel.bak/**',
  'public/**',
  'superpowers/**',
  'n8n/**',
  'GitNexus/**',
  'next-env.d.ts',
  'tsconfig.tsbuildinfo',
  '*.tsbuildinfo',
];

console.log('Scanning source files...');

const allFiles = await glob(includePatterns, {
  cwd: ROOT,
  ignore: excludePatterns,
```

```
  dot: true,
});

allFiles.sort();

const srcDirs = ['app','components','lib','utils','types','hooks','providers','data','database','supabase','sc...
allFiles.sort((a, b) => {
  const aIdx = srcDirs.findIndex(d => a.startsWith(d));
  const bIdx = srcDirs.findIndex(d => b.startsWith(d));
  if (aIdx !== bIdx) {
    if (aIdx === -1) return 1;
    if (bIdx === -1) return -1;
    return aIdx - bIdx;
  }
  return a.localeCompare(b);
});

console.log(`Found ${allFiles.length} source files.`);

const doc = new jsPDF({
  orientation: 'portrait',
  unit: 'mm',
  format: 'a4',
  compress: true,
});

const PAGE_H = 297;
const MARGIN = 10;
const FONT_SIZE = 6;
const LINE_HEIGHT = FONT_SIZE * 0.37;
const MAX_CHARS = Math.floor((210 - 2 * MARGIN) / (FONT_SIZE * 0.28));

doc.setFont('Courier', 'normal');
doc.setFontSize(FONT_SIZE);

let pageNum = 1;
let cursorY = MARGIN;

function addPage() {
  doc.addPage();
  pageNum++;
  cursorY = MARGIN;
}

function ensureLine(n = 1) {
  if (pageNum === 0) addPage();
  if (cursorY + LINE_HEIGHT * n > PAGE_H - MARGIN) {
    addPage();
  }
}

function writeln(text = '') {
  ensureLine();
  doc.text(text, MARGIN, cursorY);
  cursorY += LINE_HEIGHT;
}

function writeTitle(text) {
  ensureLine(2);
  const prevSize = doc.getFontSize();
  doc.setFontSize(FONT_SIZE + 2);
  doc.setFont('Courier', 'Bold');
  doc.text(text, MARGIN, cursorY);
  cursorY += LINE_HEIGHT * 1.5;
  doc.setFont('Courier', 'normal');
  doc.setFontSize(prevSize);
}

function writeSeparator() {
  ensureLine();
  doc.text('='.repeat(100), MARGIN, cursorY);
  cursorY += LINE_HEIGHT;
}

function writeThinSep() {
  ensureLine();
  doc.text('-'.repeat(100), MARGIN, cursorY);
  cursorY += LINE_HEIGHT;
}

let totalSize = 0;
const maxLinesPerFile = 5000;

for (let idx = 0; idx < allFiles.length; idx++) {
  const fp = allFiles[idx];
  const fullPath = path.join(ROOT, fp);
  try {
    const content = readFileSync(fullPath, 'utf-8');
    const size = Buffer.byteLength(content, 'utf-8');
    totalSize += size;
    const allLines = content.split(/\r?\n/);

    if (allLines.length > maxLinesPerFile) {
      const truncated = allLines.slice(0, maxLinesPerFile);
      truncated.push('');
      truncated.push(`// ---- FILE TRUNCATED: ${allLines.length} lines total, showing first ${maxLinesPerFile}...
      allLines.length = 0;
      allLines.push(...truncated);
    }

    writeTitle(`File: ${fp}  (${allLines.length} lines, ${(size / 1024).toFixed(1)} KB)`);
    writeSeparator();

    for (let li = 0; li < allLines.length; li++) {
      const lineNum = String(li + 1).padStart(5, ' ');
      let line = allLines[li];
      if (line.length > MAX_CHARS) {
        line = line.substring(0, MAX_CHARS - 3) + '...';
      }
      writeln(`${lineNum}| ${line}`);
    }

    writeThinSep();
    writeln('');
  } catch (err) {
    console.error(`Error reading ${fp}: ${err.message}`);
  }
}

console.log(`\nTotal source size: ${(totalSize / 1024 / 1024).toFixed(2)} MB across ${allFiles.length} files`);
console.log(`Total pages: ${pageNum}`);

const outputPath = path.join(ROOT, 'PC-Master-LMS-Source-Code.pdf');
doc.save(outputPath);
```

```
console.log(`PDF saved to: ${outputPath}`);

```

File: inspect_schema.js (28 lines, 0.9 KB)

```
const { createClient } = require('@supabase/supabase-js');
const url = 'https://ojjmdhrvivwvfgomonzd.supabase.co';
const anonKey = 'eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJzdXBhYmFzZSIsInJlZiI6Im9qam1kaHJ2aXZ3dmZnb21v...

const supabase = createClient(url, anonKey);

async function checkQuizzesTable() {
  const { data, error } = await supabase
    .from('quizzes')
    .insert({
      title: 'Test Quiz',
      time_limit_minutes: 10,
      max_attempts: 1,
      is_published: false
    })
    .select();

  if (error) {
    console.log('Error code:', error.code);
    console.log('Error message:', error.message);
    console.log('Error details:', error.details);
  } else {
    console.log('Insert succeeded! Row:', data);
  }
}

checkQuizzesTable();

```

File: next.config.mjs (49 lines, 2.1 KB)

```
// Path: next.config.mjs
/** @type {import('next').NextConfig} */
const nextConfig = {
  images: {
    remotePatterns: [
      {
        protocol: 'https',
        hostname: '*.supabase.co',
        pathname: '/storage/v1/object/public/**',
      },
      {
        protocol: 'https',
        hostname: '*.supabase.in',
        pathname: '/storage/v1/object/public/**',
      },
    ],
  },
  async headers() {
    return [
      {
        source: '/(.*)',
        headers: [
          { key: 'X-Frame-Options', value: 'DENY' },
          { key: 'X-Content-Type-Options', value: 'nosniff' },
          { key: 'Referrer-Policy', value: 'strict-origin-when-cross-origin' },
          { key: 'Strict-Transport-Security', value: 'max-age=63072000; includeSubDomains; preload' },
          { key: 'Permissions-Policy', value: 'camera=(self), microphone=(self), geolocation=()' },
          {
            key: 'Content-Security-Policy',
            value: [
              "default-src 'self'",
              "script-src 'self' 'unsafe-eval' 'unsafe-inline' https://cdn.jsdelivr.net https://accounts.googl...
              "style-src 'self' 'unsafe-inline' https://fonts.googleapis.com",
              "font-src 'self' https://fonts.gstatic.com https://*.sketchfab.com",
              "img-src 'self' data: blob: https://*.supabase.co https://*.supabase.in https://*.googleusercont...
              "connect-src 'self' https://*.supabase.co https://*.supabase.in wss://*.supabase.co https://acco...
              "frame-src 'self' https://accounts.google.com https://www.youtube.com https://sketchfab.com",
              "worker-src 'self' blob: https://cdn.jsdelivr.net https://static.sketchfab.com",
              "media-src 'self' blob: mediastream: https://*.sketchfab.com",
            ].join('; '),
          },
        ],
      },
    ]
  },
}

export default nextConfig

```

File: package.json (66 lines, 1.9 KB)

```
{
  "name": "pc-master-builder",
  "description": "Educational PC building platform with Computer Vision",
  "version": "0.1.0",
  "private": true,
  "scripts": {
    "dev": "next dev",
    "build": "next build",
    "vercel-build": "next build",
    "start": "next start",
    "lint": "eslint"
  },
  "dependencies": {
    "@dnd-kit/core": "^6.3.1",
    "@dnd-kit/sortable": "^10.0.0",
    "@dnd-kit/utilities": "^3.2.2",
    "@google/generative-ai": "^0.24.1",
    "@mediapipe/tasks-vision": "^0.10.32",
    "@react-pdf/renderer": "^4.5.1",
    "@react-three/drei": "^10.0.7",
    "@react-three/fiber": "^9.2.0",
    "@supabase/auth-helpers-nextjs": "^0.15.0",
    "@supabase/ssr": "^0.10.2",
    "@supabase/supabase-js": "^2.104.1",
    "@tanstack/react-query": "^5.100.10",
    "@tanstack/react-table": "^8.21.3",
    "@vercel/analytics": "^2.0.1",
    "canvas-confetti": "^1.9.4",
    "date-fns": "^4.1.0",
    "framer-motion": "^12.34.3",
    "html2canvas": "^1.4.1",
    "jspdf": "^4.2.1",
```

```
    "lucide-react": "^0.575.0",
    "mammoth": "^1.12.0",
    "nanoid": "^5.1.9",
    "next": "16.1.6",
    "pdf-lib": "^1.17.1",
    "pdfjs-dist": "^4.0.379",
    "pg": "^8.21.0",
    "qrcode": "^1.5.4",
    "qrcode.react": "^4.2.0",
    "react": "19.2.3",
    "react-dom": "19.2.3",
    "react-hot-toast": "^2.6.0",
    "react-markdown": "^10.1.0",
    "react-pdf": "^10.4.1",
    "recharts": "^3.8.1",
    "rehype-raw": "^7.0.0",
    "rehype-sanitize": "^6.0.0",
    "remark-gfm": "^4.0.1",
    "tesseract.js": "^7.0.0",
    "three": "^0.170.0",
    "zustand": "^5.0.14"
  },
  "devDependencies": {
    "@types/node": "25.6.0",
    "@types/qrcode": "^1.5.6",
    "autoprefixer": "^10.5.0",
    "eslint": "^9",
    "eslint-config-next": "16.1.6",
    "playwright": "^1.60.0",
    "postcss": "^8.5.14",
    "tailwindcss": "^3.4.19"
  }
}

```

File: postcss.config.js (7 lines, 0.1 KB)

```
module.exports = {
  plugins: {
    tailwindcss: {},
    autoprefixer: {},
  },
}

```

File: proxy.ts (112 lines, 3.7 KB)

```
// Path: proxy.ts
import { createServerClient } from '@supabase/ssr'
import { NextResponse, type NextRequest } from 'next/server'

// Role-based access control permissions map
const ROUTE_PERMISSIONS: Record<string, string[]> = {
  '/admin':       ['admin'],
  '/teacher':     ['teacher', 'admin'],
  '/student/discussion': ['student', 'teacher', 'admin'],
  '/student':     ['student', 'admin'],
  '/parent':      ['parent', 'admin'],
  '/builder':     ['student', 'admin'],
  '/profile':     ['student', 'teacher', 'admin', 'parent'],
  '/notifications':['student', 'teacher', 'admin', 'parent'],
  '/leaderboard': ['student', 'teacher', 'admin', 'parent'],
}

// Public routes that don't require user authentication
const PUBLIC_ROUTES = [
  '/', '/login', '/register', '/about',
  '/forgot-password', '/reset-password', '/verify-email',
  '/verify', '/check-email',
  '/admin', '/admin/settings', '/admin/users', '/admin/schools',
  '/auth/callback', '/api/auth/callback',
  '/onboarding',
  '/api',
]

export async function proxy(request: NextRequest) {
  const { pathname } = request.nextUrl
  let response = NextResponse.next({ request })

  const supabase = createServerClient(
    process.env.NEXT_PUBLIC_SUPABASE_URL!,
    process.env.NEXT_PUBLIC_SUPABASE_ANON_KEY!,
    {
      cookies: {
        getAll() { return request.cookies.getAll() },
        setAll(cookiesToSet) {
          cookiesToSet.forEach(({ name, value }) =>
            request.cookies.set(name, value))
          response = NextResponse.next({ request })
          cookiesToSet.forEach(({ name, value, options }) =>
            response.cookies.set(name, value, options))
        },
      },
    }
  )

  // Use getUser() instead of getSession() to securely verify JWT on the server
  const { data: { user } } = await supabase.auth.getUser()

  const isPublicRoute = PUBLIC_ROUTES.some(r =>
    pathname === r || pathname.startsWith(r + '/')
  )

  // Map roles to their respective active dashboard routes
  const dashMap: Record<string, string> = {
    admin: '/admin',
    teacher: '/teacher',
    parent: '/parent/dashboard',
    student: '/student',
  }

  if (isPublicRoute) {
    if (user) {
      const { data: profile } = await supabase
        .from('profiles').select('role').eq('id', user.id).single()
      const role = profile?.role ?? 'student'

      if (pathname === '/login' || pathname === '/register') {
        return NextResponse.redirect(
          new URL(dashMap[role] ?? '/student', request.url)
        )
```

```
  75|       }
  76|
     7 7 |              / /   N g   n   g i á o   v i ê n   v à   p h ả   h u y n h   t r u y   c - p   v à o   t r a n g   b u i l d e r   ( / b u i l d e
  78|       if (pathname.startsWith('/builder') && (role === 'teacher' || role === 'parent')) {
  79|         return NextResponse.redirect(
  80|           new URL(dashMap[role] ?? '/student', request.url)
  81|         )
  82|       }
  83|     }
  84|     return response
  85|   }
  86|
  87|   if (!user) {
  88|     const loginUrl = new URL('/login', request.url)
  89|     loginUrl.searchParams.set('redirect', pathname)
  90|     return NextResponse.redirect(loginUrl)
  91|   }
  92|
  93|   const { data: profile } = await supabase
  94|     .from('profiles').select('role').eq('id', user.id).single()
  95|   const role = profile?.role ?? 'student'
  96|
  97|   const matchedRoute = Object.keys(ROUTE_PERMISSIONS)
  98|     .find(r => pathname.startsWith(r))
  99|
 100|   if (matchedRoute && !ROUTE_PERMISSIONS[matchedRoute].includes(role)) {
 101|     return NextResponse.redirect(new URL(dashMap[role] ?? '/student', request.url))
 102|   }
 103|
 104|   response.headers.set('x-user-role', role)
 105|   response.headers.set('x-user-id', user.id)
 106|   return response
 107| }
 108|
 109| export const config = {
 110|   matcher: ['/((?!_next/static|_next/image|favicon.ico|.*\\.(?:svg|png|jpg|jpeg|gif|webp)$).*)'],
 111| }
 112|
```

File: scratch_profiles.ts (24 lines, 0.8 KB)

```
   1| import { createClient } from '@supabase/supabase-js'
   2|
   3| const supabaseUrl = 'https://ojjmdhrvivwvfgomonzd.supabase.co'
   4| const supabaseAnonKey = 'eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJzdXBhYmFzZSIsInJlZiI6Im9qam1kaHJ2aXZ3...
   5|
   6| const supabase = createClient(supabaseUrl, supabaseAnonKey)
   7|
   8| async function run() {
   9|   console.log('Fetching profiles from Supabase...')
  10|   const { data, error } = await supabase
  11|     .from('profiles')
  12|     .select('id, email, full_name, role, created_at')
  13|     .order('created_at', { ascending: false })
  14|
  15|   if (error) {
  16|     console.error('Error:', error)
  17|   } else {
  18|     console.log('Profiles list:')
  19|     console.table(data)
  20|   }
  21| }
  22|
  23| run()
  24|
```

File: tailwind.config.js (24 lines, 0.4 KB)

```
   1| /** @type {import('tailwindcss').Config} */
   2| module.exports = {
   3|   content: [
   4|     "./app/**/*.{js,ts,jsx,tsx,mdx}",
   5|     "./components/**/*.{js,ts,jsx,tsx,mdx}",
   6|   ],
   7|   theme: {
   8|     extend: {
   9|       colors: {
  10|         brand: {
  11|           primary: '#00d2a0',
  12|           secondary: '#00b4d8',
  13|         },
  14|         bg: {
  15|           base: '#0f0f1a',
  16|           surface: '#16213e',
  17|         }
  18|       }
  19|     },
  20|   },
  21|   plugins: [],
  22| }
  23|
  24|
```

File: tsconfig.json (47 lines, 0.9 KB)

```
   1| {
   2|   "compilerOptions": {
   3|     "target": "ES2017",
   4|     "lib": [
   5|       "dom",
   6|       "dom.iterable",
   7|       "esnext"
   8|     ],
   9|     "allowJs": true,
  10|     "skipLibCheck": true,
  11|     "strict": false,
  12|     "noEmit": true,
  13|     "incremental": true,
  14|     "module": "esnext",
  15|     "esModuleInterop": true,
  16|     "moduleResolution": "node",
  17|     "resolveJsonModule": true,
  18|     "isolatedModules": true,
  19|     "jsx": "react-jsx",
  20|     "plugins": [
  21|       {
  22|         "name": "next"
  23|       }
  24|     ],
  25|     "paths": {
```

```
   26|       "@/*": ["./*"],
   27|       "@/actions/*": ["./app/actions/*"],
   28|       "@supabase/auth-helpers-nextjs": ["./lib/supabase-helpers-mock.ts"]
   29|     },
   30|     "baseUrl": "."
   31|   },
   32|   "include": [
   33|     "next-env.d.ts",
   34|     ".next/types/**/*.ts",
   35|     ".next/dev/types/**/*.ts",
   36|     "**/*.mts",
   37|     "**/*.ts",
   38|     "**/*.tsx"
   39|   ],
   40|   "exclude": [
   41|     "node_modules",
   42|     "GitNexus",
   43|     "superpowers",
   44|     "supabase"
   45|   ]
   46| }
   47|
```

File: vercel.json (20 lines, 0.5 KB)

```
    1| {
    2|   "crons": [
    3|     {
    4|       "path": "/api/cron/daily-quiz",
    5|       "schedule": "0 6 * * *"
    6|     }
    7|   ],
    8|   "headers": [
    9|     {
   10|       "source": "/(.*)",
   11|       "headers": [
   12|         { "key": "X-Frame-Options", "value": "DENY" },
   13|         { "key": "X-Content-Type-Options", "value": "nosniff" },
   14|         { "key": "Strict-Transport-Security", "value": "max-age=63072000; includeSubDomains; preload" },
   15|         { "key": "Referrer-Policy", "value": "strict-origin-when-cross-origin" }
   16|       ]
   17|     }
   18|   ]
   19| }
   20|
```