# 📌 Week 3: Advance Frontend (Next.js + TailwindCSS)

## 🎯 Objective:

Train interns to build modern, production-grade frontends using:

- **Next.js fundamentals (App Router / Pages / Routing / Layouts / Image optimization / SSR vs CSR basics)**
- **TailwindCSS (utility-first design + responsive components + reusable design system)**

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## ✅ Topics (Week-3)

### 🟦 Next.js Fundamentals

- File-based routing
- `app/` directory structure (Next 15+)
- Layouts & nested layouts
- Page navigation (`Link`, `useRouter`)
- Static vs client components (`"use client"`)
- Image optimization (`next/image`)
- Fonts optimization (`next/font`)
- Metadata & SEO tags (`<Head />` or `metadata` config)

### 🟪 TailwindCSS Fundamentals + Design System

- Utility-first styling
- Responsive design (`sm, md, lg, xl`)
- Flexbox + Grid using Tailwind
- Spacing system (p-x, m-x, gap-x)
- Typography system
- Custom theme config in `tailwind.config.js`
- Component composition mindset (atoms → molecules → sections → pages)

### 🟨 Component Architecture + UI Thinking (in Next.js + Tailwind)

- Reusable component system

Folder structure:

```
/components
/app
/styles
```

## ✅ Week-3 Exercises (Hands-on Deliverables)

| Area | Exercise |
|------|----------|
| Tailwind Setup | Convert Figma/screenshot into Tailwind components |
| Component System Design | Build Button, Card, Modal, Avatar, Badge |
| Next.js Routing | Multi-page project with shared layout |
| UI Challenge | Replicate a SaaS landing page |
| Reusable Component Library | Create `ui/` library folder with export index |
| SEO | Metadata config + Image optimization |

# DAY 1 — TailwindCSS + UI System Basics

◆ **Topics:**

- Install Tailwind in Next.js
- Utility classes, spacing, colors, fonts
- Custom theme configuration

◆ **Exercise:**

Build a **Dashboard Layout skeleton** (header + sidebar)

**Image for reference (**Create header and Sidebar only**) -**
https://www.figma.com/proto/JdoKvxwRE44a4h3bnpu3ZX/Purity-UI-Dashboard---C
hakra-UI-Dashboard--Community-?node-id=29-2&t=bm1QziJKazGeZkad-0&scaling
=min-zoom&content-scaling=fixed&page-id=0%3A1

◆ **Output:**

- `/app/layout.jsx`
- `/components/ui/Navbar.jsx`
- `/components/ui/Sidebar.jsx`

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# DAY 2 — Tailwind Advanced + Component Library

◆ **Topics:**

- Flex + Grid with Tailwind
- Components mindset (atomic design)
- Reusable components with props

◆ **Exercise:**

Build a component library in:

/components/ui/

- Button.jsx

- Input.jsx

- Card.jsx

- Badge.jsx

- Modal.jsx

**Image for reference (** Build the full layout using reusable components, reusing the Day-1 UI component sidebar and header **) -**
https://www.figma.com/proto/JdoKvxwRE44a4h3bnpu3ZX/Purity-UI-Dashboard---Chakra-UI-Dashboard--Community-?node-id=29-2&t=bm1QziJKazGeZkad-0&scaling=min-zoom&content-scaling=fixed&page-id=0%3A1

- ◆ **Output:**

  - ● `/components/ui/*`
  - ● `UI-COMPONENT-DOCS.md` (Usage examples)

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# DAY 3 — Next.js Routing + Layout System

- ◆ **Topics:**

  - ● Next.js routing (`app/page.js`, `/about/page.js`, `/dashboard/page.js`)
  - ● Nested layouts
  - ● Shared navigation across pages
  - ● Difference: **Client Component vs Server Component**

- ◆ **Exercise:**

    Build a multi-page structure:

/ (landing page)

/about

/dashboard

/dashboard/profile

**Image for reference - (** Use the day 2 complete UI and create static page to achieve routing and layout system **)**
https://www.figma.com/proto/JdoKvxwRE44a4h3bnpu3ZX/Purity-UI-Dashboard---Chakra-UI-Dashboard--Community-?node-id=29-2&t=bm1QziJKazGeZkad-0&scaling=min-zoom&content-scaling=fixed&page-id=0%3A1

- ◆ **Output:**

- Folder structure working with nested layouts

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# DAY 4 — Dynamic UI + Image Optimization

- ◆ **Topics:**

  - next/image (optimized image rendering)
  - Responsive images + optimization
  - Typography & SEO improvements
  - Animations using Tailwind + Framer Motion (optional)

- ◆ **Exercise:**

  Build a **responsive landing page** (like SaaS product page)

Sections:

  - Hero section
  - Features grid
  - Testimonials (cards)
  - Footer

**Image for reference - (** Use the code completed up to Day 3 and make it responsive with Tailwind classes. Also, implement on-page SEO tags. )

https://www.figma.com/proto/JdoKvxwRE44a4h3bnpu3ZX/Purity-UI-Dashboard---Chakra-UI-Dashboard--Community-?node-id=29-2&t=bm1QziJKazGeZkad-0&scaling=min-zoom&content-scaling=fixed&page-id=0%3A1

- ◆ **Output:**

  - `/app/page.jsx`
  - `screenshots/landing-page.png`

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# DAY 5 — Capstone Mini Project (No backend)

- ◆ **Project:**

  Build a **Full Multi-Page UI** in Next.js + Tailwind, no backend.

Pages:

```
/login          (static form)
/dashboard      (cards and widgets UI)
/dashboard/users   (table listing mocked data)
/dashboard/profile
```

## Design references :

### Login Page -
https://img.freepik.com/free-vector/simple-white-login-form_1017-7984.jpg

**Dashboard -** Use the day 4 exercise for dashboard page.

### Users Listing -
https://www.figma.com/proto/JdoKvxwRE44a4h3bnpu3ZX/Purity-UI-Dashboard---Chakra-UI-Dashboard--Community-?node-id=29-2&t=bm1QziJKazGeZkad-0&scaling=min-zoom&content-scaling=fixed&page-id=0%3A1

**Profile page -**
https://www.gravitykit.com/wp-content/uploads/2023/10/CleanShot-2025-06-26-at-12.53.16@2x-1024x503.png.webp

## Mandatory:

- Component reuse from `/components/ui`
- Clean routing structure
- Mobile responsive UI

## ◆ Output:

- Project repo: `week3-next-tailwind-frontend`
- README.md must include:
  - Screenshots
  - Folder structure
  - Components list
  - Lessons learned