

School Management Platform - Project Structure

Project Architecture Overview

```
school-platform/
├── backend/..... # Laravel API
├── frontend/..... # React SPA
├── docker-compose.yml .. # Docker configuration
└── README.md
```

Backend Structure (Laravel)

```
backend/
├── app/
│   ├── Http/
│   │   ├── Controllers/
│   │   │   ├── Api/
│   │   │   │   ├── Auth/
│   │   │   │   │   ├── AuthController.php
│   │   │   │   │   ├── RegisterController.php
│   │   │   │   │   └── PasswordResetController.php
│   │   │   │   ├── Student/
│   │   │   │   │   ├── ProfileController.php
│   │   │   │   │   ├── CourseController.php
│   │   │   │   │   ├── ChapterController.php
│   │   │   │   │   └── LiveSessionController.php
│   │   │   │   ├── Admin/
│   │   │   │   │   ├── DashboardController.php
│   │   │   │   │   ├── StudentManagementController.php
│   │   │   │   │   ├── TeacherManagementController.php
│   │   │   │   │   ├── SessionManagementController.php
│   │   │   │   │   ├── ChapterManagementController.php
│   │   │   │   │   ├── CheckInController.php
│   │   │   │   │   └── EventController.php
│   │   │   │   ├── Teacher/
│   │   │   │   │   ├── TeacherDashboardController.php
│   │   │   │   │   └── TeacherSessionController.php
│   │   │   │   └── Public/
│   │   │   │       └── ContactController.php
│   │   │   └── FileUploadController.php
│   └── Middleware/
│       ├── CheckRole.php
│       ├── CheckSubscription.php
│       └── TrackActivity.php
```

```
....|   ...|   ...| Requests/
....|   ...|   ...|   ...| Auth/
....|   ...|   ...|   ...|   ...| LoginRequest.php
....|   ...|   ...|   ...|   ...| RegisterRequest.php
....|   ...|   ...| Student/
....|   ...|   ...|   ...| UpdateProfileRequest.php
....|   ...|   ...| Admin/
....|   ...|   ...|   ...| CreateStudentRequest.php
....|   ...|   ...|   ...| CreateTeacherRequest.php
....|   ...|   ...|   ...| CreateSessionRequest.php
....|   ...|   ...| Resources/
....|   ...|   ...|   ...| StudentResource.php
....|   ...|   ...|   ...| TeacherResource.php
....|   ...|   ...|   ...| CourseResource.php
....|   ...|   ...|   ...| ChapterResource.php
....|   ...|   ...|   ...| SessionResource.php
....|   ...| Models/
....|   ...|   ...| User.php
....|   ...|   ...| Student.php
....|   ...|   ...| Teacher.php
....|   ...|   ...| Course.php
....|   ...|   ...| Chapter.php
....|   ...|   ...| Session.php
....|   ...|   ...| Subscription.php
....|   ...|   ...| Payment.php
....|   ...|   ...| LiveSession.php
....|   ...|   ...| CheckIn.php
....|   ...|   ...| Event.php
....|   ...| Services/
....|   ...|   ...| AuthService.php
....|   ...|   ...| SubscriptionService.php
....|   ...|   ...| PaymentService.php
....|   ...|   ...| QRCodeService.php
....|   ...|   ...| StatisticsService.php
....|   ...|   ...| NotificationService.php
....|   ...| Repositories/
....|   ...|   ...| StudentRepository.php
....|   ...|   ...| TeacherRepository.php
....|   ...|   ...| CourseRepository.php
....|   ...|   ...| SessionRepository.php
....|   ...| Events/
....|   ...|   ...| StudentRegistered.php
....|   ...|   ...| PaymentCompleted.php
....|   ...|   ...| SessionStarted.php
....|   ...| Listeners/
....|   ...|   ...| SendWelcomeEmail.php
....|   ...|   ...| UpdateStudentProgress.php
```

```
... └── Jobs/
...     ├── GenerateStudentQRCode.php
...     └── SendSessionReminder.php
...
└── database/
    ├── migrations/
    |   ├── 2024_01_01_000001_create_users_table.php
    |   ├── 2024_01_01_000002_create_students_table.php
    |   ├── 2024_01_01_000003_create_teachers_table.php
    |   ├── 2024_01_01_000004_create_chapters_table.php
    |   ├── 2024_01_01_000005_create_courses_table.php
    |   ├── 2024_01_01_000006_create_sessions_table.php
    |   ├── 2024_01_01_000007_create_subscriptions_table.php
    |   ├── 2024_01_01_000008_create_payments_table.php
    |   ├── 2024_01_01_000009_create_live_sessions_table.php
    |   ├── 2024_01_01_000010_create_check_ins_table.php
    |   └── 2024_01_01_000011_create_events_table.php
...
    └── seeders/
        ├── DatabaseSeeder.php
        ├── UserSeeder.php
        └── ChapterCourseSeeder.php
...
    └── factories/
        ├── StudentFactory.php
        └── TeacherFactory.php
...
    └── routes/
        ├── api.php
        └── web.php
...
    └── config/
        ├── cors.php
        └── sanctum.php
...
    └── storage/
        └── app/
            ├── public/
            |   ├── profiles/
            |   ├── courses/
            |   └── documents/
```

📁 Frontend Structure (React + Vite)

```
frontend/
├── src/
|   ├── components/
|   |   ├── common/
|   |   |   ├── Layout/
|   |   |   |   ├── Header.jsx
|   |   |   |   ├── Footer.jsx
|   |   |   |   └── Sidebar.jsx
```

```
... | ... | ... | ... └── MobileNav.jsx  
... | ... | ... └── UI/  
... | ... | | └── Button.jsx  
... | ... | | └── Card.jsx  
... | ... | | └── Modal.jsx  
... | ... | | └── Input.jsx  
... | ... | | └── Table.jsx  
... | ... | | └── Tabs.jsx  
... | ... | | └── Badge.jsx  
... | ... | | └── LoadingSpinner.jsx  
... | ... | └── Forms/  
... | ... | | └── FormInput.jsx  
... | ... | | └── FormSelect.jsx  
... | ... | | └── FormUpload.jsx  
... | ... | └── auth/  
... | ... | | └── LoginForm.jsx  
... | ... | | └── RegisterForm.jsx  
... | ... | | └── PasswordReset.jsx  
... | ... | | └── RoleSelector.jsx  
... | ... | └── student/  
... | ... | | └── ProfileCard.jsx  
... | ... | | └── QRCode.jsx  
... | ... | | └── CourseCard.jsx  
... | ... | | └── ChapterList.jsx  
... | ... | | └── VideoPlayer.jsx  
... | ... | | └── PDFViewer.jsx  
... | ... | | └── ProgressTracker.jsx  
... | ... | └── admin/  
... | ... | | └── Dashboard/  
... | ... | | | └── KPICards.jsx  
... | ... | | | └── SubscriptionChart.jsx  
... | ... | | | └── RevenueChart.jsx  
... | ... | | | └── TeacherRanking.jsx  
... | ... | | └── Students/  
... | ... | | | └── StudentTable.jsx  
... | ... | | | └── StudentModal.jsx  
... | ... | | | └── StudentFilters.jsx  
... | ... | | └── Teachers/  
... | ... | | | └── TeacherTable.jsx  
... | ... | | | └── TeacherModal.jsx  
... | ... | | └── Sessions/  
... | ... | | | └── SessionForm.jsx  
... | ... | | | └── SessionList.jsx  
... | ... | | | └── TodaysSessions.jsx  
... | ... | | └── Chapters/  
... | ... | | | └── ChapterManager.jsx  
... | ... | | | └── CourseUpload.jsx
```

```
|- CheckIn/
|   |- QRScanner.jsx
|   |- StudentInfo.jsx
|- Events/
|   |- EventSlider.jsx
|   |- LiveScheduler.jsx
|- public/
|   |- HeroSection.jsx
|   |- Features.jsx
|   |- AboutUs.jsx
|   |- ContactForm.jsx
|- pages/
|   |- public/
|   |   |- HomePage.jsx
|   |   |- ContactPage.jsx
|   |- auth/
|   |   |- LoginPage.jsx
|   |   |- RegisterPage.jsx
|   |- student/
|   |   |- ProfilePage.jsx
|   |   |- ChaptersPage.jsx
|   |   |- CoursePage.jsx
|   |   |- LivesPage.jsx
|   |- admin/
|   |   |- DashboardPage.jsx
|   |   |- StudentsPage.jsx
|   |   |- TeachersPage.jsx
|   |   |- SessionsPage.jsx
|   |   |- ChaptersAdminPage.jsx
|   |   |- CheckInPage.jsx
|   |   |- EventsPage.jsx
|- hooks/
|   |- useAuth.js
|   |- useApi.js
|   |- useForm.js
|   |- useWebSocket.js
|   |- usePagination.js
|- services/
|   |- api/
|   |   |- auth.service.js
|   |   |- student.service.js
|   |   |- teacher.service.js
|   |   |- course.service.js
|   |   |- session.service.js
|   |   |- admin.service.js
|   |- axios.config.js
|   |- websocket.service.js
```

```
|- ... └── store/
|   |   ... └── slices/
|   |   |   ... └── authSlice.js
|   |   |   ... └── studentSlice.js
|   |   |   ... └── courseSlice.js
|   |   └── adminSlice.js
|   └── store.js
|- ... └── utils/
|   |   ... └── constants.js
|   |   ... └── helpers.js
|   |   ... └── validators.js
|   |   └── formatters.js
|- ... └── routes/
|   |   ... └── PrivateRoute.jsx
|   |   ... └── AdminRoute.jsx
|   |   └── router.jsx
|- ... └── styles/
|   |   ... └── globals.css
|- ... └── App.jsx
|- ... └── main.jsx
└── public/
    ... └── assets/
        ... ... └── images/
        ... ... └── icons/
└── .env
└── vite.config.js
└── tailwind.config.js
└── package.json
└── eslint.config.js
```

Database Schema

Users Table

sql

- id (UUID)
- phone (unique)
- password (hashed)
- role (enum: student, teacher, admin, parent)
- status (active, suspended)
- created_at
- updated_at

Students Table

sql

- id (UUID)
- user_id (FK)
- student_id (auto-generated)
- full_name
- parent_phone
- profile_picture
- qr_code
- created_at
- updated_at

Teachers Table

sql

- id (UUID)
- user_id (FK)
- full_name
- module
- revenue_percentage
- subscription_price
- created_at
- updated_at

Chapters Table

sql

- id
- title
- icon
- description
- order
- created_at
- updated_at

Courses Table

sql

- id
- chapter_id (FK)
- title
- description
- video_url
- pdf_summary_url
- exercises_url
- order
- created_at
- updated_at

Sessions Table

```
sql
```

- id
- teacher_id (FK)
- type (subscription, free, paid)
- price
- start_time
- end_time
- status
- created_at
- updated_at

Subscriptions Table

```
sql
```

- id
- student_id (FK)
- teacher_id (FK)
- start_date
- end_date
- status
- amount
- created_at
- updated_at

Check-ins Table

```
sql
```

- id
- student_id (FK)
- session_id (FK)
- type (subscription, ma3fi, paid)
- amount_paid
- checked_in_at

🔌 API Endpoints Structure

Authentication

```
POST ... /api/auth/register  
POST ... /api/auth/login  
POST ... /api/auth/logout  
POST ... /api/auth/refresh  
POST ... /api/auth/password/reset
```

Student Endpoints

```
GET ... /api/student/profile  
PUT ... /api/student/profile  
GET ... /api/student/chapters  
GET ... /api/student/chapters/{id}/courses  
GET ... /api/student/courses/{id}  
GET ... /api/student/live-sessions  
POST ... /api/student/enroll/{courseId}
```

Admin Endpoints

```
# Dashboard  
GET ... /api/admin/dashboard/stats  
GET ... /api/admin/dashboard/charts
```

```
# Students Management  
GET ... /api/admin/students  
POST ... /api/admin/students  
PUT ... /api/admin/students/{id}  
DELETE /api/admin/students/{id}
```

```
# Teachers Management  
GET ... /api/admin/teachers  
POST ... /api/admin/teachers  
PUT ... /api/admin/teachers/{id}  
DELETE /api/admin/teachers/{id}
```

```
# Sessions Management
GET /api/admin/sessions
POST /api/admin/sessions
PUT /api/admin/sessions/{id}
GET /api/admin/sessions/today

# Chapters Management
GET /api/admin/chapters
POST /api/admin/chapters
PUT /api/admin/chapters/{id}
POST /api/admin/chapters/{id}/courses

# Check-in
POST /api/admin/checkin/scan
GET /api/admin/checkin/student/{id}

# Events
GET /api/admin/events
POST /api/admin/events
PUT /api/admin/events/{id}
```

🔧 Configuration Files

Laravel .env

```
env
```

```
APP_NAME="School Platform"
APP_ENV=production
APP_KEY=
APP_DEBUG=false
APP_URL=https://api.school.com
```

```
DB_CONNECTION=mysql
DB_HOST=127.0.0.1
DB_PORT=3306
DB_DATABASE=school_platform
DB_USERNAME=root
DB_PASSWORD=
```

```
CACHE_DRIVER=redis
QUEUE_CONNECTION=redis
SESSION_DRIVER=redis
```

```
MAIL_MAILER=smtp
MAIL_HOST=smtp.gmail.com
MAIL_PORT=587
MAIL_USERNAME=
MAIL_PASSWORD=
```

```
PUSHER_APP_ID=
PUSHER_APP_KEY=
PUSHER_APP_SECRET=
PUSHER_APP_CLUSTER=
```

```
AWS_ACCESS_KEY_ID=
AWS_SECRET_ACCESS_KEY=
AWS_DEFAULT_REGION=
AWS_BUCKET=
```

React .env

```
env

VITE_API_URL=http://localhost:8000/api
VITE_WS_URL=ws://localhost:6001
VITE_PUSHER_KEY=
VITE_PUSHER_CLUSTER=
```

Tailwind Config

```
javascript
```

```
// tailwind.config.js
module.exports = {
  content: ["./index.html", "./src/**/*.{js,jsx}"],
  theme: {
    extend: {
      colors: {
        primary: {
          50: '#eff6ff',
          500: '#3b82f6',
          600: '#2563eb',
          700: '#1d4ed8',
        },
        secondary: {
          500: '#10b981',
        }
      },
      fontFamily: {
        sans: ['Inter', 'sans-serif'],
      },
    },
    plugins: [
      require('@tailwindcss/forms'),
      require('@tailwindcss/typography'),
    ],
  }
}
```

🚀 Development Workflow

Git Branch Strategy

```
main/
  └── develop/
    ...   ├── feature/auth
    ...   ├── feature/student-dashboard
    ...   ├── feature/admin-panel
    ...   └── feature/live-sessions
  └── staging/
  └── hotfix/
```

Docker Setup

```
yaml
```

```
# docker-compose.yml
version: '3.8'
services:
  mysql:
    image: mysql:8.0
    environment:
      MYSQL_DATABASE: school_platform
      MYSQL_ROOT_PASSWORD: root
    ports:
      - "3306:3306"

  redis:
    image: redis:alpine
    ports:
      - "6379:6379"

  backend:
    build: ./backend
    ports:
      - "8000:8000"
    depends_on:
      - mysql
      - redis

  frontend:
    build: ./frontend
    ports:
      - "3000:3000"
    depends_on:
      - backend
```

📦 Key Packages to Install

Laravel Backend

```
bash
composer require laravel/sanctum
composer require spatie/laravel-permission
composer require simplesoftwareio/simple-qrcode
composer require maatwebsite/excel
composer require intervention/image
composer require pusher/pusher-php-server
composer require laravel/horizon
```

React Frontend

```
bash
```

```
npm install axios react-router-dom
npm install @reduxjs/toolkit react-redux
npm install @tanstack/react-query
npm install react-hook-form yup
npm install react-player
npm install react-qr-scanner qrcode
npm install recharts
npm install socket.io-client
npm install react-hot-toast
npm install framer-motion
npm install @headlessui/react
npm install dayjs
```

Security Considerations

- 1. Authentication:** Laravel Sanctum with token-based auth
- 2. Authorization:** Role-based access control (RBAC)
- 3. Data Validation:** Server-side validation for all inputs
- 4. File Uploads:** Validate file types and sizes
- 5. API Rate Limiting:** Implement throttling
- 6. CORS Configuration:** Properly configure for production
- 7. SQL Injection Prevention:** Use Eloquent ORM
- 8. XSS Protection:** Sanitize all outputs
- 9. HTTPS:** Enforce SSL in production

Performance Optimization

1. Database:

- Indexing on frequently queried columns
- Query optimization with eager loading
- Database caching with Redis

2. API:

- Response caching
- Pagination for large datasets
- API resource transformation

3. Frontend:

- Code splitting with React.lazy
- Image optimization
- Bundle size optimization
- Service workers for offline support

4. Infrastructure:

- CDN for static assets
- Load balancing
- Horizontal scaling capabilities

Development Priorities

Phase 1 (MVP)

1. Authentication system
2. Student registration and profiles
3. Basic course management
4. Admin dashboard

Phase 2

1. Live sessions
2. Payment integration
3. QR code check-in
4. Advanced statistics

Phase 3

1. Mobile app
2. Notification system
3. Advanced analytics
4. Performance optimization