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# Key Components to Build and Explanation

## 1. User Authentication & Authorization

### ◆ Components:

- **Login / Sign-up Page** (Google Auth, Email/Password)
- **Auth Provider** (Handles user sessions & JWT tokens)
- **Protected Routes** (Restrict access to authenticated users)

### ◆ Explanation:

Authentication ensures that only registered users can access the platform. Role-based authorization (Admin, Instructor, Student) controls access to different features.

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## 2. Homepage (Landing Page)

### ◆ Components:

- **Hero Section** (Engaging intro, CTA for sign-up)
- **Featured Courses** (Display popular courses dynamically)
- **Testimonials / Reviews** (User feedback section)
- **Footer** (Contact details, social links)

### ◆ Explanation:

The homepage serves as the first impression for users. It should be visually appealing and highlight the platform's key offerings.

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## 3. Course Management System

### ◆ Components:

- **Course List Page** (Shows all available courses)
- **Course Details Page** (Title, description, instructor info, syllabus, price)
- **Enroll Button** (Allows students to sign up for a course)

◆ **Explanation:**

This is the core feature of the LMS. It allows users to browse, view, and enroll in courses dynamically pulled from **Sanity CMS**.

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## 4. Dashboard (Admin & Student)

◆ **Components:**

- **Student Dashboard** (Shows enrolled courses, progress tracking)
- **Admin Dashboard** (Manage users, courses, orders, reservations)

◆ **Explanation:**

A role-based dashboard enhances the user experience by providing relevant information and actions based on their role.

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## 5. Order & Payment System

◆ **Components:**

- **Cart Page** (List of selected courses)
- **Checkout Page** (Payment gateway integration)
- **Order Confirmation** (Success message & course access)

◆ **Explanation:**

A secure and seamless payment process ensures users can enroll in courses without friction. **Stripe / Razorpay** can be used for transactions.

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## 6. Reservation & Scheduling System

◆ **Components:**

- **Booking Page** (Students can book slots for live classes)
- **Calendar View** (Shows available and booked slots)
- **Email Notifications** (Reminders for upcoming sessions)

◆ **Explanation:**

A reservation system allows users to schedule live classes, which enhances engagement.

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## 7. API Integration & Data Fetching

### ◆ Components:

- **Sanity API Integration** (Fetch & manage course data)
- **Authentication API** (Firebase Auth / NextAuth.js)
- **Order & Reservation API** (CRUD operations for orders and bookings)

### ◆ Explanation:

Efficient API integration ensures seamless data flow between the frontend and backend, improving performance and scalability.

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## 8. Testing & Deployment Setup

### ◆ Components:

- **Unit Tests** (Jest / React Testing Library)
- **Integration Tests** (Cypress / Playwright)
- **Performance Optimization** (Lighthouse, Web Vitals)
- **Deployment on Vercel**

### ◆ Explanation:

Testing ensures the stability and security of the application. **Vercel** is used for seamless deployment and hosting.

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