MERN Stack

Development Assignment

📋 Assignment Overview

Develop a complete web-based system addressing a real-world problem using the MERN stack (MongoDB, Express.js, React.js, Node.js). This full-stack project will demonstrate your ability to design, implement, and deploy a functional web application.

🎯 Learning Objectives

- Design and implement a full-stack MERN application
- Create RESTful APIs with Express.js and Node.js
- Build responsive UI components with React
- Implement secure authentication and authorization
- Integrate with a MongoDB database
- Practice proper code organization and version control
- Deploy the application to a cloud platform

- **Final submission:** Complete application + documentation + deployment

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🏛 Problem Domains (Choose ONE)

Option 1: Healthcare Appointment System

A system for patients to book, manage, and track medical appointments with healthcare providers.

Option 2: E-Learning Platform

A platform where instructors can create courses and students can enroll, access materials, and track progress.

Option 3: Task/Project Management System

A collaborative tool for teams to manage projects, assign tasks, track progress, and communicate.

Option 4: Local Service Marketplace

A platform connecting service providers (plumbers, tutors, cleaners) with customers in their locality.

Option 5: Inventory Management System

A system for small businesses to track inventory, sales, suppliers, and generate reports.

🚀 Technical Requirements

Backend (Node.js + Express.js + MongoDB)

- ✅ RESTful API with proper HTTP methods and status codes
- ✅ MongoDB with Mongoose ODM including relationships
- ✅ Data validation and error handling
- ✅ File upload capability (optional bonus)
- ✅ Pagination, filtering, and searching
- ✅ Environment variables for configuration

Frontend (React.js)

- ✅ Responsive design (mobile-friendly)
- ✅ State management (Context API or Redux)
- ✅ Form handling with validation
- ✅ Protected routes based on user roles
- ✅ API integration with Axios/Fetch
- ✅ Clean, modular component structure
- ✅ Loading states and user feedback