Full Stack Development with MERN

Project Documentation

1. Introduction

Project Title: DocSpot – Seamless Appointment Booking for Health

Team Members:

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2. Project Overview

Objective:
To modernize and streamline the healthcare appointment process by replacing traditional manual systems with a real-time, online booking platform.

Key Features:
- Secure, role-based user authentication
- Doctor and patient profile management
- Real-time appointment scheduling with conflict avoidance
- Administrative oversight and control panel

3. System Architecture

- **Frontend:** Built using React.js with Material UI for a responsive and user-friendly interface.
- **Backend:** Developed with Node.js and Express.js, handling routing and business logic.
- **Database:** MongoDB used for efficient, scalable data storage.

4. Setup Instructions

Prerequisites:
Ensure the following are installed on your system:
- Node.js
- npm (Node Package Manager)
- MongoDB

Installation Steps:
1. Clone the repository
2. Navigate to /client and /server directories respectively
3. Run 'npm install' in both directories to install dependencies

5. Folder Structure

- **/client:** Contains all frontend source code (React components, assets, styles)
- **/server:** Contains backend logic and API endpoints (Node.js/Express)

6. Running the Application

To start the project locally:

Frontend: cd client, npm start
Backend: cd server, npm start

7. API Documentation

The backend exposes RESTful APIs for core functionality:

- **POST /api/users/register** – Register a new user
- **POST /api/users/login** – Authenticate existing user
- **GET /api/users/doctors** – Fetch the list of registered doctors
- **POST /api/appointments** – Book an appointment

8. Authentication System

Secure login mechanism using email and password
Role-based access for Users, Doctors, and Administrators
Planned Enhancements: Integration of JWT (JSON Web Token) for session management

9. User Interface Components

User roles interact with the system through the following screens:

- Login Page
- Doctor Directory
- Appointment Booking Page
- User Dashboard
- Doctor Dashboard
- Admin Approval Panel

10. Testing Procedures

Backend: API functionality tested using Postman
Frontend: Interface and responsiveness validated using Chrome Developer Tools

11. Screenshots / Demo

Visuals and demonstration videos are included in the project folder to illustrate key workflows and features.