

# **Doc Spot – Full Stack MERN Project Documentation**

## **1. Introduction**

Project Title: DocSpot – Online Doctor Appointment Booking System

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## **2. Project Overview**

### **Purpose:**

DocSpot is designed to digitize and simplify the entire doctor appointment booking process. The primary purpose of the system is to eliminate traditional manual booking methods by offering a secure, fast, and user-friendly online platform. It provides patients, doctors, and administrators with seamless access to essential features such as real-time appointment scheduling, profile management, and data tracking.

### **DocSpot aims to:**

- Allow patients to easily find doctors based on specialization, availability, and location.
- Provide a structured platform for doctors to manage appointments and patient interactions.
- Enable administrators to manage users, doctors, approvals, and overall platform activities.
- Improve healthcare workflow efficiency by reducing delays and manual effort.
- Ensure secure and authenticated interactions using a robust MERN-based infrastructure.

### **Features:**

- User authentication (JWT-based)
- Patient dashboard and appointment booking
- Doctor dashboard for managing schedules and appointments
- Admin panel to manage doctors, users, and appointments
- Real-time notifications
- Secure API integration

### **3. Architecture**

#### **Frontend (React.js):**

- React with Hooks and Context API
- Axios for API calls
- Bootstrap/Material UI for styling
- Protected routes using React Router

#### **Backend (Node.js + Express.js):**

- RESTful API
- Authentication middleware
- Role-based access control

#### **Database (MongoDB + Mongoose):**

- Collections: Users, Doctors, Appointments
- Schema validation using Mongoose models

### **4. Setup Instructions**

#### **Prerequisites:**

- Node.js (v16+)
- MongoDB or MongoDB Atlas
- Git

#### **Installation Steps:**

1. Clone the repository.
2. Install dependencies for frontend & backend: `npm install`
3. Configure `.env` in backend:
  - `MONGO_DB="mongodb_connection_string"`
  - `JWT_SECRET="your_secret"`
4. Start frontend & backend.

## 5. Folder Structure

➤ **Client (React):**

- /src/components – UI Components
- /src/pages – Screens
- /src/context – Global state
- /src/utils – Helper functions

➤ **Server (Node.js):**

- /routes – API routes
- /controllers – Business logic
- /models – Mongoose schemas
- /middleware – Auth & security layers

## 6. Running the Application

Frontend: npm start

Backend: nodemon index.js

## 7. API Documentation

➤ **User APIs:**

- POST /api/user/register – Register user
- POST /api/user/login – Login user
- GET /api/user/profile – Get user profile

➤ **Doctor APIs:**

- POST /api/doctor/apply – Apply as doctor
- GET /api/doctor/appointments – Get doctor appointments
- POST /api/doctor/update-status – Update appointment status

➤ **Appointment APIs:**

- POST /api/appointment/book – Book appointment
- GET /api/appointment/user-appointments – User appointments
- POST /api/appointment/check – Check availability

## ➤ Admin APIs

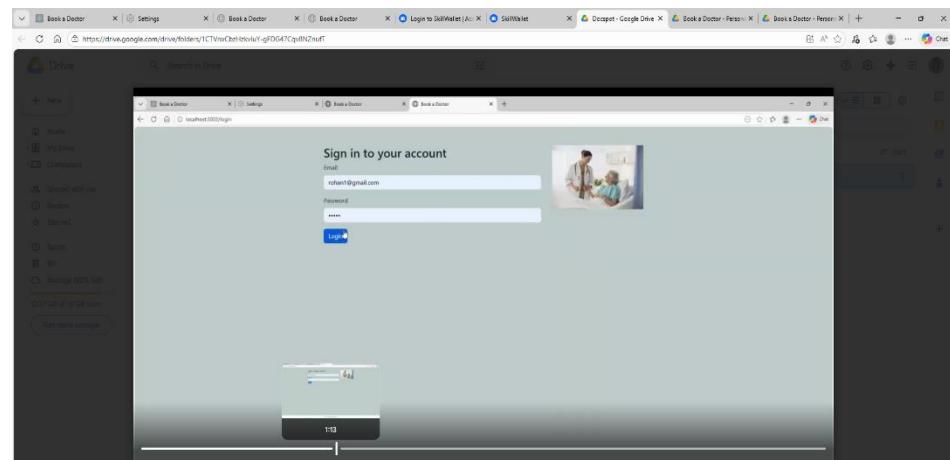
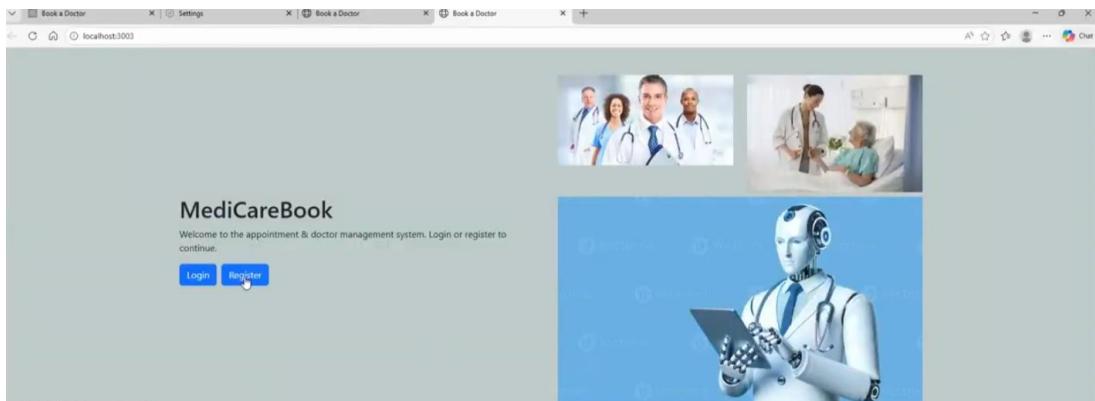
- GET /api/admin/get-all-doctors – Fetch all doctors
- POST /api/admin/update-doctor-status – Approve/Reject doctor
- GET /api/admin/get-all-users – Fetch all users
- GET /api/admin/all-appointments – Fetch all appointments

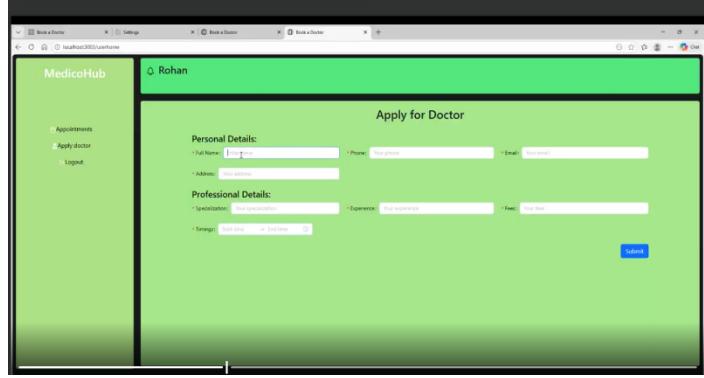
## 8. Authentication:

- JWT-based authentication
- Tokens stored in local Storage
- Role validation: user, doctor, admin

## 9.

## 10. User Interface:





## 11. Testing:

- Manual testing
- JWT verification and API endpoint tests

## 12. Screenshots or Demo:

(Add demo/video links)

## 13. Known Issues:

- Occasional delay in backend responses
- Admin panel UI improvements needed

## 14. Future Enhancements:

- Add payment integration
- Add video consultation feature
- Implement analytics dashboards