

Full Stack Development with MERN: Project Documentation

1. Introduction

Project Title: Docspot: seamless appointment booking for health

Team ID: LTVIP2026TMIDS89460

Team Members:

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2. Project Overview

Purpose:

DocSpot is a web-based Doctor Appointment Booking Platform developed using the MERN stack (MongoDB, Express.js, React.js, Node.js). It aims to simplify and digitize the process of booking medical appointments while enabling structured approval workflows between Patients, Doctors, and Admins.

Key Features:

- Secure login/signup for Patient, Doctor, and Admin roles
- Doctor profile creation with specialization, experience, fees, and availability
- Real-time appointment booking with document upload support
- Appointment lifecycle management (pending → approved → rejected → completed)
- Patient dashboard to track and manage bookings
- Admin control for doctor approval and platform governance

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3. Architecture

Frontend:

- Built using React.js (Vite)
- Styled with Ant Design, Bootstrap, and Material UI
- Axios for REST API communication
- Role-based protected routes (RBAC)

Backend:

- Node.js + Express.js RESTful API
- JWT-based authentication system
- Middleware-based role authorization (Admin / Doctor / Patient)
- File upload handling using Multer
- Structured controller-based business logic

Database:

- MongoDB Atlas (Cloud Database) with Mongoose ODM
- Collections:
 - Users
 - Doctors
 - Appointments

4. Setup Instructions

Prerequisites:

- Node.js ($\geq 14.x$ recommended)
- MongoDB Atlas account or MongoDB Community Edition
- npm installed

Installation:

1. Clone the repository
2. Run `npm install` inside both `/client` and `/server` folders
3. Configure environment variables (`.env` file) for:
 - `MONGO_URI`
 - `JWT_SECRET`
 - `PORT`

5. Folder Structure

Client (React Frontend):

```
/client  
/src  
/components  
/context  
/pages  
/services  
/assets  
/App.jsx
```

Server (Node Backend):

```
/server  
/controllers  
/models  
/routes  
/middleware  
/config  
/index.js
```

6. Running the Application

Frontend:

- ✓ cd client
- ✓ npm start

Backend:

- ✓ cd server
- ✓ npm start

7. API Documentation

Sample Endpoints:

- POST /api/auth/register – User registration (Patient / Doctor)
- POST /api/auth/login – User login
- GET /api/admin/get-all-doctors – Admin fetch doctors
- PATCH /api/admin/approve-doctor/:id – Admin approval
- POST /api/appointments/book-appointment – Book appointment
- GET /api/appointments/my-appointments – Patient appointments
- GET /api/doctor/get-my-appointments – Doctor appointments

8. Authentication

- JWT-based authentication system
- Role-based access control (Admin, Doctor, Patient)
- Tokens stored securely in localStorage
- Middleware validation on all protected routes
- Password hashing using bcrypt

9. User Interface


Screenshots:


Book Your Doctor Effortlessly


Get Started →





Name	Email	Role	Approved
Admin	admin@docspot.com	ADMIN	Yes
Dharani	gurudharani369@gmail.com	DOCTOR	Yes
Suguna	d@gmail.com	PATIENT	Yes
Mahadeva	m@gmail.com	PATIENT	Yes
Samra	s@gmail.com	PATIENT	Yes
Rikitha	r@gmail.com	DOCTOR	Yes
Naveen	n@gmail.com	DOCTOR	Yes
mamatha	ma@gmail.com	ADMIN	Yes


 **DocSpot**

 Users

 Doctors

 Appointments


 Admin Approval


 Logout


Welcome, Admin


All Doctors


Name	Email
Dharani	gurudharani369@gmail.com
Rikitha	r@gmail.com


 **DocSpot**

 Users

 Doctors

 Appointments

 Admin Approval

 Logout

Welcome, Admin

Admin

All Doctors

Name	Email	Specialization	Experience	Fee	Status	Actions
Dharani	gurudharani369@gmail.com	Neurologist	5 yrs	₹900	Approved	<div>Block</div>
Rikitha	r@gmail.com	Radiologist	5 yrs	₹800	Approved	<div>Block</div>
Naveen	n@gmail.com	Cardiologist	10 yrs	₹1000	Approved	<div>Block</div>

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Available Doctors

Dharani

Neurologist

Experience: 5 years

Fee: ₹900

Days: Wednesday, Thursday, Tuesday, Friday, Saturday

Book Now

Rikitha

Radiologist

Experience: 5 years

Fee: ₹800

Days: Tuesday, Wednesday, Thursday, Friday

Book Now

Naveen

Cardiologist

Experience: 10 years

Fee: ₹1000

Days: Tuesday, Wednesday, Thursday, Friday

Book Now