

Full Stack Development with MERN: Project Documentation

1. Introduction

Project Title: Docspot: seamless appointment booking for health

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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:

HEALTHCARE MADE SIMPLE

Book Your Doctor Effortlessly

Say goodbye to waiting on hold. Browse verified healthcare providers, check real-time availability, and schedule appointments in seconds.

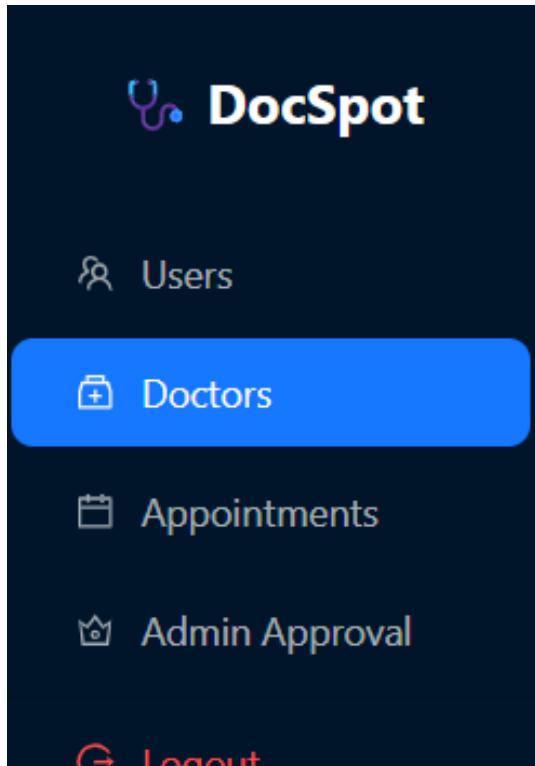
[Get Started →](#)


Welcome, Admin

[Admin](#)

All Users			
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
Samera	s@gmail.com	PATIENT	Yes
Rikitha	r@gmail.com	DOCTOR	Yes
Naveen	n@gmail.com	DOCTOR	Yes
mamatha	ma@gmail.com	ADMIN	Yes

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

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

Welcome, Mahadeva

Patient

Available Doctors

Doctor Name	Specialty	Experience	Fee	Days Available	Action
Dharani	Neurologist	5 years	₹900	Wednesday, Thursday, Tuesday, Friday, Saturday	Book Now
Rikitha	Radiologist	5 years	₹800	Tuesday, Wednesday, Thursday, Friday	Book Now
Naveen	Cardiologist	10 years	₹1000	Tuesday, Wednesday, Thursday, Friday	Book Now

Find Doctors

My Appointments

Logout