Final Report

Project Title: Docspot: seamless appointment booking for health

Team ID: LTVIP2026TMIDS89460

Team Members:

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1. INTRODUCTION

DocSpot is a MERN stack-based full-stack web application designed to connect patients, doctors, and administrators through a structured appointment booking system. The platform simplifies the process of discovering verified doctors, booking appointments, and managing medical consultations digitally. It eliminates traditional manual scheduling challenges by providing secure authentication, role-based dashboards, and real-time appointment status tracking.

2. IDEATION PHASE

Problem:

Patients face difficulty in booking reliable medical appointments due to manual scheduling, lack of transparency, and unverified practitioners. Doctors also lack a centralized system to manage appointments efficiently.

Empathy Map & Brainstorm:

We assessed user needs and frustrations, such as outdated listings, non-transparent booking processes, and lack of owner verification. We brainstormed key features to solve these issues, including property filters, real-time updates, and admin moderation.

3. REQUIREMENT ANALYSIS

User Journey:

- Renter signs up, browses listings, filters results, submits inquiry, and confirms booking.
- Owner lists properties and updates availability.
- Admin approves new owners and listings to ensure platform reliability.

Requirements:

Functional:
- Login / Register (Patient & Doctor)
- Doctor Profile Creation
- Appointment Booking & Cancellation
- Admin Doctor Approval
- Role-Based Access Control

Non-Functional:
- Secure Authentication (JWT + bcrypt)
- Performance Optimization with Indexed Queries
- Responsive UI Design
- Data Privacy & Role Authorization

Technology Stack:

- Frontend: React.js, Tailwind CSS, Bootstrap
- Backend: Node.js, Express.js, MongoDB

4. PROJECT DESIGN

Problem-Solution Fit:
DocSpot addresses inefficiencies in traditional appointment systems by digitizing scheduling workflows, ensuring verified doctor onboarding, and maintaining secure access control across roles.

Proposed Architecture:

• Presentation Layer: React.js with Ant Design UI Components
• Business Logic Layer: Express.js REST APIs with JWT Authentication and RBAC
• Storage Layer: MongoDB Atlas with structured collections (Users, Doctors, Appointments)
Data Flow Diagram and ER Diagram illustrate relationships between Patients, Doctors, and Appointments.

5. PROJECT PLANNING & SCHEDULING

We adopted an Agile sprint-based development approach:

-Sprint 1: UI Setup + Routing Structure
-Sprint 2: Backend Setup + Database Models
-Sprint 3: Authentication + Role-Based Access Control
-Sprint 4: Appointment Booking Logic + Doctor Management
-Sprint 5: Admin Panel + Testing + Deployment Preparation

6. FUNCTIONAL AND PERFORMANCE TESTING

Functional testing was conducted on registration, login, doctor approval workflow, appointment booking, and cancellation processes.

Performance testing included validating database indexing for appointment queries and ensuring secure JWT verification under concurrent user access.

7. RESULTS

Screens include:

- • Patient Registration / Login
- • Doctor Registration & Profile Creation
- • Patient Dashboard (View & Book Doctors)
- • Appointment Booking Form
- • Doctor Dashboard (Manage Appointments)
- • Admin Dashboard (Approve / Block Doctors)

8. ADVANTAGES & DISADVANTAGES

Advantages:

- Verified doctor approval system ensures platform trust
- Structured appointment lifecycle management
- Role-based dashboards improve system security and usability

Disadvantages:

- No integrated online payment gateway

- No automated calendar conflict detection (manual availability management)

9. CONCLUSION

DocSpot provides a scalable and secure digital healthcare appointment solution built on the MERN stack. The system demonstrates structured backend architecture, role-based access control, and efficient database management, making it suitable for real-world healthcare scheduling applications.

10. FUTURE SCOPE

- Payment Gateway Integration (e.g., Stripe/PayPal)
- Chat System for Doctor-Patient Communication
- Calendar Integration for Booking Conflict Resolution - Mobile App Deployment

11. APPENDIX

SCREENSHOTS:

DocSpot

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 →

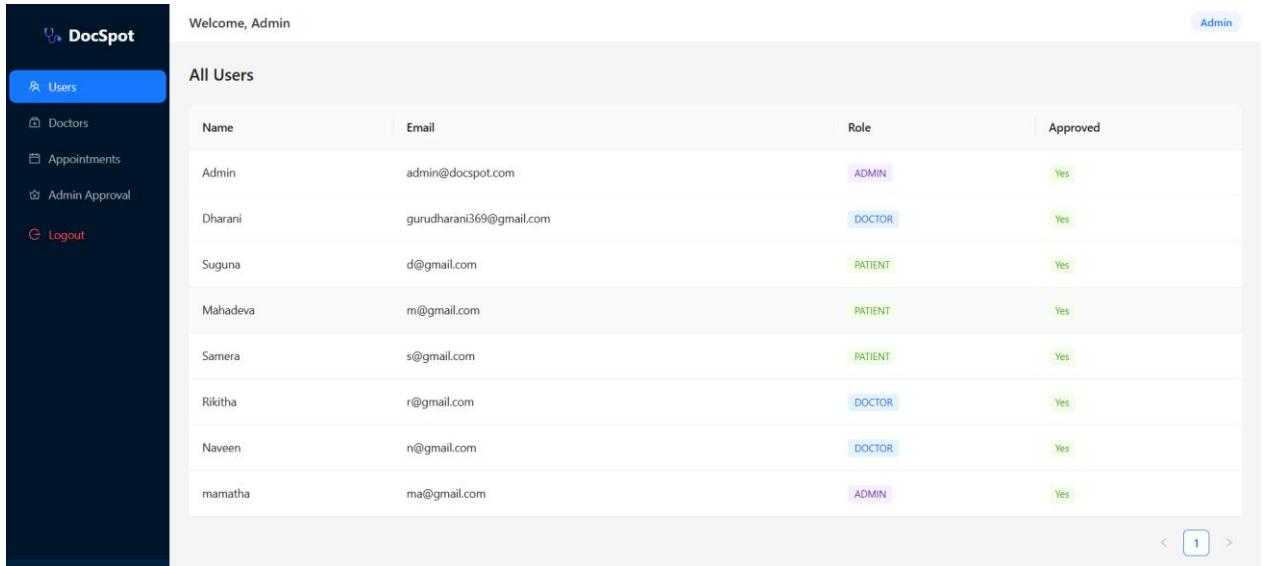---

DocSpot

R My Profile

📅 My Appointments

⎋ Logout

Welcome, Dharani

Doctor

My Appointments

Patient	Email	Date	Time Slot	Status	Actions
Suguna	d@gmail.com	28 Feb 2026	03:00 PM	APPROVED	

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Welcome, Admin

Admin
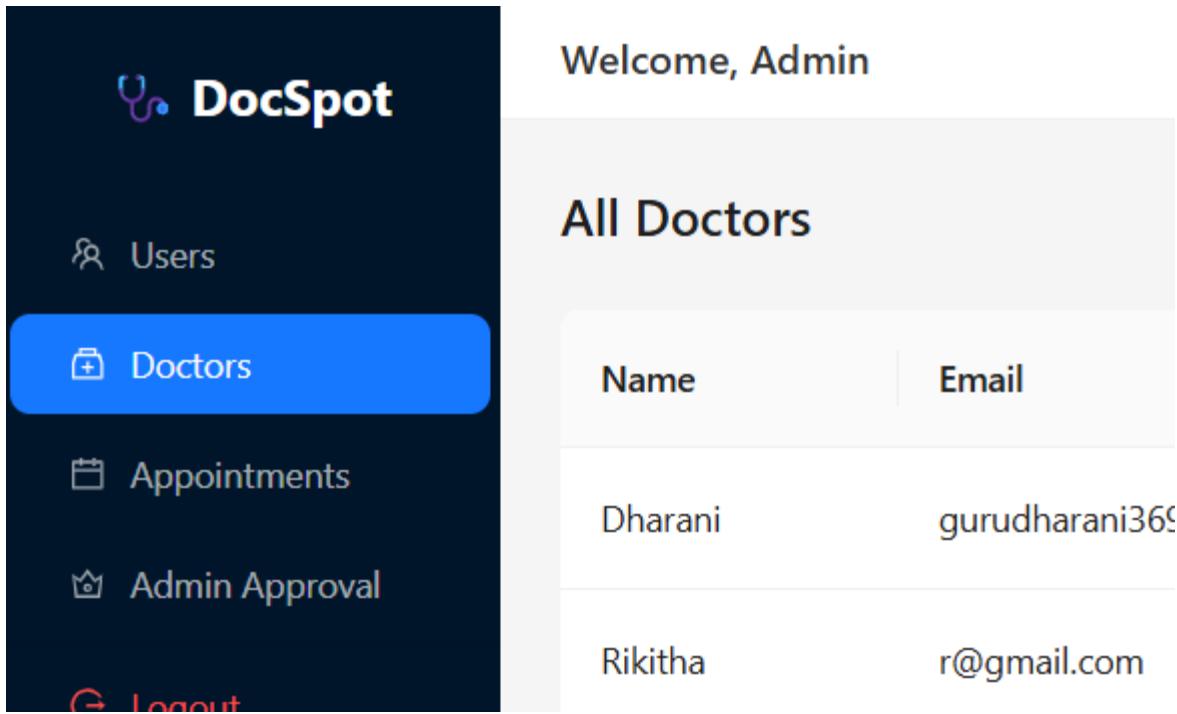
All Users

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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DocSpot

- Users
- Doctors
- Appointments
- Admin Approval
- Logout

Welcome, Admin

All Doctors

Name	Email
Dharani	gurudharani369
Rikitha	r@gmail.com

DocSpot

- Users
- Doctors
- Appointments
- Admin Approval
- Logout

All Doctors

Name	Email	Specialization	Experience	Fee	Status	Actions
Dharani	gurudharani369@gmail.com	Neurogolist	5 yrs	₹900	Approved	Block
Rikitha	r@gmail.com	Radiolagist	5 yrs	₹800	Approved	Block
Naveen	n@gmail.com	Cardiologist	10 yrs	₹1000	Approved	Block

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DocSpot

Welcome, Mahadeva

Patient

- Find Doctors
- My Appointments
- Logout

Available Doctors

Dharani
Neurogolist

Experience: **5 years**
Fee: ₹900
Days: Wednesday, Thursday, Tuesday, Friday, Saturday

Book Now

Rikitha
Radiolagist

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