



# FULL SOFTWARE DESIGN DOCUMENT (FSD) – DocSpot

---

## Team Details

Field	Details
Team ID	LTVIP2025TMID30950
Team Size	2
Team Leader	Lakshmi Sravya Savaram
Team Member	Pathela Praveen Chakravarthi

---

## Introduction

**DocSpot** is a full-stack web platform that connects patients with healthcare providers. The software allows users to register, log in, browse doctors, book appointments, and manage their health bookings. The FSD outlines the entire software architecture, modules, APIs, and data models.

---

## System Architecture

**Type:** Client-Server (MERN Stack)

**Frontend:** React.js

**Backend:** Node.js + Express.js

**Database:** MongoDB Atlas

**Authentication:** JSON Web Token (JWT)

**Hosting:** Render / AWS EC2

Frontend → Backend API → MongoDB

---

## Software Modules

### 1. Authentication Module

- Register new users (patients, doctors)
- Secure login using JWT

- Role-based authorization (admin/patient/doctor)

## 2. Doctor Module

- Doctor profile management
- Add/edit available slots
- View patient appointments

## 3. Appointment Module

- Book appointment by choosing doctor and time
- View appointment history
- Cancel/reschedule options

## 4. Admin Module

- Approve or reject new doctor accounts
- View platform statistics

---

### Database Schema

#### ◆ users Collection

Field	Type
_id	ObjectId
name	String
email	String
password	Hashed
role	String
isApproved	Boolean

#### ◆ appointments Collection

Field	Type
_id	ObjectId
patientId	ObjectId

Field	Type
doctorId	ObjectId
date	Date
slot	String
status	String

#### ◆ doctors Collection

Field	Type
_id	ObjectId
name	String
specialization	String
experience	Number
availableSlots	Array

## 5 API Design

### ◆ Auth APIs

Method	Route	Description
POST	/api/auth/register	Register a new user
POST	/api/auth/login	Login and return JWT

### ◆ Doctor APIs

Method	Route	Description
GET	/api/doctors/	List all approved doctors
POST	/api/doctors/update	Update available time slots

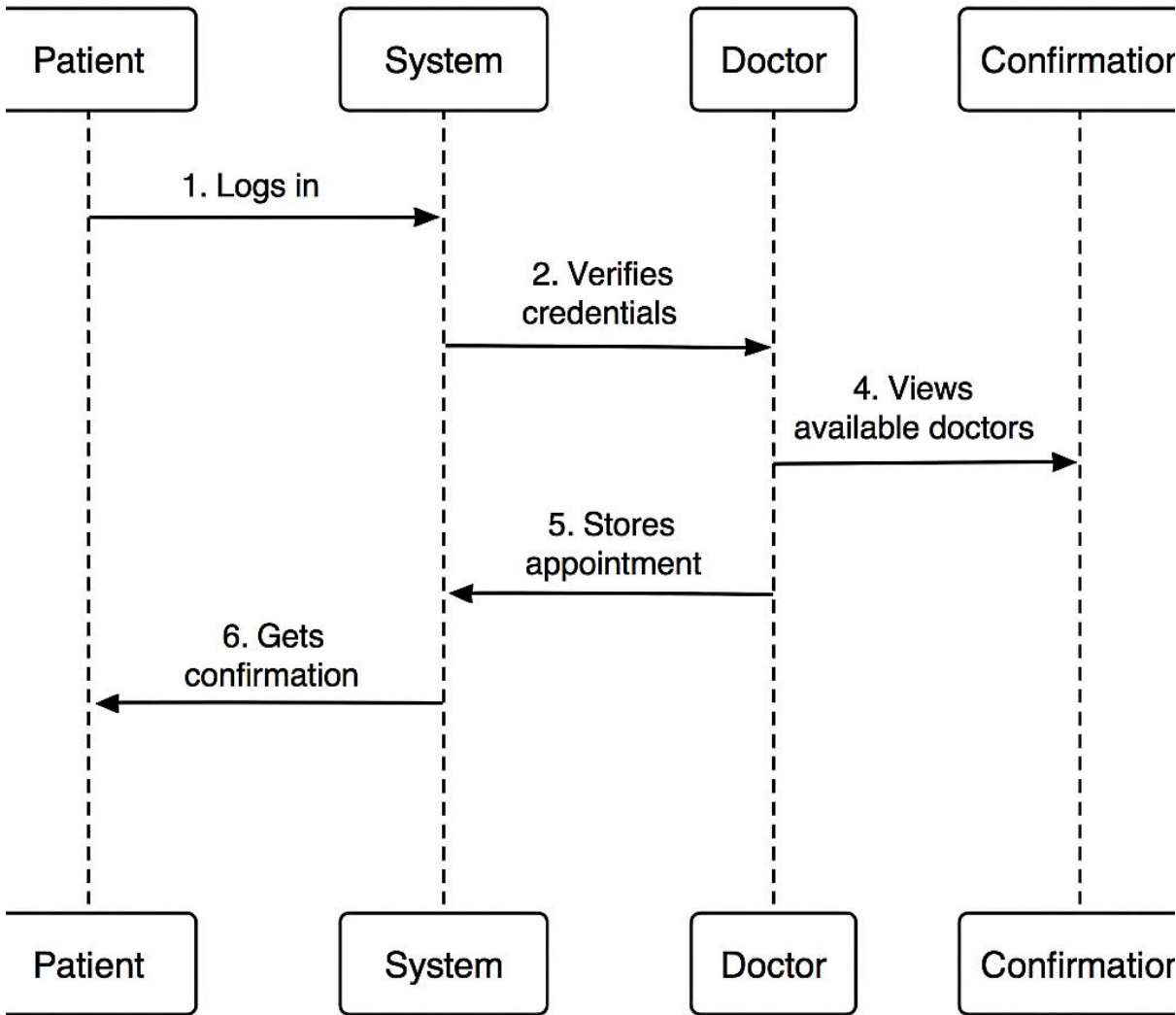
### ◆ Appointment APIs

Method	Route	Description
POST	/api/appointments/book	Book a new appointment

Method Route	Description
GET /api/appointments/history	View patient booking history

**6 Sequence Diagram**

- 1. Patient logs in
- 2. Views available doctors
- 3. Selects doctor + time slot
- 4. System confirms and stores appointment
- 5. Patient gets confirmation



---

## 7 Security Considerations

- All sensitive data hashed (passwords)
- JWT tokens validated on protected routes
- Admin-only access to sensitive endpoints
- HTTPS enforced for all transactions

---

## 8 Future Enhancements

- Telemedicine integration (video calls)
- Payment gateway for consultation fees
- e-Prescriptions with doctor signature
- Mobile app version

---

## 9 Conclusion

This FSD outlines the foundational structure of **DocSpot**, offering a robust, modular, and scalable approach to online health appointment systems. The architecture ensures security, usability, and future expandability.

---