Project Design Phase
Solution Architecture

Date	17 July 2025
Team ID	LTVIP2025TMID54894
Project Name	DocSpot: Seamless Appointment Booking for Health
Maximum Marks	4 Marks

Solution Architecture:

Objective:
DocSpot bridges the gap between patients, doctors, and administrators through a digital healthcare appointment platform that is secure, scalable, and user-friendly.

1. Business Problem

Patients often face issues such as:

- Difficulty in finding qualified doctors.

- Manual appointment booking with no real-time confirmation.

- Lack of communication between patient and doctor.

- Unstructured appointment management for both users and doctors.

2. Proposed Tech Solution

A full-stack web application (**DocSpot**) offering:

- Doctor registration and approval by admin.

- Searchable doctor listings with profile pictures and filters.

- Appointment booking, cancellation, rescheduling.

- Notifications for users and doctors.

- Visit summaries uploaded by doctors.

3. Architecture Layers

Layer	Technologies Used
Frontend	React.js, React Router, Bootstrap for responsive UI
Backend	Node.js, Express.js
Database	MongoDB (NoSQL) for storing users, doctors, appointments, notifications
Authentication	JWT (JSON Web Token) based secure role-based authentication
File Storage	Multer for image uploads (stored in uploads/ folder)
Hosting	Render / Vercel (Frontend), Railway / Cyclic (Backend), MongoDB Atlas (Database)

4. System Workflow

Patient Flow:

1. Registers/Login

2. Searches doctor → View profile → Book appointment

3. Receives notification/reminder

4. Can cancel/reschedule appointments

5. Views visit summaries

Doctor Flow:

1. Registers and awaits admin approval

2. Manages profile (bio, image, timings)

3. Views appointments & uploads summaries

Admin Flow:

1. Approves/Rejects doctor applications

2. Manages all users, appointments, and feedback

5. Development Phases

Phase	Milestone
Phase 1	Setup project, authentication, routing
Phase 2	Implement doctor registration, approval system
Phase 3	Appointment system with booking & cancellation
Phase 4	Profile image upload, visit summaries, notifications
Phase 5	UI Enhancements, testing, deployment

Example - Solution Architecture Diagram:

Signup / Login

Search Doctors

Patient

Search Doctors

DocSpot

(Web App)

JWT

Backend

Notification

Backleen

Approve Doctor

Settings /
Appointment Management

Doctor

Signup / Login

Admin

Approve Doctor
Applications

Approve Doctor
Applications

Reedtack
REST APIs

Expectations
Result

Subnst

Database
(MongoDB)

Database
(MongoDB)

Peojese Front: React.js

Backend: Node.js

Bstabase: MongoDB

Image Uploads: multer (stored in uploads/)