Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	26-11-2025
Name	Sanjeevi M
Project Name	DocSpot – Doctor Appointment Booking System
Maximum Marks	4 Marks

Technical Architecture:

The DocSpot platform is designed using a scalable 3-tier architecture, ensuring efficient appointment management, real-time availability, and secure interactions between patients, doctors, and administrators.

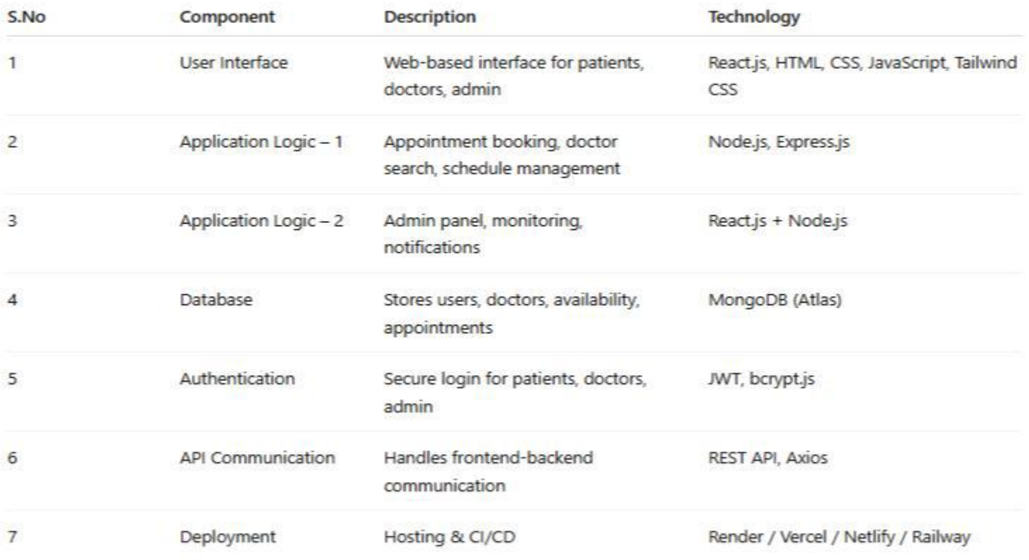
The system consists of:

1. Presentation Layer (Frontend)
   - Provides user interfaces for patients, doctors, and admin.
   - Supports responsive and intuitive UI for appointment booking and schedule management.

2. Application Layer (Backend / Business Logic)
   - Handles authentication, appointment creation, schedule updates, and admin operations.
   - Exposes RESTful APIs for frontend communication.

3. Data Layer (Database)
   - Stores users, doctors, appointments, availability slots, and system logs.
   - Ensures secure and structured storage for all data entities.

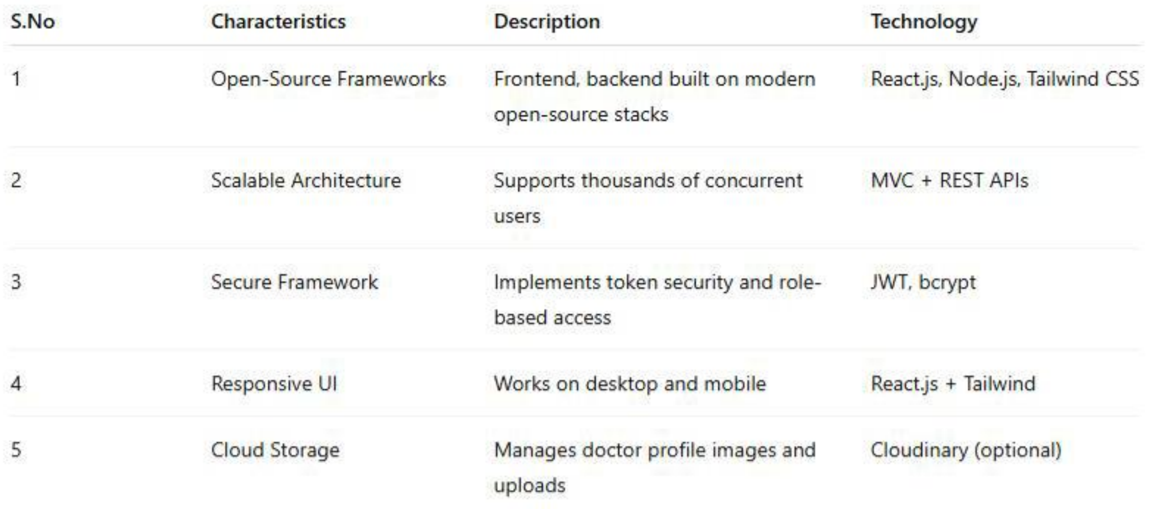
Table-1 : Components & Technologies:



S.No	Component	Description	Technology
1	User Interface	Web-based interface for patients, doctors, admin	React.js, HTML, CSS, JavaScript, Tailwind CSS
2	Application Logic – 1	Appointment booking, doctor search, schedule management	Node.js, Express.js
3	Application Logic – 2	Admin panel, monitoring, notifications	React.js + Node.js
4	Database	Stores users, doctors, availability, appointments	MongoDB (Atlas)
5	Authentication	Secure login for patients, doctors, admin	JWT, bcrypt.js
6	API Communication	Handles frontend-backend communication	REST API, Axios
7	Deployment	Hosting & CI/CD	Render / Vercel / Netlify / Railway

Table-2: Application Characteristics:

References:



S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Frontend, backend built on modern open-source stacks	React.js, Node.js, Tailwind CSS
2	Scalable Architecture	Supports thousands of concurrent users	MVC + REST APIs
3	Secure Framework	Implements token security and role-based access	JWT, bcrypt
4	Responsive UI	Works on desktop and mobile	React.js + Tailwind
5	Cloud Storage	Manages doctor profile images and uploads	Cloudinary (optional)

React.js Documentation

Node js Best Practice

JSON Web Server Referance