Project Design Phase-II

💻Technology Stack — DocSpot

📅**Date:** 27 June 2025
📌**Project Title:** *DocSpot — Seamless Appointment Booking for Health*
💸**Team ID:** LTVIP2025TMID57021
🕛**Maximum Marks:** 4 Marks

💣Technical Architecture Overview

DocSpot is a web-based platform built to streamline appointment scheduling for patients and doctors. The architecture includes a responsive web UI, a robust backend with REST APIs, secure user authentication, and cloud-based storage. The system is scalable, secure, and integrated with third-party APIs and notification services.

🔧Table-1: Components & Technologies

S.No	Component	Description	Technology
1	User Interface	Web-based UI for patient & doctor access	HTML5, CSS3, JavaScript, React.js
2	Application Logic-1	Booking system logic	Node.js, Express.js
3	Application Logic-2	Email/OTP confirmation service	NodeMailer, Twilio API
4	Application Logic-3	Doctor schedule availability logic	Custom Python Logic
5	Database	Booking & user data	MongoDB (NoSQL)
6	Cloud Database	Cloud-hosted document database	MongoDB Atlas
7	File Storage	Profile photos, attachments	AWS S3
8	External API-1	OTP & SMS Notifications	Twilio API
9	External API-2	Doctor verification using Aadhar API	UIDAI Aadhar API (Future Scope)
10	Machine Learning Model	Booking pattern prediction (optional scope)	scikit-learn / TensorFlow (TBD)
11	Infrastructure	Cloud-hosted app with scaling	AWS EC2, Load Balancer, Docker, Kubernetes

⚙️Table-2: Application Characteristics

S.No	Characteristics	Description	Technology Used
1	Open-Source Frameworks	All core frameworks used are open source	React.js, Node.js, Express, MongoDB
2	Security Implementations	Authentication, role-based access, data encryption	JWT, HTTPS, bcrypt, OAuth 2.0
3	Scalable Architecture	Microservices with containerized deployment	Docker, Kubernetes, AWS ECS
4	Availability	Highly available via distributed deployment	AWS Load Balancer, Multi-zone deployment
5	Performance	Fast response, async handling, caching for frequent calls	Redis, CDN (Cloudflare), Lazy Loading