

Project Design Phase-II

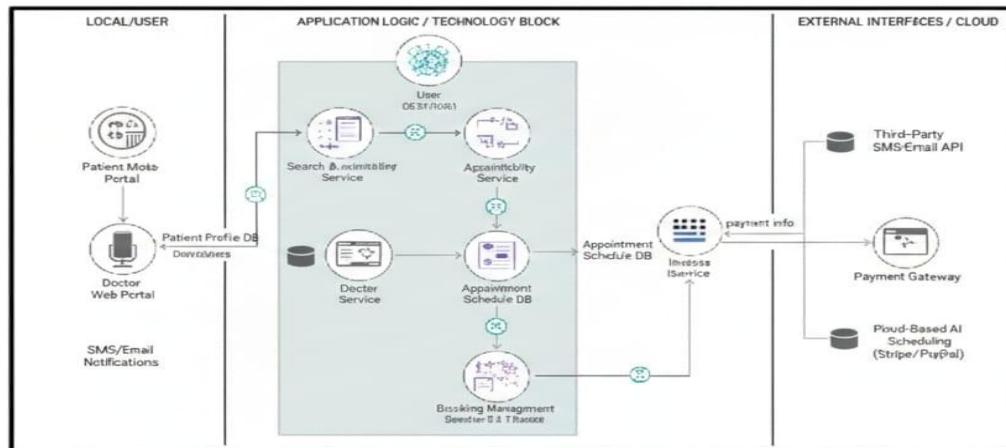
Technology Stack (Architecture & Stack)

Date	16 February 2026
Team ID	LTVIP2026TMIDS34705
Project Name	DocSpot – Seamless Doctor Appointment Booking System
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

DocSpot – Seamless Doctor Appointment Booking System: Technical Architecture



Guidelines:

- Include all the processes (As (An an Technology Block)
- Provide infrastructural demarcation Ld / Cloud)
- Indicate external interfaces (thirraly API's etc.)
- Indicate Data Storage components / services
- Indicate interface to mactn learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Responsive web and mobile portals for patients and doctors.	React.js / Flutter / HTML5, CSS3
2.	Application Logic-1	Core booking engine and appointment scheduling algorithms.	Node.js / Python
3.	Application Logic-2	Automated notification service for SMS and email reminders.	Twilio API / SendGrid
4.	Application Logic-3	Smart search and filtering logic for doctor discovery.	Elasticsearch
5.	Database	Storage for user profiles, medical history, and slot availability.	PostgreSQL / MongoDB
6.	Cloud Database	Managed cloud storage for high availability.	AWS RDS / MongoDB Atlas.
7.	External API-1	Integration for secure digital payment processing.	Stripe API / PayPal API
8.	External API-2	Location-based services for finding nearby clinics.	Google Maps Platform API
9.	Infrastructure	Cloud-native deployment for seamless scaling.	AWS

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Security Implementations	End-to-end encryption for patient data and compliance with healthcare data protection standards.	AES-256 Encryption, OAuth 2.0, SSL/TLS
2.	Scalable Architecture	Microservices-based design to efficiently handle peak booking hours and increasing user traffic.	3-tier Microservices Architecture
3.	Availability	Ensuring the platform is accessible 24/7 for urgent bookings and continuous service.	Multi-region deployment, AWS Load Balancers
4.	Performance	Rapid doctor search results and real-time appointment slot updates	Redis Caching, CDN (CloudFront)

S.No	Characteristics	Description	Technology
5.	Open-Source Frameworks	Utilizing community-backed tools and frameworks for robust and reliable development.	Spring Boot, React, Apache Kafka

References:

<https://c4model.com/>

<https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/>

<https://www.ibm.com/cloud/architecture>

<https://aws.amazon.com/architecture>

<https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d>