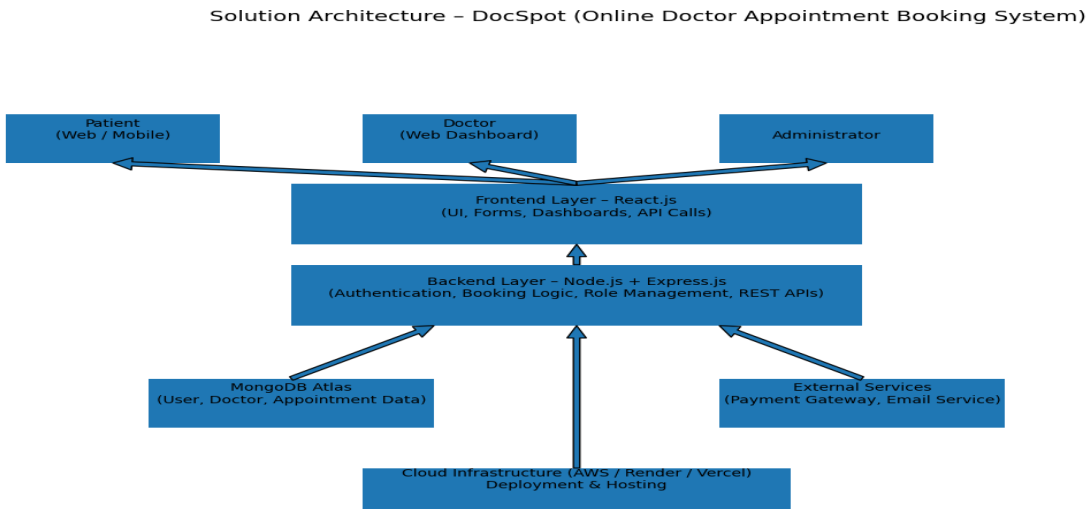
Project Design Phase
Solution Architecture

Date	20 February 2026
Team ID	LTVIP2026TMIDS56110
Project Name	DocSpot: Seamless Appointment Booking for Health
Maximum Marks	4 Marks

Solution Architecture:

Example - Solution Architecture Diagram:



1. **Overview**

The DocSpot solution follows a 3-Tier Cloud-Based Architecture consisting of:

- Presentation Layer (Frontend)
- Application Layer (Backend APIs)
- Data Layer (Database)
- External Services Layer
- Cloud Infrastructure Layer

2. **Architecture Components**

User Layer

Patients, Doctors, and Administrators access the system through web browsers or mobile devices.

Frontend Layer

Developed using React.js, responsible for:

- User interface rendering
- Form handling

- Dashboard management
- API communication

Backend Layer

Built with Node.js & Express.js, responsible for:

- Authentication (JWT-based)
- Appointment booking logic
- Role-based access control
- REST API management

Database Layer

Uses MongoDB Atlas (Cloud NoSQL Database) to store:

- User details
- Doctor profiles
- Appointment records

External Services

- Payment Gateway integration
- Email notification service
- Future scope: Teleconsultation APIs

Infrastructure Layer

Application deployed on cloud platforms like:

- AWS / Render / Vercel
- Provides scalability, availability, and performance optimization

Architecture Benefits

✓ Scalable cloud deployment
✓ Secure authentication & data handling
✓ Modular and maintainable design
✓ Supports future enhancements like AI recommendations and telemedicine