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

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

sTechnical Architecture:

Table-1: Components & Technologies

S.No	Component	Description	Technology
1.	User Interface	Web interface for all users (patient, doctor, admin)	HTML, CSS, Bootstrap, ReactJS
2.	Application Logic-1	Authentication, CRUD, booking logic	Node.js, Express.js
3.	Application Logic-2	Admin dashboard logic	Express.js
4.	Application Logic-3	Doctor availability logic, visit summary	Express.js
5.	Database	Data storage for users, doctors, appointments, feedback	MongoDB (NoSQL)
6.	Cloud Database	Future scope to deploy on cloud DB	MongoDB Atlas (Cloud NoSQL)
7.	File Storage	Profile images and visit summaries	Local Storage, Multer
8.	External API-1	Email notifications	Nodemailer / Email SMTP
9.	External API-2	OTP verification / Auth via third party	Firebase Auth (optional)
10.	Machine Learning Model	Feedback sentiment analysis	Python ML model (scikit-learn)
11.	Infrastructure	Deployed locally for now, scalable to cloud	Local Server / Docker / Render / Vercel

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	All components use open-source libraries/frameworks	React.js, Node.js, MongoDB, Express
2.	Security Implementations	JWT Authentication, bcrypt for password encryption, CORS, Helmet, HTTPS	JWT, bcrypt, Helmet.js, HTTPS
3.	Scalable Architecture	3-tier architecture, RESTful APIs, modular route handling	Express.js, MVC pattern
4.	Availability	Deployable on distributed cloud systems, suitable for horizontal scaling	Docker (optional), Vercel / Render
5.	Performance	Caching via memory, async routes, pagination for lists, use of indexing in MongoDB	MongoDB Indexing