Project Design Phase
Proposed Solution Template

Date	15 February 2025
Team ID	LTVIP2026TMIDS81521
Project Name	SmartDoc Appointment System
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Patients often face long waiting times, difficulty in checking doctor availability, and inefficient manual appointment booking systems. Many clinics still rely on phone calls or physical visits for booking appointments, leading to overcrowding, miscommunication, and scheduling conflicts. There is a need for a centralized digital system to streamline and simplify the appointment process.
2.	Idea / Solution description	SmartDoc Appointment System is a web-based application developed using the MERN stack (MongoDB, Express.js, React.js, Node.js) that allows patients to book doctor appointments online. The system provides: • User registration and login (Patient, Doctor, Admin roles) • Doctor profile and availability management • Real-time appointment booking • Appointment cancellation and rescheduling • Admin approval of doctors • Email confirmations and reminders • Secure authentication using JWT The platform reduces waiting time and improves scheduling efficiency.
3.	Novelty / Uniqueness	• Role-based dashboard (Patient / Doctor / Admin) • Real-time doctor availability visibility • Centralized digital scheduling • Secure authentication with encrypted passwords • Scalable cloud-based database (MongoDB Atlas) • User-friendly and responsive interface

		Unlike traditional manual booking systems, SmartDoc digitizes the entire appointment lifecycle from booking to confirmation.
4.	Social Impact / Customer Satisfaction	• Reduces hospital overcrowding • Saves time for patients and doctors • Improves healthcare accessibility • Enhances transparency in doctor availability • Increases trust through secure online booking • Especially helpful for working professionals and elderly users The solution improves overall healthcare service efficiency and customer satisfaction.
5.	Business Model (Revenue Model)	The system can generate revenue through: • Subscription model for clinics/hospitals • Commission per appointment booking • Premium listing for doctors • Advertisements for healthcare services • SaaS model for hospital management integration
6.	Scalability of the Solution	The system is scalable because: • Built on MERN stack (modular architecture) • Cloud database (MongoDB Atlas) supports scaling • Can integrate payment gateways • Can expand to include telemedicine features • Can be deployed on cloud platforms (AWS, Render, Vercel) • Can support multi-city and multi-hospital operations The architecture allows easy expansion to mobile app integration in the future.