

Project Design Phase

Solution Architecture for "Book A Doc"

Field	Details
Date	10 April 2025
Team ID	SWTID1743701170
Project Name	Book A Doc

Solution Architecture Overview

Aspect	Details
Purpose	To design a technology solution that addresses appointment booking challenges for Patients, Doctors, and Admins, ensuring scalability and efficiency.
Goals	- Identify the best tech stack to solve business problems. - Describe the system's structure and behavior. - Define features, phases, and requirements. - Provide specifications for development and delivery.

Solution Architecture Details

Section	Description
Technology Stack	- Frontend: React for a responsive UI with dashboards for Patients, Doctors, and Admins. - Backend: Node.js with Express.js for APIs and business logic. - Database: MongoDB for flexible data storage. - Infrastructure: AWS EC2 with Docker for deployment.
Architecture Type	3-tier architecture: - Presentation Layer: React-based UI. - Application Layer: Node.js/Express handling authentication, booking, and payment. - Data Layer: MongoDB with AWS S3 for file storage.
Features	- Patient: Registration, login, booking, payment, appointment management. - Doctor: Login, dashboard (appointments/earnings), profile updates. - Admin: Dashboard for appointment and doctor profile management. - Payment integration via Stripe.
Development Phases	- Phase 1 (Mar 26 - Apr 1): Registration and login (Sprint-1). - Phase 2 (Apr 2 - Apr 6): Booking and doctor login (Sprint-2). - Phase 3 (Apr 7 - Apr 11): Payment and dashboards (Sprint-3). - Phase 4 (Apr 12 - Apr 15): Admin panel and optimization (Sprint-4).
Requirements	- Secure authentication (JWT with OAuth 2.0). - Real-time data sync for dashboards. - Scalable database to handle 1000+ users. - Payment processing with <1% failure rate.

Section	Description
Behavior	- Responsive UI adapts to web and future mobile views. - APIs handle 100 requests/min with <2s response time. - Data encrypted with AES-256 for security.

Solution Architecture Diagram

Section	Description
Diagram	<p>[To be inserted: A 3-tier architecture diagram showing Presentation Layer (React), Application Layer (Node.js/Express), and Data Layer (MongoDB/AWS S3). Include data flows for booking and payment.]</p>
Figure Caption	<p>Figure 1: Solution Architecture Diagram for Book A Doc</p>
Reference	<p>https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/</p>

