

## Project Design Phase

### Solution Architecture

Date	24 June 2025
Team ID	LTVIP2025TMID20428
Project Name	FlightFinder
Mentor Name	Dr Shaik Salma Begam
Maximum Marks	4 Marks

### Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

### Example - Solution Architecture Diagram:

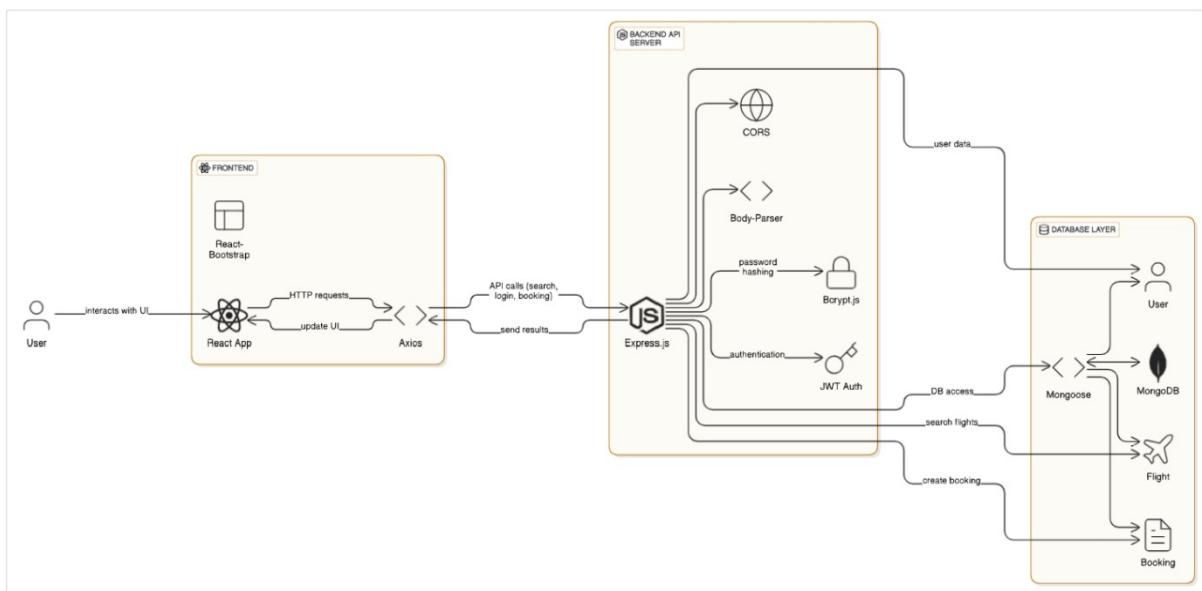
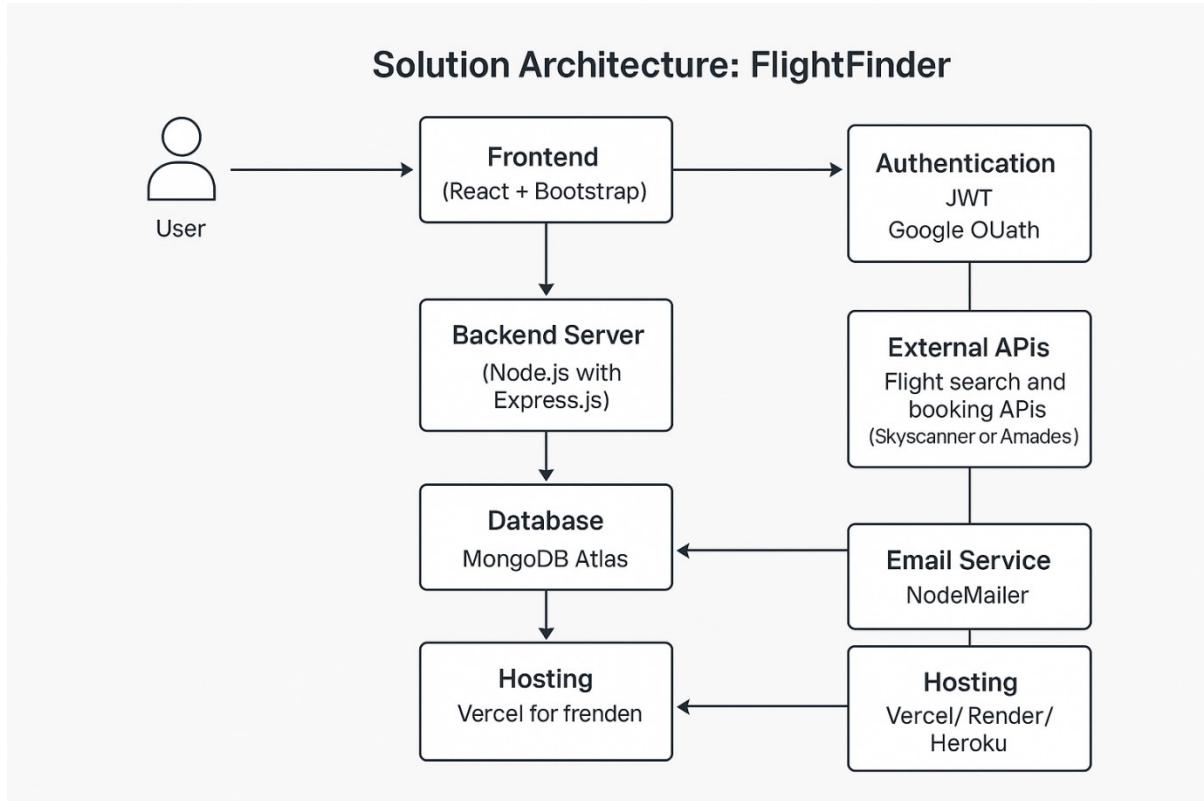


Figure 1: Architecture and data flow of the sample application

Reference: <https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/>



### Key Goals of Our Solution Architecture:

- Provide a secure, user-friendly platform for booking and tracking flights.
- Support features like authentication, personalized suggestions, booking history, and real-time updates.
- Ensure smooth integration with external APIs (e.g., flight search APIs).
- Allow the system to scale efficiently as the number of users grows.

### Architecture Components:

Layer	Technology	Purpose
Frontend	React.js + Bootstrap	UI for user registration, login, search, booking, and tracking
Backend	Node.js with Express.js	RESTful API services, authentication, session management, data processing
Database	MongoDB Atlas	Stores user info, flight data, booking history
Authentication	JWT (JSON Web Token), Google OAuth	Secure login via email/password and third-party providers
API Layer	Third-party Flight APIs	Fetches real-time flight availability,

<b>Layer</b>	<b>Technology</b>	<b>Purpose</b>
	(e.g., Amadeus, Skyscanner)	pricing, and booking options
Email Service	NodeMailer / SMTP	Sends registration and booking confirmation emails
Hosting/Deployment	Vercel (Frontend) + Render/Heroku (Backend)	Manages continuous deployment and optim