

Project Design Phase

Solution Architecture

Date	21 June 2025
Team ID	LTVIP2025TMID60279
Project Name	FlightFinder: Navigating Your Air Travel Options
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture bridges the gap between business problems and technological solutions. In the FlightFinder project, the solution focuses on providing an end-to-end full-stack flight booking platform using the MERN stack (MongoDB, Express.js, React.js, Node.js).

Key Objectives:

- * Identify and implement the best tech solution to modernize flight booking systems.
- * Describe the system structure and behavior, ensuring both technical and non-technical stakeholders understand the platform.
- * Define functional features and phases, from flight search to booking management.
- * Set technical specifications to guide development and deployment efforts.

FlightFinder: Solution Architecture Diagram Description

* Frontend:

Built using React.js, the user interface includes:

- * Flight Search module
- * Booking Module
- * Authentication for both users and admins
- * User booking history view

* Backend:

Powered by Node.js and Express.js, it exposes APIs for:

- * User operations (register/login)
- * Flight operations (search, add, update)
- * Booking management
- * Admin dashboard with secure login

* Database:

MongoDB stores and manages:

- * User data
- * Flight information
- * Booking records
- * Admin credentials

Architecture Highlights:

* User Experience:

Seamless interface with features such as:

- * Quick flight search by city/date
- * One-click booking
- * Real-time booking confirmation

* Admin Experience:

A secure admin dashboard for:

- * Adding/editing flight listings
- * Viewing booking statistics
- * Managing users and system integrity

* Security:

Authentication implemented using JWT and encrypted sessions for both users and admins.

* Scalability & Modularity:

The platform is modular and supports future enhancements such as:

- * Real-time API integrations (Skyscanner, Amadeus)
- * Payment gateways (Stripe, Razorpay)
- * Mobile apps (React Native)
- * AI recommendations & alerts

Reference ER Diagram Concepts:

- * User – who can book multiple flights
- * Flight – with details like departure, destination, price, seats
- * Booking – links users and flights
- * Admin – manages system backend

