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| **Team ID :** LTVIP2025TMID59039 |
| **Project Name :** **FlightFinder: Navigating Your Air Travel Options** |

FlightFinder - Flight Booking System

# 📘 Project Overview

FlightFinder is a powerful flight booking web application designed to simplify the air travel experience. It enables users to search, filter, and book flights conveniently. The application supports secure user authentication, real-time seat availability, admin flight management, and responsive design.

# 🧱 System Architecture

The application is divided into three main layers:  
1. Frontend: Built with React.js, handles user interactions like login, booking, dashboard access.  
2. Backend: Built with Node.js and Express.js, manages APIs for authentication, flights, bookings.  
3. Database: MongoDB stores user, flight, and booking data using Mongoose schemas.

# 📦 Entity Relationship Diagram (ERD)

This ER diagram outlines how data is structured and related in the flight booking system. It covers the core entities - User, Flight, and Booking - and their relationships.

## 👤 User Entity

Attributes:  
- \_id  
- Username  
- Password  
- Email  
- Usertype  
- Approval  
  
A user can place multiple bookings and can be an admin (based on usertype).

## 🛫 Flights Entity

Attributes:  
- \_id  
- Flight\_id  
- Flight name  
- Origin  
- Destination  
- Departure time  
- Arrival time  
- Base price  
- Total seats  
  
Flights are available for booking and store all relevant flight information.

## 🧾 Booking Entity

Attributes:  
- \_id  
- User\_id  
- Flight\_id  
- Flight name  
- Departure  
- Destination  
- Email  
- Mobile  
- Seats  
- Passengers  
- Seat class  
- Journey Date  
- Booking Date  
- Status  
- Price  
  
Each booking is linked to a user and a flight.

## 🔐 Admin Role

Admin is a special type of user responsible for backend management. Admins can add new flights, approve bookings, and manage the system dashboard.

## 🔄 Relationships

- User to Booking: One-to-Many  
- Flight to Booking: One-to-Many  
- Admin interacts through role-based permissions