

FULL STACK DEVELOPMENT WITH MERN PROJECT DOCUMENTATION

1. Introduction

Project Title : Flight finder -Navigating your Air Travel Option

Team id : LTVIP2025TMID59024

Team Members:

1. **Team Leader:**
Akkisetty Mahima Jyothi– Full Stack Developer & Project Coordinator
Responsible for overall planning, coordination, GitHub management, and integration of frontend and backend.
2. **Team Member:**
Maavuri Santhosh Kumar – Frontend Developer
Works on the React-based UI, handles component design, page routing, and user interactions.
3. **Team Member:**
M.Gowtham Durga Pravin – Backend Developer
Builds RESTful APIs using Node.js and Express.js, manages authentication and server logic.
4. **Team Member:**
M.Durga Charan– Database Administrator
Designs and manages MongoDB schemas, handles CRUD operations and ensures data consistency.

2. Project Overview

- **Purpose:**
To simplify flight booking and management by providing users with real-time availability, secure bookings, and user-friendly search features.
- **Features:**
 - Search and filter flights
 - Book tickets with user login
 - Admin panel for managing flights
 - Email confirmation and booking history

3. Architecture

- **Frontend:**
Built with React.js using components, hooks, and React Router for navigation. UI powered by Material-UI.
- **Backend:**
Developed using Node.js and Express.js. RESTful API handles all CRUD operations related to users, flights, and bookings.
- **Database:**
MongoDB stores user data, flight details, and booking records. Mongoose is used for schema design and data validation.

➤ **Frontend (React.js)**

Components:

- SearchForm.js: Handles user inputs (source, destination, dates).
- FlightList.js: Displays ranked results from ML model.

State Management: Redux for shared state (user sessions, bookings).

➤ **Backend (Node.js/Express.js)**

API Routes:

javascript

```
app .get ('/api/flights', flightController .search);
```

```
app.post('/api/bookings', authMiddleware , bookingController.create);
```

➤ **Middleware:** JWT validation, rate limiting.

Database (MongoDB)

Schemas:

javascript

```
const User = new Schema({
```

```
  email: { type: String, unique: true },
```

```
  bookings: [{ type: Schema.Types.ObjectId, ref: 'Booking' }]
```

```
});
```

4. Setup Instructions

Prerequisites:

- Node.js >= 18

- MongoDB installed and running
- npm or yarn

Installation:

- git clone https://github.com/your-username/FlightFinder.git
- cd FlightFinder
- cd server
- npm install
- cd ../client
- npm install

Environment Variables:

Create a .env file in the /server folder with:

PORT=3000

MONGODB URI-

mongodb+srv://nehapriya:<db_password>@cluster0.zghkpqk.mongodb.net/?retryWrites=true&w=majority&appName=Cluster0

5. Folder Structure

- **Client:**

/client

├── /src

| ├── /components

| ├── /pages

| ├── /api

| ├── App.js

| └── index.js

- **Server:**

/server

├── /controllers

├── /routes

├── /models

├── server.js

└── .env

5. Running the Application

Frontend:

- cd client
- npm start

Backend:

- cd server
- npm start

7. API Documentation

- **POST /api/auth/register**
Registers a new user.
Request Body: { name, email, password }
Response: { success, token }
- **POST /api/auth/login**
Logs in an existing user.
- **GET /api/flights**
Retrieves list of available flights.
- **POST /api/bookings**
Books a flight for the logged-in user.

8. Authentication

- Implemented using JWT (JSON Web Token).
- Tokens are stored in HTTP-only cookies.
- Protected routes validate tokens before granting access.

9. User Interface

Home Page with flight search

Sign In


Email

Password


Sign In

Don't have an account? [Sign Up](#)

Login form

 SkyBook

FlightsBookingsAdmin DashboardLogout

Welcome to SkyBook

Find and book flights seamlessly — Fast, Simple & Secure.

Register form

SkyBook

FlightsBookingsAdmin DashboardLogout

Search Flights

From

To

dd-mm-yyyy

Search

Hyderabad ✈️ Delhi

Date: 2025-07-01
Time: 10:30 AM
Airline: IndiGo
Price: ₹3500

Book Now

Mumbai ✈️ Hyderabad

Date: 2025-07-01
Time: 12:30 AM
Airline: Air India
Price: ₹10500

Book Now

Delhi ✈️ Hyderabad

Date: 2025-07-03
Time: 8:30 AM
Airline: Spice jet
Price: ₹4500

Book Now

Chennai ✈️ Kolkata

Date: 2025-07-01
Time: 11:30 AM
Airline: Alliance Air
Price: ₹5500

Book Now

Mumbai ✈️ Bangalore

Date: 2025-07-10
Time: 5:30
Airline: IndiGo
Price: ₹9500

Book Now

Hyderabad ✈️ Vizag

Date: 2025-07-5
Time: 13:30
Airline: Air India
Price: ₹2500

Book Now

Delhi ✈️ Goa

Date: 2025-07-11
Time: 9:30
Airline: Air India
Price: ₹12500

Book Now

Pune ✈️ Dubai

Date: 2025-07-7
Time: 6:30
Airline: Spice Jet
Price: ₹10500

Book Now

Mumbai ✈️ Delhi

Date: 2025-07-12
Time: 5:00
Airline: Air India express
Price: ₹5500

Book Now

Bangalore ✈️ Mumbai

Date: 2025-07-12
Time: 10:00
Airline: Air India express
Price: ₹500

Book Now

Pune ✈️ Mumbai

Date: 2025-07-13
Time: 15:00
Airline: Air India express
Price: ₹7500

Book Now

Dubai ✈️ Hyderabad

Date: 2025-07-13
Time: 7:00
Airline: Alliance Air
Price: ₹9500

Book Now

Admin dashboard

Your Bookings

Air India

✈️ Route: Mumbai → Hyderabad

📅 Date: 2025-07-01

🕒 Time: 12.30 AM

🛫 Seats: S2

👤 Passenger: gowtham

✉ Email: 1023@gmail.com

☎ Phone: 9550593455

📅 Booked At: 25/06/2025, 13:40:28

Air India

✈️ Route: Mumbai → Hyderabad

📅 Date: 2025-07-01

🕒 Time: 12.30 AM

🛫 Seats: S4

👤 Passenger: pranav

✉ Email: 1023@gmail.com

☎ Phone: 9550570758

📅 Booked At: 25/06/2025, 11:24:53

Booking confirmation page

Admin Dashboard

Logout

Total Flights

12

Total Bookings

3

Total Users

2

All Flights

+ Add Flight

Airline	Route	Date	Time	Price	Action
IndiGo	Hyderabad → Delhi	2025-07-01	10:30 AM	₹3500	<div>Delete</div>
Air India	Mumbai → Hyderabad	2025-07-01	12:30 AM	₹10500	<div>Delete</div>
Spice Jet	Delhi → Hyderabad	2025-07-03	8:30 AM	₹4500	<div>Delete</div>
Alliance Air	Chennai → Kolkata	2025-07-01	11:30 AM	₹5500	<div>Delete</div>
IndiGo	Mumbai → Bangalore	2025-07-10	5:30	₹8500	<div>Delete</div>
Air India	Hyderabad → Vizag	2025-07-5	13:30	₹2500	<div>Delete</div>
Air India	Delhi → Goa	2025-07-11	9:30	₹12500	<div>Delete</div>
Spice Jet	Pune → Dubai	2025-07-7	6:30	₹10500	<div>Delete</div>
Air India express	Mumbai → Delhi	2025-07-12	5:00	₹5500	<div>Delete</div>
Air India express	Bangalore → Mumbai	2025-07-12	10:00	₹5500	<div>Delete</div>
Air India express	Pune → Mumbai	2025-07-13	15:00	₹7500	<div>Delete</div>
Alliance Air	Dubai → Hyderabad	2025-07-13	7:00	₹8500	<div>Delete</div>

10. Testing

- Manual testing on Postman for backend APIs
- Basic component tests in React using Jest and React Testing Library

11.Demo

Link:

https://drive.google.com/file/d/1g_M5qPYkiyvXVpSiXKoN53KzQa5-7zeX/view?usp=drivesdk

12. Known Issues

- No password recovery implemented yet
- UI responsiveness needs improvement on tablets

13. Future Enhancements

- Payment integration with Razorpay/Stripe
- Role-based admin access
- Real-time flight tracking integration