

FlightFinder – Navigating Your Air Travel Options

1. Introduction

- **Project Title:** FlightFinder – Navigating Your Air Travel Options
- **Team Members:**

Team Leader : A Mohana

Team member : Tripura Salagrama

Team member : K Lakshmi Sripada Lasya

2. Project Overview

- **Purpose:**

FlightFinder is a web-based flight booking system developed using the MERN stack. The purpose of this project is to provide a centralized platform for users to search, compare, and book flights easily and securely. The system aims to simplify travel planning by integrating real-time flight data handling, secure authentication, and payment processing into a single platform.

The project focuses on improving user experience, ensuring secure transactions, and maintaining scalable architecture.

- **Features:**

- User Registration & Login
- Secure Authentication (JWT Based)
- Flight Search by Source, Destination & Date
- Flight Filtering (Price, Airline, Timing)
- Booking System
- Secure Payment Integration
- Booking Confirmation with Booking ID
- Booking History Management
- Admin Dashboard for Flight Management
-

3. Architecture

- **Frontend Architecture (React.js)**

The frontend is developed using React.js. It follows a component-based architecture.

Main Components:

- Home Page Component

- Login & Registration Component
- Search Flights Component
- Flight Results Component
- Booking Page Component
- Payment Page Component
- User Dashboard Component
- Admin Dashboard Component

React Router is used for navigation between pages. Axios is used for API communication with the backend.

• **Backend Architecture (Node.js & Express.js)**

The backend is built using Node.js and Express.js.

Main Backend Modules:

- Authentication Controller
- Flight Controller
- Booking Controller
- Payment Controller
- Admin Controller

The backend follows RESTful API architecture and handles business logic, request validation, and database operations.

Middleware Used:

- JWT Authentication Middleware
- Error Handling Middleware

• **Database (MongoDB)**

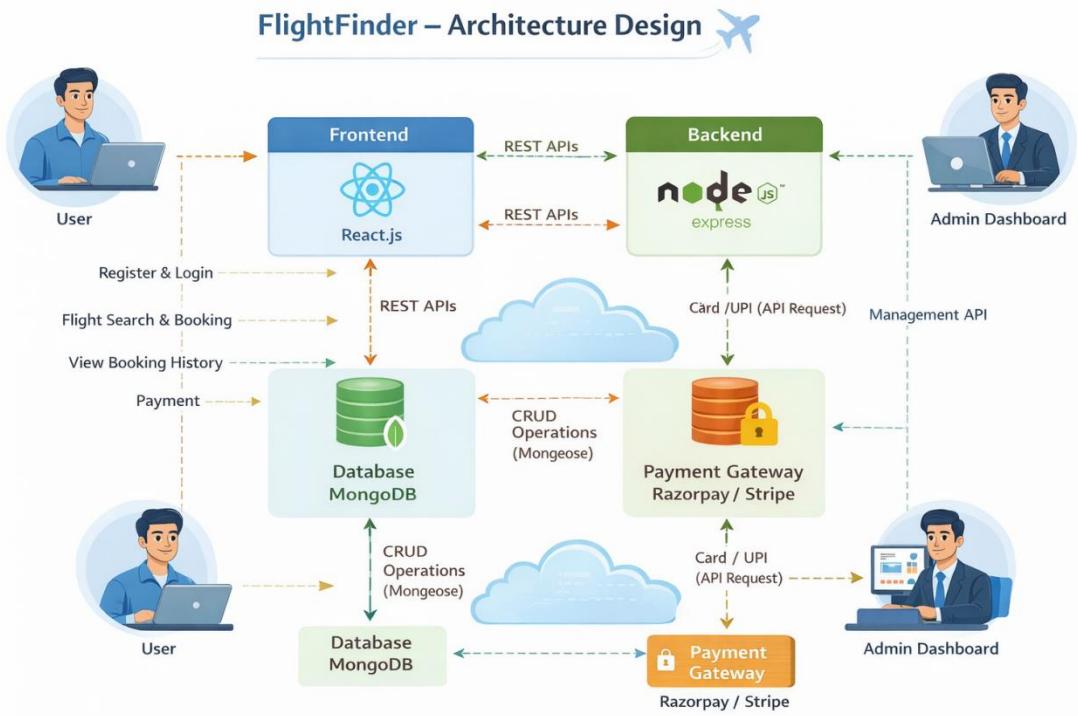
MongoDB is used as the NoSQL database.

Collections:

1. Users Collection
 - userId
 - name
 - email
 - password (hashed)
 - role
2. Flights Collection
 - flightId
 - airline
 - source
 - destination
 - departureTime
 - arrivalTime
 - price
3. Bookings Collection
 - bookingId
 - userId
 - flightId

- paymentStatus
- bookingDate

MongoDB Atlas can be used for cloud deployment.



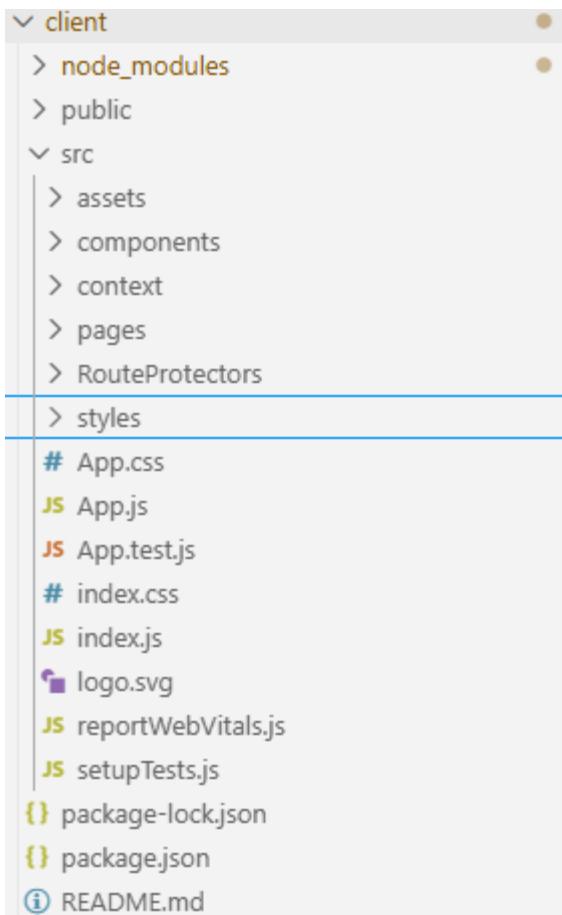
4. Setup Instructions

• Prerequisites:

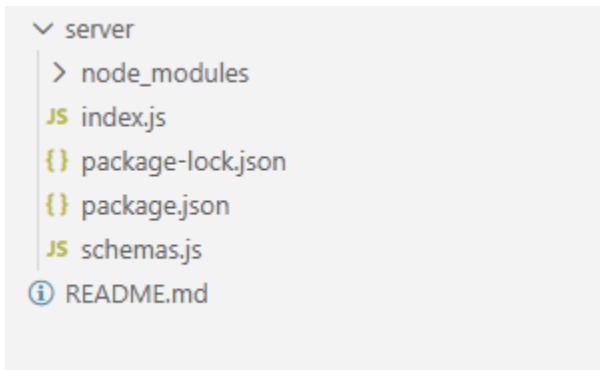
- Node.js installed
- MongoDB installed or MongoDB Atlas account
- npm package manager
- Git

5. Folder Structure

Client (React Frontend):



Server:



6. Running the Application

Start Backend:

```
cd server  
node index.js
```

Start Frontend:

```
cd client  
npm start
```

Frontend runs on: <http://localhost:3000>

Backend runs on: <http://localhost:5000>

7. API Documentation

1. User Registration

- Method: POST
- Endpoint: /api/auth/register
- Body:

```
{  
  "name": "Siri",  
  "email": "siri@gmail.com",  
  "password": "123456"  
}
```

2. User Login

- Method: POST
- Endpoint: /api/auth/login

3. Get Flights

- Method: GET
- Endpoint: /api/flights

4. Book Flight

- Method: POST
- Endpoint: /api/bookings

8. Authentication

Athentication is handled using JWT (JSON Web Token).

Process:

- User logs in
- Server generates JWT token
- Token is stored in client
- Protected routes verify token
- Role-based authorization for admin

Passwords are hashed using bcrypt before storing in database.

9. User Interface

The UI is designed to be simple, clean, and responsive.

Pages Include:

- Home Page
- Search Results Page
- Booking Page

- Payment Page
- Dashboard
- Admin Panel

10. Testing

Testing includes:

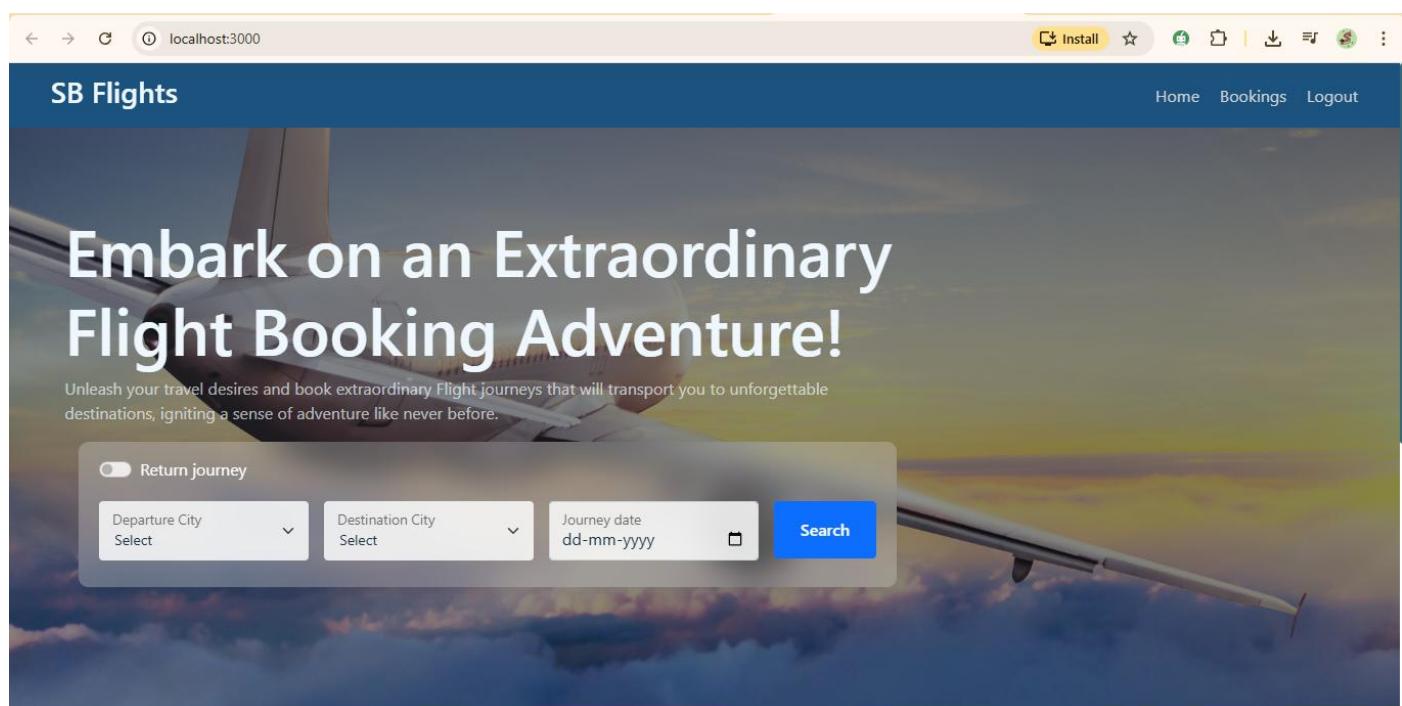
- Functional Testing (All modules)
- Authentication Testing
- API Testing using Postman
- Manual UI Testing
- Performance Testing (Response Time Check)

All major functionalities were tested and validated.

11. Screenshots or Demo

GitHub Repository:

<https://github.com/challayasaswi/Flightfinder-Navigating-your-Air-Travel-options>



About Us

Welcome to our Flight ticket booking app, where we are dedicated to providing you with an exceptional travel experience from start to finish. Whether you're embarking on a daily commute, planning an exciting cross-country adventure, or seeking a leisurely scenic route, our app offers an extensive selection of Flight options to cater to your unique travel preferences.

We understand the importance of convenience and efficiency in your travel plans. Our user-friendly interface allows you to effortlessly browse through a wide range of Flight schedules, compare fares, and choose the most suitable seating options. With just a few taps, you can secure your Flight tickets and be one step closer to your desired destination. Our intuitive booking process enables you to customize your travel preferences, such as selecting specific departure times, opting for a window seat, or accommodating any special requirements.

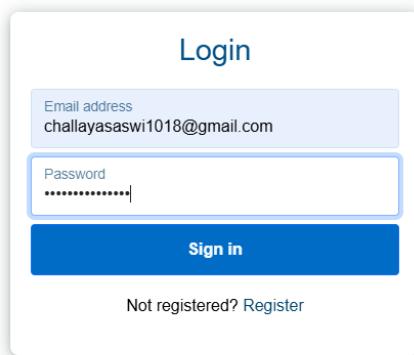
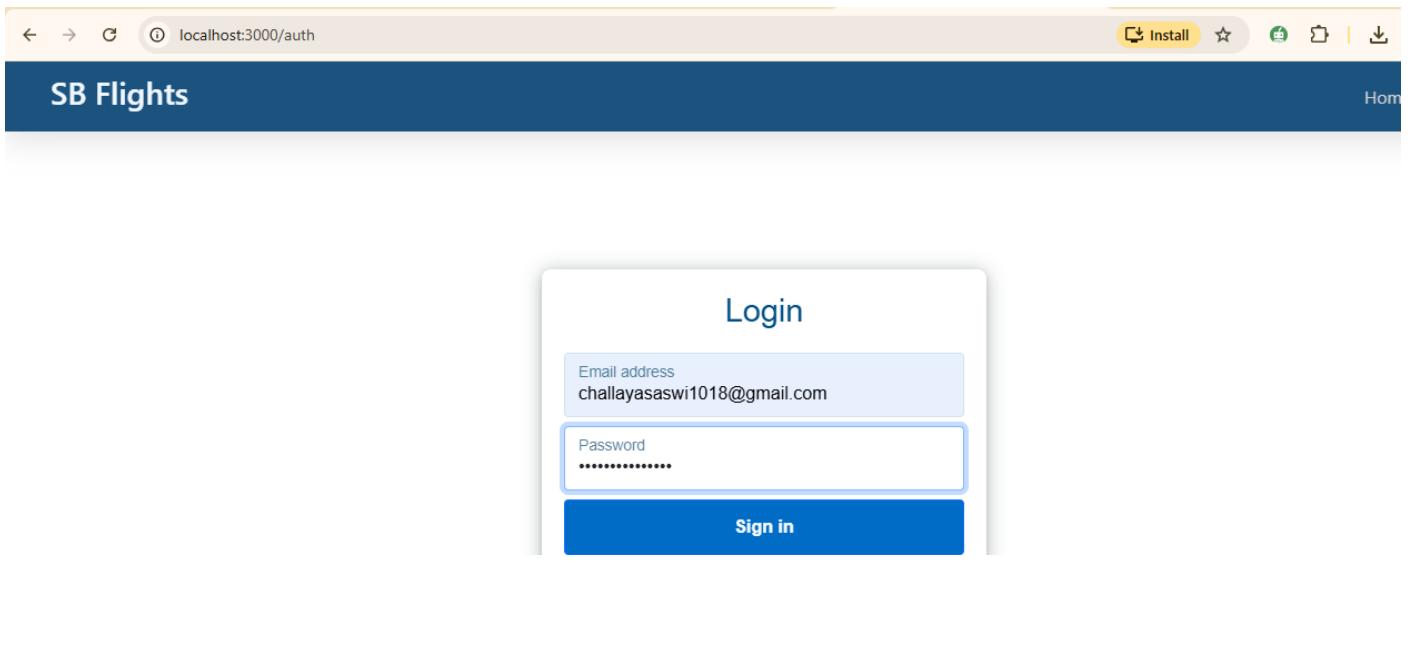
With our Flight ticket booking app, you can embrace the joy of exploring new destinations, immerse yourself in breathtaking scenery, and create cherished memories along the way. Start your journey today and let us be your trusted companion in making your Flight travel dreams a reality. Experience the convenience, reliability, and comfort that our app offers, and embark on unforgettable Flight adventures with confidence.

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Register

User type

- Admin
- Customer
- Flight Operator



localhost:3000

SB Flights

Home Bookings Logout

Embark on an Extraordinary Flight Booking Adventure!

Unleash your travel desires and book extraordinary Flight journeys that will transport you to unforgettable destinations, igniting a sense of adventure like never before.

Return journey

Departure City: Jaipur | Destination City: varanasi | Journey date: 28-02-2026 |

Available Flights

Indigo Flight Number: 1234	Start : Jaipur Departure Time: 03:00	Destination : varanasi Arrival Time: 06:00	Starting Price: 2000 Available Seats: 12	<input type="button" value="Book Now"/>
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localhost:3000/bookings

SB Flights

Home Bookings Logout

System Role Detected: "customer" | If this doesn't say "flight-operator", that is why it's failing.

My Bookings

<p>Booking ID: 69944285b0c9d4c28cb66b05 Flight: International (3579) Route: Hyderabad to Bangalore Email: chall@gmail.com Seats: B-1 Passengers:<ul style="list-style-type: none">Siri (Age: 21) Status: confirmed <input type="button" value="Download PDF"/></p>	<p>Booking ID: 69943e1eb0c9d4c28cb66abc Flight: Indigo (1234) Route: Jaipur to varanasi Email: challayasaswi1018@gmail.com Seats: E-1, E-2 Passengers:<ul style="list-style-type: none">yesu (Age: 45)nithish (Age: 1) Status: cancelled</p>
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The screenshot shows a web-based administrative interface for 'SB Flights'. The top navigation bar includes links for Home, Users, Bookings, Flights, and Logout, along with standard browser controls like back, forward, and search. Below the header, there are three main sections: 'Users' (2 items), 'Bookings' (3 items), and 'Flights' (2 items), each with a blue 'View all' button.

Category	Count	Action
Users	2	View all
Bookings	3	View all
Flights	2	View all

SB Flights (Admin)

[Home](#) [Users](#) [Bookings](#) [Flights](#) [Logout](#)

All Users

UserId

698eb8a66d6d5c2624522986

Username

Yasaswi

Email

challayasaswi1018@gmail.com

Flight Operators

Id 698eb9626d6d5c26245229b5

Flight Name Hafeeza

Email hafeezkhan@gmail.com

localhost:3000/all-bookings

Install ⚙️

SB Flights (Admin)

Home Users Bookings Flights Logout

Bookings

Booking ID	Mobile	Email	Flight Id	Flight name	On-boarding	Destination	Passengers	Booking date	Journey date	Journey Time	Total price	Booking status
69944285b0c9d4c28cb66b05	678943	chall@gmail.com	3579	International	Hyderabad	Banglore	B-1		Sat Feb 28	10:00	3000	confirmed
69943e1eb0c9d4c28cb66abc	1234	challayasaswi1018@gmail.com	1234	Indigo	Jaipur	varanasi			Fri Feb 20	03:00	4000	cancelled

[Cancel Ticket](#)

localhost:3000/all-flights

SB Flights (Admin)

Indigo (1234)

From: Jaipur To: varanasi

Price: 2000

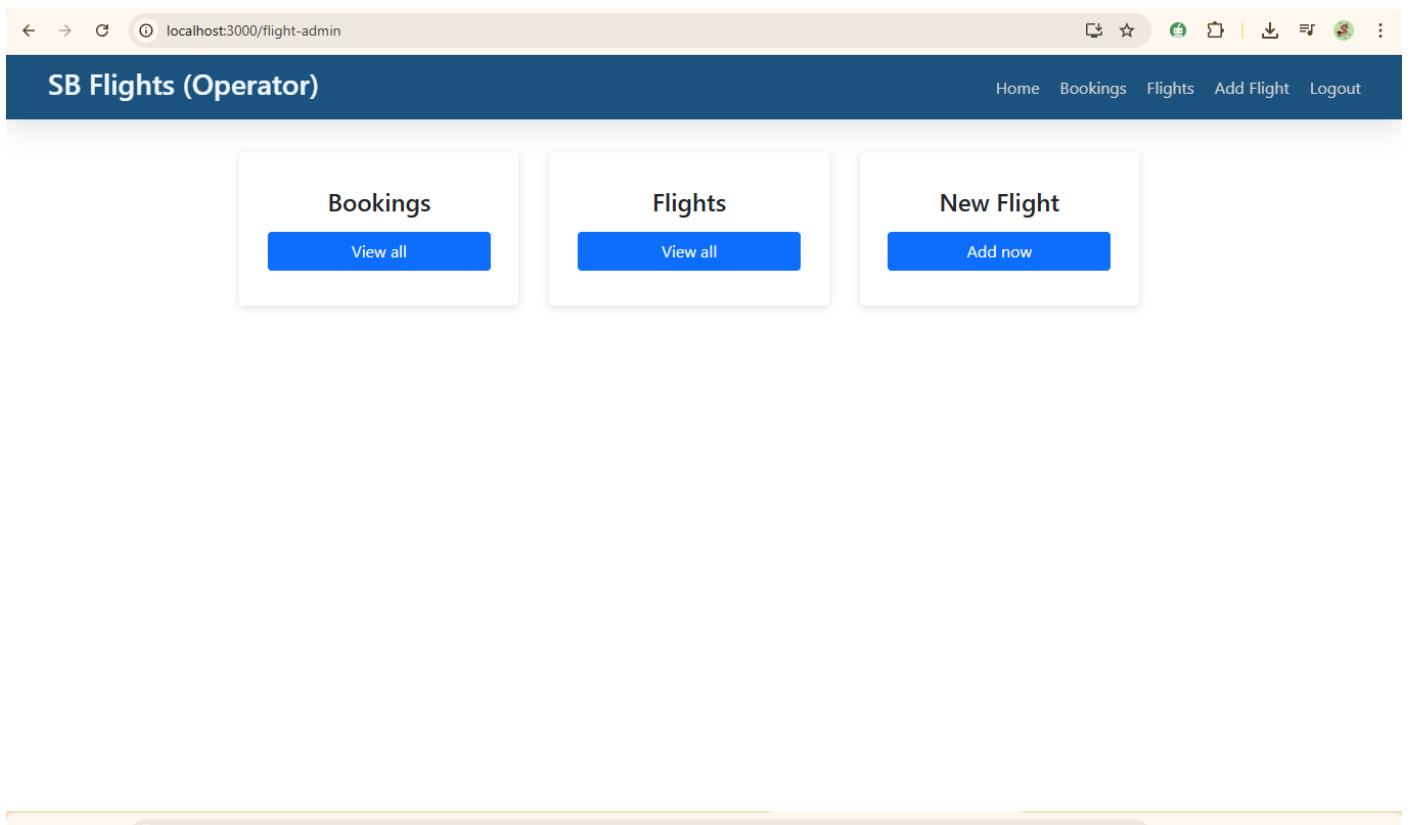
[Edit](#)

International (3579)

From: Hyderabad To: Bangalore

Price: 1000

[Edit](#)



localhost:3000/flight-bookings

SB Flights (Operator)

Operator Booking Management

Booking ID: 69944285b0c9d4c28cb66b05
Email: chall@gmail.com **Flight:** International (3579)
Route: Hyderabad → Bangalore **Journey Date:** Sat Feb 28
Passengers & Seats:

- Siri (Age: 21)

Seats: B-1
Status: confirmed

Download PDF

Booking ID: 69943e1eb0c9d4c28cb66abc
Email: challayasaswi1018@gmail.com **Flight:** Indigo (1234)
Route: Jaipur → Varanasi **Journey Date:** Fri Feb 20
Passengers & Seats:

- yesu (Age: 45)
- nithish (Age: 1)

Seats: E-1, E-2
Status: cancelled

Booking ID: 69931b7930bd7088727ddb3c
Email: challayasaswi1018@gmail.com **Flight:** Hafeza (1234)
Route: Jaipur → Varanasi **Journey Date:** Fri Feb 20
Passengers & Seats:

- Vark (Age: 20)

localhost:3000/flights

SB Flights (Operator)

Home Bookings Flights Add Flight Logout

Flight Name	Flight Id	On-Boarding	Destination	Action
Indigo	1234	Jaipur	varanasi	<button>Edit</button>
International	3579	Hyderabad	Banglore	<button>Edit</button>

localhost:3000/new-flight

SB Flights (Operator)

Home Bookings Flights Add Flight Logout

Add new Flight

Departure City
Select

Departure Time
--:-- --

Destination City
Select

Arrival time
--:-- --

Total seats
0

Base price
0

Add now

12. Known Issues

- Depends on third-party payment API availability
- Limited offline functionality
- Basic UI can be improved further

13. Future Enhancements

- AI-Based Flight Recommendations
- Price Alert Notifications
- Mobile Application
- Multi-language Support
- Hotel & Cab Booking Integration
- Advanced Analytics Dashboard