

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)

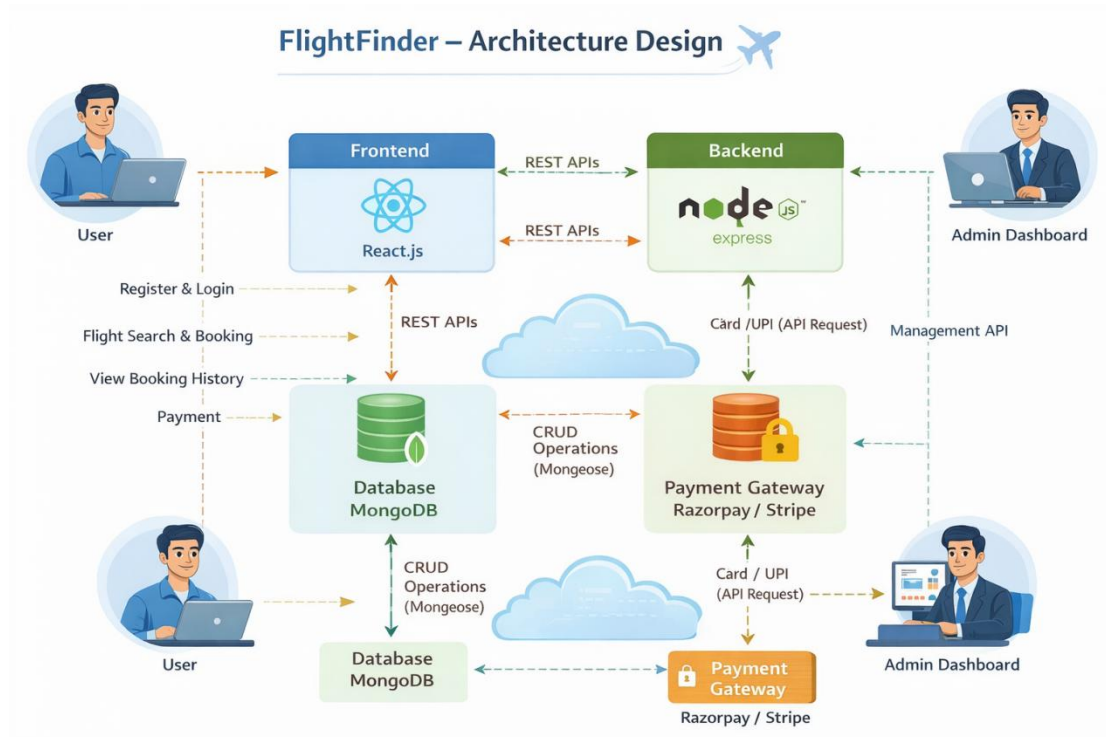
MongoDB is used as the NoSQL database.

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.



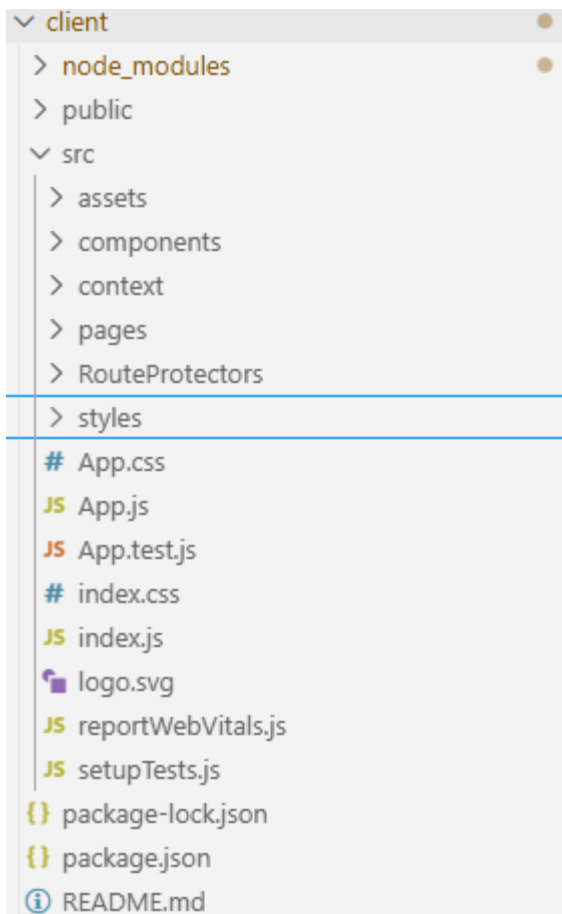
4. Setup Instructions

• Prerequisites:

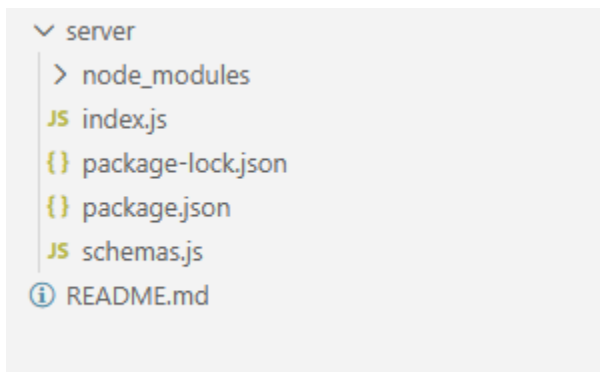
- Node.js installed
- MongoDB installed or MongoDB Atlas account
- npm package manager
- Git

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

Authentication 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:

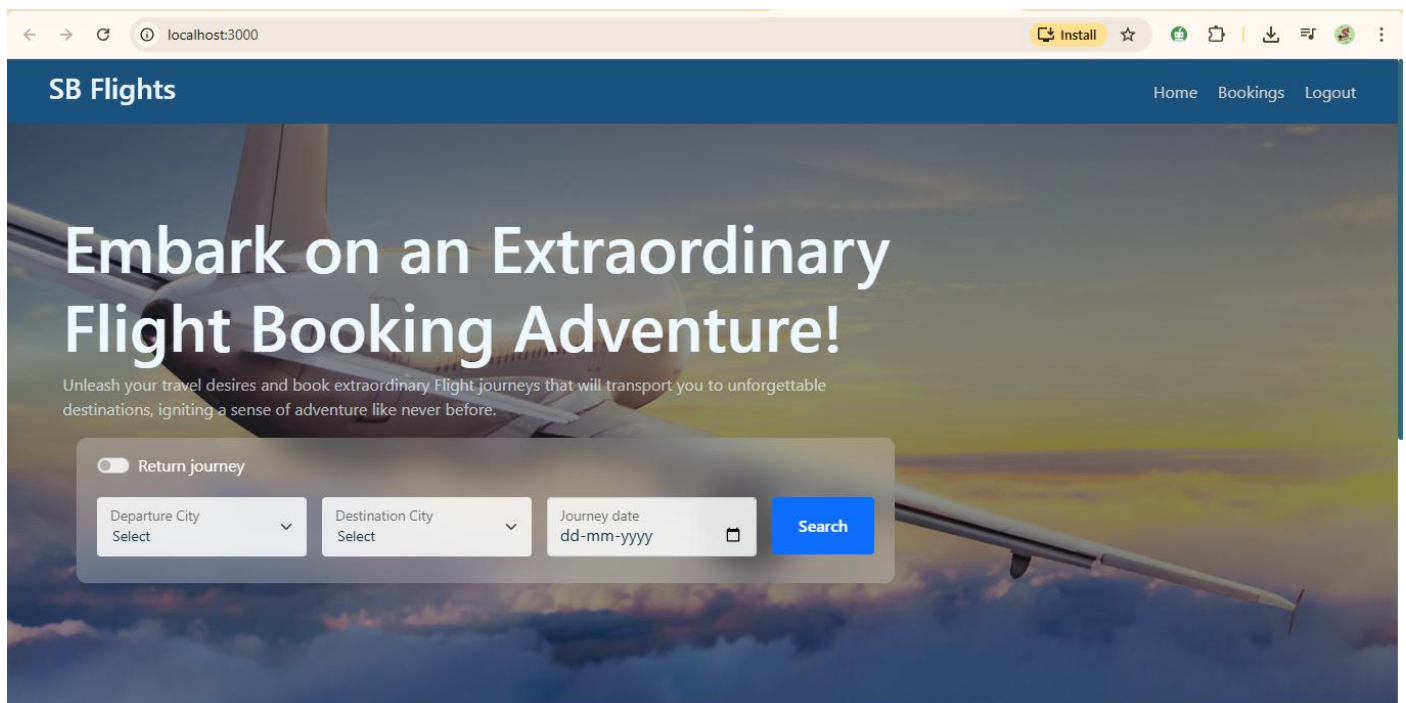
- Functional Testing (All modules)
- Authentication Testing
- API Testing using Postman
- Manual UI Testing
- Performance Testing (Response Time Check)

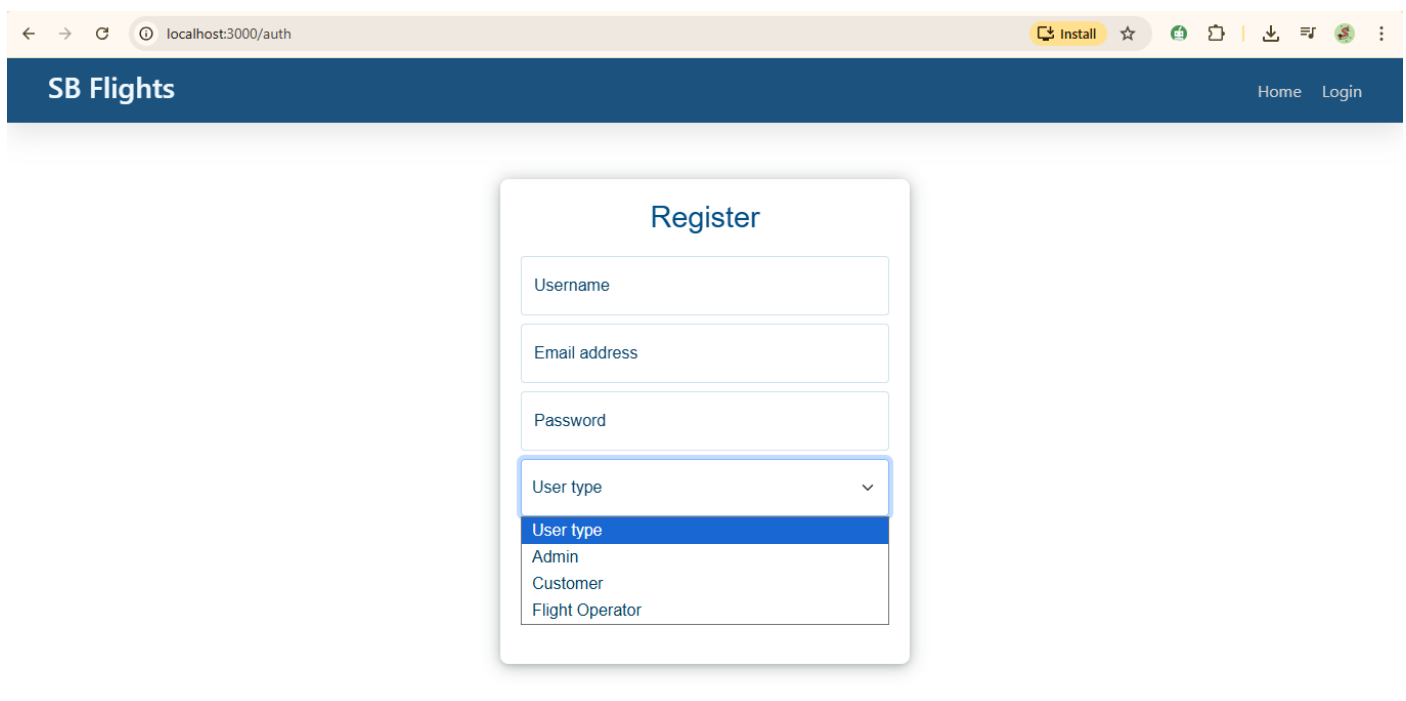
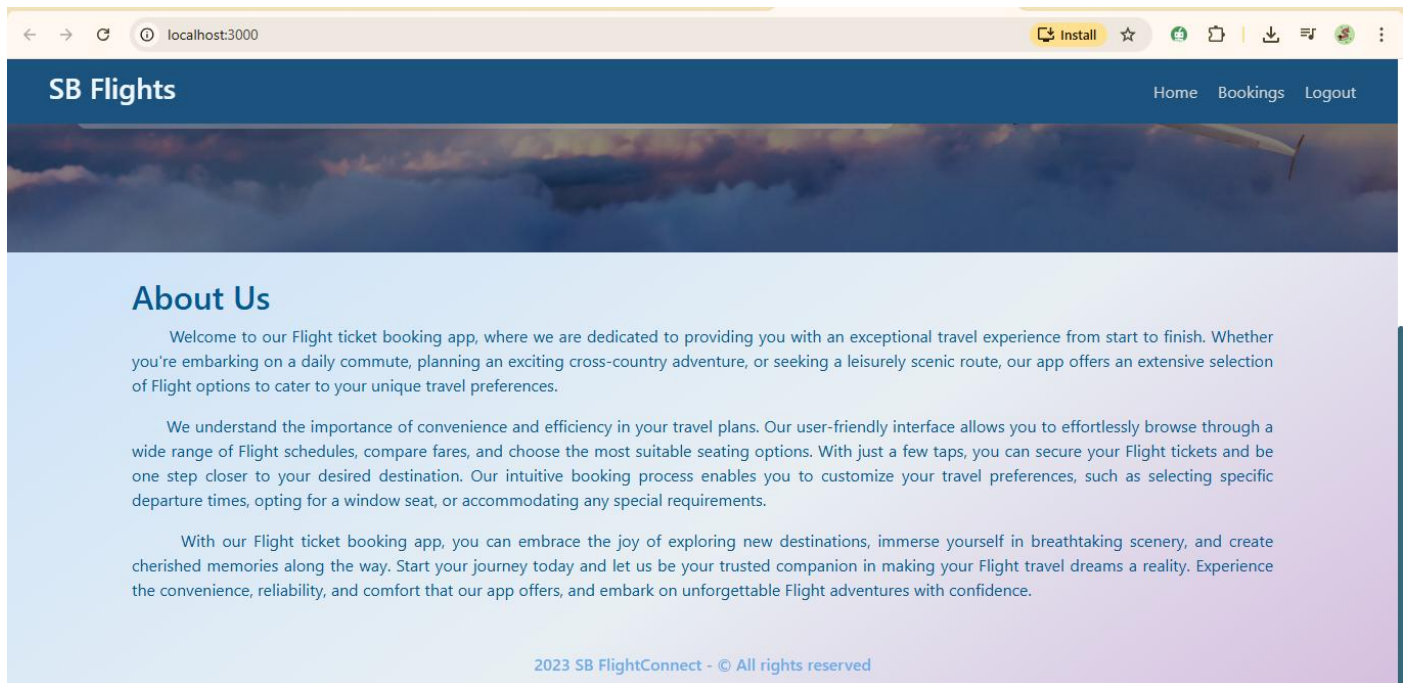
All major functionalities were tested and validated.

11. Screenshots or Demo

GitHub Repository:

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





Login

Email address

challayasaswi1018@gmail.com

Password

Sign in

Login

Email address

challayasaswi1018@gmail.com

Password

*****|

Sign in

Not registered? Register

← → ↻

localhost:3000

Install ☆

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

Search

Available Flights

Indigo

Flight Number: 1234

Start : Jaipur

Departure Time: 03:00

Destination : varanasi

Arrival Time: 06:00

Starting Price: 2000

Available Seats: 12

Book Now

← → ↻

localhost:3000/bookings

Install ☆

SB Flights

Home Bookings Logout

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

My Bookings

Booking ID: 69944285b0c9d4c28cb66b05

Flight: International (3579)

Route: Hyderabad to Banglore

Email: chall@gmail.com

Seats:

B-1

Passengers:

- Siri (Age: 21)

Status:

confirmed

Download PDF

Booking ID: 69943e1eb0c9d4c28cb66abc

Flight: Indigo (1234)

Route: Jaipur to varanasi

Email: challayasaswi1018@gmail.com

Seats:

E-1, E-2

Passengers:

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

Status:

cancelled

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localhost:3000/admin

Install ☆

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SB Flights (Admin)

Home Users Bookings Flights Logout

Users

2

View all

Bookings

3

View all

Flights

2

View all

New Operator Applications

No new requests..

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

hafeezakhan@gmail.com

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localhost:3000/all-bookings

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SB Flights (Admin)

Home Users Bookings Flights Logout

Bookings

Booking ID: 69944285b0c9d4c28cb66b05
Mobile: 678943 Email: chall@gmail.com
Flight Id: 3579 Flight name: International
On-boarding: Hyderabad Destination: Bangalore
Passengers: Seats: B-1
1. Name: Siri, Age: 21
Booking date: 2026-02-17 Journey date: Sat Feb 28
Journey Time: 10:00 Total price: 3000
Booking status: confirmed

Cancel Ticket

Booking ID: 69943e1eb0c9d4c28cb66abc
Mobile: 1234 Email: challayasaswi1018@gmail.com
Flight Id: 1234 Flight name: Indigo
On-boarding: Jaipur Destination: varanasi
Passengers:
1. Name: yesu, Age: 45
2. Name: nithish, Age: 1
Booking date: 2026-02-17 Journey date: Fri Feb 20
Journey Time: 03:00 Total price: 4000
Booking status: cancelled

Booking ID: 69931b7930bd7088727ddb3c
Mobile: 7702782648 Email: challayasaswi1018@gmail.com
Flight Id: 1234 Flight name: Hafeeza

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localhost:3000/all-flights

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SB Flights (Admin)

Home Users Bookings Flights Logout

Indigo (1234)

From: Jaipur To: varanasi

Price: 2000

Edit

International (3579)

From: Hyderabad To: Bangalore

Price: 1000

Edit

← → ↻

localhost:3000/flight-admin

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SB Flights (Operator)

Home Bookings Flights Add Flight Logout

Bookings

View all

Flights

View all

New Flight

Add now

← → ↻

localhost:3000/flight-bookings

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SB Flights (Operator)

Home Bookings Flights Add Flight Logout

Operator Booking Management

Booking ID: 69944285b0c9d4c28cb66b05

Email: chall@gmail.com Flight: International (3579)

Route: Hyderabad → Banglore 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: Hafeeza (1234)

Route: Jaipur → varanasi Journey Date: Fri Feb 20

Passengers & Seats:

- Yash (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	<div>Edit</div>
International	3579	Hyderabad	Banglore	<div>Edit</div>

localhost:3000/new-flight

SB Flights (Operator)

Home

Bookings

Flights

Add Flight

Logout

Add new Flight

Flight Name

Hafeeza

Flight Id

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