Flight Booking App

1. Introduction

- **Project Title:** Flight Booking App
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  - Viknesh H
  - Pradeep M

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2. Project Overview

- **Purpose:** The Flight Booking App is designed to revolutionize the flight ticket booking experience. It aims to offer users convenience, efficiency, and customization, simplifying the travel process for both frequent and occasional travelers.
- **Features:**
  - Search and filter flights based on preferences.
  - View flight details including price, duration, and airline.
  - Seat selection with an interactive map.
  - Secure online payment and instant e-ticket generation.

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3. Architecture

- **Frontend:**
  - Built using React.js for a dynamic and responsive user interface.
  - Components for user authentication, flight search, booking, and seat selection.
  - State management with Context API.
- **Backend:**

- Node.js with Express.js powers the server-side logic.
- RESTful API endpoints handle user authentication, flight searches, bookings, and admin operations.

- **Database:**
  - MongoDB stores collections for users, flights, and bookings.
  - Mongoose used for schema definitions and CRUD operations.

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4. Setup Instructions

- **Prerequisites:**
  - Node.js
  - MongoDB
  - Git
- **Installation:**
  1. Clone the repository:

     ```
     bash
     Copy code
     git clone https://github.com/harsha-vardhan-reddy-07/
     Flight-Booking-App-MERN
     ```

  2. Navigate to the project directory:

     ```
     bash
     Copy code
     cd Flight-Booking-App-MERN
     ```

  3. Install dependencies:

     ```
     bash
     Copy code
     ```

```
npm install
```

4. Start the development server:

```
bash
Copy code
npm run dev
```

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5. Folder Structure

- **Client:**
  - `src`: Contains all React components, pages, and styles.
  - `components`: Reusable UI components.
  - `pages`: Individual pages like home, search results, and booking details.
- **Server:**
  - `routes`: Defines API routes for users, flights, and bookings.
  - `controllers`: Business logic for handling API requests.
  - `models`: MongoDB schema definitions for users, flights, and bookings.

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6. Running the Application

- **Frontend:**

```
bash
Copy code
cd client
npm start
```

- **Backend:**

```
bash
Copy code
```

```
cd server
npm start
```

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7. API Documentation

- **GET** `/api/flights`: Retrieve available flights.
  - Parameters: Departure, Destination, Date.
  - Example Response:

```
json
Copy code
{ "flights": [ { "id": 1, "price": 500, "airline": "A
irways" } ] }
```

- **POST** `/api/bookings`: Book a flight.
  - Body Parameters: User ID, Flight ID, Seat Details.
  - Example Response:

```
json
Copy code
{ "message": "Booking successful", "bookingId": 12345
}
```

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8. Authentication

- **Method:**
  - Token-based authentication using JSON Web Tokens (JWT).
  - Secure user sessions for login and booking functionalities.

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9. User Interface

- **Highlights:**
  - Modern design with intuitive navigation.
  - Interactive flight and seat selection.
  - Screenshots:
    - Home Page
    - Flight Search Results
    - Seat Selection

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10. Testing

- **Strategy:**
  - Unit tests using Jest for individual components.
  - End-to-end tests using Cypress to verify complete user journeys.

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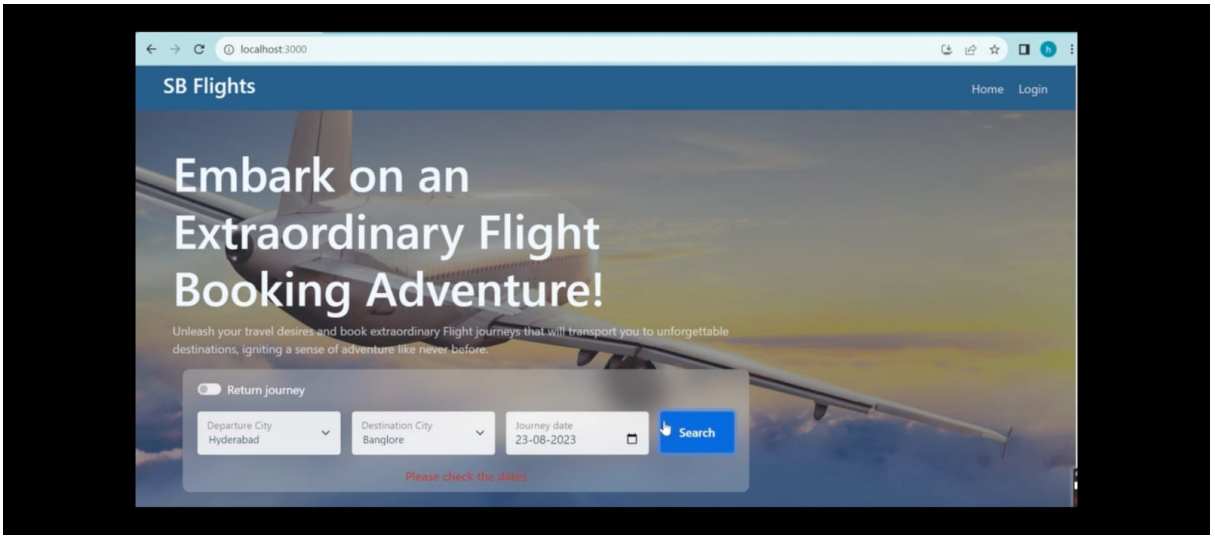
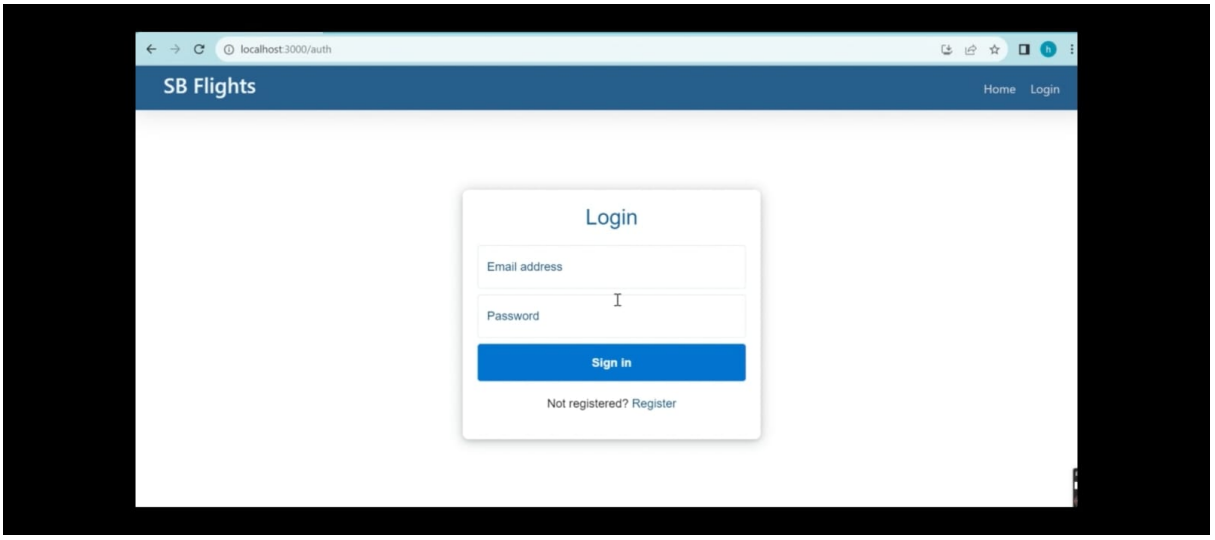
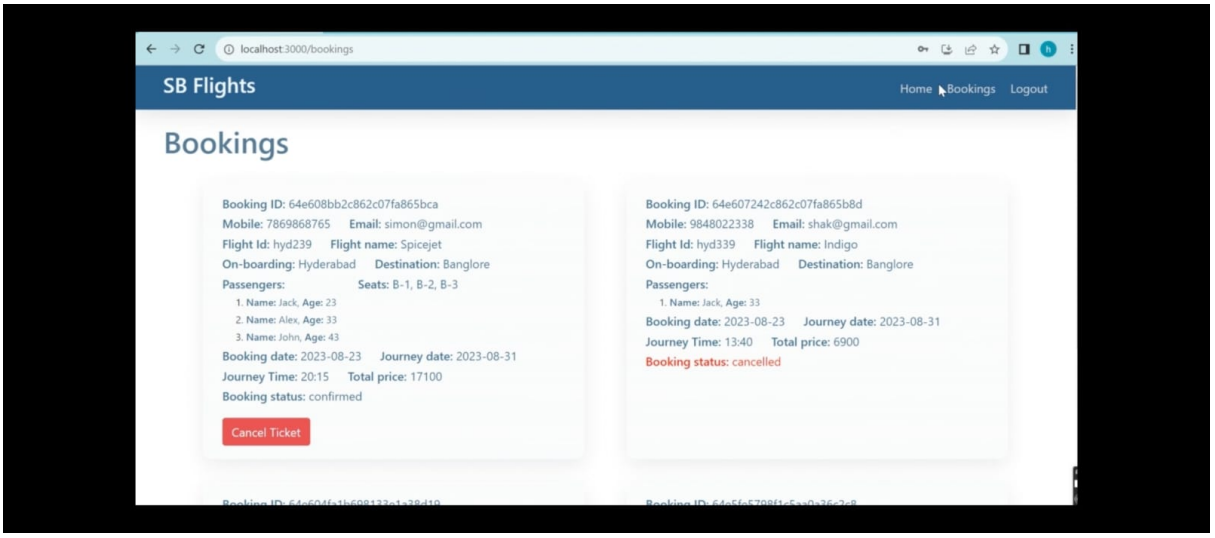
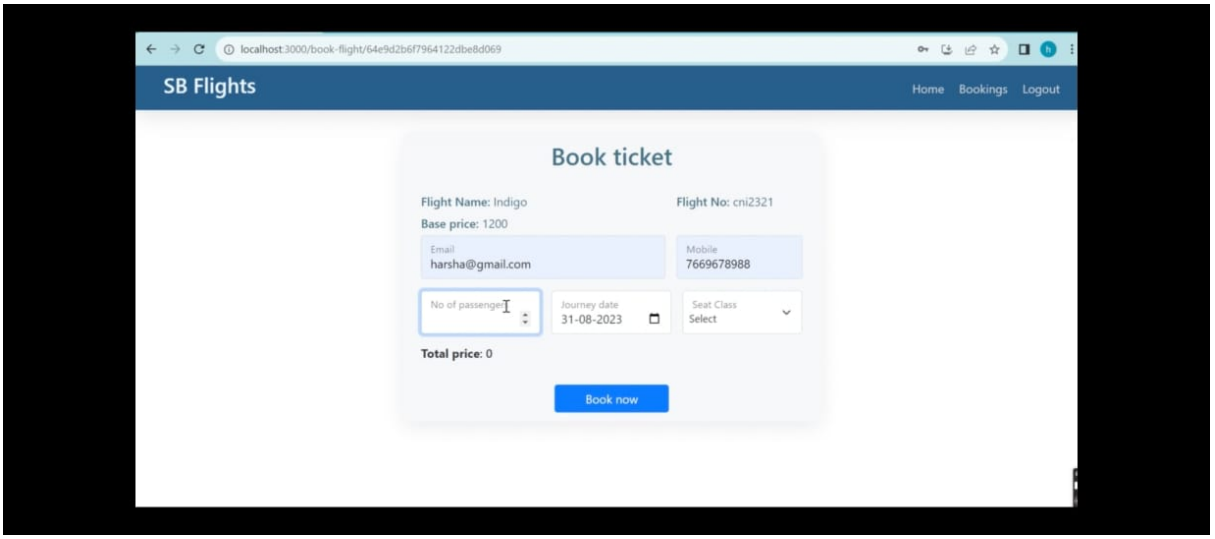
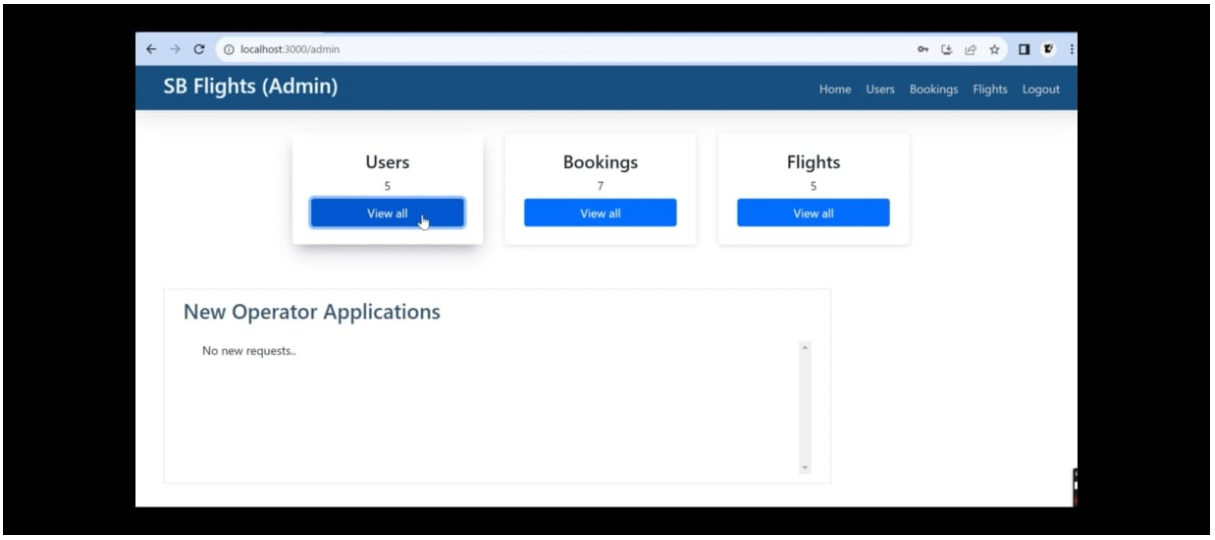
11. Screenshots

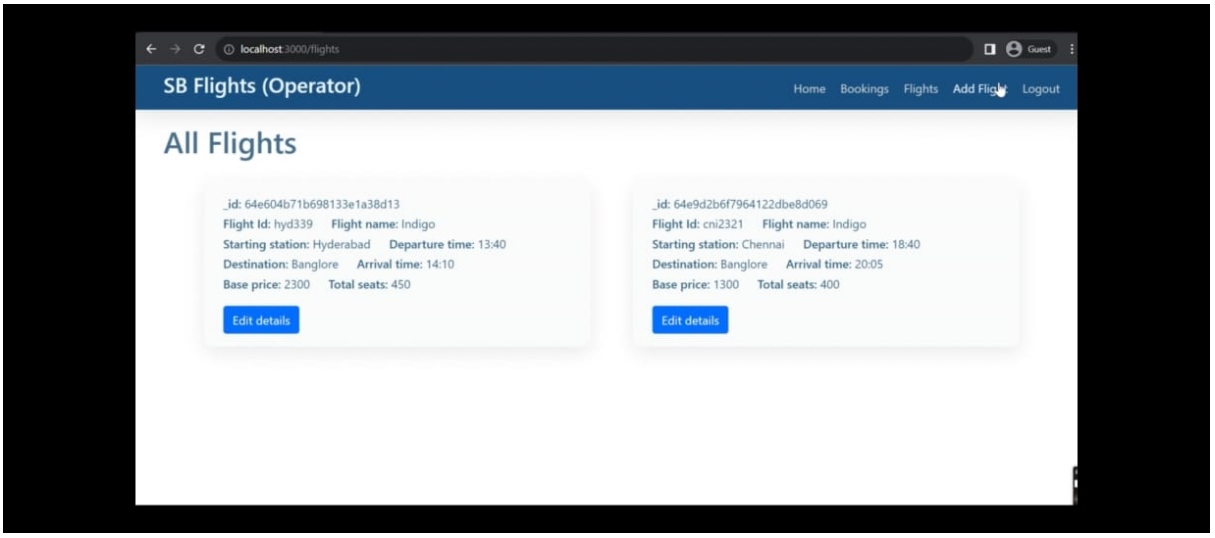



localhost:3000/auth
SB Flights
Home
Login
Login
Email address
Password
Sign in
Not registered? Register


localhost:3000/bookings
SB Flights
Home
Bookings
Logout
Bookings
Booking ID: 64e608bb2c862c07fa865bca
Mobile: 7869868765 Email: simon@gmail.com
Flight Id: hyd239 Flight name: Spicejet
On-boarding: Hyderabad Destination: Banglore
Passengers: Seats: B-1, B-2, B-3
1. Name: Jack, Age: 23
2. Name: Alex, Age: 33
3. Name: John, Age: 43
Booking date: 2023-08-23 Journey date: 2023-08-31
Journey Time: 20:15 Total price: 17100
Booking status: confirmed
Cancel Ticket
Booking ID: 64e607242c862c07fa865b8d
Mobile: 9848022338 Email: shak@gmail.com
Flight Id: hyd339 Flight name: Indigo
On-boarding: Hyderabad Destination: Banglore
Passengers:
1. Name: Jack, Age: 33
Booking date: 2023-08-23 Journey date: 2023-08-31
Journey Time: 13:40 Total price: 6900
Booking status: cancelled


localhost:3000/book-flight/64e9d2b6f7964122dbe8d069
SB Flights
Home
Bookings
Logout
Book ticket
Flight Name: Indigo
Flight No: cni2321
Base price: 1200
Email
harsha@gmail.com
Mobile
7669678988
No of passenger
Journey date
31-08-2023
Seat Class
Select
Total price: 0
Book now





12. Known Issues

- Occasional delay in fetching flights due to network latency.
- Payment gateway integration could be more seamless.

13. Future Enhancements

- Integration with loyalty programs for frequent flyers.
- Real-time flight tracking and updates.
- Support for multi-currency payments.