

Full Stack Development with MERN

Project Documentation

1. Introduction

- Project Title: Flightfinder: Navigating your air travel options

Team Members:

Team Size: 4

Team Leader:

- **Kalepu Meghana**– Full Stack Development (Backend APIs, Database Integration, Project Integration) & Frontend Support & Testing
- **Lammatha Chandini**– Documentation & Presentation Support
- **Katna Lavanya**– Frontend Development (UI Components & Design)
- **Chinthapalli Lallitha**–Project Deployment

2. Project Overview

- **Purpose:**

The purpose of this project is to develop a full-stack web application where users can search flights, book tickets, and view their bookings.

The system also provides an Admin Panel to manage flights and monitor all bookings.

This project demonstrates real-world MERN stack development skills.

- **Features:**

User Features:

- User Registration & Login
- View Available Flights
- Book Flight Tickets
- Select Journey Date
- View My Bookings
- Cancel Booking

Admin Features:

- Admin Login
- Add New Flight
- Edit Flight Details
- Delete Flights
- View All Flights
- View All Bookings

3. Architecture

Frontend (Client – React)

- Built using React.js
- Component-based architecture
- React Router for navigation
- Axios for API calls
- CSS for styling
- Runs on: <http://localhost:3000>

Frontend communicates with backend using REST APIs.

Backend (Server – Node.js + Express)

- Built using Node.js and Express.js
- REST API architecture
- Password hashing using bcrypt
- CORS enabled
- JSON request handling
- Runs on: <http://localhost:6001>

Database (MongoDB)

MongoDB used as NoSQL database.

Collections:

- Users
- Flights
- Bookings

Schemas created using Mongoose.

4. Setup Instructions

- **Prerequisites:**

- Node.js (v16 or above)
- MongoDB (Local or Atlas)
- Postman
- VS Code

Installation:

Step 1: Clone Project

```
git clone <your-repo-link>
```

Step 2: Backend Setup

```
cd server
```

```
npm install
```

```
npm start
```

Backend runs on:

```
http://localhost:6001
```

Step 3: Frontend Setup

```
cd client
```

```
npm install
```

```
npm start
```

Frontend runs on:

```
http://localhost:3000
```

5. Folder Structure

- **Client:**

```
client/
|
|   └── src/
|       |
|       └── components/
|           |
|           └── pages/
|               |
|               └── styles/
|                   |
|                   └── App.js/
|                       |
|                       └── index.js
```

- **Server:**

```
server/
|
|   └── schemas.js
|   └── index.js
|   └── package.js
on
```

6. Running the Application

1. Start MongoDB
2. Start Backend:
 `npm start`
3. Start Frontend:
 `npm start`

Open:

- Frontend → `http://localhost:3000`
- Backend → `http://localhost:6001`

7. API Documentation

- **Authentication:**

Method	Endpoint	Description
POST	/register	Register user
POST	/login	Login user

- **Flights:**

Method	Endpoint
GET	/fetch-flights
POST	/add-flight
PUT	/update-flight/:id
DELETE	/delete-flight/:id

- **Bookings:**

Method	Endpoint
POST	/book-flight
GET	/fetch-bookings/:userId
GET	/all-bookings
DELETE	/cancel-booking/:id

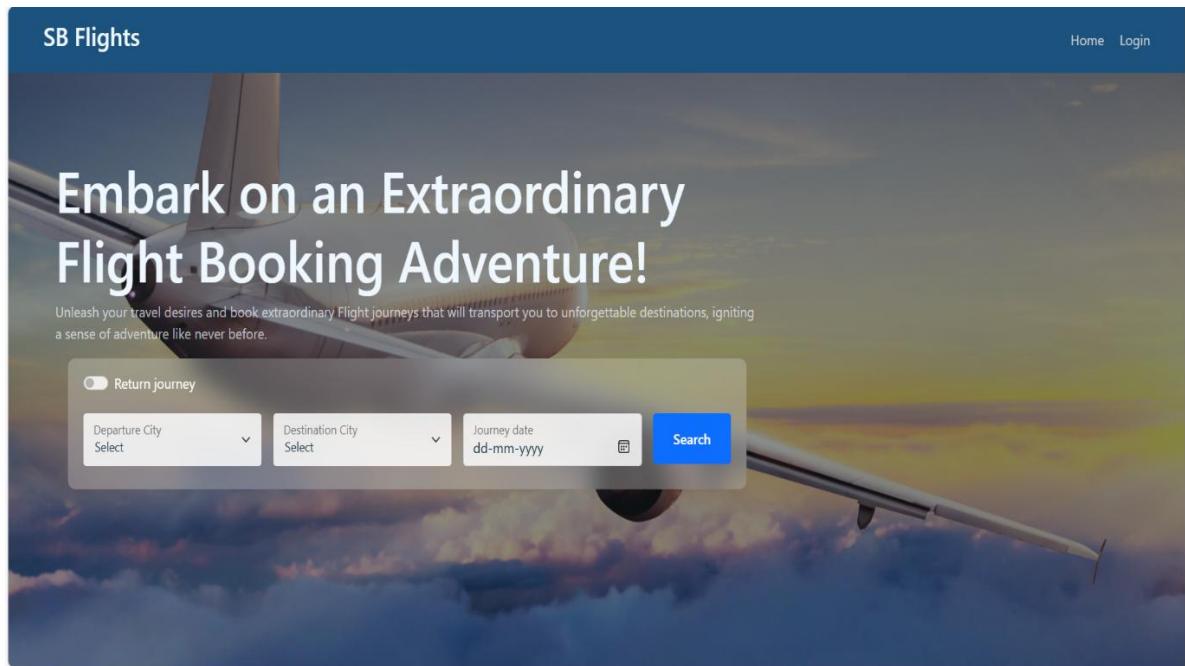
8. Authentication

- Passwords encrypted using bcrypt
- User login validation
- Admin access for flight management
- Session stored in frontend (localStorage)

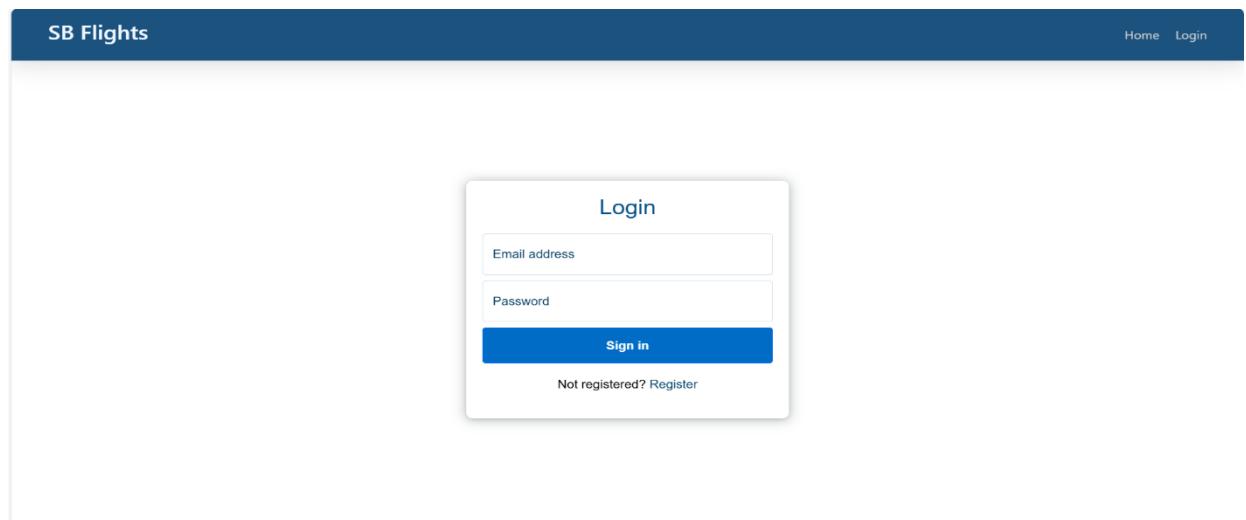
9. User Interface

- The UI includes:

- Home Page



- Login Page



- Registration Page

The screenshot shows a registration form titled "Register". It includes fields for "Username", "Email address", "Password", and "User type" (with a dropdown menu). A "Sign up" button is at the bottom, and a link "Already registered? Login" is below it. The page has a header "SB Flights" and a footer with links "Home", "Login", etc.

- Flights Page

The screenshot displays a list of flights under the heading "All Flights". Each flight entry includes details like Flight Id, Name, From, To, Departure, Arrival, Price, and Seats, followed by an "Edit" button. The flights listed are:

Flight Id: IND106 Name: Indigo 106 From: Hyderabad To: Mumbai Departure: 2:00 PM Arrival: 4:00 PM Price: 5000 Seats: 80	Flight Id: 6241098456777 Name: Name: Dharan From: Bangalore To: Hyderabad Departure: 18:22 Arrival: 18:25 Price: 6500 Seats: 100
Flight Id: 6241098456777 Name: Dharan From: Bangalore To: Hyderabad Departure: 20:53 Arrival: 22:50 Price: 800 Seats: 5	Flight Id: 61209200429 Name: Dharan From: Mumbai To: Varanasi Departure: 11:11 Arrival: 20:00 Price: 1000 Seats: 12
Flight Id: AI303 Name: Air India 303	Flight Id: IND101 Name: Indigo

- My Bookings page

The screenshot shows the "My Bookings" page with a list of five flight bookings. Each booking includes details like Booking ID, From, To, Journey Date, Total Price, Status, and a "Cancel Ticket" button. The bookings are:

Booking ID: 699185f493142c10d2968fe8 Mobile: 9876543210 Email: user@test.com Flight ID: 690c465a96c2601a5bb1ff46 Flight Name: IndiGo 6E 234	From: Hyderabad To: Delhi Journey Date: 2026-02-20 Total Price: ₹5000 Status: confirmed	Booking ID: 6991899093142c10d2969323 Mobile: 9876543210 Email: user@test.com Flight ID: 698c465a96c2601a5bb1ff46 Flight Name: Air India AI 202	From: Chennai To: Mumbai Journey Date: 2026-02-22 Total Price: ₹6500 Status: confirmed
Booking ID: 699189b793142c10d296932c Mobile: 9876543210 Email: user@test.com Flight ID: 698c465a96c2601a5bb1ff46 Flight Name: IndiGo 6E 450	From: Bangalore To: Kolkata Journey Date: 2026-02-25 Total Price: ₹9000 Status: confirmed	Booking ID: 699189f693142c10d296933a Mobile: 9876543210 Email: user@test.com Flight ID: 698c465a96c2601a5bb1ff46 Flight Name: SpiceJet SG 305	From: Hyderabad To: Pune Journey Date: 2026-02-28 Total Price: ₹4200 Status: confirmed
Booking ID: 699189a1a93142c10d2969349 Mobile: 9876543210	From: Delhi To: Bangalore		

- Admin Dashboard

SB Flights (Admin)

Dashboard Manage Flights All Bookings Admin: Meghana Logout

Users 4 [View all](#)

Bookings 14 [View all](#)

Flights 7 [View all](#)

New Operator Applications

No new requests..

- Flight Management Page

SB Flights (Operator)

Home Bookings Flights Add Flight Logout

Bookings 9 [View all](#)

Flights 5 [View all](#)

New Flight
(Add new route) [Add now](#)

- All Bookings Page

SB Flights (Admin)

Home Users Bookings Flights Logout

Bookings

<p>Booking ID: 698ee9fa19906dbc2277ed13 Mobile: 7777777777 Email: test5@gmail.com Flight Id: FL010 Flight Name: SpiceJet From: Bangalore To: Kolkata Journey Date: 2026-07-05 Total Price: 9200 Status: confirmed</p> <p>Cancel Ticket</p>	<p>Booking ID: 698ee9bc19906dbc2277ed03 Mobile: 6666666666 Email: test4@gmail.com Flight Id: FL005 Flight Name: Air India From: Chennai To: Mumbai Journey Date: 2026-06-10 Total Price: 7500 Status: confirmed</p> <p>Cancel Ticket</p>
<p>Booking ID: 698ee97819906dbc2277ecf5 Mobile: 7777777777 Email: test3@gmail.com Flight Id: FL003 Flight Name: SpiceJet</p>	<p>Booking ID: 698ed04619906dbc2277ec94 Mobile: 8888888888 Email: test2@gmail.com Flight Id: FL002 Flight Name: Air India</p>

10. Testing

- Manual testing performed for all APIs

Verified:

- Registration
- Login
- Add Flight
- View Bookings
- Admin Operations

Tested using:

Browser

Postman

11. Screenshots or Demo

- **Demo Video Link:**

https://drive.google.com/file/d/1th_KxS7WttrEmU9li1qHkCqACSJDd_4J/view?usp=drive_link

Screenshots included in documentation.

12. Known Issues

- No payment integration
- No email notifications
- Basic admin authentication
- UI responsiveness can be improved

13. Future Enhancements

- Payment Gateway (Razorpay/Stripe)
- Email Ticket Confirmation
- Flight Search Filters

- Seat Selection
- Role-based Authentication (JWT)
- Deployment on Render / AWS