

# Full Stack Development with MERN

## Project Documentation

### Project Title: FlightFinder - Online Flight Booking System

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## 1. Introduction

FlightFinder is a web-based Flight Booking System developed using the MERN stack (MongoDB, Express.js, React.js, Node.js). The application provides a seamless and secure platform for users to search, compare, book, and manage flights efficiently. It ensures data security through JWT authentication and role-based access control.

## 2. Project Overview

FlightFinder allows users to register, log in, search flights based on departure, destination, travel date, and class type. Users can book flights, view booking history, and cancel reservations if needed. The system also includes an admin dashboard to manage flight listings, monitor bookings, and track revenue.

## 3. Setup Instructions

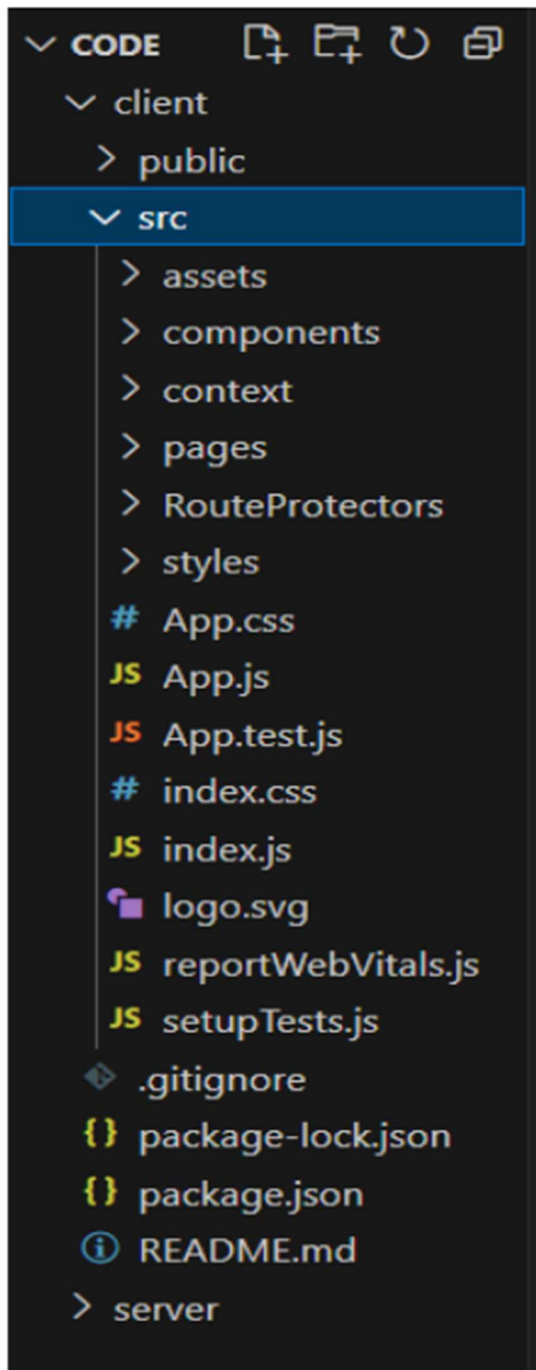
1. Clone the repository from GitHub.
2. Navigate to the project directory.
3. Install dependencies using `npm install`.
4. Configure environment variables (`MONGO_URI`, `JWT_SECRET`).
5. Start backend using `npm run dev`.
6. Start frontend using `npm start`.
7. Open `http://localhost:3000` in browser.

## 4. Folder Structure

Client Folder: Contains `src`, `components`, `pages`, `services`, `App.js`, and routing files.

Server Folder: Contains `models`, `routes`, `controllers`, `middleware`, `config`, and `server.js`.

**The below is the folder structure**



## 5. API Documentation

- POST /api/register - Register user
- POST /api/login - Login user
- GET /api/flights - Get all flights

- POST /api/flights - Add flight (Admin)
- PUT /api/flights/:id - Update flight (Admin)
- DELETE /api/flights/:id - Delete flight (Admin)
- POST /api/bookings - Create booking
- GET /api/bookings - Get user bookings
- PUT /api/bookings/:id - Cancel booking

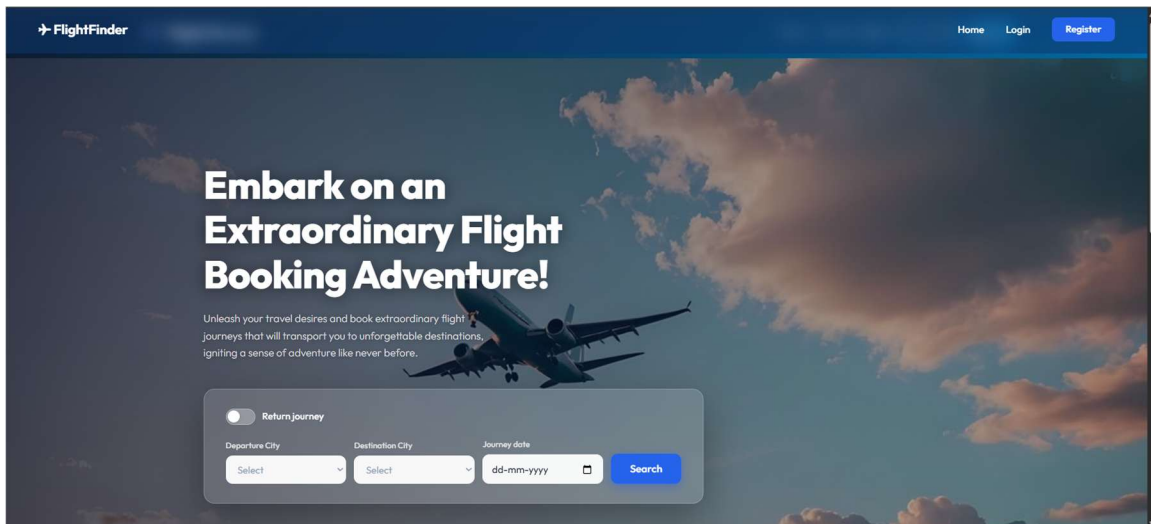
## 6. Authentication

Authentication is implemented using JWT tokens. User passwords are encrypted using bcrypt before storing in MongoDB. Role-based middleware ensures that only authorized users can access protected routes.

## 7. Testing

API testing was performed using Postman. Functional testing included registration, login, flight search, booking creation, cancellation, and admin flight management. Performance testing was conducted to verify response time and database efficiency.

## 8. Screenshots / Demo



### 1.Home Page

FlightFinder

HomeSearch FlightsLoginRegister

Create Account

Join FlightFinder today

Full Name

John Doe

Email

you@example.com

Phone (optional)

+1 555 000 0000

Password

Min 6 characters

Register

Already have an account? [Login](#)

## 2.Registration Page

FlightFinder

HomeSearch FlightsLoginRegister

Welcome Back

Login to your FlightFinder account

Email

you@example.com

Password

\*\*\*\*\*

Login

Demo Admin: [admin@tf.com](#) / [admin123](#)

No account? [Register here](#)

## 3.Login Page

✈️ FlightFinder

HomeSearch FlightsMy Bookings🔔 Lavanya SodimellaLogout

✈️ Search Flights

From

Hyderabad

To

Chennai

Date

dd-mm-yyyy

📅

Class

Economy

▼

Search

Emirates

F707

1 Stop

12:00

Hyderabad

Duration: 3h - 2026-02-27

15:00

Chennai

Available (economy)

97 seats left

\$50

per person

Book Now

## 4.Search Flights

✈️ FlightFinder

HomeSearch FlightsMy Bookings🔔 Lavanya SodimellaLogout

📅 My Bookings

2 bookings found

FF03589786

confirmed

paid

✈️

Hyderabad → Chennai

Emirates - F707 - 2026-02-27

12:00 → 15:00

Passengers

Lavanya (Age 25)

Class: economy - 1 seat

\$50

Total paid

Cancel Booking

FF68371738

cancelled

refunded

✈️

New York → London

FlightFinder Air - FF101 - 2025-04-10

08:00 → 20:00

Passengers

Lavanya Sodimella (Age 30)

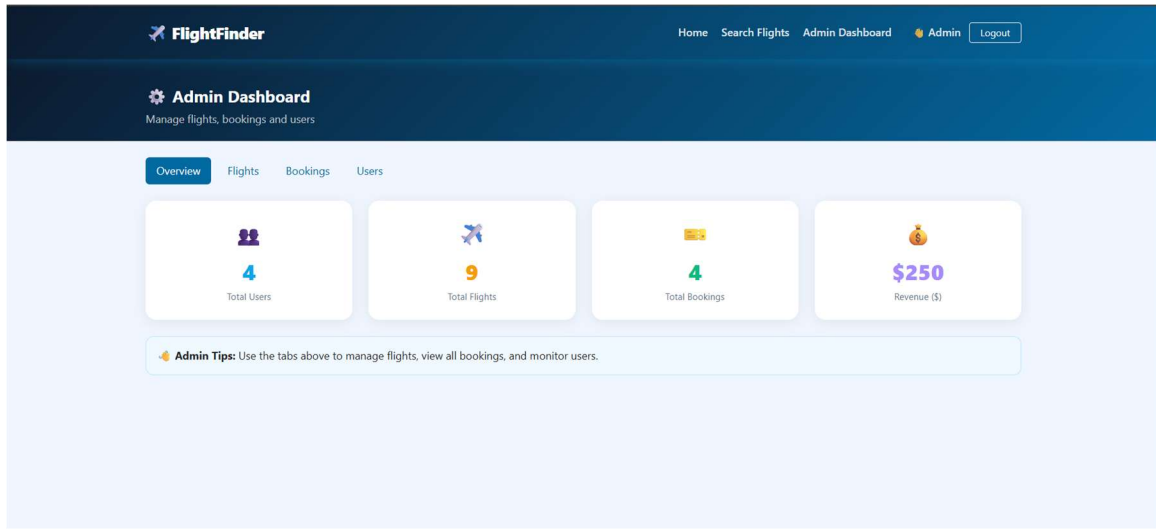
Class: economy - 1 seat

\$499

Total paid

## 5.My Bookings





## 6.Admin Dashboard

Admin Dashboard

Manage flights, bookings and users

Overview

Flights

Bookings

Users

All Flights (9)

+ Add Flight

Flight	Route	Date	Price (Eco/Biz)	Seats	Actions
F1101 Emirates	Hong Kong → Pune 1 Stop	2026-02-25	\$210 / \$270	Eco: 84   Biz: 20	<a href="#">Edit</a> <a href="#">Delete</a>
F1001 IndiGo	Benguluru → Shimla Direct	2026-03-06	\$140 / \$200	Eco: 50   Biz: 20	<a href="#">Edit</a> <a href="#">Delete</a>
F707 Emirates	Hyderabad → Chennai 1 Stop	2026-02-27	\$50 / \$120	Eco: 97   Biz: 20	<a href="#">Edit</a> <a href="#">Delete</a>
FF101 FlightFinder Air	New York → London Direct	2025-04-10	\$499 / \$1200	Eco: 100   Biz: 20	<a href="#">Edit</a> <a href="#">Delete</a>
FF202 Sky Wings	New York → Paris Direct	2025-04-10	\$520 / \$1350	Eco: 120   Biz: 24	<a href="#">Edit</a> <a href="#">Delete</a>
FF303 Emirates	Dubai → Singapore Direct	2025-04-15	\$320 / \$850	Eco: 200   Biz: 40	<a href="#">Edit</a> <a href="#">Delete</a>
FF404 IndiGo	Mumbai → Delhi Direct	2025-04-12	\$80 / \$200	Eco: 180   Biz: 20	<a href="#">Edit</a> <a href="#">Delete</a>
FF505	London → New York	2025-04-20	\$580 / \$1500	Eco: 150   Biz: 30	<a href="#">Edit</a> <a href="#">Delete</a>

## 7.Admin Managing Flights

Admin Dashboard

Manage flights, bookings and users

Overview

Flights

Bookings

Users

All Flights (9)

X Close

Edit Flight

Flight Number

F1101

To (City)

Pune

Date

25-02-2026

Economy Price (\$)

210

Update Flight

Cancel

Airline

Emirates

Departure Time

13:00

Duration (e.g. 7h 30m)

5h 50m

Business Price (\$)

270

From (City)

Hong Kong

Arrival Time

17:50

Stops

1 Stop

Economy Seats

84

## 8.Admin Adding Flights

FlightFinder

Home

Search Flights

Admin Dashboard

Admin

Logout

Admin Dashboard

Manage flights, bookings and users

Overview

Flights

Bookings

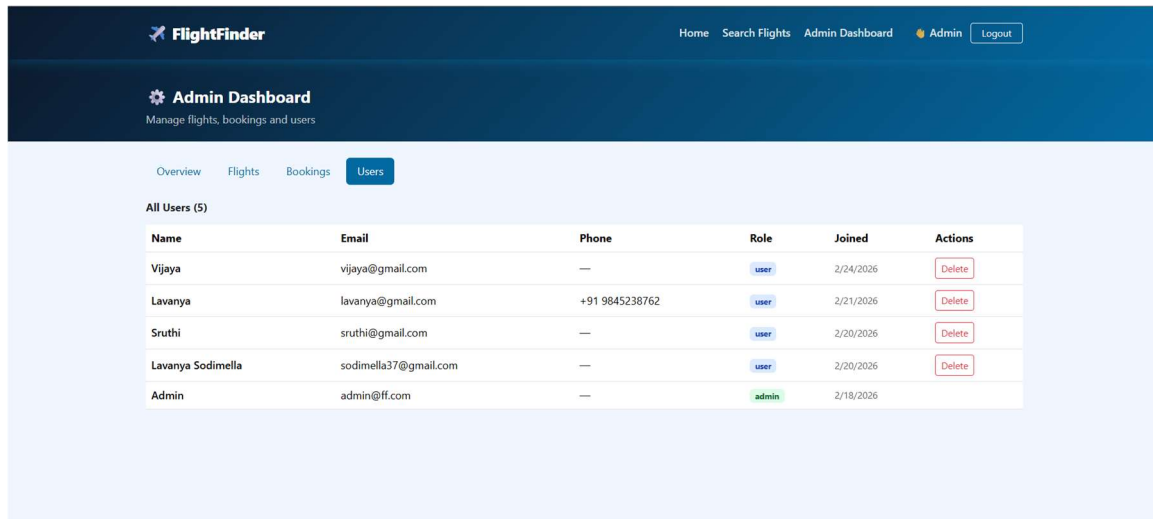
Users

All Bookings (4)

Ref	User	Flight	Class	Seats	Total	Status
FF03589786	Lavanya Sodimella sodimella37@gmail.com	Hyderabad -- Chennai 2026-02-27	Economy	1	\$50	confirmed
FF03450982	Vijaya vijaya@gmail.com	Hyderabad -- Chennai 2026-02-27	Economy	2	\$100	confirmed
FF61996351	Sruthi sruthi@gmail.com	Hyderabad -- Chennai 2026-02-27	Economy	2	\$100	confirmed
FF60371730	Lavanya Sodimella sodimella37@gmail.com	New York -- London 2025-04-10	Economy	1	\$499	cancelled

## 9.Admin Managing Bookings





## 10.Admin Managing Users

### 9. Known Issues

No real payment gateway integration.

Limited advanced filtering options.

UI responsiveness can be improved for smaller screens.

### 10. Future Enhancements

- Real payment gateway integration (Razorpay/Stripe).
- Live airline API integration.
- Seat selection interface.
- Email notifications for booking confirmation.
- Mobile application development.
- AI-based flight recommendations.