

Full Stack Development with MERN

Project Documentation

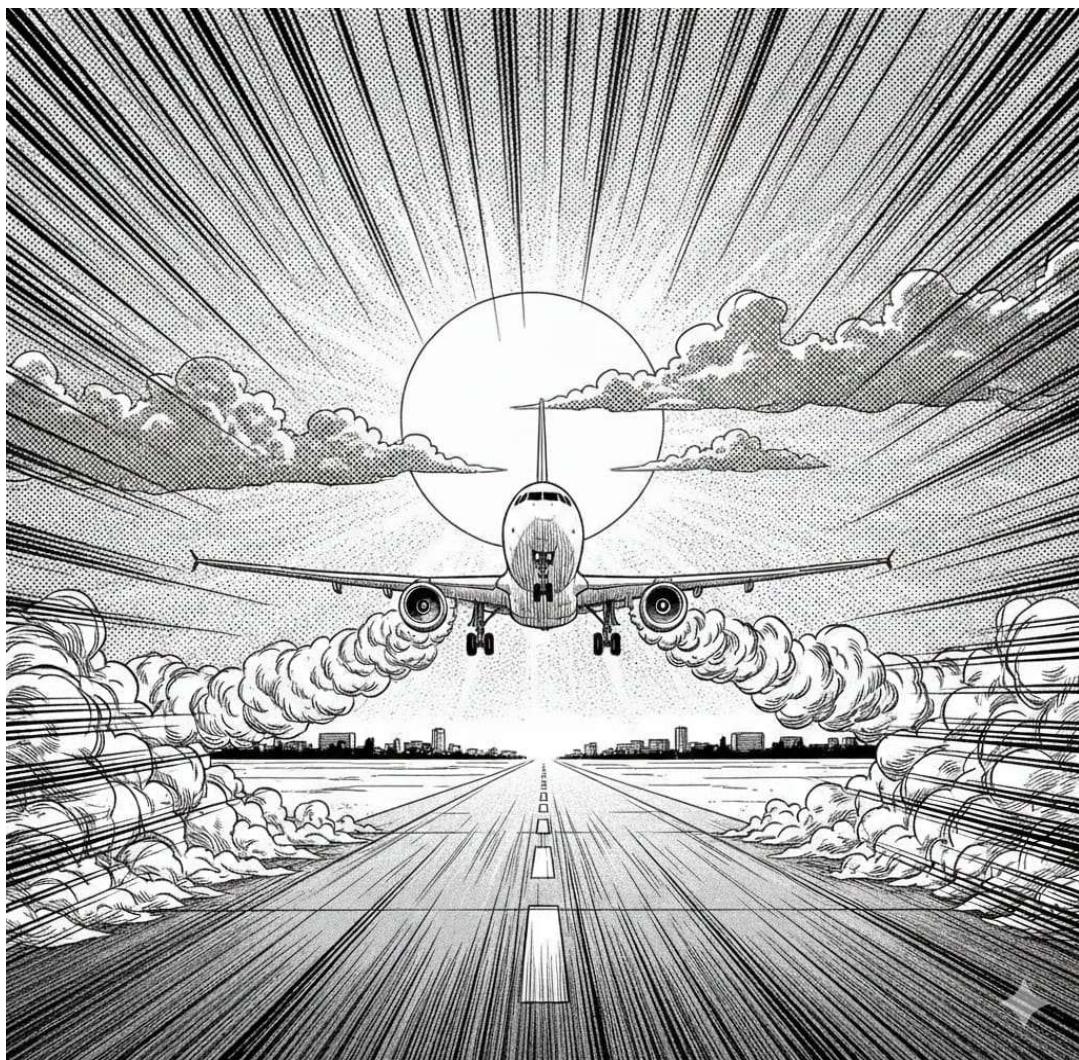
Project Title: FlightFinder - Online Flight Booking System

Team Leader: Sodimella Lavanya

Team Member: Gowtham Maharshi Penumarthy

Team Member: Gopi Pradeep Kumar Y

Team Member: Jalla Padmasri



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

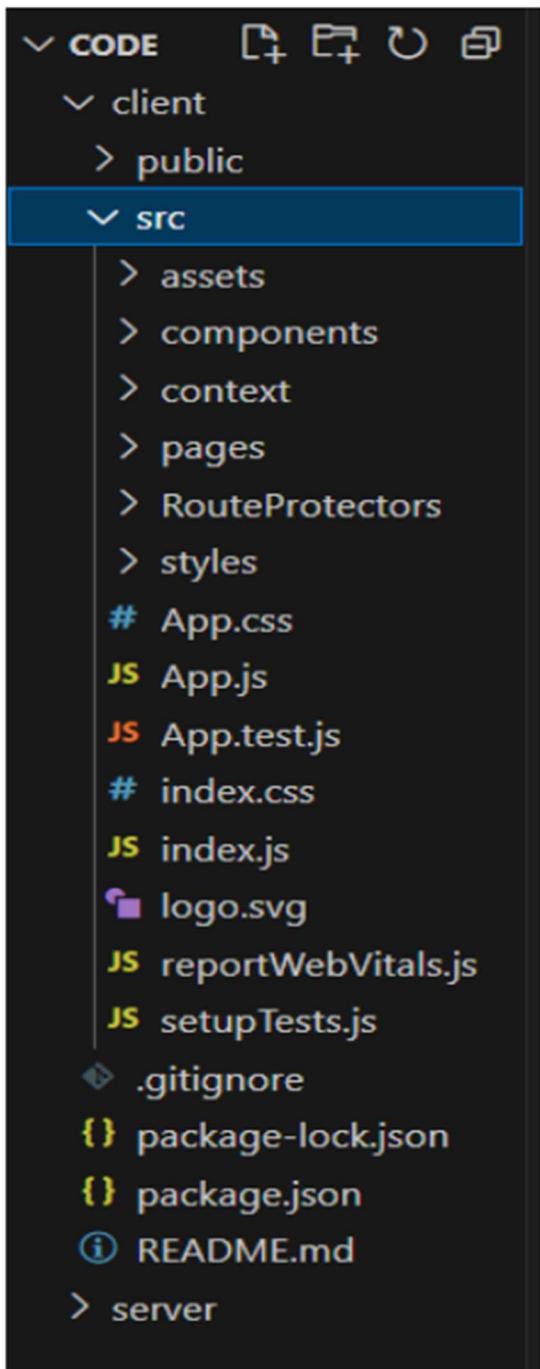
1. Clone the repository from GitHub.
2. Navigate to the project directory.
3. Install dependencies using npm install.
4. Configure environment variables (MONGO_URI, JWT_SECRET).
5. Start backend using npm run dev.
6. Start frontend using npm start.
7. Open <http://localhost:3000> in browser.

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

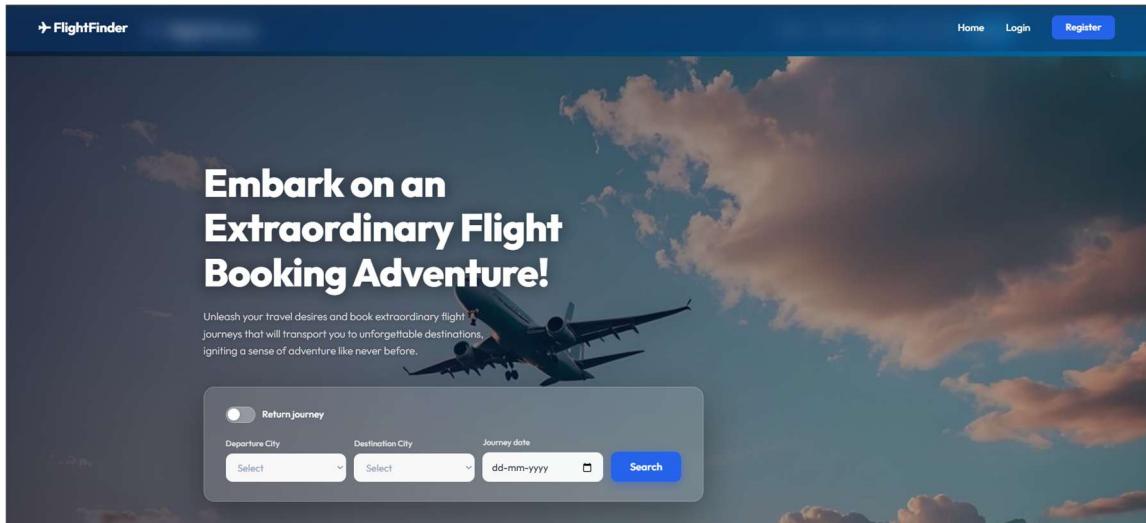
6. Authentication

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.

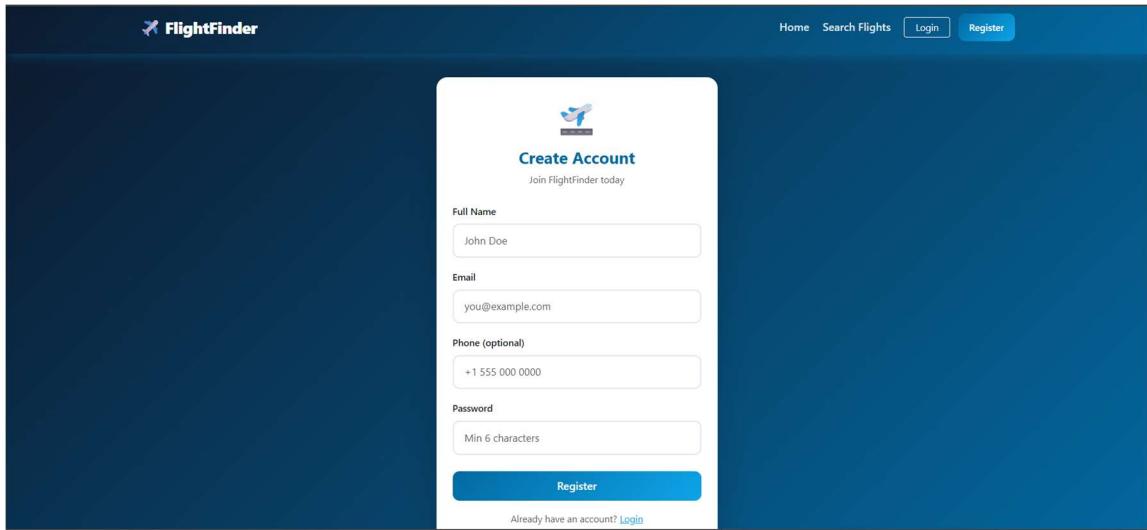
7. Testing

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

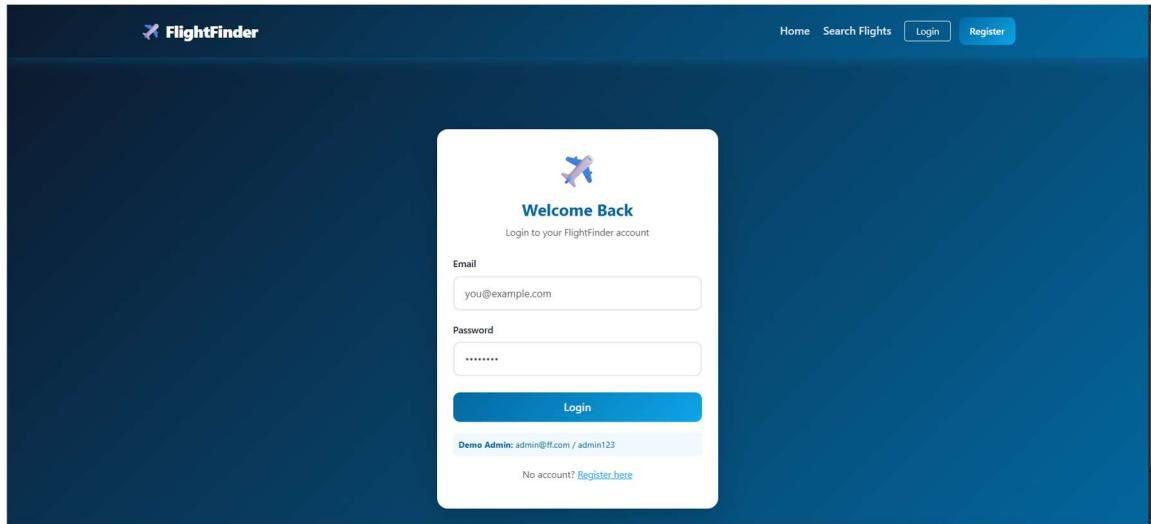


1. Home Page



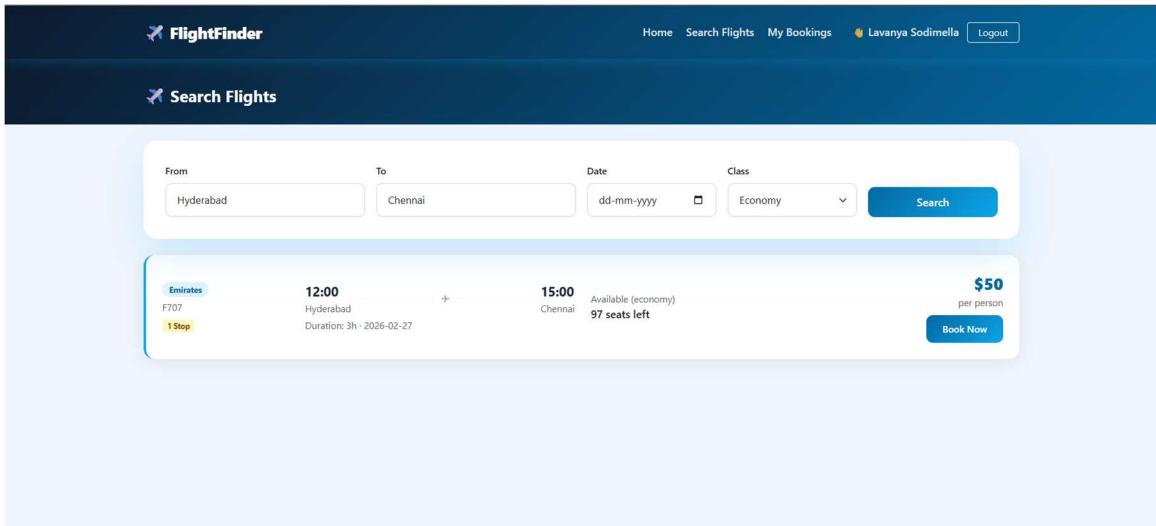
The screenshot shows the 'Create Account' page of the FlightFinder website. At the top, there's a logo for 'FlightFinder' with a small airplane icon. To the right of the logo are links for 'Home', 'Search Flights', 'Login' (which is highlighted in blue), and 'Register'. Below these links is a large white rectangular form for account creation. The form has a header 'Create Account' with a small airplane icon next to it, followed by the sub-instruction 'Join FlightFinder today'. It contains four input fields: 'Full Name' (with 'John Doe' typed in), 'Email' (with 'you@example.com' typed in), 'Phone (optional)' (with '+1 555 000 0000' typed in), and 'Password' (with 'Min 6 characters' placeholder text). At the bottom of the form is a blue 'Register' button. Below the button, a small note says 'Already have an account? [Login](#)'.

2. Registration Page



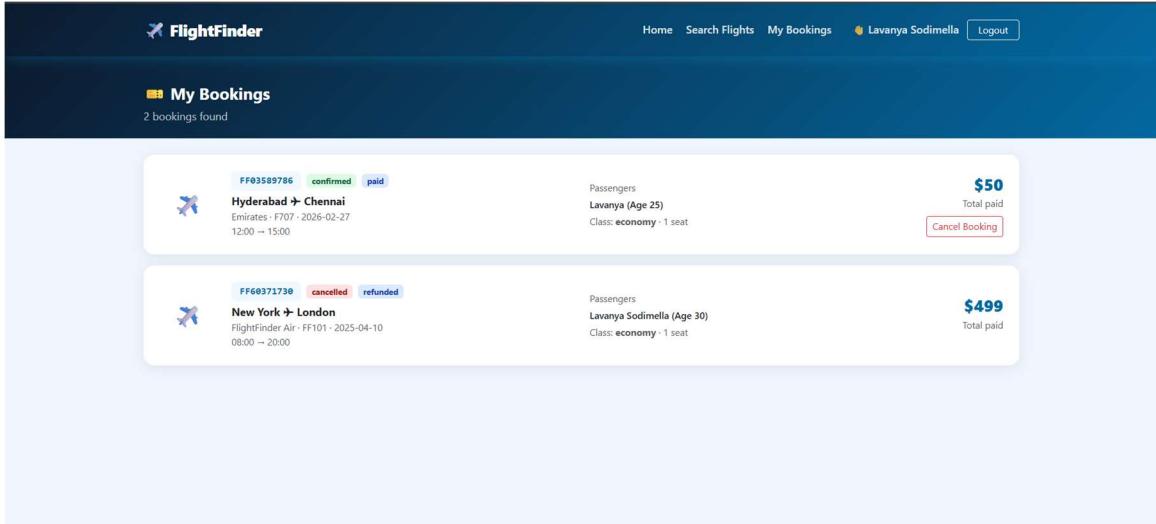
The screenshot shows the 'Welcome Back' login page of the FlightFinder website. At the top, there's a logo for 'FlightFinder' with a small airplane icon. To the right of the logo are links for 'Home', 'Search Flights', 'Login' (which is highlighted in blue), and 'Register'. Below these links is a large white rectangular form for logging in. The form has a header 'Welcome Back' with a small airplane icon next to it, followed by the sub-instruction 'Login to your FlightFinder account'. It contains two input fields: 'Email' (with 'you@example.com' typed in) and 'Password' (with a redacted password placeholder). At the bottom of the form is a blue 'Login' button. Below the button, a small note says 'Demo Admin: admin@ff.com / admin123' and 'No account? [Register here](#)'.

3. Login Page



The screenshot shows the FlightFinder search interface. At the top, there's a header with the FlightFinder logo, navigation links (Home, Search Flights, My Bookings), a user profile (Lavanya Sodimella), and a Logout button. Below the header is a search bar with fields for 'From' (Hyderabad), 'To' (Chennai), 'Date' (dd-mm-yyyy), 'Class' (Economy), and a 'Search' button. Underneath the search bar is a flight summary card. The card displays flight details: Emirates F707, 1 Stop, departure at 12:00 from Hyderabad, arrival at 15:00 in Chennai, duration of 3h, and 97 seats left. It also shows the price of \$50 per person and a 'Book Now' button.

4. Search Flights



The screenshot shows the FlightFinder 'My Bookings' page. The header is identical to the search page. Below it, a section titled 'My Bookings' shows '2 bookings found'. There are two booking cards. The first booking, 'FF03589786', is marked as 'confirmed' and 'paid'. It details a flight from Hyderabad to Chennai on Emirates F707 on 2026-02-27, with a total price of \$50. The second booking, 'FF60371730', is marked as 'cancelled' and 'refunded'. It details a flight from New York to London on FlightFinder Air on 2025-04-10, with a total price of \$499.

5. My Bookings

The screenshot shows the Admin Dashboard of FlightFinder. At the top, there's a navigation bar with links for Home, Search Flights, Admin Dashboard, Admin (with a dropdown), and Logout. Below the navigation is a header titled "Admin Dashboard" with a subtitle "Manage flights, bookings and users". A sub-header "Admin Tips" suggests using tabs to manage flights, view bookings, and monitor users. The main area features four cards: "Total Users" (4), "Total Flights" (9), "Total Bookings" (4), and "Revenue (\$)" (\$250). Below these cards is a tip: "Admin Tips: Use the tabs above to manage flights, view all bookings, and monitor users."

6.Admin Dashboard

The screenshot shows the Flights section of the Admin Dashboard. It includes a header "All Flights (9)" and a "Add Flight" button. Below is a table with columns: Flight, Route, Date, Price (Eco/Biz), Seats, and Actions (Edit and Delete buttons). The table lists nine flights from various airlines and routes, such as F1101 from Emirates, F1001 from IndiGO, and FF101 from FlightFinder Air.

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

7.Admin Managing Flights

Admin Dashboard
Manage flights, bookings and users

Overview Flights Bookings Users

All Flights (9) X Close

Edit Flight

Flight Number	Airline	From (City)
F1101	Emirates	Hong Kong
To (City)	Departure Time	Arrival Time
Pune	13:00	17:50
Date	Duration (e.g. 7h 30m)	Stops
25-02-2026	5h 50m	1 Stop
Economy Price (\$)	Business Price (\$)	Economy Seats
210	270	84

Update Flight **Cancel**

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

The screenshot shows the FlightFinder Admin Dashboard. At the top, there is a navigation bar with links for Home, Search Flights, Admin Dashboard, Admin (with a user icon), and Logout. Below the navigation bar, the title "Admin Dashboard" is displayed with a gear icon, followed by the subtitle "Manage flights, bookings and users". There are four tabs at the top of the main content area: Overview, Flights, Bookings, and Users, with "Users" being the active tab. A table titled "All Users (5)" lists five users with columns for Name, Email, Phone, Role, Joined, and Actions. The users are:

Name	Email	Phone	Role	Joined	Actions
Vijaya	vijaya@gmail.com	—	User	2/24/2026	<button>Delete</button>
Lavanya	lavanya@gmail.com	+91 9845238762	User	2/21/2026	<button>Delete</button>
Sruthi	sruthi@gmail.com	—	User	2/20/2026	<button>Delete</button>
Lavanya Sodimella	sodimella37@gmail.com	—	User	2/20/2026	<button>Delete</button>
Admin	admin@ff.com	—	Admin	2/18/2026	<button>Delete</button>

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.