Project Report: FlightFinder – Navigating Your Air Travel Options

1. INTRODUCTION

1.1 Project Overview
FlightFinder is a web-based flight booking system that helps users search, compare, and book flights conveniently. It provides real-time flight details, a smooth booking process, and user account management, along with an admin panel to manage flight data.

1.2 Purpose
The purpose of FlightFinder is to simplify air travel booking by bringing all airline and route options onto a single, easy-to-use platform, saving time and improving the booking experience for travelers.

2. IDEATION PHASE

2.1 Problem Statement
Travelers struggle with multiple airline sites, hidden charges, and confusing booking flows. Existing systems lack transparency and ease of use. FlightFinder aims to solve this by providing a unified, user-friendly solution for air travel booking.

2.2 Empathy Map Canvas

Who are the users?: Frequent travelers, students, business professionals, tourists.

What do they think and feel?: Want hassle-free booking, reliable info, transparent prices.

What do they say and do?: Compare prices on different sites, check multiple sources for best deals.

What do they hear?: Recommendations from friends, online reviews.

Pain Points: Wasting time on multiple sites, fear of hidden charges, booking errors.

Gain: A smooth, trustworthy platform for booking flights easily.

2.3 Brainstorming
Ideas generated include:

1.Integrating multiple airlines

2.Providing filters for routes, dates, and fare range

3.Booking confirmation and e-ticket generation

4.Admin panel for managing flights

5.Possible add-ons: fare prediction, personalized offers.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

1. User visits website

2. Registers/Logs in

3. Searches flights by source, destination, and date

4. Views available options

5. Compares fares

6. Books a flight

7. Receives booking confirmation

8. Admin manages flight data in backend

3.2 Solution Requirement

Functional:

User login/registration

Flight search & filter

Booking module

Booking history

Admin module to manage flights

Non-Functional:

Secure login

Fast response time

User-friendly UI

Scalable backend

3.3 Data Flow Diagram

Level 0: User → Frontend → Backend API → Database

Level 1: User requests → Search Flights → Display Options → Booking → Update DB → Confirmation

3.4 Technology Stack

Frontend: HTML, CSS, JavaScript (React.js optional)

Backend: Node.js, Express.js

Database: MongoDB

Tools: GitHub, Postman

4. PROJECT DESIGN

4.1 Problem Solution Fit

The proposed system addresses the problem by combining real-time search, simple booking, and admin management into a single application.

4.2 Proposed Solution

A responsive web app where users can search flights, compare prices, and book tickets easily. Admins can update flights, check bookings, and manage system data.

4.3 Solution Architecture

User Interface: Frontend with search and booking forms.

Backend: Node.js REST API.

Database: MongoDB for storing flights, users, bookings.

Admin Panel: Secured routes for CRUD operations.

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5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Week 1: Requirement gathering & wireframe design

Week 2: Frontend development

Week 3: Backend API & database integration

Week 4: Testing & bug fixing

Week 5: UAT & final deployment

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Load tested for multiple concurrent users searching flights.

Average search response time: < 3 seconds.

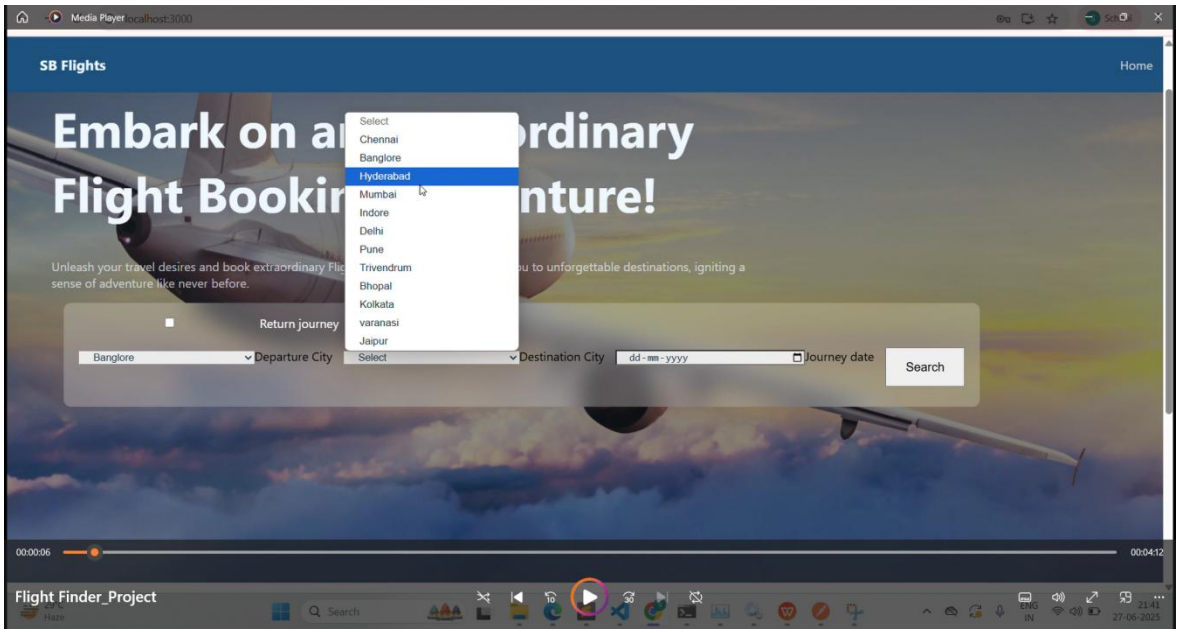
Booking response time: < 2 seconds.

Admin CRUD operations tested for accuracy.

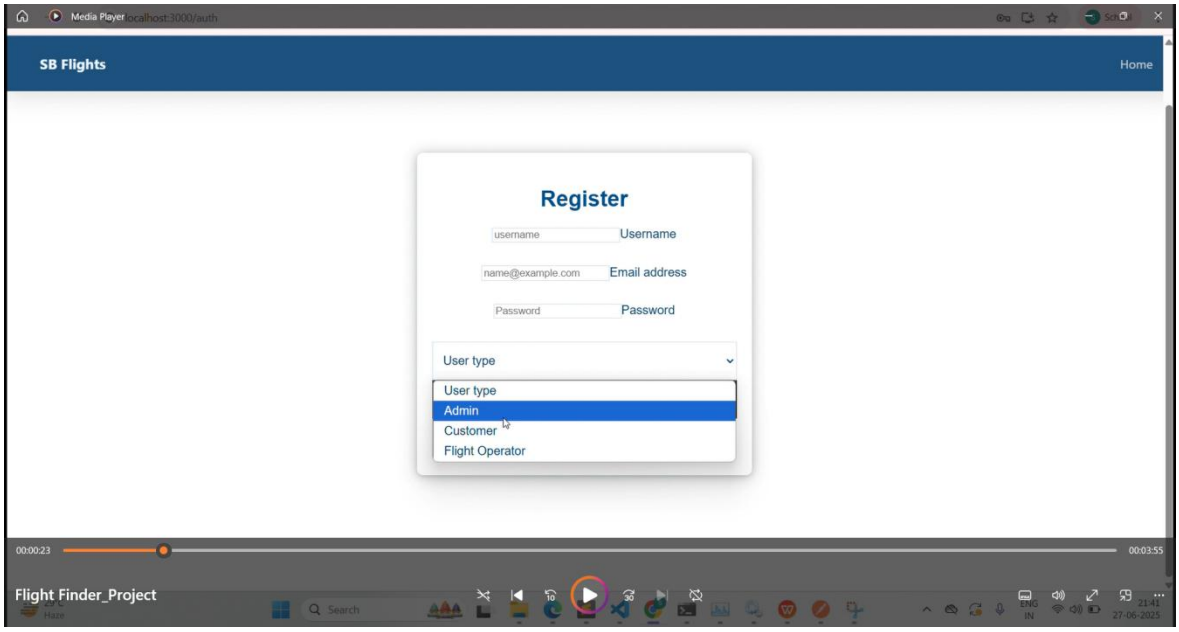
7. RESULTS

7.1 Output Screenshots

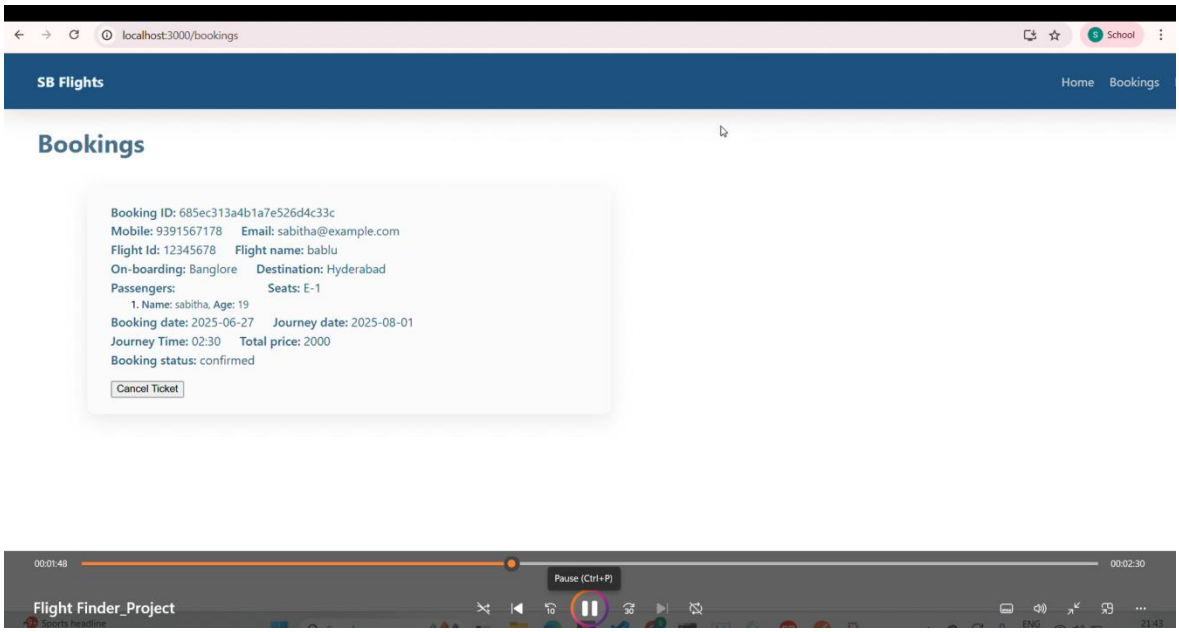
Home page with flight search



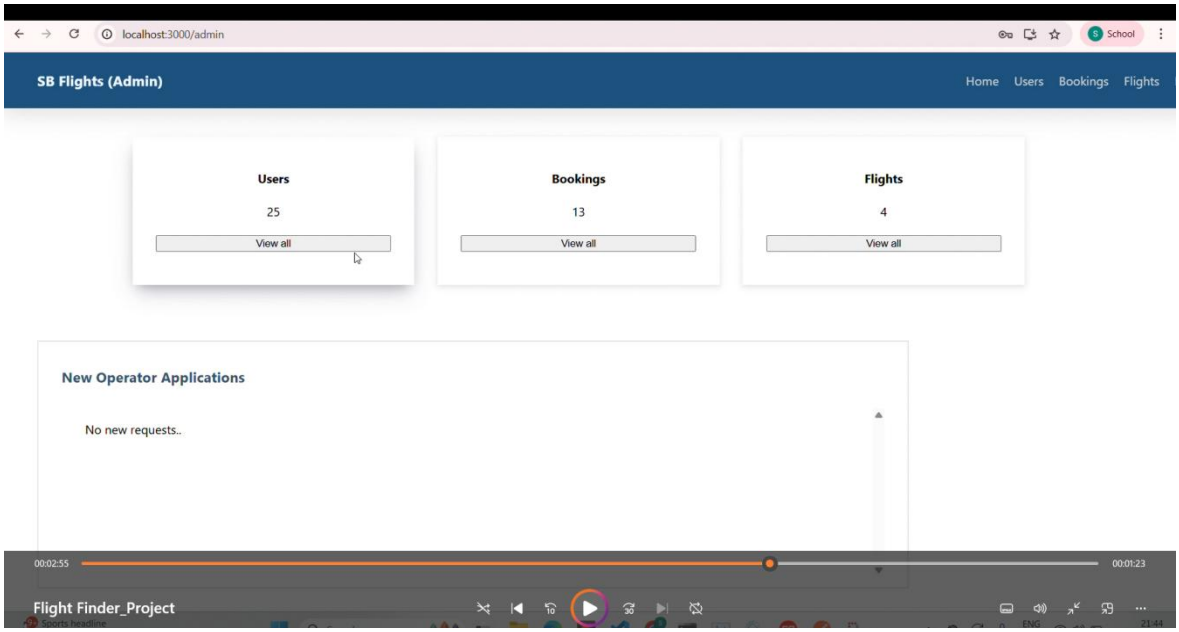
Login/Registration page

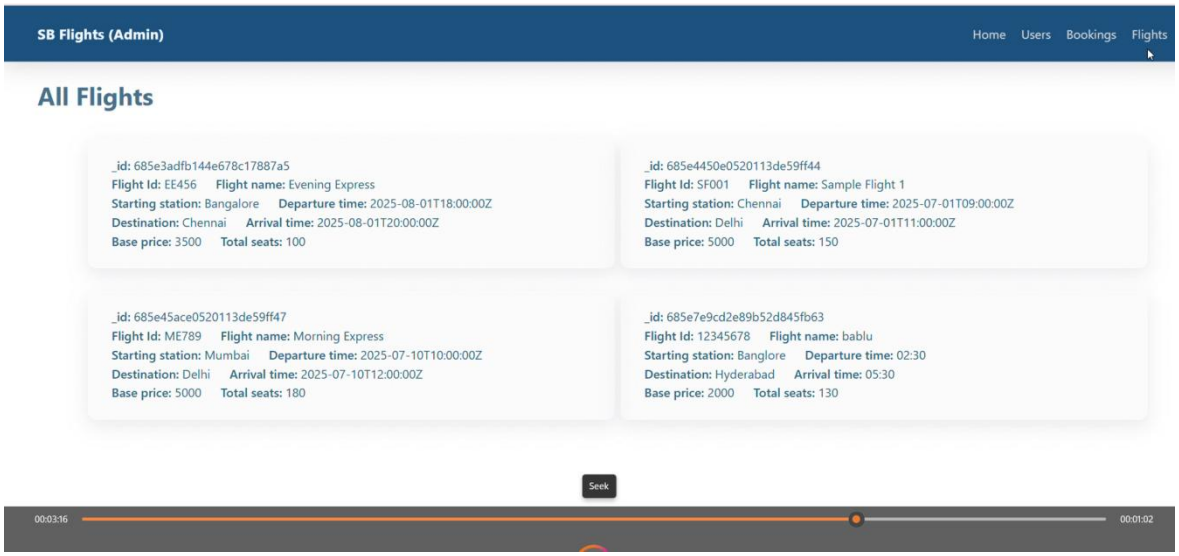


Booking confirmation page



Admin dashboard page





8. ADVANTAGES & DISADVANTAGES

Advantages:

1.Easy-to-use interface

2.Real-time flight data

3.Saves time for users

4.Secure booking flow

Disadvantages:

1.Requires reliable internet connection

2.Initial data sourcing may depend on airline APIs

9. CONCLUSION

FlightFinder simplifies air travel booking by providing a one-stop solution. The project is easy to use, scalable, and solves real user pain points by streamlining flight search, booking, and management.

10. FUTURE SCOPE

1.Fare prediction using ML

2.Personalized flight recommendations

3.Hotel & cab integration

4. Mobile app version

11. APPENDIX

GitHub Link: https://github.com/geetharani543/Flight-finder-navigating-your-air-travel-options

Project Demo link:
https://drive.google.com/file/d/1RJUFcKnNVVnpVJlMKfrVomsI08Um2t4a/view?usp=sharing