Project Report On

AirUdan Online Ticket Booking Webapp

Submitted in partial fulfillment for the award of

Post Graduate Diploma in Advanced Computing

from

C-DAC ACTS (Pune)

Guided by

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Centre of Development of Advanced Computing (C-DAC), Pune

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that

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have successfully completed their project titled

"AirUdan Online Ticket Booking Webapp"

Under the Guidance of Mr. Pratik Dhole

Project Guide **HOD ACTS**

ACKNOWLEDGEMENT

This project **"AirUdan Online Ticket Booking Webapp"** was a great learning experience for us and we are submitting this work to Advanced Computing Training School (CDAC ACTS).

We all are very glad to mention the name of **Mr. Pratik Dhole** for his valuable guidance to work on this project. His guidance and support helped us to overcome various obstacles and intricacies during the course of project work.

Our most heartfelt thank goes to Ms. **Namrata mam** (Course Coordinator, PG- DAC) who gave all the required support and kind coordination to provide all then necessities like required hardware, internet facility and extra Lab hours to complete the project and throughout the course up to the last day here in C-DAC ACTS, Pune.

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1. Introduction

AirUdan is a web-based airline management system designed to streamline and automate key airline operations, including flight operations, ticketing, seat booking, and confirmation. The system allows users to search for available flights, book tickets, modify or cancel reservations, and receive real-time updates on their booking status. With an intuitive and user-friendly interface, AirUdan ensures a smooth and hassle-free experience for both airline operators and passengers.

The primary goal of AirUdan is to enhance efficiency and optimize airline services by providing real-time flight availability and automated booking processes. The system enables users to search for flights based on departure and arrival locations, preferred time, and date, ensuring they can conveniently find flights that match their travel needs. In addition, passengers can modify or cancel bookings while adhering to airline policies. If a flight is fully booked, the system immediately notifies customers about ticket unavailability, keeping them informed at all times.

To develop AirUdan, we used Spring Boot for backend operations and React.js for the frontend. Spring Boot enhances development efficiency by reducing the overall coding complexity and providing a scalable, robust backend framework. React.js, on the other hand, enables the creation of dynamic, fast, and interactive web applications, allowing seamless updates without the need to reload the page. Together, these technologies ensure high performance, security, and a seamless user experience.

AirUdan offers several key features to enhance the airline booking experience. The flight search functionality enables users to search for available flights by specifying departure city, arrival city, date, preferred time, and the number of passengers. Once a suitable flight is found, users can select seats from the available options. The review and confirmation stage presents a summary of the booking, including total fare (with taxes) and flight details, allowing users to verify their selections before proceeding with payment. The system also ensures secure payment processing, allowing customers to finalize bookings using credit cards and other online payment methods.

Additionally, AirUdan facilitates the collection of traveller information, such as name, contact details, and email, ensuring smooth record-keeping and communication. The system also provides real-time notifications to passengers regarding booking confirmation, flight changes, and cancellations, keeping them updated at all times.

In conclusion, AirUdan is a powerful, automated solution that enhances airline operations by optimizing flight booking, improving service efficiency, and ensuring seamless communication with passengers. By integrating real-time updates, secure transactions, and a user-friendly interface, AirUdan significantly improves the airline booking experience, making air travel more convenient and efficient for everyone involved.

2. Software/Hardware Requirement

Server:

Processor: Intel Core i5 or equivalent AMD processor.

RAM: Minimum 8GB RAM.

Storage: SSD storage for improved performance.

Network: Wi-Fi connectivity.

Operating System: Linux distribution (Ubuntu, CentOS) preferred for server deployment.

Client Devices:

Processor: Dual-core processor or higher.

RAM: Minimum 4GB RAM.

Storage: Sufficient storage for caching and local data.

Network: Wi-Fi connectivity.

Browser: Compatible with latest versions of popular browsers like Google Chrome, Mozilla Firefox, and Safari.

3. Tools and technologies used

- SpringBoot
- SpringDataJPA
- RESTful Web
- SpringWeb
- MYSQL Database
- Git
- React JS
- HTML and CSS
- Axios
- Material UI

1. Spring Boot: Utilized to develop the backend of the application, providing a robust framework for building Java-based web applications with ease.

2. Spring Data JPA: Implemented for data access, allowing seamless interaction with the MySQL database to store and retrieve sports data efficiently.

3. RESTful Web Services: In the context of an e-commerce web application like AirUdan Online Ticket Booking Webapp, RESTful web services play a crucial role in facilitating communication between the frontend and backend components. These services adhere to the principles of Representational State Transfer (REST), which emphasizes a stateless, standardized approach for building web services

4. Spring Web: Used for handling web requests and responses, managing controllers, and serving static resources to the frontend.

5. MySQL: Chosen as the relational database management system to store book data on cloud ,including user detail, flight information and admin details.

6. Axios: In the context of a web application like AirUdan Online Ticket Booking Webapp, Axios is likely used as a client-side HTTP library. Axios simplifies the process of making asynchronous HTTP requests from the frontend (React.js) to the backend (Node.js/Express.js). It is instrumental in fetching data from the server, handling API calls, and facilitating smooth communication between the frontend and backend components, ensuring efficient data retrieval and seamless user interactions in the e-commerce application

7. React: Employed to build the frontend of the application, offering a component-based architecture for creating dynamic and interactive user interfaces.

8. CSS: Used for styling the frontend components with utility-first CSS classes, allowing for rapid prototyping and customization of the user interface.

9. Material UI: Leveraged to enhance the visual appeal and user experience of the application by incorporating pre-designed React components following Google's Material Design principles.

10. Git: Implemented as a version control system to track changes in the source code, enabling collaboration among developers, and facilitating code management and deployment workflows.

Local Storage in AirUdan

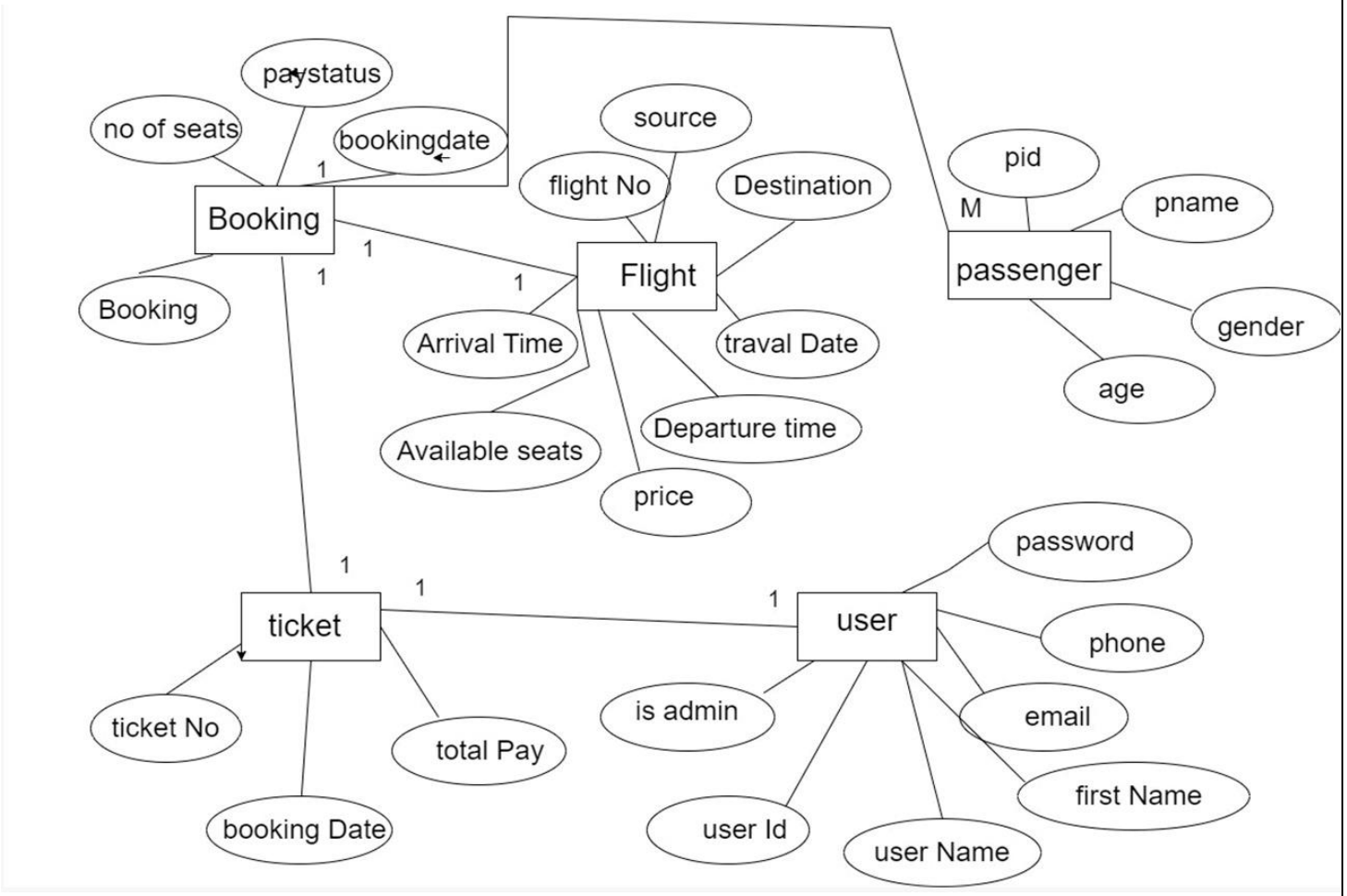
Local storage plays a crucial role in enhancing the user experience in the AirUdan airline management system by temporarily storing data on the user's browser. Unlike session storage, which clears data when the session ends, local storage allows data to persist even after the user closes the browser. This feature is particularly useful in airline management systems, where users may need to revisit their search history, booking details, or preferences without re-entering the information.

One of the primary uses of local storage in AirUdan is user session management. When a user logs in, their authentication status can be stored locally, preventing the need for repeated logins within a specific time frame. This ensures a seamless experience as users navigate between different pages of the application without losing access. Additionally, local storage is used to maintain flight search history, enabling users to quickly retrieve past search queries, making the booking process more convenient.

Another critical application of local storage is temporary booking data storage. When a user selects a flight and proceeds with seat selection, these details are temporarily stored, preventing data loss in case of an accidental page refresh or navigation to another page. This ensures that users do not have to start over, reducing frustration and improving efficiency. Similarly, form data preservation is an essential feature where passenger details, such as name, contact information, and email, are retained in local storage, allowing users to complete their booking without having to re-enter data if they leave the page unintentionally.

Local storage is also leveraged to remember user preferences and UI settings, such as selected language, currency, or theme mode. This personalization enhances the overall experience, as users do not have to adjust settings every time they visit the website. By keeping these preferences stored locally, AirUdan ensures a more customized and user-friendly interface.

4. Project E-R (Entity relationship) Diagram



5. Advantages

- Use of MySQL Cloud Database

    - The AirUdan Online Ticket Booking Webapp utilizes the Aiven cloud-based MySQL database for efficient and scalable data management. Here are key points about its integration:
    - 1. Reliability: Aiven offers a reliable database solution with high availability, ensuring uninterrupted service for Book Charm users.
    - 2.Scalability: The cloud-based nature of Aiven allows seamless scalability, accommodating the growing data needs of the e-commerce application.
    - 3.Managed Services: Aiven provides managed MySQL services, handling administrative tasks such as backups and maintenance, reducing the operational burden on the development team.
    - 4.Security: The Aiven platform prioritizes data security, implementing encryption and access controls to safeguard sensitive information stored in the MySQL database.
    - 5.Automatic Backups: Book Charm benefits from automatic backups provided by Aiven, ensuring data integrity and easy recovery in case of unexpected issues.
    - 6.API Compatibility: Aiven supports standard MySQL APIs, facilitating seamless integration with the backend components of the Book Charm web application.
    - 7.Developer-Friendly: The Aiven platform offers a developer-friendly environment, making it straightforward for the development team to configure and manage the MySQL database for Book Charm.
    - 8.Cost-Effective: Aiven's cloud-based model allows cost-effective utilization, enabling Book Charm to pay for the resources it consumes without the need for extensive infrastructure management.

- 9.Data Durability: With Aiven, data durability is enhanced through redundant storage and backup mechanisms, ensuring that critical information is safeguarded against data loss scenarios.

6. Screenshots

A) Admin Related Functionalities

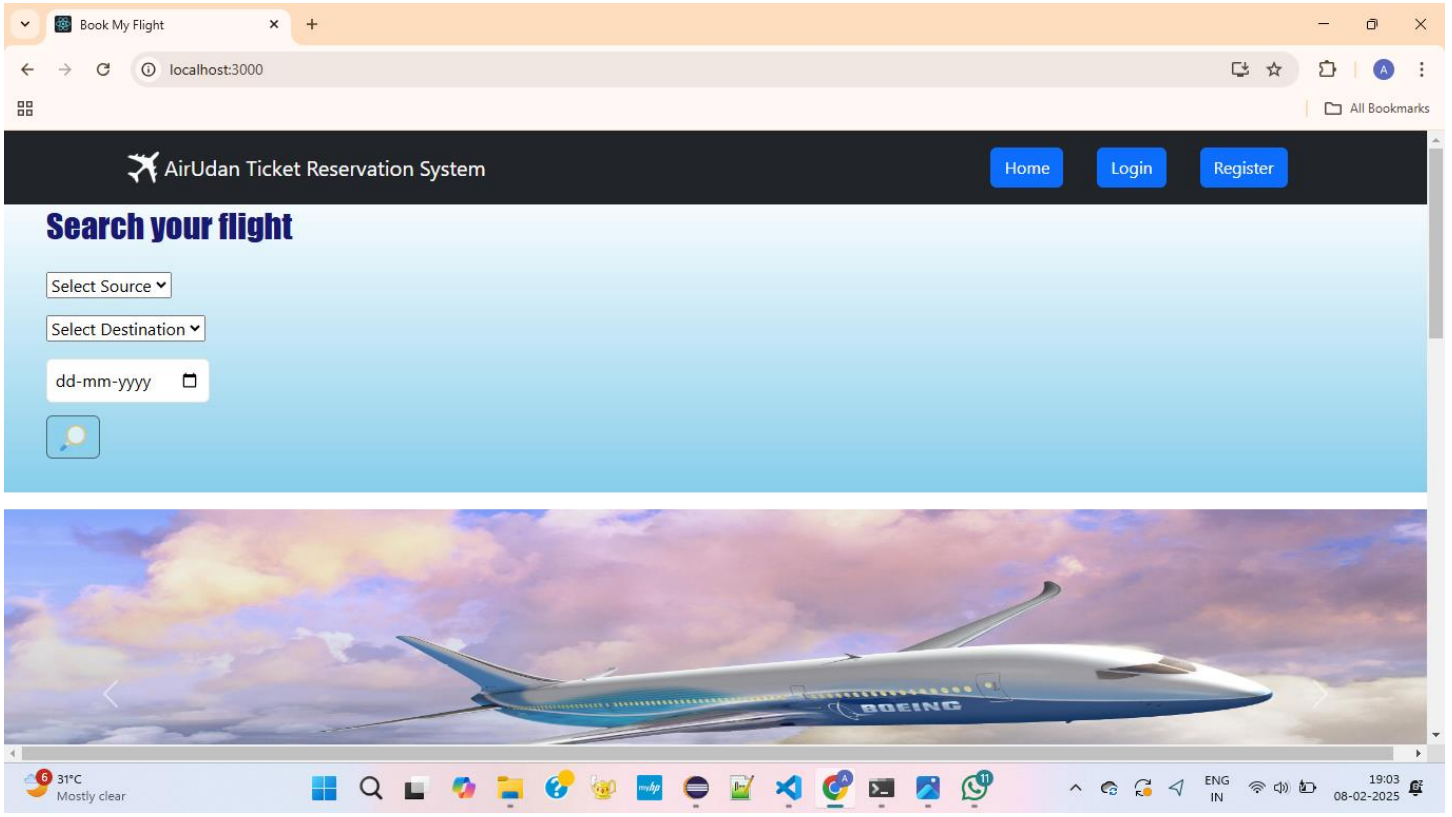


Fig-1: Home Page

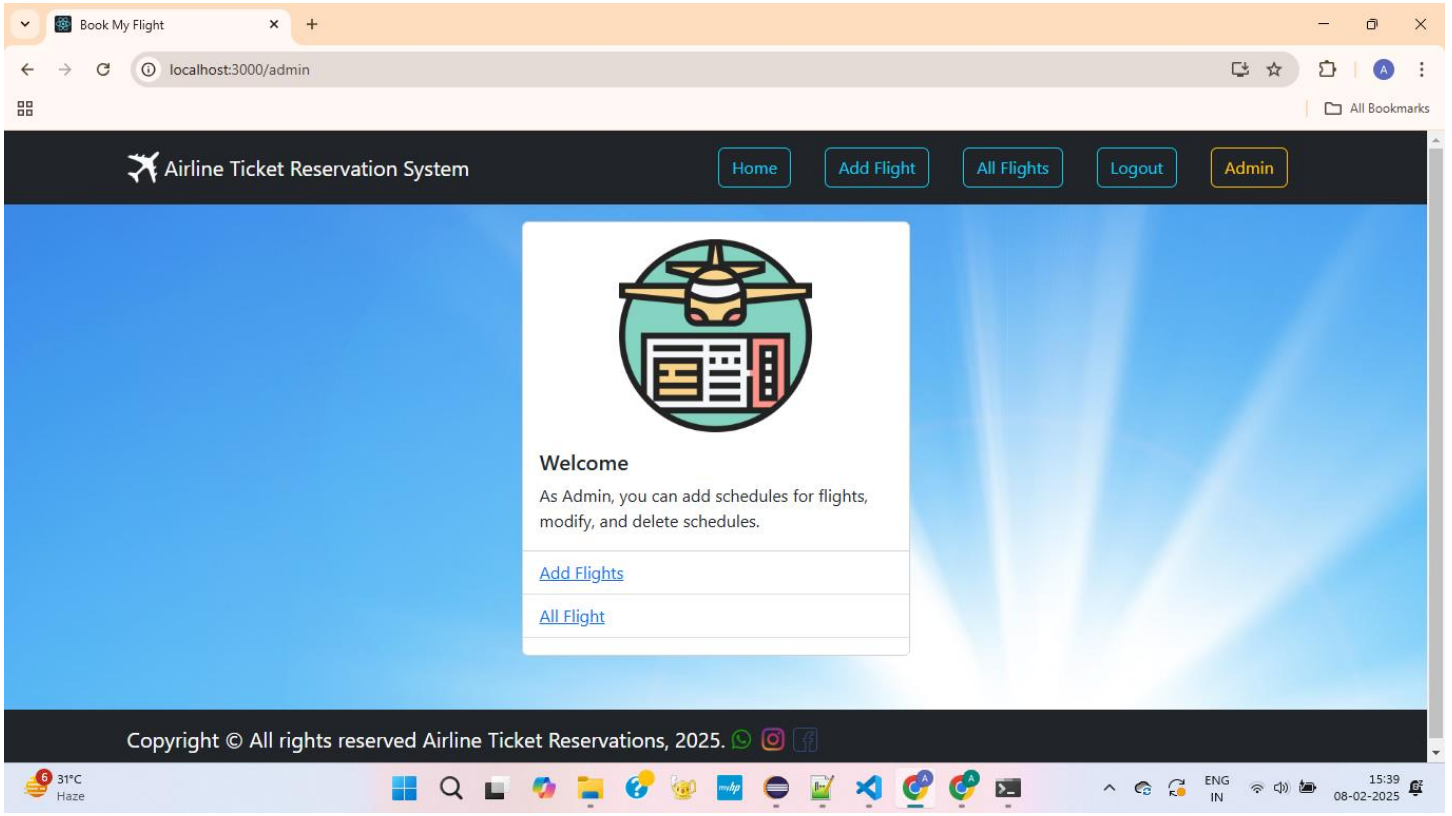


Fig-2: Admin Page

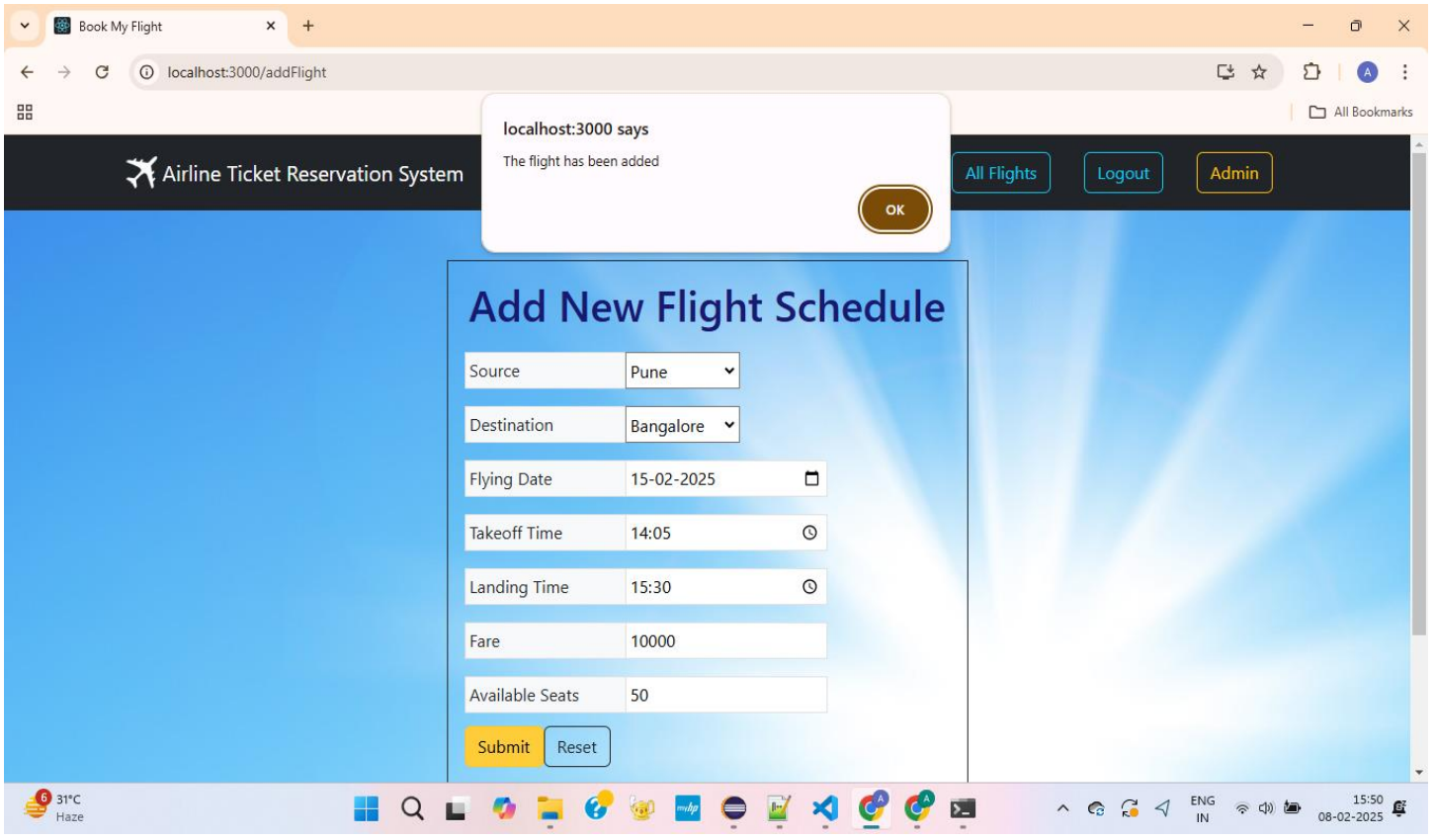


Fig-3: Add Flight

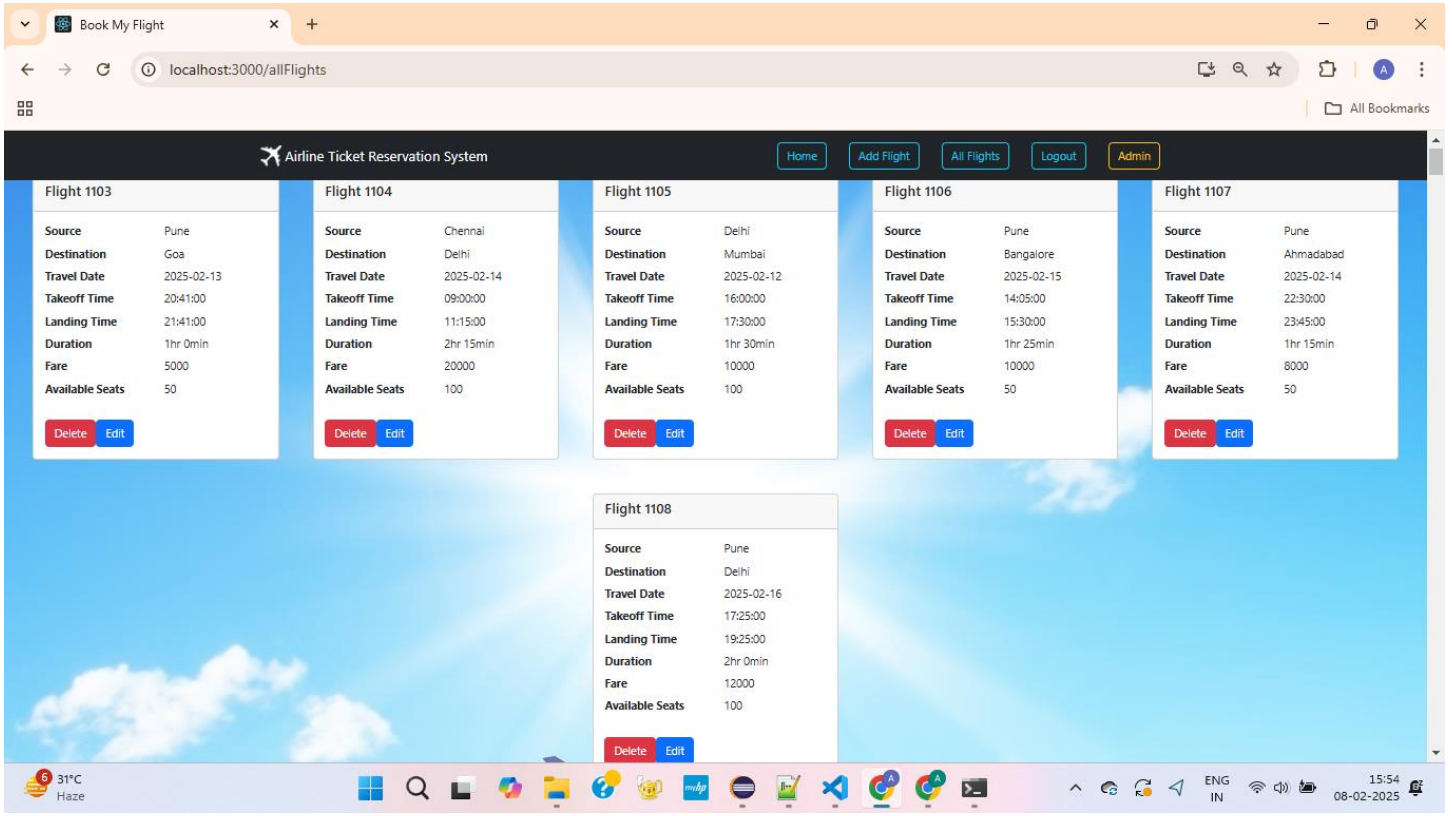


Fig-4: All Flight

B) User Related Functionalities

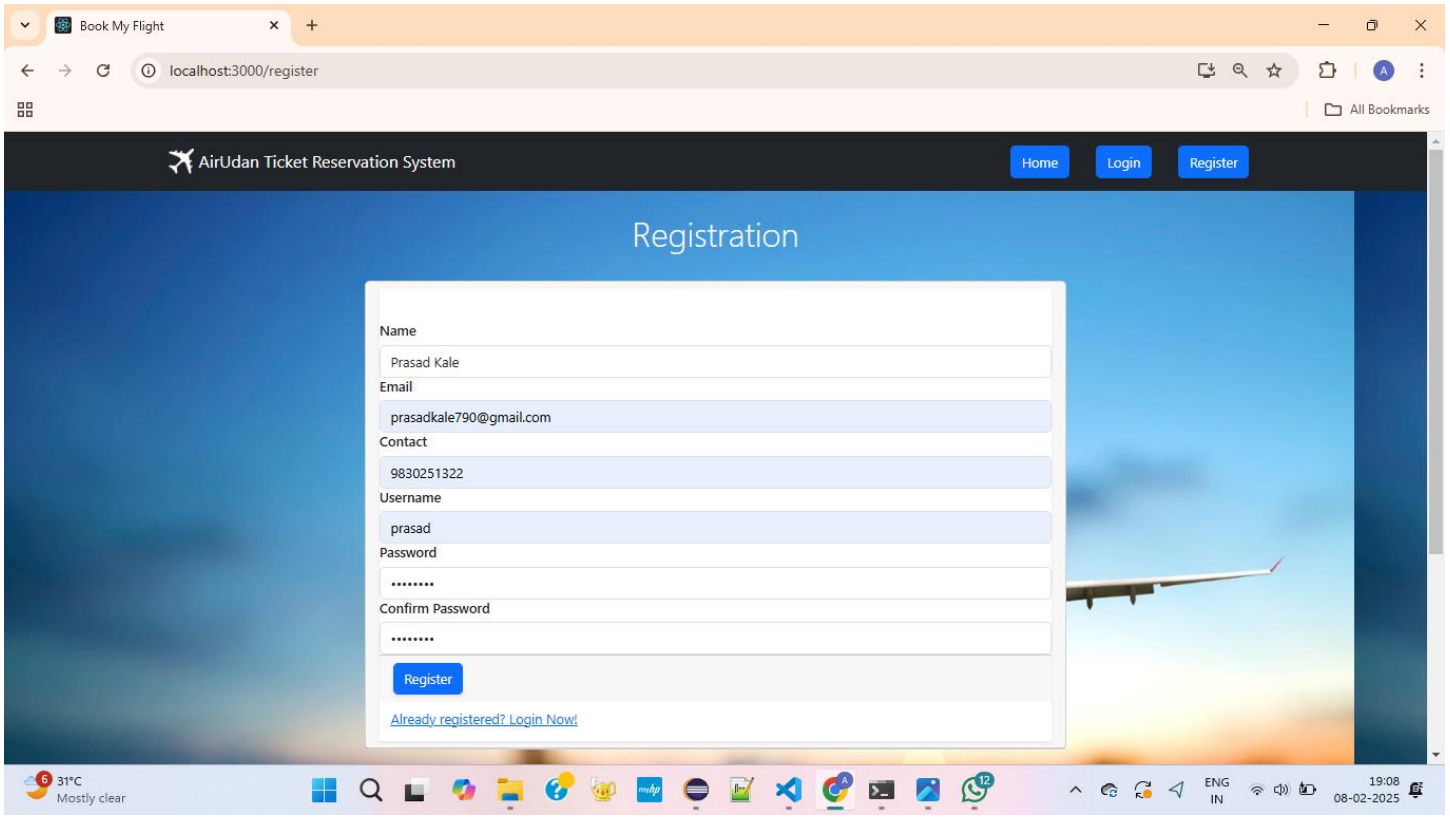


Fig-5: User Registration page

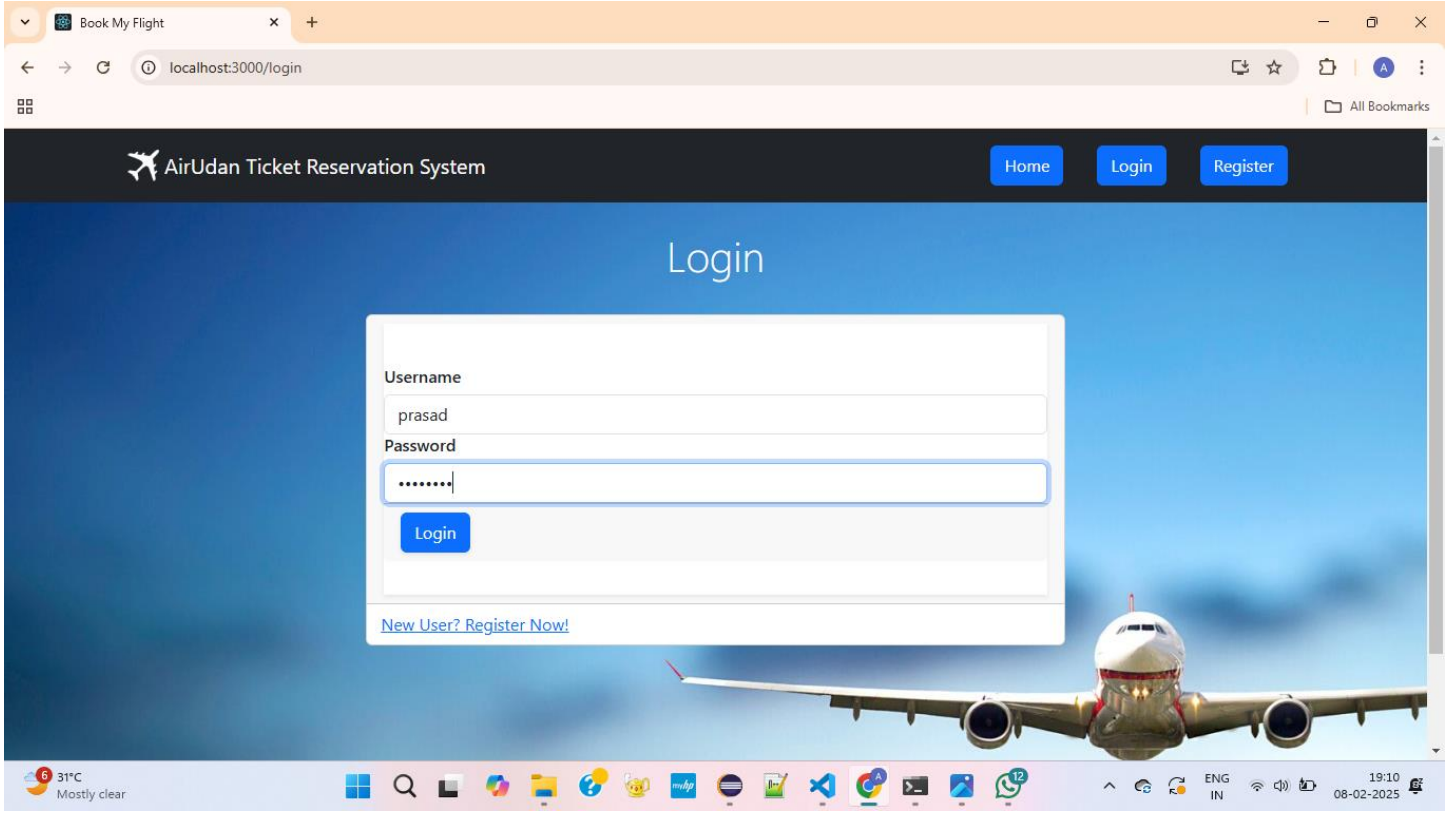


Fig-6: User login page

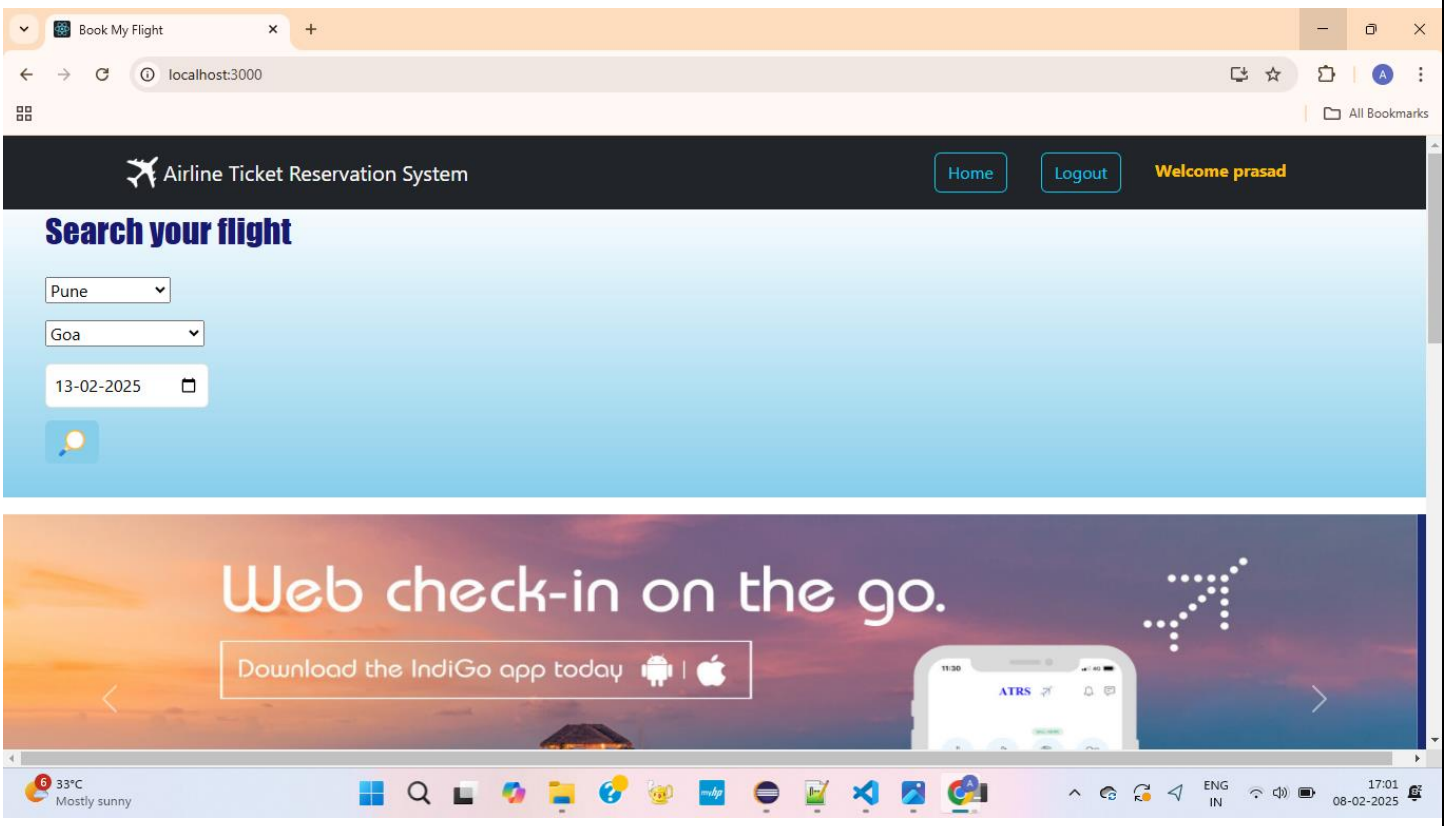


Fig-7: Welcome Page

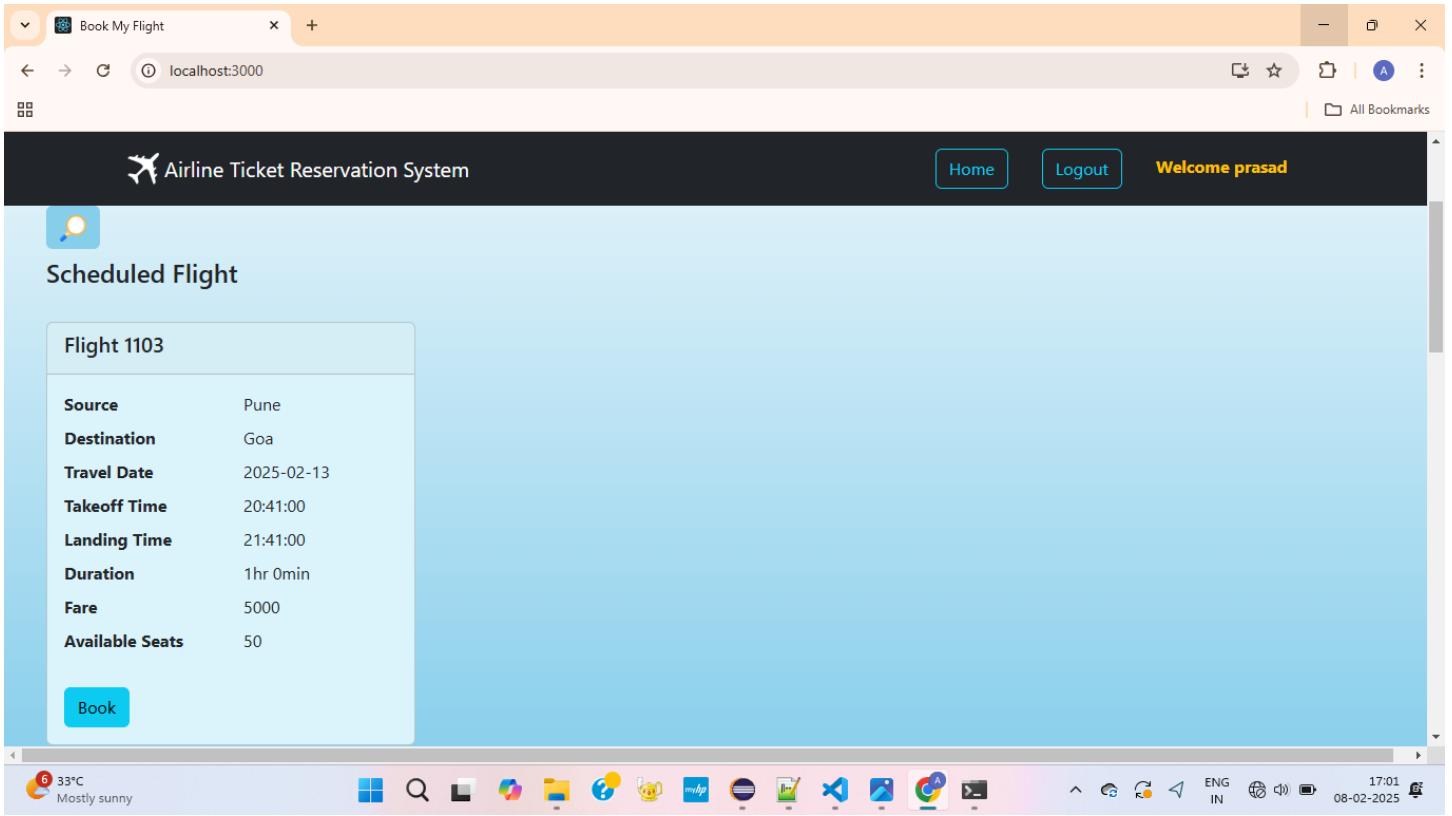


Fig-8: Flight Details Page

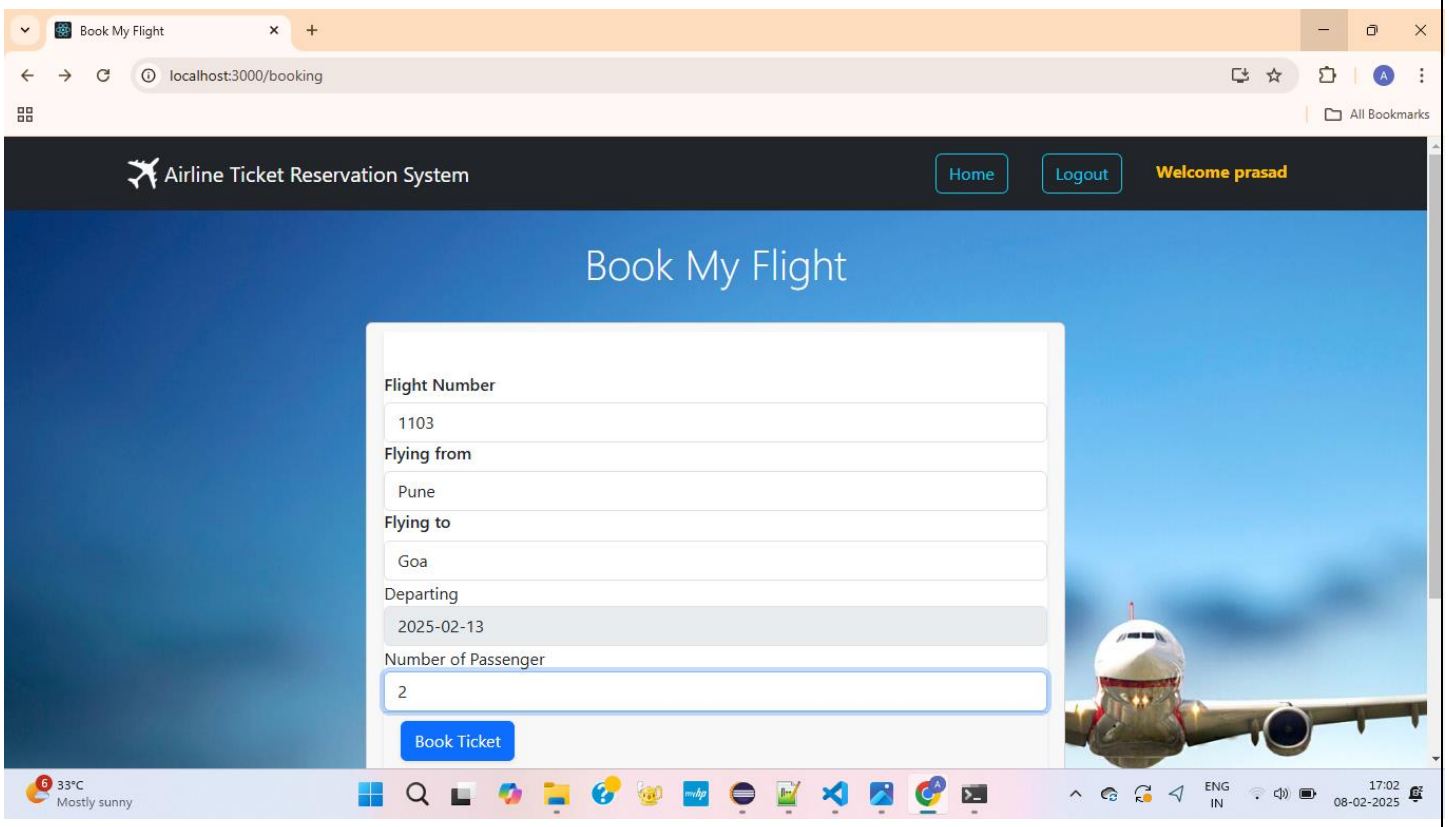


Fig-9: Booking Details Page

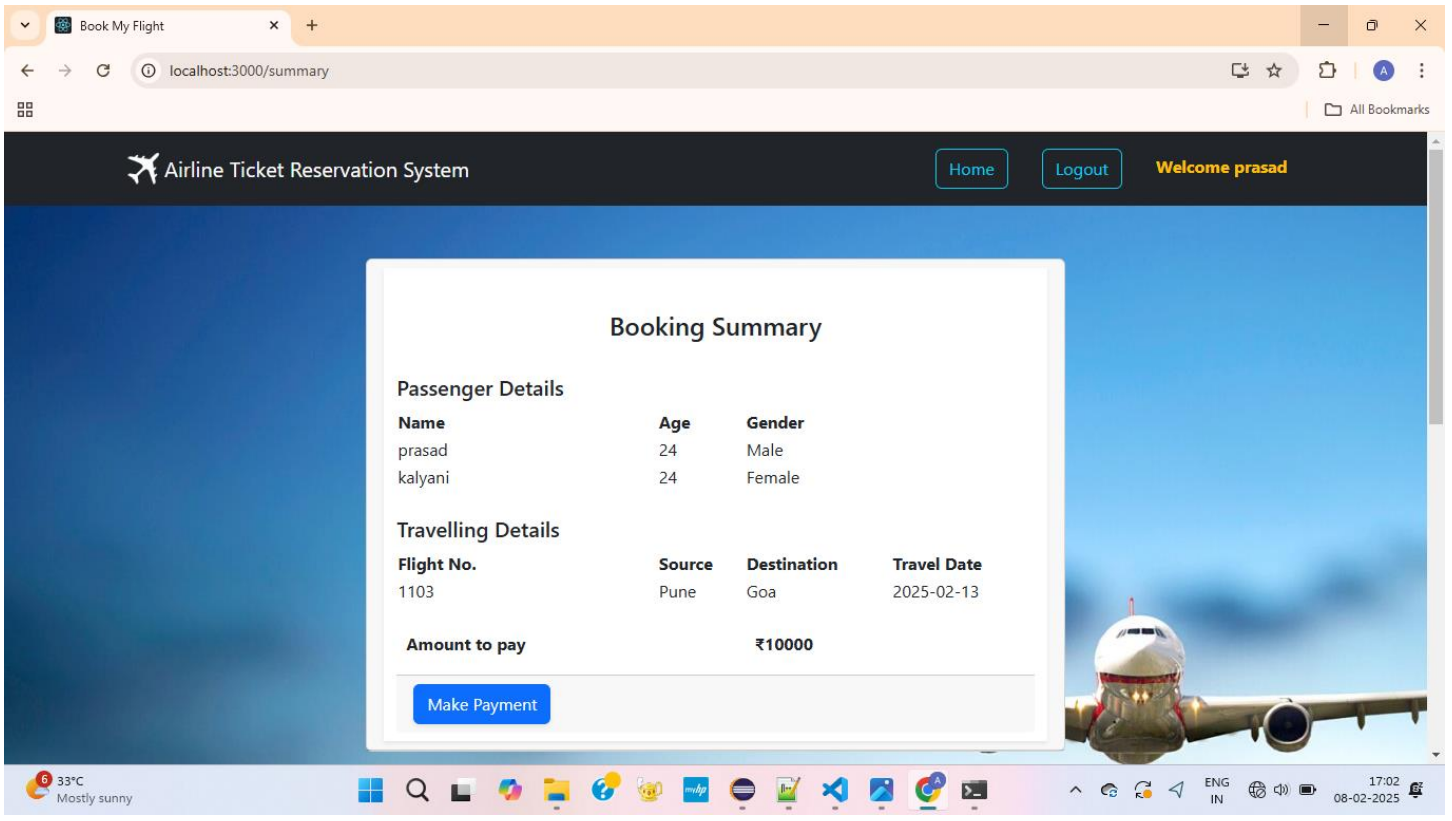


Fig-10: Booking Summary Page

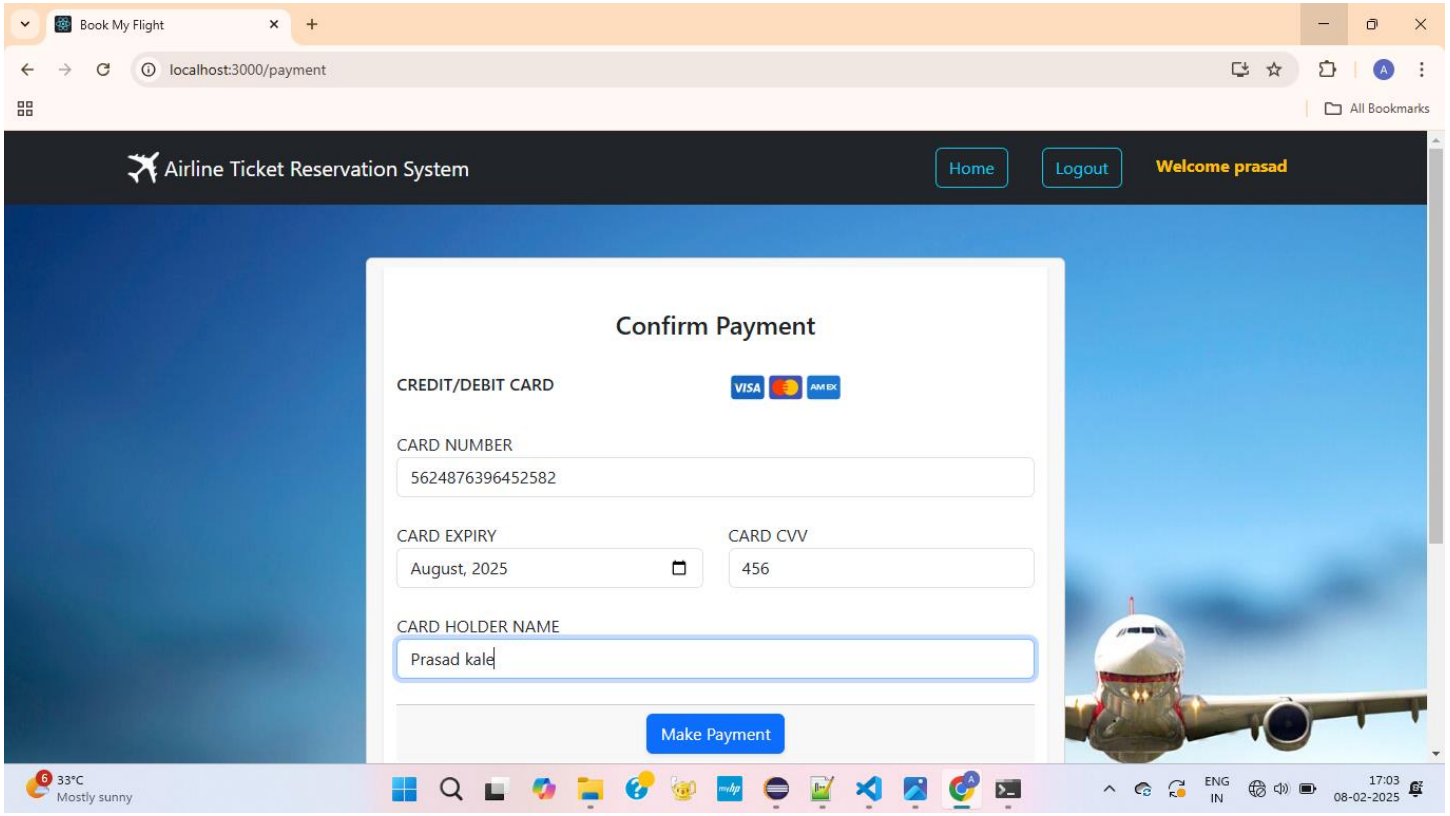


Fig-11: Payment Page

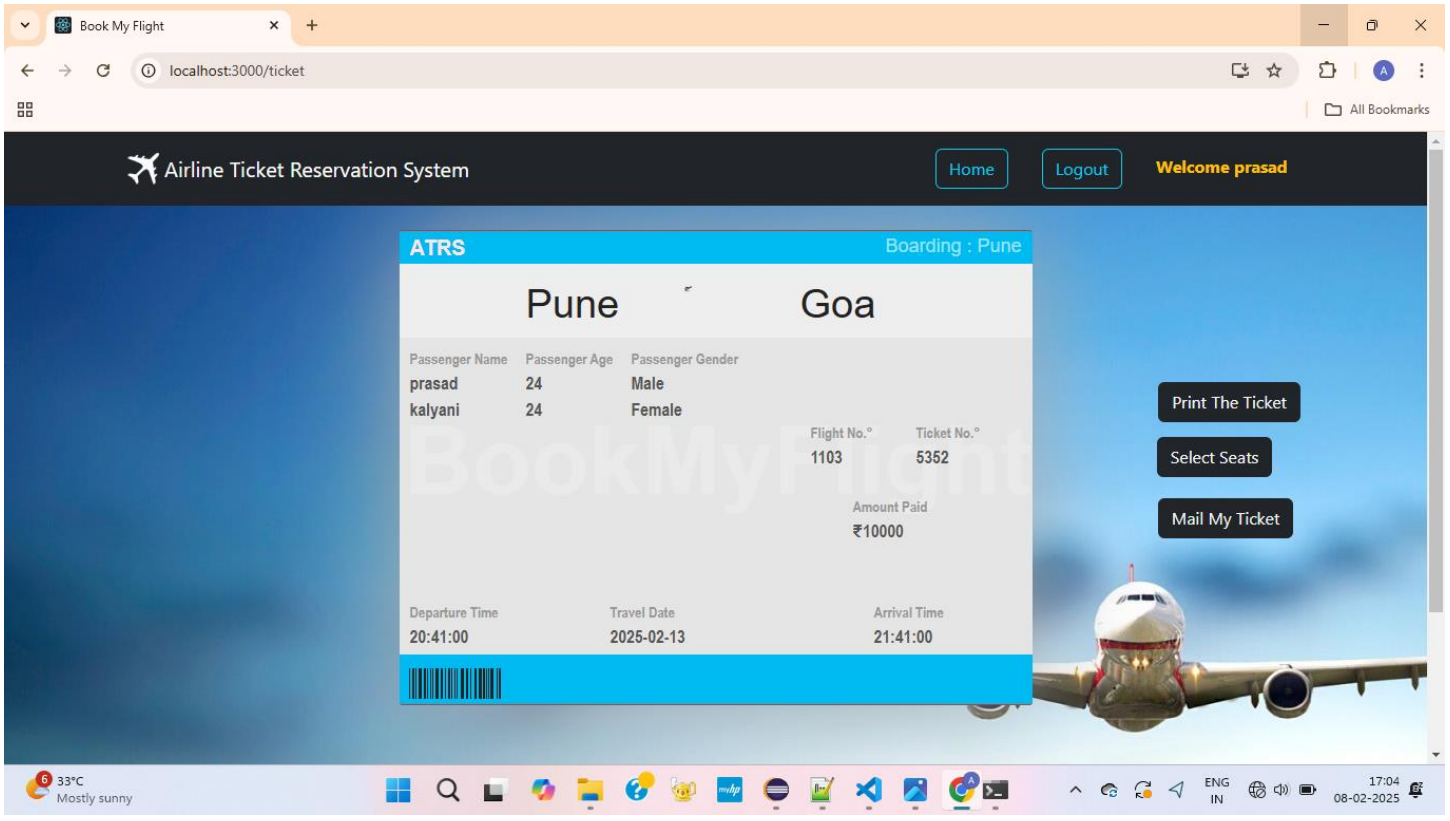


Fig-12: Confirm Ticket

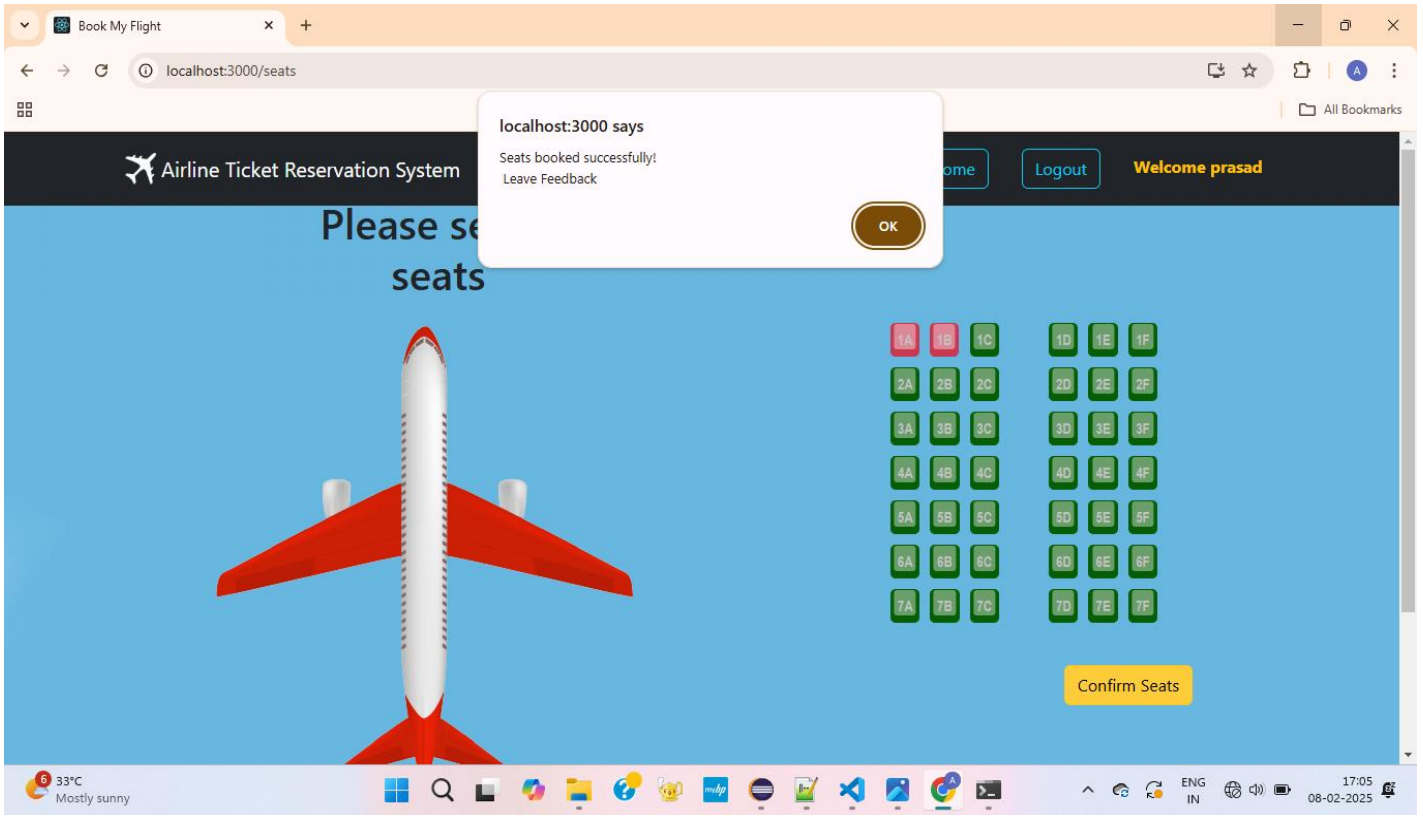


Fig-13: Seat Choice Page

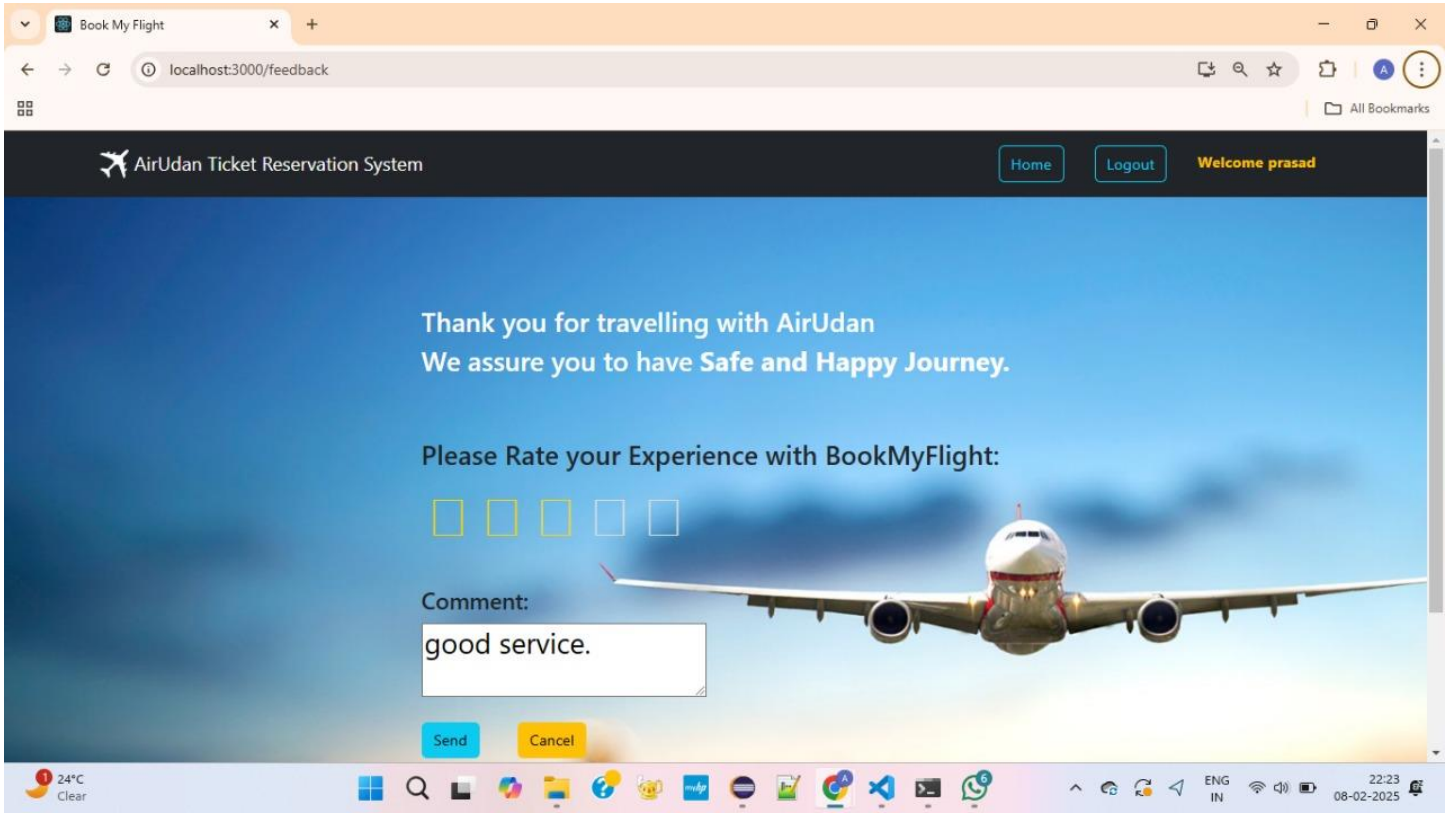


Fig-14: Feedback Page

7. FUTURE SCOPE:

- **Mobile App Development**:

  Expand the reach and accessibility of Book Charm by developing a dedicated mobile application for both iOS and Android platforms.

  Optimize the user interface for mobile devices to enhance the mobile shopping experience.

- **Voice & Chatbot Integration**

  Enhance customer support with AI-driven chatbots and voice assistants for seamless booking assistance.

- **Dynamic Pricing & Offers**

  Introduce real-time fare adjustments and personalized discounts using predictive analytics.

8. Conclusion

The AirUdan Online Ticket Booking Webapp Project represents a transformative step in modernizing the airline booking experience. With a strong focus on convenience, efficiency, and user-centric design, the platform successfully caters to the evolving needs of modern travellers. By offering an intuitive interface, advanced search options, and real-time availability updates, the system empowers users to make well-informed booking decisions. Its commitment to data accuracy ensures reliability, leading to seamless travel planning. The platform prioritizes secure payment processing and robust user data protection, reinforcing trust and fostering long-term customer relationships. Additionally, the inclusion of user profiles and preferences enables a personalized booking experience, allowing travellers to tailor their choices effortlessly. Through efficient booking management and timely notifications, the system enhances the overall customer journey. More than just a booking tool, AirUdan Online Ticket Booking Webapp Project aims to lead the airline industry in technological innovation and customer satisfaction. In an era where convenience and efficiency are paramount, AirUdan Online Ticket Booking Webapp positions itself as a pioneer in travel booking solutions. As the system evolves, it holds the potential to redefine the air travel experience, setting new industry standards and shaping the future of airline services.

9. References

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