PROJECT REPORT ON

JetSetFly-Online Airoplane Booking Application

BY

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UNIVERSITY OF PUNE MASTER IN

COMPUTER APPLICATION

Maharashtra Education Society's INSTITUTE OF MANAGEMENT AND CAREER COURSES (IMCC), PUNE-411038

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CERTIFICATE

This is to certify that the Project Report entitled

"JetSetFly-Online Airoplane Ticket Application"

is prepared by

Shreyas Ganpat Jadhav

M.C.A. Semester IV Course for the Academic Year 2025-26 at M.E. Society's Institute of Management & Career Courses (IMCC), Pune - 411038. M.C.A Course is autonomous and af□liated to Savitribai Phule Pune University.

To the best of our knowledge, this is an original study done by the said student and important sources used by him/her have been duly acknowledged in this report.

The report is submitted in partial fulfillment of M.C.A Course for the Academic Year 2025-26 as per the rules and prescribed guidelines of Savitribai Phule Pune University.

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Certificate No : NCS-2026-003

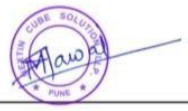
PROJECT COMPLETION CERTIFICATE

This is to certify that **Mr.Shreyas Ganpat Jadhav** has successfully completed the internship project with **NextIn Cube Solution LLP** for the purpose of academic and practical learning in software development.

The duration of the internship was from **16th February 2026** to **08th May 2026**. During this period, the intern has completed all assigned project tasks within the mentioned timeframe. The project undertaken is titled **"JetSetFly – Online Airplane Ticket Booking Application"**.

The project has been successfully developed and submitted to the company by the end of the internship period. The intern demonstrated commendable technical skills, dedication, and professionalism throughout the engagement.

We wish the candidate all the very best in their future endeavours.



Authorized Signatory
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AUTONOMOUS

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CERTIFICATE

This is to certify that Shreyas Ganpat Jadhav has completed the project work entitled ***"JetSetFly-A online Airoplane Ticket Booking Application"*** under my guidance. The report is submitted in partial fulfillment of M.C.A. Course for the Academic Year 2025-2026 as per the rules & prescribed guidelines.

His/her work is found to be satisfactory and complete in all respects.

Date:09/05/2026

Mrs.Ashwini Patil
(Internal Project Guide)

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Acknowledgement

I would like to express my sincere gratitude to all those who supported and guided me throughout the completion of my project titled **"JetSetFly – Online Airplane Ticket Booking Application."** This project has been a great learning experience and helped me enhance my technical as well as professional skills.

First and foremost, I would like to thank **Maharashtra Education Society's Institute of Management and Career Courses (IMCC), Pune** for providing me with the opportunity and resources to work on this project as a part of the Master of Computer Application (MCA) curriculum.

I would like to express my heartfelt gratitude to my internal project guide **Prof. Ashvini Patil Mam** for her valuable guidance, continuous encouragement, motivation, and support throughout the project development process. Her suggestions and feedback helped me improve the quality of the project significantly.

I am also thankful to the faculty members and staff of the MCA department for their support and cooperation during the completion of this project.

I would like to sincerely thank **Nextin Cube Solution LLP** for providing me with the opportunity to work on this project during my internship period. I am especially grateful to the company mentors and team members for their guidance, practical insights, and support in understanding real-world software development practices.

I would also like to thank my friends and classmates who helped me with their valuable suggestions and encouragement whenever required.

Finally, I express my deepest gratitude to my parents and family members for their constant support, motivation, and belief in me throughout my academic journey and project work.

Shreyas G. Jadhav
MCA – Semester IV
IMCC, Pune

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Company Profile:

Nextin Cube Solution LLP is a Pune-based Information Technology company that provides software development and digital business solutions to organizations and businesses. The company was established in the year 2021 as a Limited Liability Partnership (LLP) and is registered under the Registrar of Companies (ROC), Pune. The organization focuses on developing innovative and customized software solutions that help businesses improve their efficiency, productivity, and digital presence.

The company mainly works in the field of software development, web technologies, and business automation systems. Their services are designed to support startups, small businesses, and large organizations in managing their daily operations through technology. The company aims to provide high-quality, secure, and scalable software solutions according to customer requirements.

Nextin Cube Solution LLP offers multiple IT services such as CRM Development, ERP Solutions, HRMS Software, Website Development, Mobile Application Development, Digital Marketing, and Search Engine Optimization (SEO). These services help organizations automate their workflow and improve communication between different departments.

One of the important services offered by the company is Customer Relationship Management (CRM) software development. CRM systems help businesses manage customer data, sales activities, customer interactions, and support services efficiently. The company develops customized CRM solutions according to the specific needs of businesses.

The company also develops ERP (Enterprise Resource Planning) software that integrates different business processes such as finance, inventory, sales, human resources, and operations into a single system. ERP solutions help organizations improve resource management and reduce manual work.

Another major product developed by the company is HRMS (Human Resource Management System) software. HRMS software is useful for managing employee records, attendance, payroll, leave management, recruitment, and performance tracking. This system helps companies maintain accurate employee data and improve HR operations.

Nextin Cube Solution LLP also provides website development services using modern technologies. The company designs responsive, user-friendly, and attractive websites for businesses and organizations. These websites help businesses improve their online presence and reach more customers through digital platforms.

The organization also develops mobile applications for Android and other platforms. Mobile applications help businesses provide services directly to customers through smartphones and improve user engagement.

Apart from software development, the company also works in digital marketing and SEO services. These services help businesses increase their visibility on search engines and social media platforms. Digital marketing helps organizations attract customers and improve brand awareness.

1.1 Problem Statement:

JestSetFly is a web-based Aeroplane Ticket Booking Application designed to automate and manage airline ticket booking operations for both administrators and users. The system provides a secure, reliable, and user-friendly platform for searching flights, booking tickets, making payments, and generating digital boarding passes.

The application uses modern security mechanisms such as **JWT authentication**, **encrypted password storage**, and **role-based access control**. It closely simulates a real-world airline booking system by allowing administrators to manage airlines, flights, cities, classes, and users, while passengers can book flights and receive QR-based boarding passes via email

1.2 Objectives of the Project

- To develop an online flight booking system with end-to-end automation
- To implement secure authentication and authorization mechanisms
- To provide an efficient admin dashboard for airline and flight management
- To enhance user experience through OTP verification, email notifications, and QR code tickets
- To ensure data security, scalability, and reliability

1. User Requirements

1.1 Functional Requirements

Admin Requirements

- Secure admin login and logout
- Forgot password functionality
- JWT-based authentication
- Admin dashboard displaying:
    - Available flights count
    - Total bookings
    - Total earnings
- Airline management with full CRUD operations
- Flight management (add, edit, remove flight schedules)
- City management
- Flight class management (Economy, Business, First Class)
- Passenger list viewing
- Feedback management from users
- Admin profile management
- Add new admin members

User Requirements

- User registration and login

- Forgot password using OTP sent to registered email
- Search flights based on:
  - Source city
  - Destination city
  - Departure date
  - Number of passengers
- View available flights
- Select flight class (Business or First Class)
- Enter passenger details
- Secure payment options:
  - UPI payment
  - Card payment
- Booking confirmation
- Automatic boarding pass generation
- Unique QR code for ticket verification
- Email notification with ticket and boarding pass

1.2 Non-Functional Requirements

- High security using encrypted passwords and JWT
- Fast system response time
- User-friendly and responsive interface
- Scalable and maintainable architecture
- Reliable email and payment service

System Users

- **Admin**
- **User (Passenger)**

5. Technologies Used

Frontend

- HTML
- CSS
- Bootstrap
- Thymelea

f Backend

- Spring Boot
- Spring MVC
- Spring Security
- JWT

Authentication Database

- MySQL
- Spring Data JPA (Hibernate)

Additional Technologies

- RESTful APIs
- Email Service (OTP and ticket delivery)
- QR Code Generator
- Password Encryption (BCrypt)

6. Module Specification

6.1 Authentication Module

- Admin and User Login
- User Registration
- Forgot Password with OTP
- JWT Token Generation and Validation

6.2 Admin Dashboard Module

- Dashboard summary of flights, bookings, and earnings
- Sidebar-based navigation

6.3 Airline Management Module

- Add new airline
- View airline list
- Update airline details
- Delete airline

6.4 Flight Management Module

- Create flight schedules
- Edit flight details
- Remove flights
- Assign cities and flight classes

6.5 City and Flight Class Management Module

- Manage cities (Add, Update, Delete)
- Manage flight classes (Economy, Business, First Class)

6.6 Passenger Management Module

- View passenger details
- Booking history
- Flight-wise passenger list

6.7 Feedback Module

- Collect feedback from users
- Review feedback in admin panel

6.8 User Booking Module

- Search and select flights
- Choose flight class
- Enter passenger information

6.9 Payment Module

- UPI payment processing
- Card payment processing
- Secure transaction handling

6.10 Ticket and QR Code Module

- Boarding pass generation
- Unique QR code creation
- QR code scanning for verification

6.11 Notification Module

- OTP email notifications
- Booking confirmation emails
- Ticket and boarding pass delivery via email

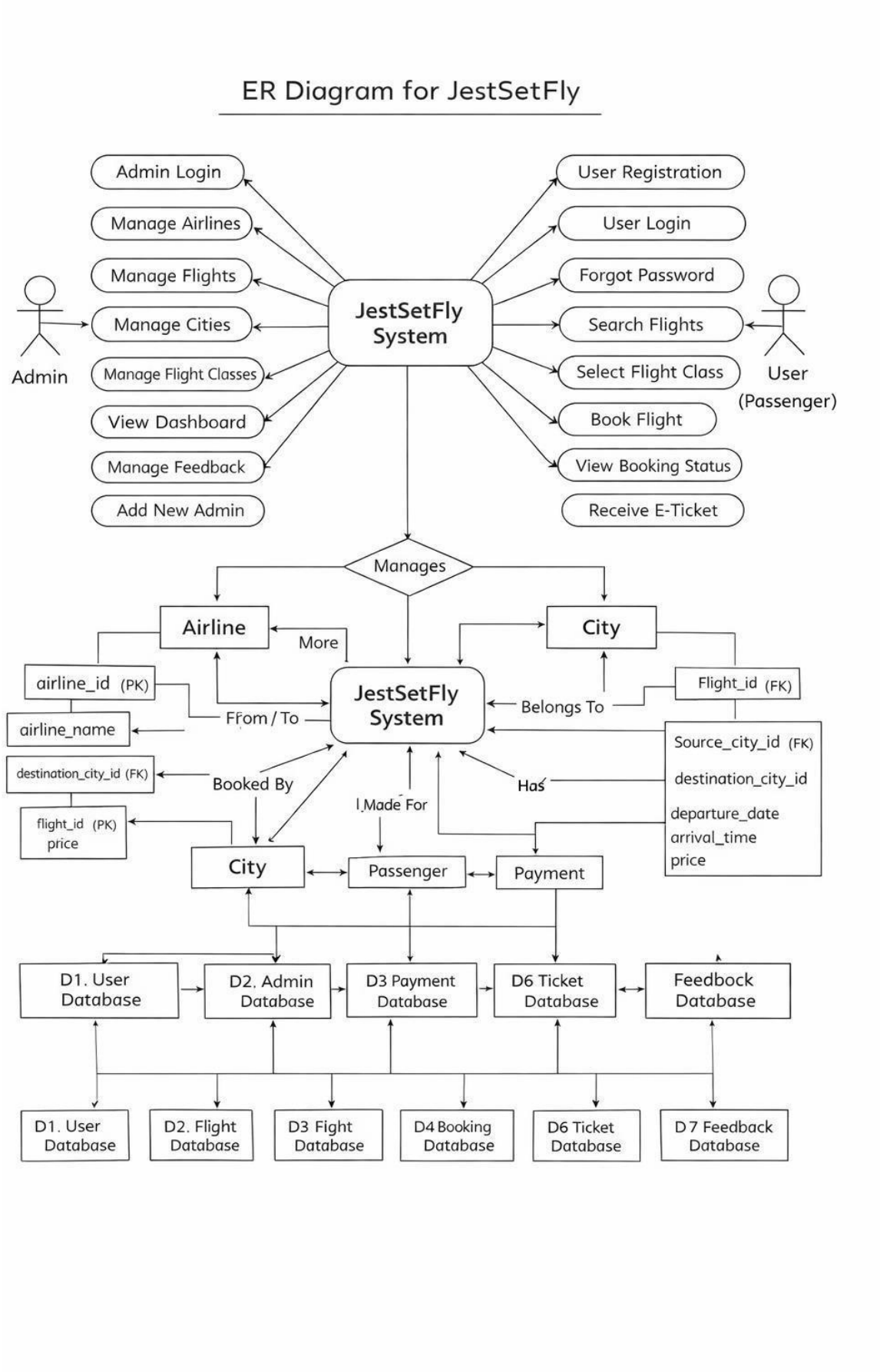
7. Advantages of the System

- Secure and reliable booking platform
- Reduces manual work and paperwork
- Real-time access to flight and booking data
- Improved customer experience
- Easy system maintenance and scalability

8. Future Enhancements

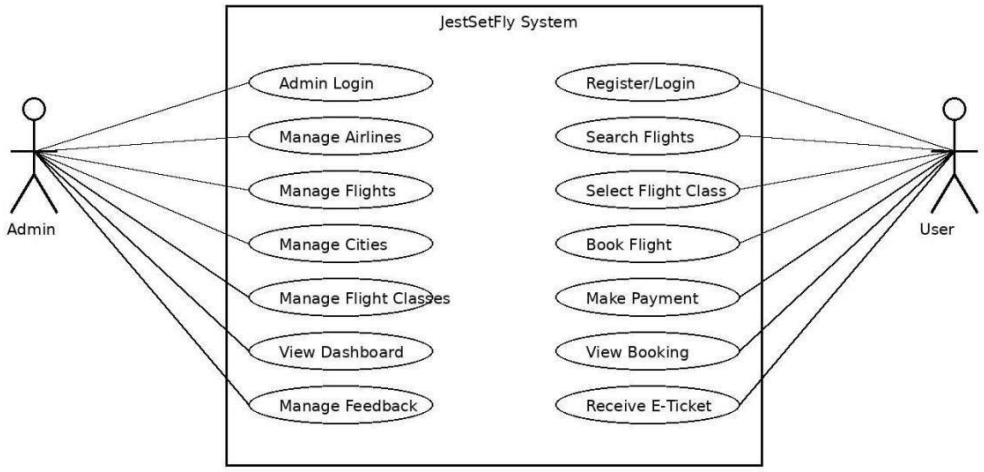
- Mobile application development
- Seat selection functionality
- Flight cancellation and refund module
- Integration with real-time flight status APIs
- Multi-language support

ER Diagram:



Use Case Diagram:

Use Case Diagram – JestSetFly Airplane Ticket Booking System



Data Dictonary/Tables:

1. `roles` Table

Description

Stores different roles available in the system such as Admin, Customer, and Airline Manager.

Main Purpose

- Role-Based Access Control (RBAC)
- Permission management

Important Fields

Column Name	Description
role_id	Primary Key
role_name	Role name
description	Role details

2. `users` Table

Description

Stores all registered user information.

Main Purpose

- User authentication
- User profile management
- Login system

Important Fields

Column Name	Description
user_id	Primary Key
full_name	User full name
email	User email
password	Encrypted password
phone_number	Contact number
role_id	Foreign key from roles table
status	Active/Inactive

3. `review` Table

Description

Stores ratings and reviews submitted by customers.

Main Purpose

- Customer feedback
- Airline and flight ratings

Important Fields

Column Name	Description
review_id	Primary Key
user_id	Foreign key from users table
flight_id	Related flight
airline_id	Related airline
rating	Rating out of 5
review_text	Review message
created_at	Review date

4. `airline` Table

Description

Stores airline company information.

Main Purpose

- Airline management
- Airline details storage

Important Fields

Column Name	Description
airline_id	Primary Key
airline_name	Airline company name
airline_code	Unique airline code
contact_email	Support email
contact_number	Contact details

5. `city` Table

Description

Stores departure and destination city details.

Main Purpose

- Route management
- Airport mapping

Important Fields

Column Name	Description
city_id	Primary Key
city_name	Name of city
state	State name
country	Country name
airport_name	Airport name

6. `air_flight` Table

Description

Stores all flight information.

Main Purpose

- Flight management
- Search flights

Important Fields

Column Name	Description
flight_id	Primary Key
flight_number	Flight code
airline_id	Airline reference
source_city	Departure city
destination_city	Arrival city
departure_time	Departure timing
arrival_time	Arrival timing

7. `class` Table

Description

Stores travel class categories.

Main Purpose

- Flight class management

Important Fields

Column Name	Description
class_id	Primary Key
class_name	Economy/Business/etc
description	Class facilities

8. `flight_class` Table

Description

Stores class-wise pricing and seat information.

Main Purpose

- Ticket fare management
- Seat allocation

Important Fields

Column Name	Description
flight_class_id	Primary Key
flight_id	Flight reference
class_id	Travel class
available_seats	Seat availability
class_price	Fare amount

9. `flight_schedule` Table

Description

Stores flight schedules and timings.

Main Purpose

- Daily flight scheduling

Important Fields

Column Name	Description
schedule_id	Primary Key
flight_id	Flight reference
departure_date	Journey date
arrival_date	Arrival date
gate_number	Boarding gate

10. `flight_schedule_rate` Table

Description

Stores dynamic pricing details.

Main Purpose

- Fare calculation
- Discount management

Important Fields

Column Name	Description
rate_id	Primary Key
schedule_id	Flight schedule
class_id	Travel class
base_fare	Original fare
discount	Discount percentage
final_price	Final fare

11. `bookings` Table

Description

Stores ticket booking information.

Main Purpose

- Ticket reservation
- Booking management

Important Fields

Column Name	Description
booking_id	Primary Key
user_id	User reference
flight_id	Flight reference
booking_date	Booking date
journey_date	Travel date
booking_status	Booking status

12. `passengers` Table

Description

Stores passenger details for each booking.

Main Purpose

- Traveler information management

Important Fields

Column Name	Description
passenger_id	Primary Key
booking_id	Booking reference
full_name	Passenger name
age	Passenger age
passport_number	Identity proof

13. `payments` Table

Description

Stores online payment transaction details.

Main Purpose

- Payment management
- Transaction tracking

Important Fields

Column Name	Description
payment_id	Primary Key
booking_id	Booking reference
payment_method	UPI/Card/etc
transaction_id	Payment transaction ID
payment_status	Success/Failed

Test Cases:

1.

Test Case ID	TC-JSF-001	User Registration & Login Authentication	PASS
Objective	Verify that users can successfully register and login using valid credentials.		
Environment	React Frontend, Spring Boot Backend, MySQL Database		
Pre-conditions	User is not already registered in the system.		
Input Specifications	Name, Email, Password, Confirm Password		
Execution Steps	1. Open JetSetFly application.2. Navigate to Signup page.3. Enter valid details.4. Click “Register”.5. Login using registered credentials.		
Expected Output	User account created successfully and redirected to dashboard after login.		
Actual Output	User registration completed and login session created successfully.		
Pass / Fail Criteria	Pass if user can register and login without errors.		

2.

Test Case ID	**TC-JSF-002**	**Flight Search Functionality**	**PASS**
Objective	Verify users can search available flights based on source, destination, and date.		
Environment	Web Browser, Flight Search API, Database		
Pre-conditions	Flights data available in database.		
Input Specifications	Source: Pune, Destination: Delhi, Date: 20/05/2026		
Execution Steps	1. Open Search Flights page.2. Enter source and destination.3. Select travel date.4. Click “Search Flights”.		
Expected Output	List of available flights displayed with timing and fare details.		
Actual Output	Matching flights displayed within 2 seconds.		
Pass / Fail Criteria	Pass if correct flight results are shown.		

3.

Test Case ID	**TC-JSF-003**	**Seat Selection Module**	**PASS**
Objective	Verify users can select available seats during booking.		
Environment	Seat Management Module, MySQL Database		
Pre-conditions	Flight available with unbooked seats.		

Test Case ID	TC-JSF-003	Seat Selection Module	PASS
Input Specifications	Flight ID: JSF102, Seat: A2		
Execution Steps	1. Select a flight.2. Open seat layout.3. Choose available seat.4. Proceed to booking summary.		
Expected Output	Selected seat highlighted and reserved temporarily.		
Actual Output	Seat A2 reserved successfully for current session.		
Pass / Fail Criteria	Pass if selected seat cannot be booked by another user simultaneously.		

4.

Test Case ID	TC-JSF-004	Online Payment Gateway Integration	PASS
Objective	Verify payment transaction completes successfully using online payment gateway.		
Environment	Razorpay/Stripe Sandbox, Spring Boot API		
Pre-conditions	User selected flight and seat successfully.		
Input Specifications	Card Payment / UPI Payment		
Execution Steps	1. Proceed to payment page.2. Enter payment details.3. Click “Pay Now”.		
Expected Output	Payment success message displayed and booking confirmed.		
Actual Output	Transaction completed and booking ID generated successfully.		
Pass / Fail Criteria	Pass if payment status updates correctly in database.		

5.

	TC-JSF-005	Ticket Booking Confirmation Email	PASS
Objective	Verify confirmation email is sent after successful booking.		
Environment	SMTP Mail Service, Backend API		
Pre-conditions	Booking completed successfully.		
Input Specifications	Registered Email Address		
Execution Steps	1. Complete booking process.2. Monitor registered email inbox.		
Expected Output	Confirmation email with ticket details and PNR received.		
Actual Output	Email delivered within 10 seconds with PDF ticket attachment.		
Pass / Fail Criteria	Pass if email contains correct booking details.		

6.

Test Case ID	TC-JSF-006	Ticket Cancellation Module	PASS
Objective	Verify users can cancel booked tickets successfully.		
Environment	Booking Management Module		
Pre-conditions	Valid booked ticket exists.		
Input Specifications	Booking ID / PNR Number		
Execution Steps	1. Login to account.2. Open “My Bookings”.3. Select booking.4. Click “Cancel Ticket”.		
Expected Output	Ticket status updated to Cancelled and refund initiated.		
Actual Output	Cancellation completed and refund request generated successfully.		
Pass / Fail Criteria	Pass if booking status changes immediately.		

7.

Test Case ID	TC-JSF-007	Admin Flight Management	PASS
Objective	Verify admin can add, update, and delete flight schedules.		
Environment	Admin Dashboard, MySQL Database		
Pre-conditions	Admin logged into dashboard.		
Input Specifications	Flight Name, Source, Destination, Fare, Timing		
Execution Steps	1. Login as admin.2. Open Flight Management.3. Add new flight details.4. Save changes.		
Expected Output	Flight details stored successfully in database.		
Actual Output	New flight displayed in available flights list.		
Pass / Fail Criteria	Pass if CRUD operations work correctly.		

8.

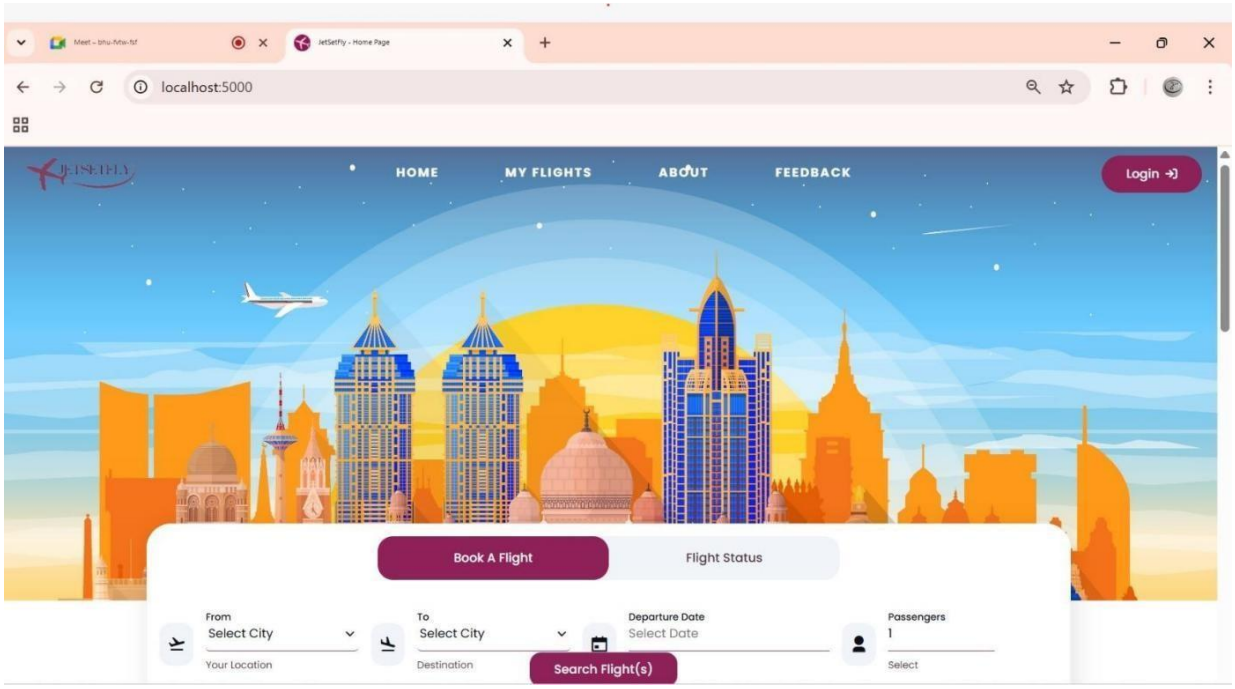
Test Case ID	TC-JSF-008	Real-time Seat Availability Update	PASS
Objective	Verify seat availability updates instantly when another user books a seat.		
Environment	WebSocket/Socket.io, Multiple Browser Sessions		
Pre-conditions	Two users viewing same flight seat layout simultaneously.		
Input Specifications	User 1 books Seat B4		
Execution Steps	1. Open same flight in two browsers.2. User 1 books Seat B4.3. Monitor User 2 seat layout.		

8.

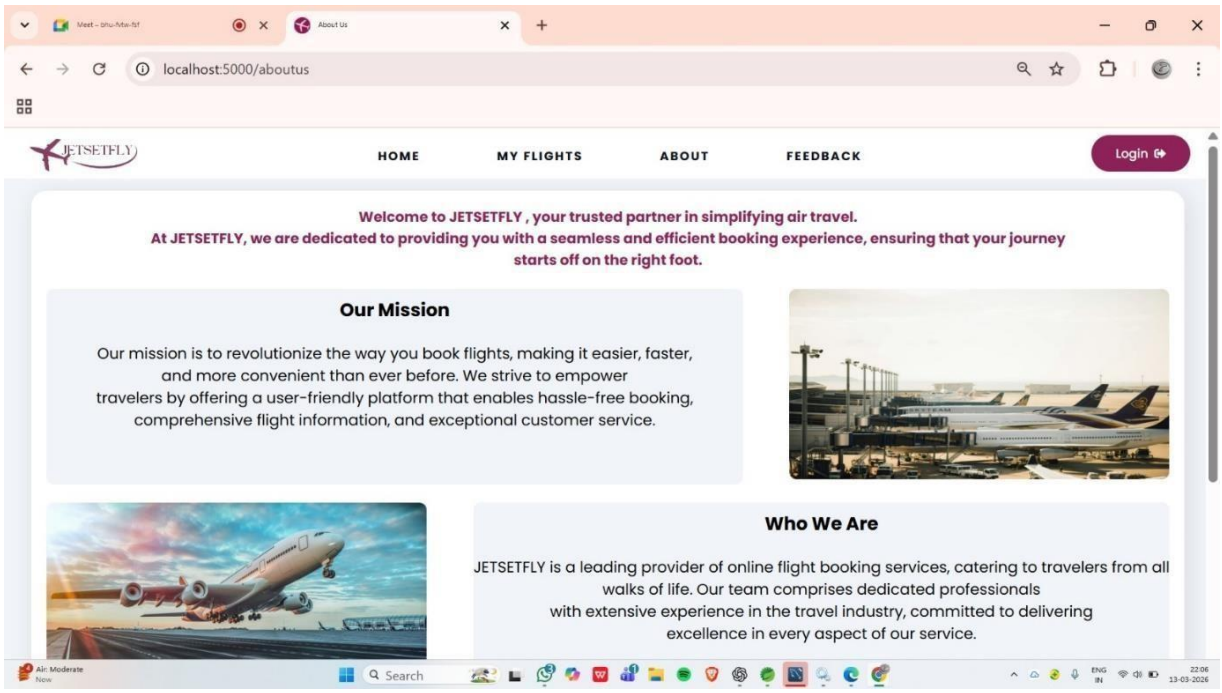
Test Case ID	TC-JSF-008	Real-time Seat Availability Update	PASS
Expected Output	Seat B4 becomes unavailable instantly for User 2 without refresh.		
Actual Output	Seat availability updated within 300 ms.		
Pass / Fail Criteria	Pass if real-time update occurs without page reload.		

UI and SnapShots:

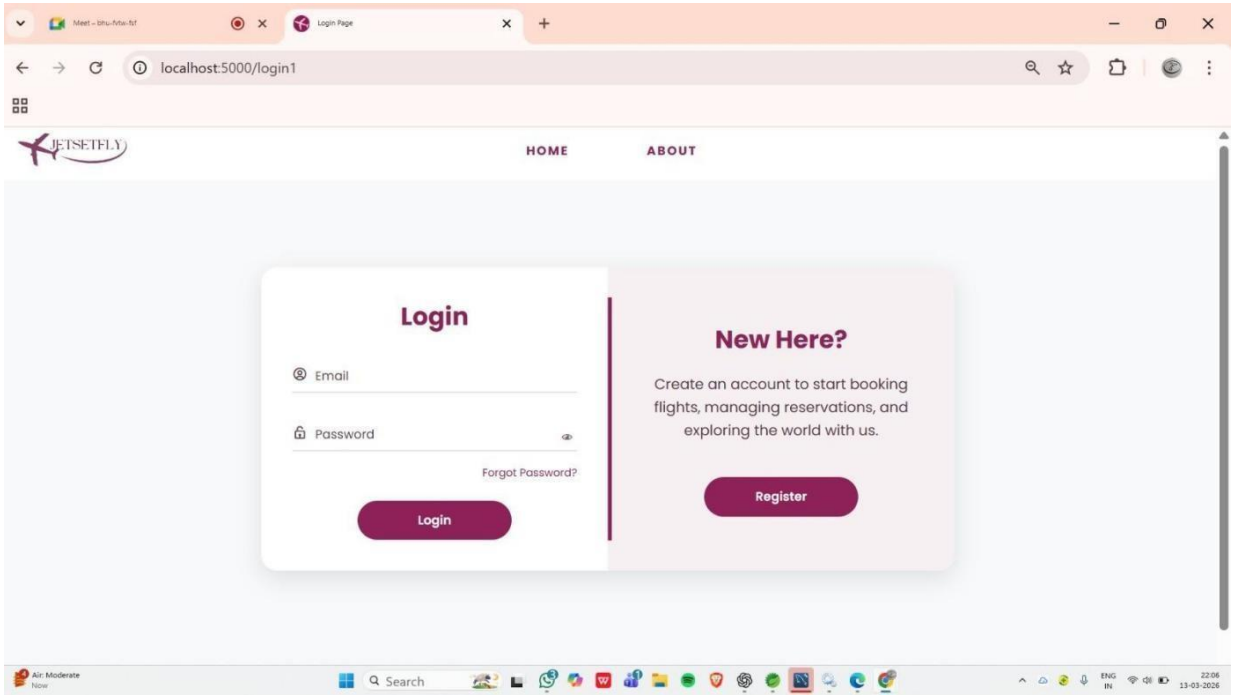
Home Page:



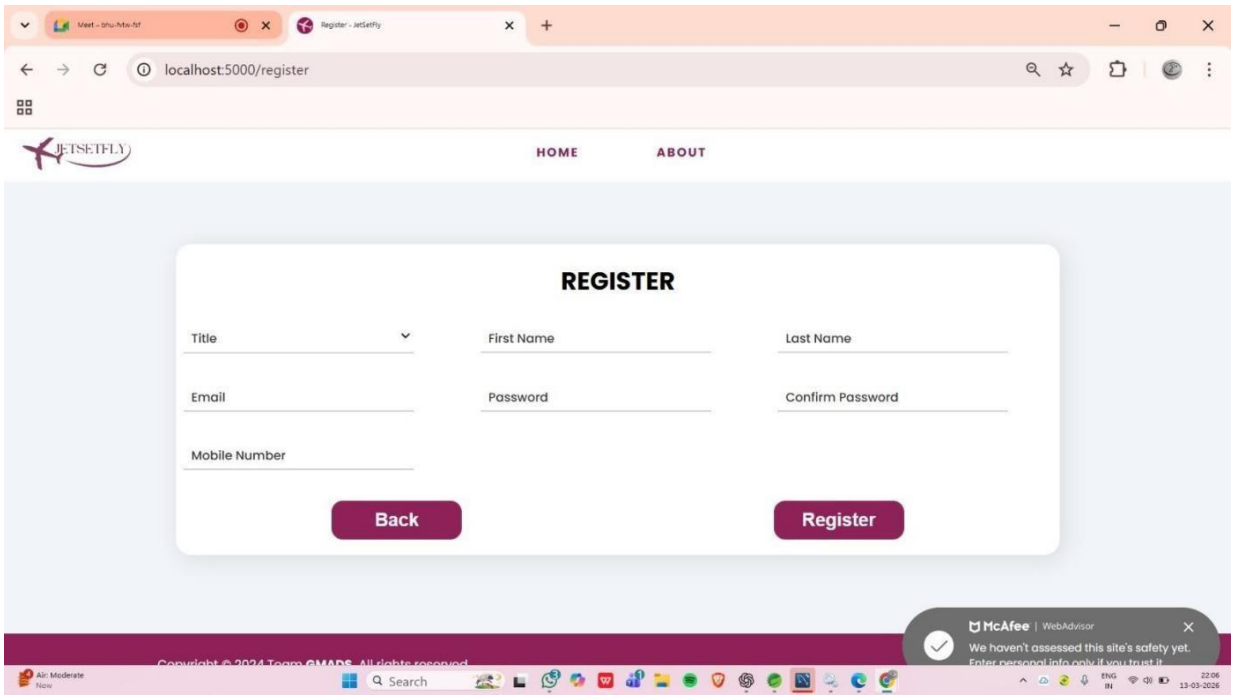
About Page**:**



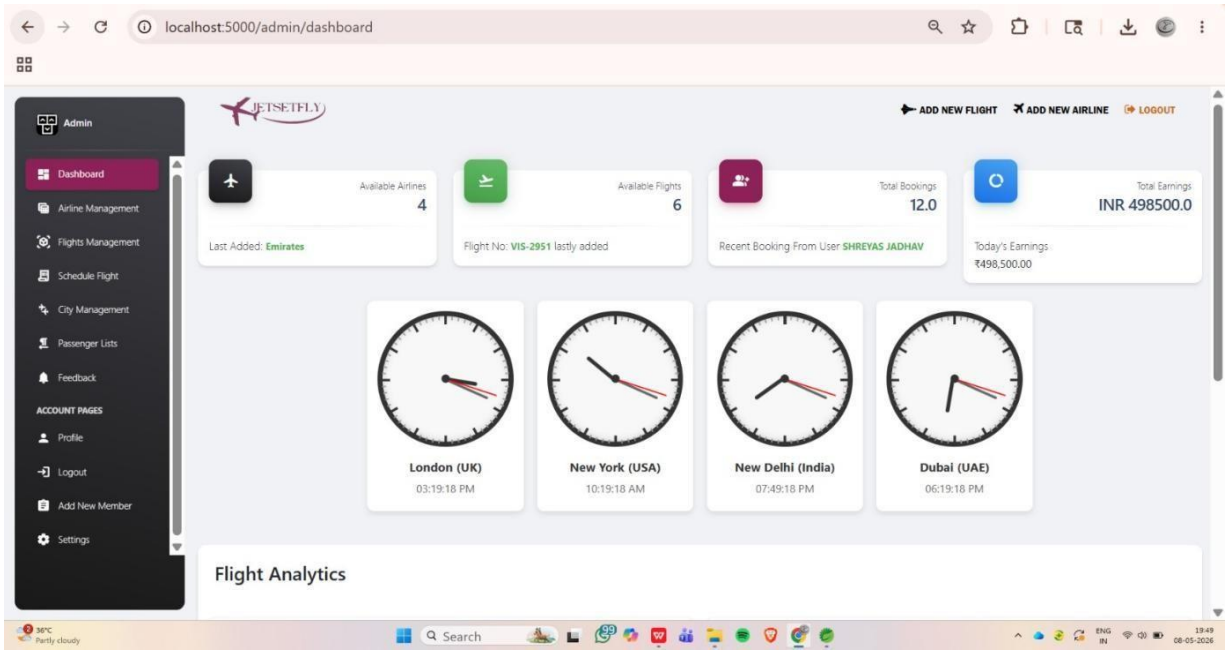
Login Page:



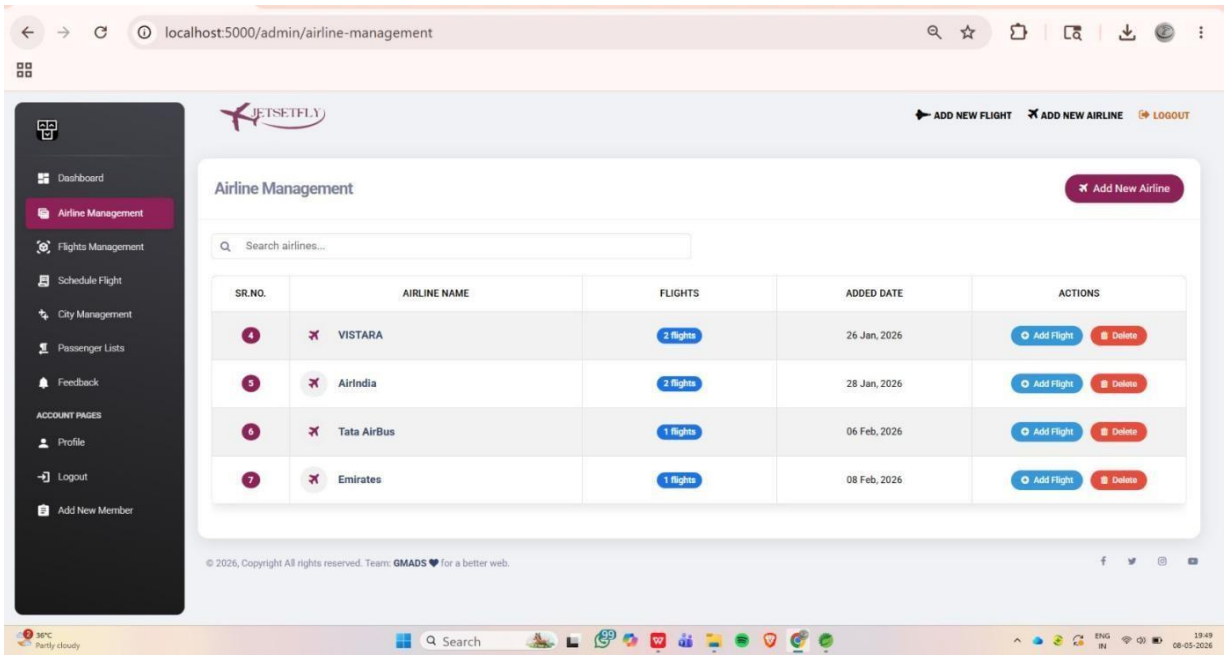
Register Page:



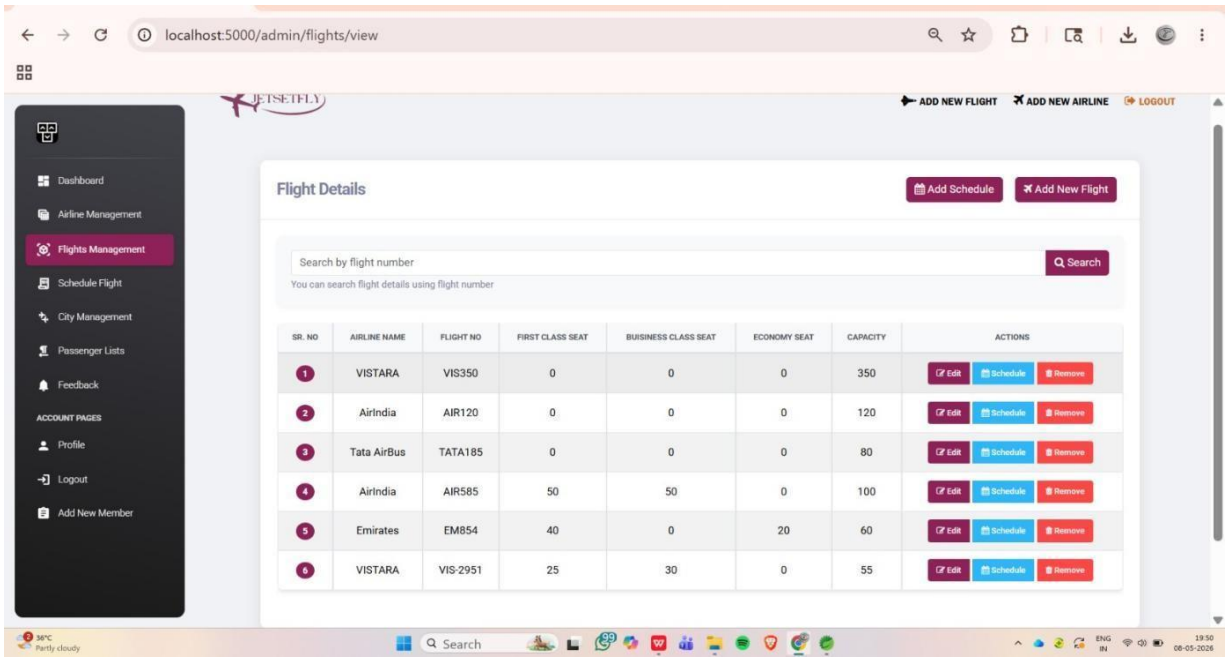
Admin DashBoard:



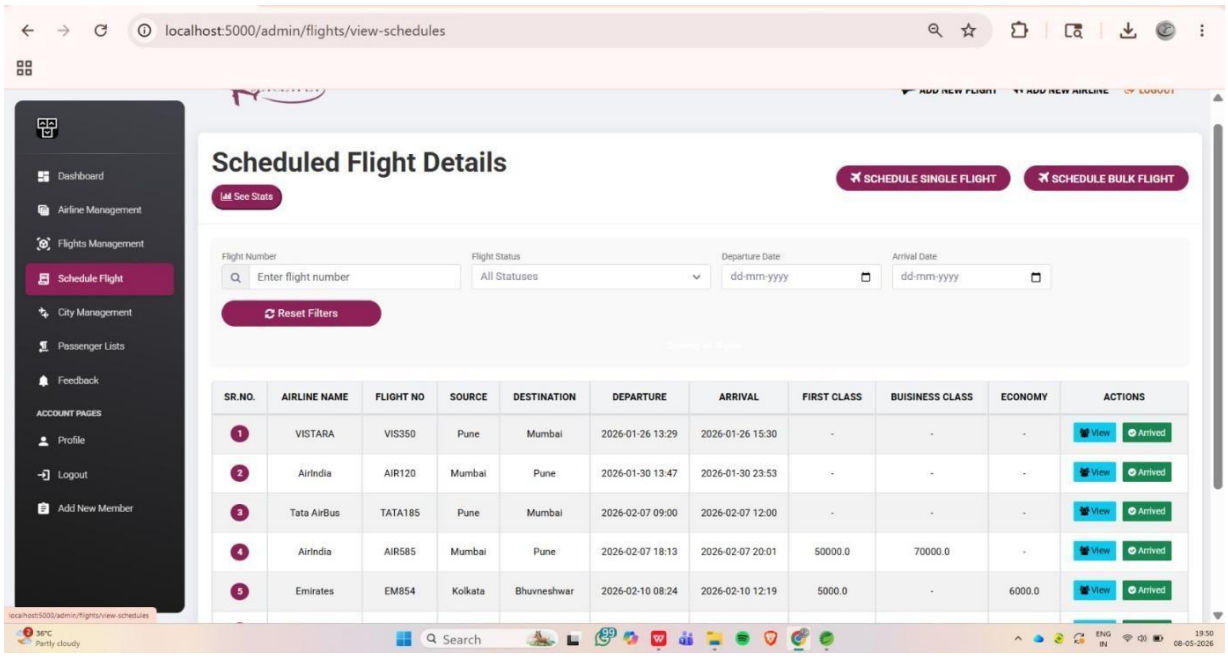
Airline Management:



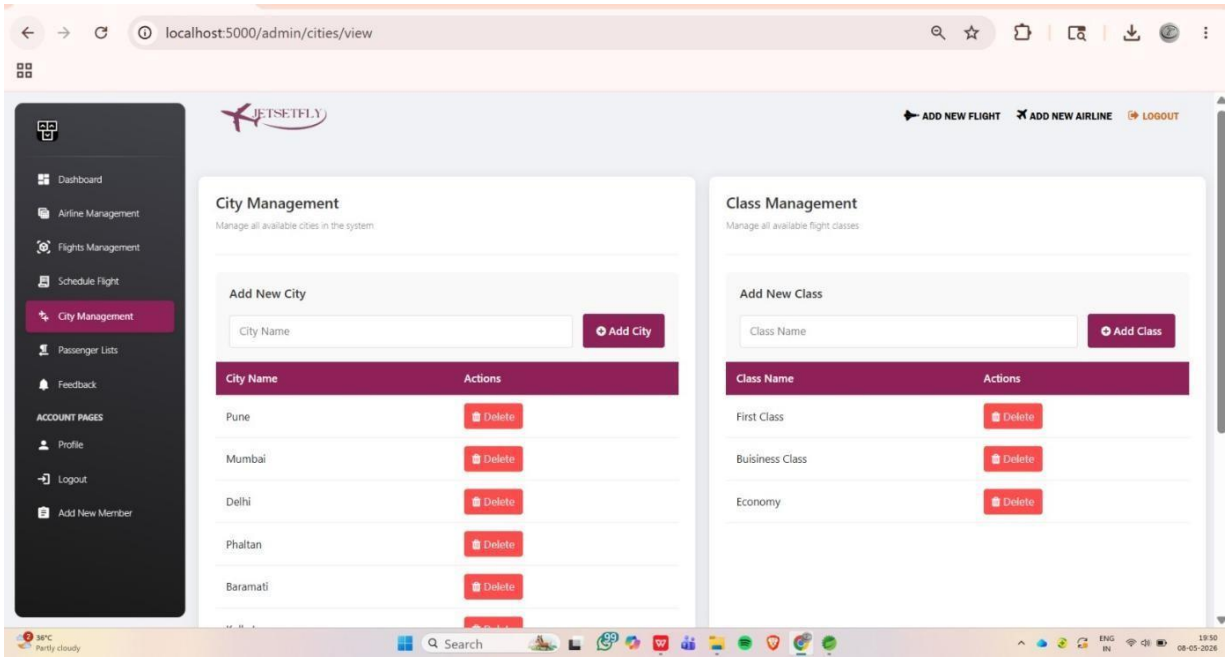
Flight Management:



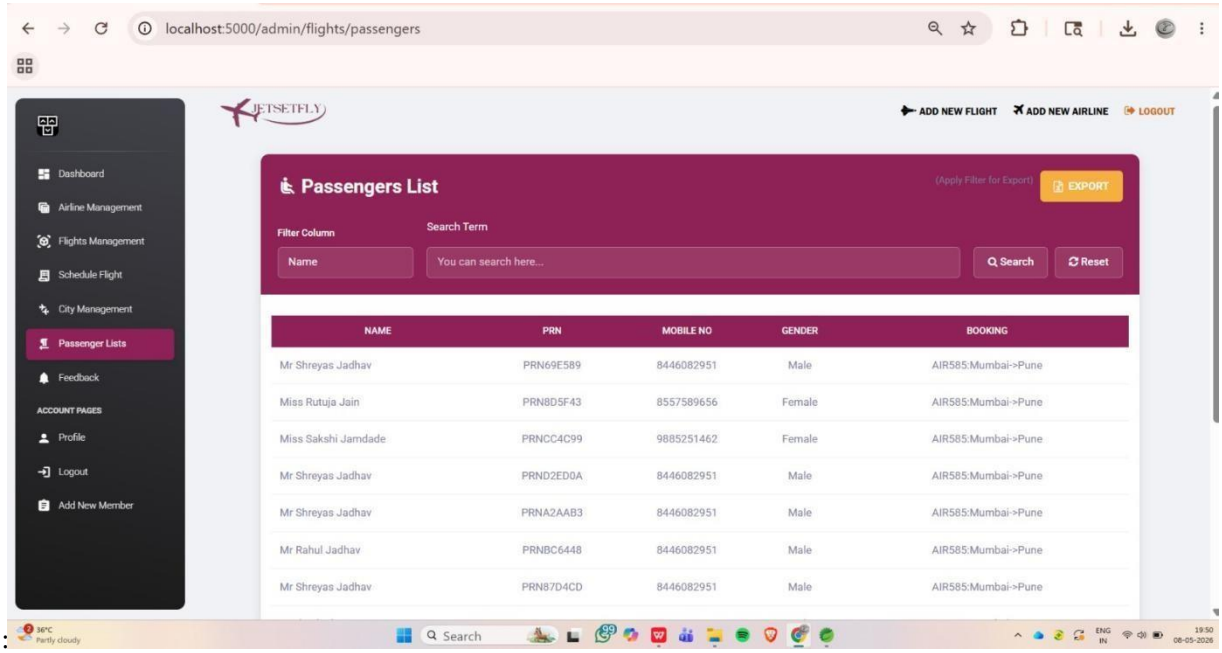
Schedule Flights:



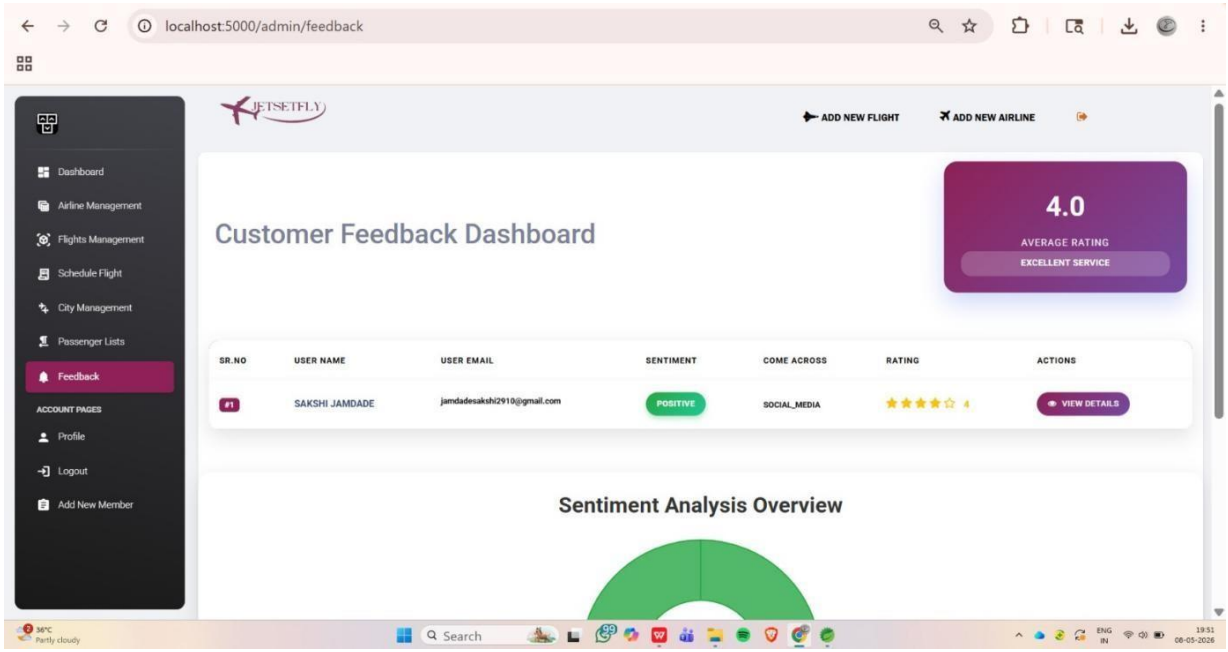
City and Class Management:



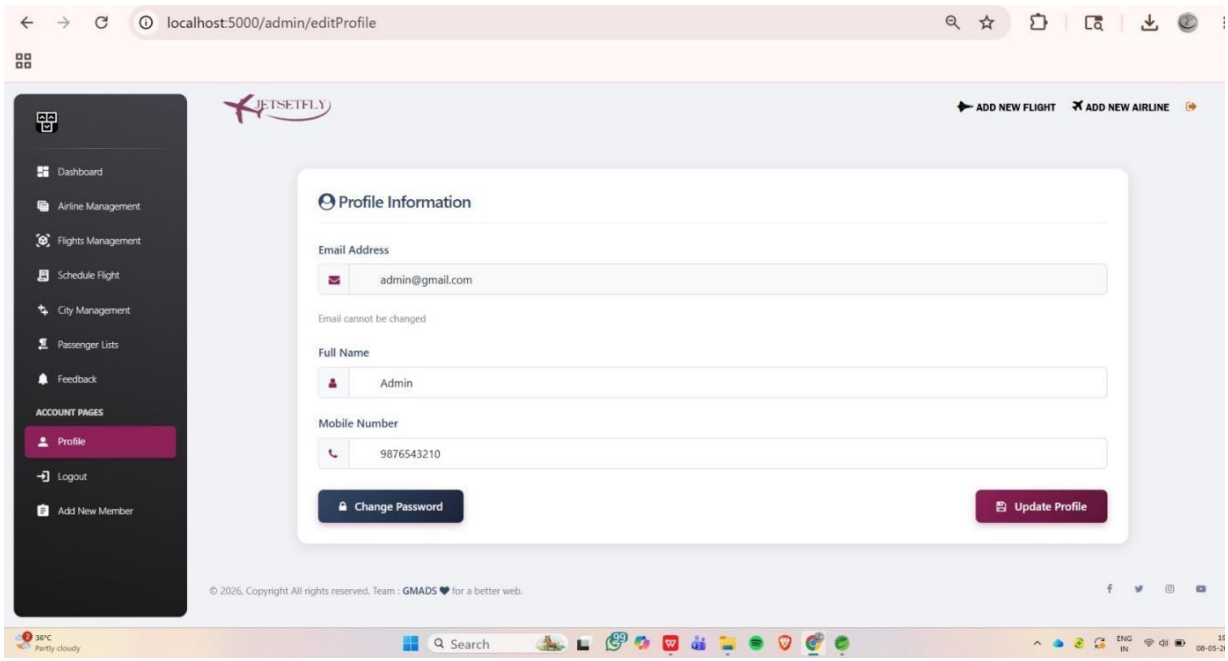
Passenger List:



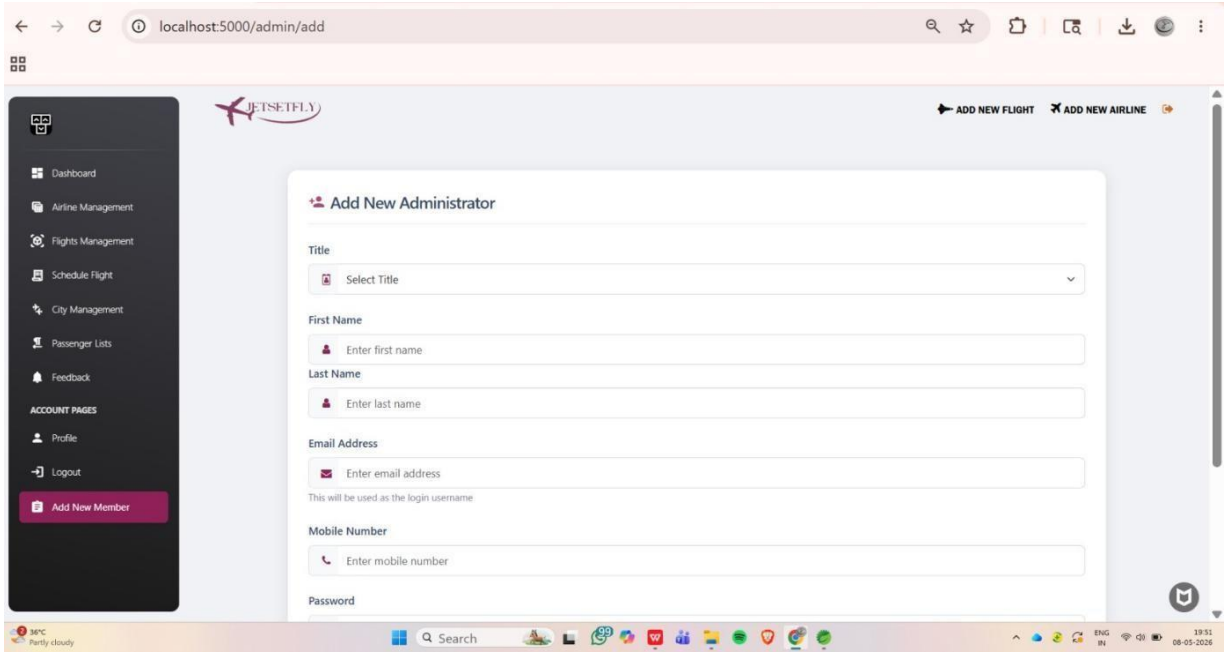
Customer Feedback Report:



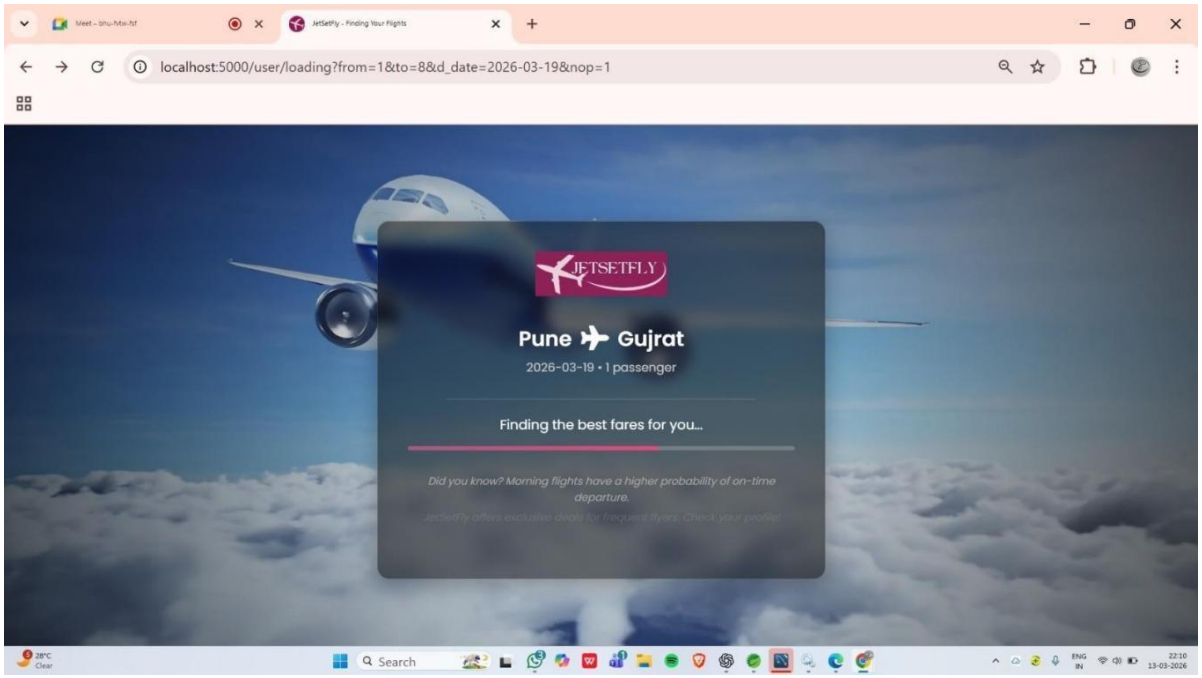
Profile Management:



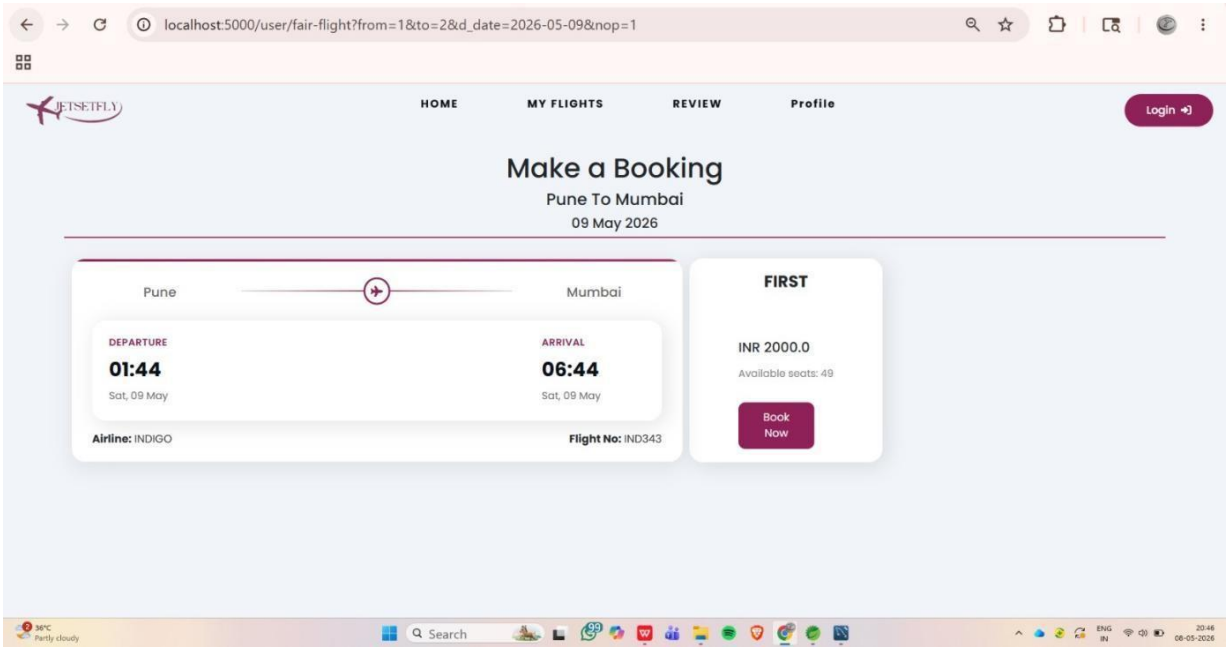
Add New Member:



Search Flight:



Make A Booking:



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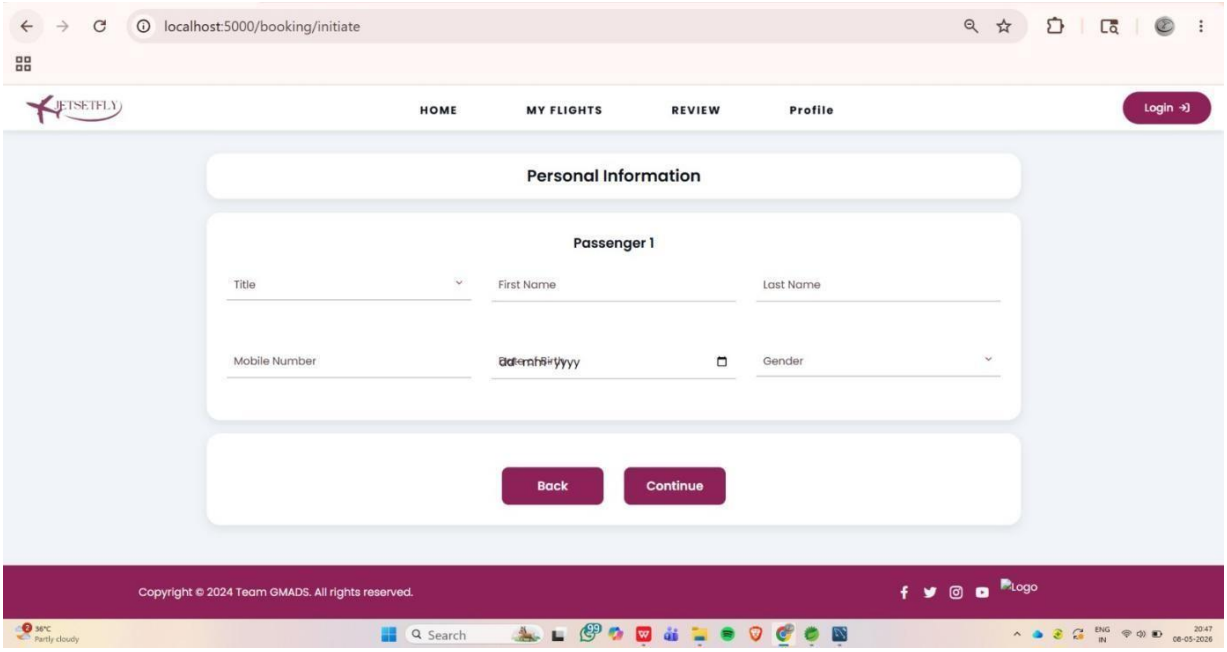

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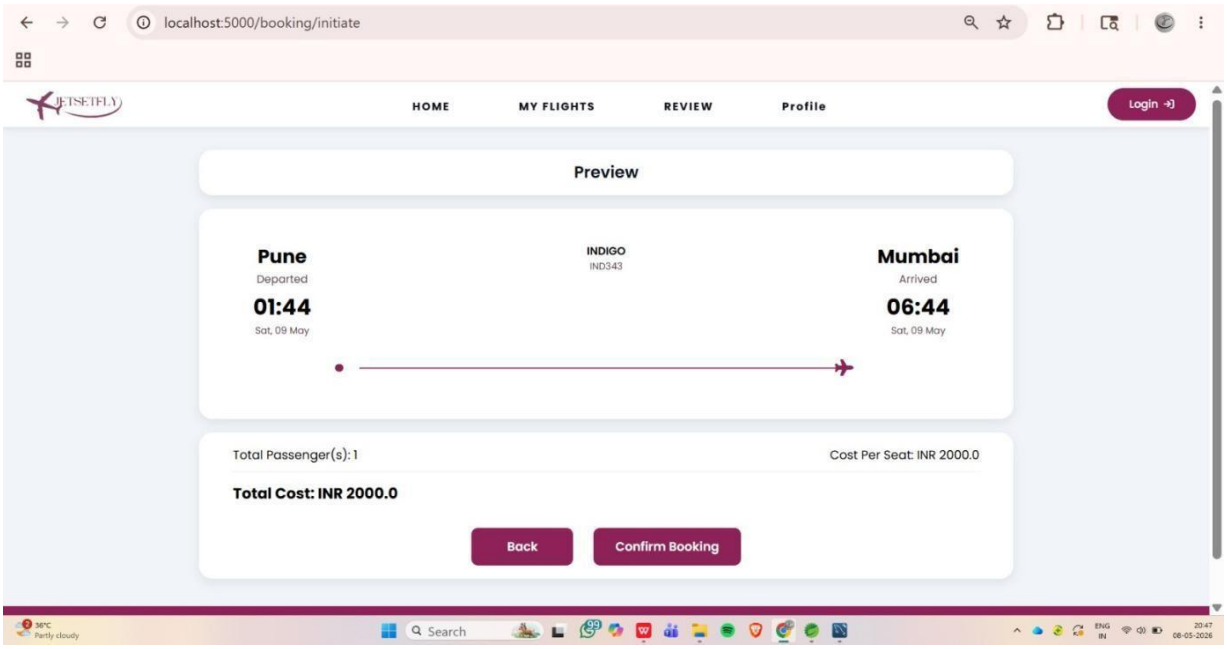
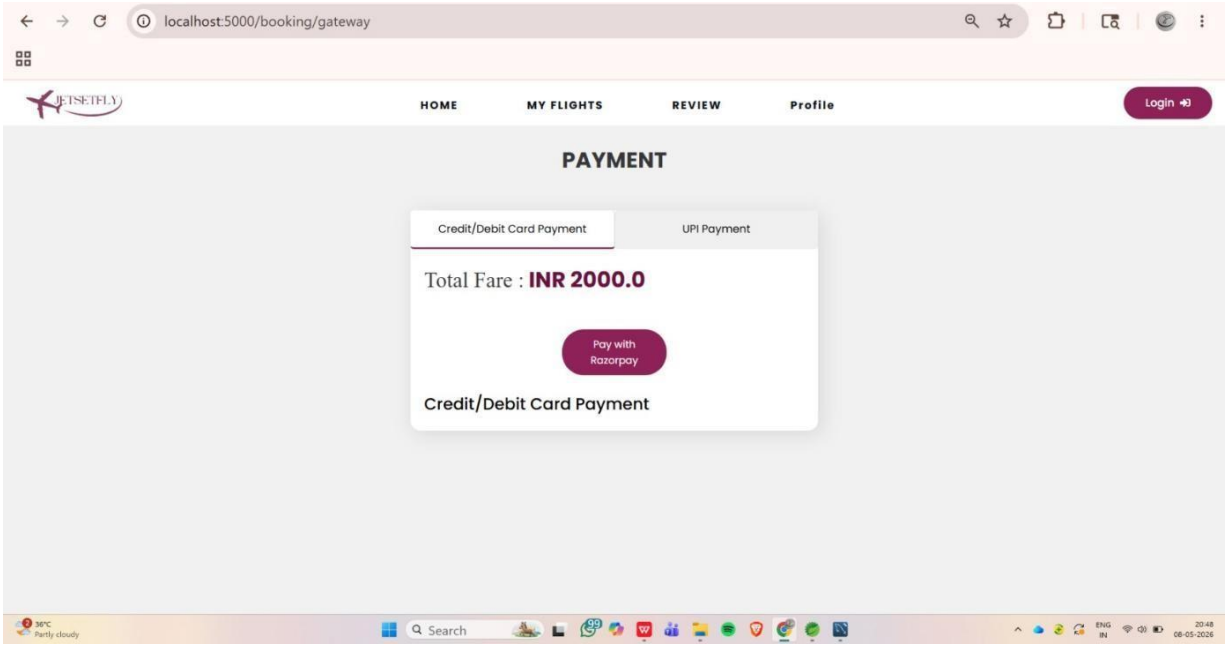
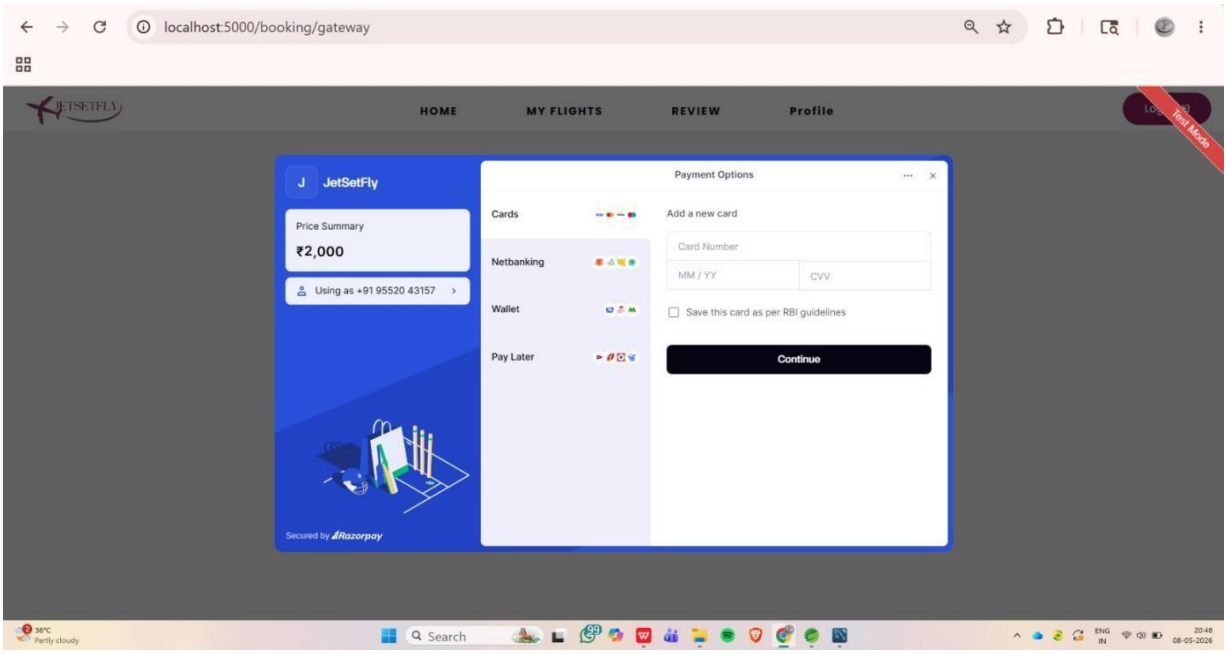


Proceed For Payment:



Razoprpay Payement Gateway:



Payement Succesfull: