Airline Ticket Booking System

By

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A Project Submitted to Marwadi University in Partial Fulfillment of the Requirements for the Bachelor of Technology in Information and Communication Technology

April 2024



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CERTIFICATE

This is to certify that research/project work embodied in this project report titled "Airline Ticket Booking System" was carried out by Jill Padariya-92000133007 at Marwadi University for partial fulfilment of Bachelor of Technology in Information and Communication Technology to be awarded by Marwadi University. This project work has been carried out under my guidance and supervision and it is up to my satisfaction.

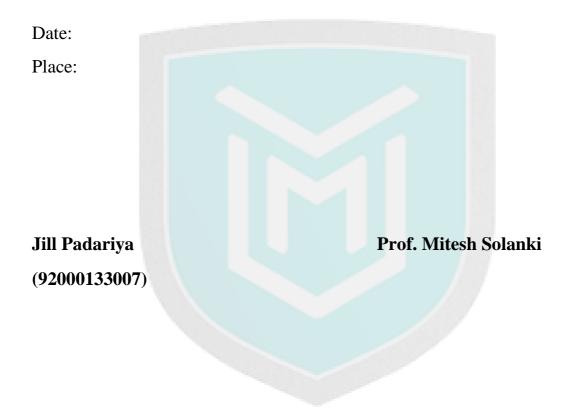
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We hereby certify that we are the sole authors of this project work and that neither any part of this project work nor the whole of the project work has been submitted for a degree to any other University or Institution.

We certify that, to the best of our knowledge, the current project work does not infringe upon anyone's copyright nor violate any proprietary rights and that any ideas, techniques, quotations, or any other material from the work of other people included in our project work, published or otherwise, are fully acknowledged in accordance withthe standard referencing practices. Furthermore, to the extent that we have included copyrighted material that surpasses the boundary of fair dealing within the meaning of the Indian Copyright (Amendment) Act 2012, we certify that we have obtained written permission from thecopyright owner(s) to include such material(s) in the current projectwork and have included copies of such copyright clearances to our appendix.

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Acknowledgement

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Jill Padariya- 92000133007

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Abstract

Airline ticket booking system is very modern approach for easy to use for them. Client can all information of user. Each airline system has its own system for ticket booking, eateries and services and customer support also. This airline ticket booking system was developed using php, html, css, bootstrap and mysql database. This project aims to need of user easiness like online ticket booking, online payment etc. this project will give ticket booking detail like destination, time and user detail. The outcome of project will help user to register and login through website and can book their ticket in convenience easily through anywhere, no need to book ticket through their to any ticket booking agent. This project method will help to solve the manual system drawbacks which include time error or time consuming for user to not stuck in line of ticket booking, this project also allow to select seat type for booking their ticket with comfort with price. This project give user information security also not get sabotage. This project allow to see user flight schedule based on date and domestic state of india.

Chapter 1: Introduction

Today modern airline reservation system like indigo, emirate, Vistara and other companies of airline are providing many airline management task and service for customer who is in need get help by airline staff. The internet has been more useful nowadays through online reservation customer can book a ticket hassle free. Staff member can also generate ticket and no need of travel agents. This could be more hassle free for customer and airline management staff, not stay in chaos or in aline just book and get boarding pass. Airline ticket booking system contain details of user and flight and price this website has reduced as much as possible error while entering any data. The organization can maintain computerizes records with the information. Through this automate its manual system with the help of computerized software for fully equipped so their information can be stored for longer period with manipulation also.

The outcome of project will help user to register and login of user through website and can book their ticket in convenience easily through anywhere, no need to book ticket through their to any ticket booking agent. There are user and admin facilities. This project will give ticket booking detail like destination, time and user detail, this project will show statics view of ticket booked of users. The reason for this endeavor is because India has a significant airline industry that handles domestic flight. This project has applied Indian state according to International organization for standardization (ISO). According to ISO state there 28 state in India. This website is eliminated and reduce hardship of existing facility.

1.1 Objective:

There are two Module one user side and another admin side

Customer / User Module:

1. Account creation:

Allow user to securely register and maintain personal information

2. Flight search:

It gives customer to search flight according to state on their preferences date and time

3. Ticket booking:

Ticket booking based on flight search reference it will allow to book a ticket for a specific flight. It allows to book ticket with selection of seat type, date and time according to customer convenience.

4. Ticket History:

It will allow to user to view the flight with destination and date, time with price

Admin Module:

1. Flight Schedule:

Allow to flight schedule with option like seat type, price, date and time preference . manage that flight schedule to modify flight or delete flight schedule

2. View ticket booked:

Ticket booked will display to user which flight was booked or destination, date and time

3. Ticket Booked statics:

Ticket booked display in above module, statics of bar chart will be display according to number of seats is booked

1.2 Problem Statement:

Unavailability of travellers to choose their preferred flight and seats using current reservation system. As a consequence, passenger now have to wait longer at check in counter to get their seats assigned before they can aboard. The complexity of user interface on current system make its difficult for user to navigate and complete transaction.

Administration are able to optimize flight schedule and make data driven decision since they do not have real access to real time update and insights into booking statics. Due to insufficient security measures , data stored in current system maybe compromised , increase risk of data breaches. Creating a user friendly , that protiries security and data privacy presents a significant potential to innoviate encourage growth in sector.



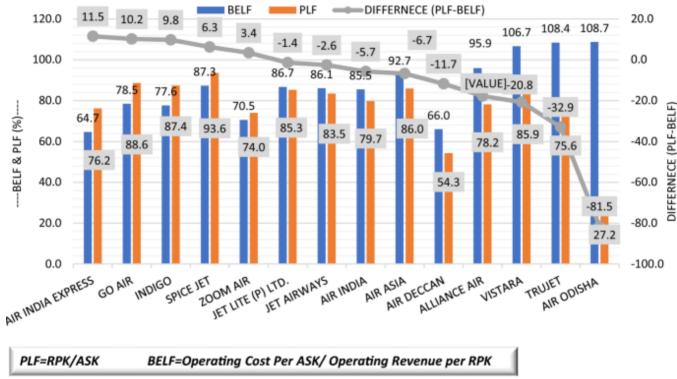


Figure 2.1 Literature review 1

The image's definition of the Basic Economic Leverage Factor (BELF), which is symbolised by the orange bars, is the ratio of Operating Revenue per Revenue Passenger Kilometre (RPK) to Operating Cost per Available Seat Kilometre (ASK). An airline that has a lower BELF is generally performing better economically because it is making more money per unit cost.

The passenger load factor, or PLF, is a metric that indicates how well an airline fills its available seats with paying customers. It is shown by the blue bars. Higher percentages indicate better performance in terms of capacity utilisation. It is usually stated as a percentage.

Difference (PLF - BELF): For each airline, the difference between PLF and BELF is shown by the grey dots and the line that connects them. This discrepancy might be seen as an indicator of the airline's financial cushion or margin. An airline that has a positive difference between its load factor and economic leverage factor may be in a better financial condition.

The chart illustrates IndiGo's performance, which indicates a comparatively balanced economic position with a high PLF and a moderate BELF, leading to a tiny positive economic cushion. This shows that IndiGo is keeping its operations efficient by managing to strike a fair balance between cost and revenue growth. Though the margin is not as high as it may be for some other airlines, this suggests that IndiGo may have room to improve by further streamlining its cost structure or boosting revenue.

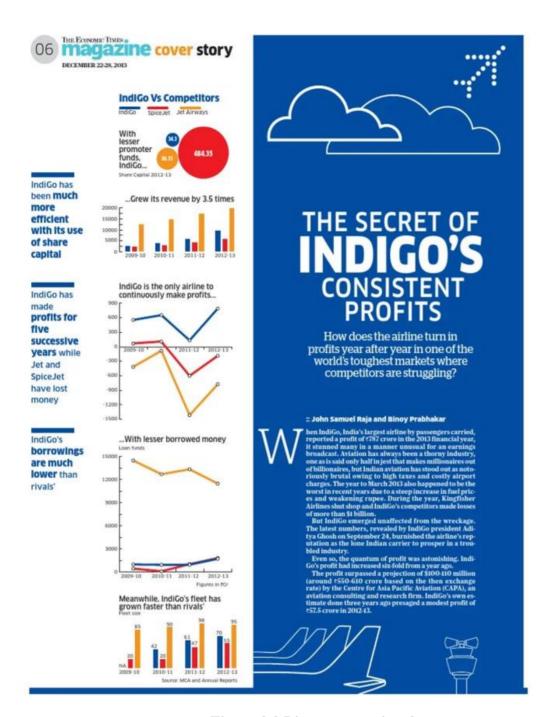


Figure 2.2 Literature review 2

Several important aspects of IndiGo's performance are brought to light by the analysis:

Efficiency with Capital: Compared to its rivals, IndiGo is said to use share capital far more efficiently. IndiGo's promoter funds (83.3) are substantially lower than Jet Airways' (484.35) according to the graphic.

Revenue Growth: During the period depicted in the graph, which encompasses the fiscal years 2009–10 to 2012–13, the airline increased its revenue by 3.5 times.

Profitability: A graph comparing IndiGo's profit trajectory against that of Jet Airways and SpiceJet's losses illustrates that IndiGo is the only airline to consistently turn a profit during the period displayed.

Borrowings: Compared to its competitors, IndiGo borrows substantially less money. A graph shows that within the same time period, its loan funds are substantially less than those of its rivals.

Fleet Expansion: According to a chart, the airline's fleet increased in size from 20 in 2009–10 to 55 in 2012–13, above that of its competitors.

Chapter 3: Methodology

The methodology involves through requirement determination, analysis, system design, implementation, and validation with a focus on usability and functionality and includes stakeholders interviews, surveys and market research.

Requirement Determination:

- Stakeholder interviews: interview airline staff, management and Customer to understands their need and expectation from the system
- Survey and feedback analysis: collect feedback from existing customers and analyze their preferences
- Market Research: Look for similar features and functionalities by examining the systems of rivals and industry standards.
- Regulatory Compliance: Verify that the system conforms to all applicable data protection laws and aviation rules.

Analysis of Requirements:

- The functional requirement involves identifying necessary features such as creating an account, searching for flights, booking tickets, managing flight schedules, and so on.
- Non -Functional Requirements: Establish the usability, security, scalability, and performance requirements for the system.
- Use Case Modelling: Create through use cases to comprehend how users and system components interact.
- Prioritize needs according to their significance and influence on the usability and functionality of the system.

System Design:

- Architecture design: design the overall system architecture, including the client server model, database structure, and integration points.
- Database design: create schema design to represent the data model and relationship
- User interface design: design intuitive and user-friendly interfaces for both customer and administrators, focusing on ease of use and accessibility.

Implementation:

- Front end development: develop the user interface using appropriate technologies like html, css, bootstrap.
- Backend development: Implement the backend logic using programming language like php, Laravel framework.
- Database implementation: set up the database system like mysql and implement schema design.
- Unit Testing: test individual component to ensure they work as expected.
- Integration testing: test the integration between front end, backend and database components to verify data flow and system behaviour.
- User Acceptance Testing (UAT): conduct UAT with stakeholders to validate that the system meets their requirements and expectations.
- Performance testing: Evaluate system performance under various load condition to ensure scalability and reliability.

Validation:

- Validation with Stakeholders: present the system to stakeholders for final validation and approval.
- Regression Testing: conduct regression testing to ensure that new update or changes do not adversely affect existing functionalities.
- Compliance Testing: conduct regression testing to ensure that new updates or changes do not adversely affect existing functionalities.
- Compliance testing: validate that the system complies with relevant regulations and standards.
- Deployment: deploy the system to production environment and monitor its performance in real world usage.

Chapter 4 : Software requirement specifications

4.1 Introduction:

1.1 Purpose:

The purpose of this document is to provide a detailed description of software requirement for customer and admin module of an airline booking system.

1.2 Scope:

The software will consist of two main module: customer and admin module.

The customer module allow users to register, search for flight, book ticket and view booking History.

The administrator module enables to airline staff to manage flight schedules and view booking statistics.

4.2 Customer Module:

2.1 Account creation:

Users should be able to create an account by providing necessary details such as name, email, password and contact information. The system should validate the uniqueness of email address to prevent duplicate accounts.

2.2 Flight search:

Users should be able to search for flight based on criteria such as date, time, destination and class. The system should display relevant flight option with detail including depature/ arrival time and available seats.

2.3 Ticket Booking:

Users should be able to choose desired flight from search result and select the class. The system should allow to users to choose their preferred seats.

2.4 Ticket Booking History:

Users should be able to view their booking history . The system should display details such as contact information and flight detail.

4.3 Administrator Module:

3.1 Flight Schedule Management:

Administrator should be able to add new flights to the system with details including flight number, destination, depature/ arrival time, and date. Administrator also have the ability to modify existing flight.

3.2 View Ticket Booking Statics:

Adminstrator should be able to view statics of booked flight.

4.4 UML Diagram:

4.1 Use case Diagram:

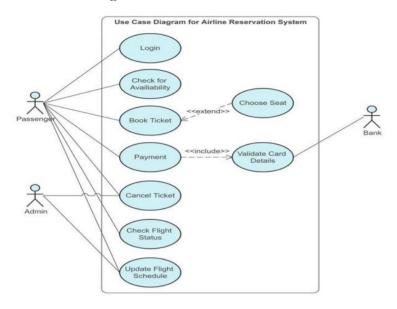


Figure 4.1 use case Diagram

4.2 Class Diagram:

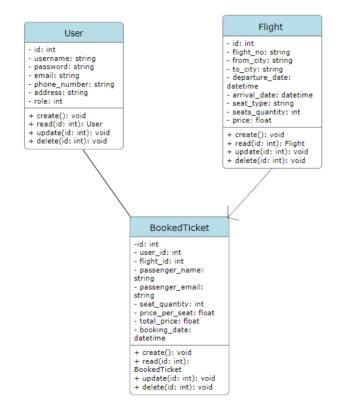


Figure 4.2 class Diagram

4.3 sequence diagram:

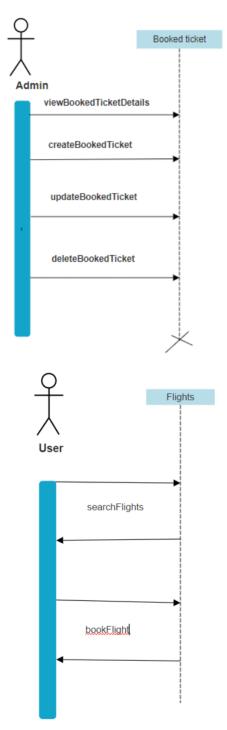


Figure 4.3 sequence Diagram

4.4 Component Diagram:

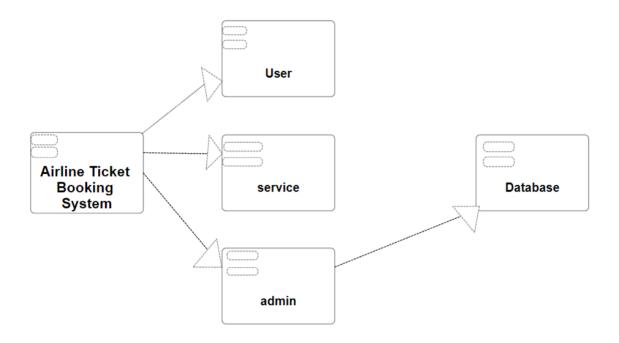


Figure 4.4 component diagram

Chapter 5 : System Design

5.1 Database Design:

Databse

Emirates

login
flight
Booked_ticket

Table 0 : database

Login:

Name	Туре
id(primary key)	int
username	varchar
password	varchar
email	varchar
Phone_number	varchar
address	varchar
role	varchar

Table 1: Show User Details

Flights:

Name	Type
id	int
flight_no	varchar
from_city	text
to_city	Text
departure_date	Date
arrival_date	Date
seat_type	Text
seats_quantity	int

Table 2 : Show Flight Details Booked ticket :

Name	Туре
id	int
user_id	int
flight_id	int
_passenger_name	varchar
passenger_email	varchar
seat_quantity	int
price_per_seat	decimal
total_price	decimal
booking_date	timestamp

5.2 Implementation:

Register:

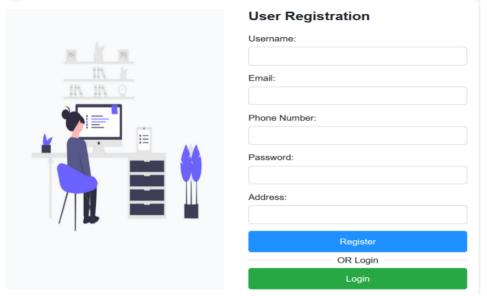


Figure 5.2.1: Account creation

In this user registration page given input are username, email, phone number, password, address with register button and login button.

Login:

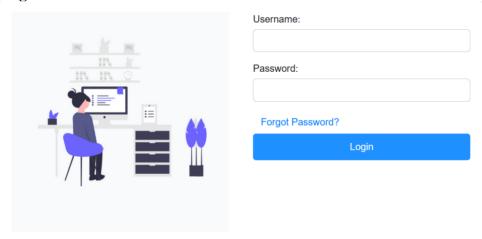


Figure 5.2.2: Account Creation

In this login page given input are username, password with login button and forgot password link.

1. Administrator Module:

Dashboard:



Figure 5.2.3 Dashboard

In dashboard page there is username displayed as welcome username. Then there are button for dashboard, create flight, flight schedule, flight history, logout.

Flight Schedule:



Figure 5.2.4 Flight Schedule

Flights schedule has create form with input field like fligh no, from city, to city, departure date, arrival date, seat type, seat quantity, price.

Flights Table



Figure 5.2.5 flight table

Flight table data is created from figure 2.5.4, and then displayed over here.



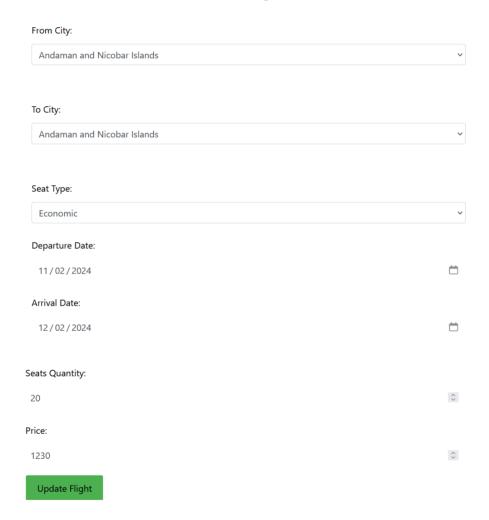


Figure 5.2.6 Edit flight

In this edit flight also flight table data will be displayed in edit flight page then if user want to change or modify then it will be able to change in edit flight.

View Ticket Booking Statics:

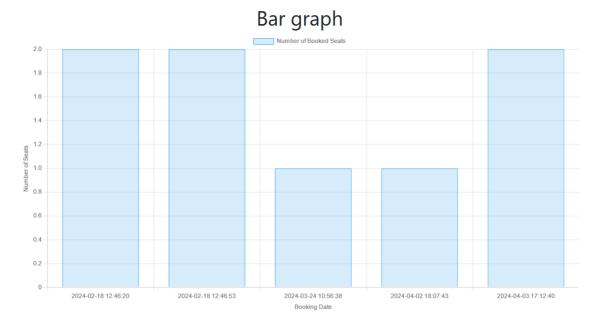


Figure 5.2.7 Bar Graph Of Ticket Booked

In this view ticket booking statics the bar graph is displayed of booking date vs number of seats are booked.

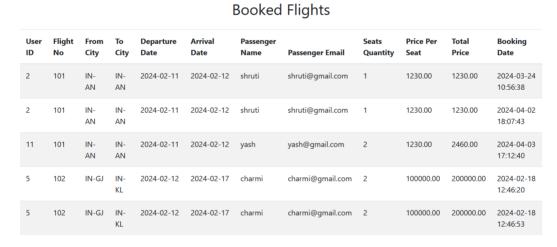


Figure 5.2.8 Booked Flight

In this page there is booked flight data is displaying of ticket booking and user information.

2. Customer Module:

Dashboard:



Figure 5.2.9 User dashboard

In this page when user logged in then this dashboard page is displayed. There is functionality like search flight, booked ticket.

Search flight:

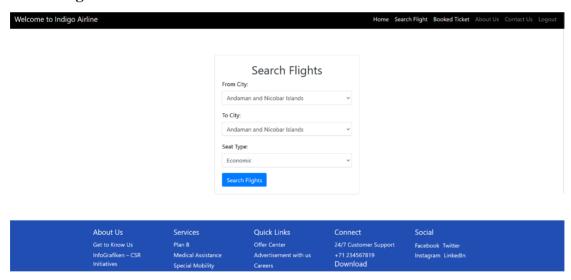
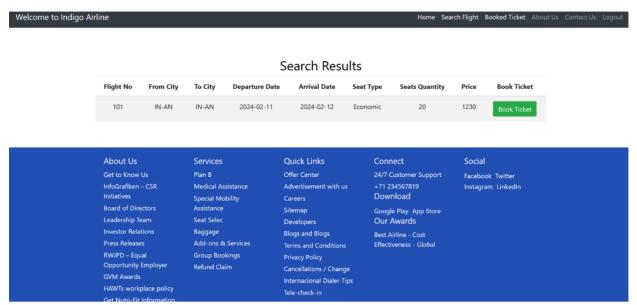


Figure 5.2.10 Search Flight

In this page search you can search flight based on indian state.

SearchResults:



Fligure 5.2.11 Search result

In this searched result page is displaying data based on what you search flight state of india and seat type.

Booking Ticket:

Flight Details

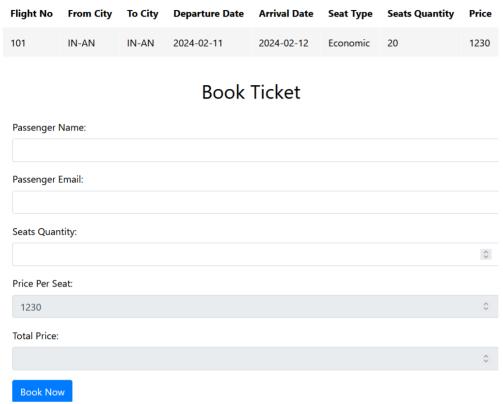


Figure 5.2.12 Book Ticket

In this page user need to give their information like name, email, seats, price.

Confirm Booking:

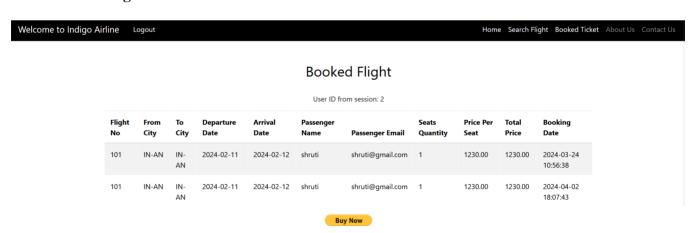


Figure 5.2.13 Booked Flight Detail

In this page user has booked flight is displaying as per figure 5.2.13

Payment through paypal integration:

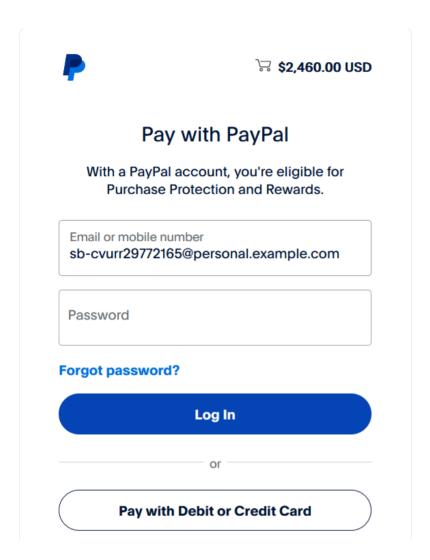


Figure 5.2.14 Paypal Method

After booked flight page on click Buy now button it will link to paypal page and successfully secured payment.

Conclusion:

In Conclusion, the Administrator Module and Customer Module are essential parts of the airline reservation system, created to meet the unique requirements of airline employees and users, respectively.

Customers may register, look up flights, purchase tickets, and check their booking history using the Customer Module's user-friendly interface. By offering easy navigation and quick access to key functionality, this module improves the user experience and fosters user loyalty.

However, the Administrator Module gives airline employees the ability to effectively oversee aircraft operations by providing flight schedule management tools and booking statistics insights. This module facilitates the real-time changes of aircraft schedules and offers insightful data on booking trends and revenue production. This data helps with informed decision-making and resource optimization, which ultimately contributes to the overall profitability of the airline.

When combined, these modules create a complete booking system that boosts customer satisfaction, increases operational effectiveness, and increases airline profitability. Airlines can effectively compete in the fast-paced and fiercely competitive aviation sector by utilizing technology to fulfill the demands of both employees and consumers and streamline processes.

Future Scope:

Enhanced Personalization : Integrate AI algorithm to provide personalized flight recommendation based on user preferences, past bookings and current trends.

Mobile application Development : develop a user friendly mobile app for both customer and admin, enhancing accessibility and convenience.

Integration with Emerging Technologies: Explore integration with emerging technologies like blockchain for secure transactions and IOT for real time tracking of flight and baggage.

Expanded reporting and analytics: implement advanced analytics tools to generate comprehensive reports on customer behavior, market trends and operational efficiency.

Global expansion : expand the system to support multi language interfaces and accommodate international flight operations, catering to a broader customer base.

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Review Card

Marwadi University Novemble Characteristic Circuit	Marwadi University Faculty of Engineering and Technology Department of Information and Communication Technology
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Project review 2

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