Airline Ticket Booking System

# Description:

The airline ticket booking system (ATBS) is a GUI application that serves as an airline booking system. In it the staff will be able to manage airline flights, as in search, reschedule and see seat availability. The passengers will be able to search, book and cancel flights, while also receiving notification on the flight’s status and print their boarding pass. The idea of this program is for airline staff and clients to have access to a clean and fast airline booking system.

# Functionality:

The ATBS s intended to be easy and intuitive, presenting a clean GUI for the user that can easily be used and accessed. The GUI will present the staff with and admin panel where they can search for plane tickets and then browse through the results. That allows them to see their details and reschedule flights for clients. For clients they can search for plane tickets to book and pay for one, as well as cancel their flights. While booking a plane ticket they can see seat availabilities and pick their preferred option. They will also receive notifications when the status of the flight changes and be able to print their boarding pass.

# Who Is This Application For:

This application is designed for airline managers, a simple airline and travel agencies who wish to be the middleman and to streamline their booking operations.

Moreover, this application also targets customers who need a fast, reliable and simple platform to book airline tickets online.

# Features:

## 1. Flight Search and Display:

Description: Allow users to search for available flights based on parameters like origin, destination, date, and time. Display matching flights with key details like flight number, departure time, and seat availability.

Effort level: Moderate, involves creating search filters and displaying dynamic results.

## 2. Seat Selection:

Description: After choosing a flight, users can view available seats in a visual seat map and select their preferred seats.

Effort level: Medium, requires front-end seat visualization and back-end management for seat availability.

## 3. User Registration and Authentication:

Description: Implement a user registration system where users can create accounts with basic details. Users will log in securely with authentication checks (e.g., email and password).

Effort level: Medium, involves security practices for user data and authentication mechanisms.

## 4. Flight Ticket Booking and Confirmation:

Description: Allow users to input personal details, choose seats, and finalize ticket booking. Upon confirmation, generate a ticket that users can download as a PDF and send a confirmation email.

Effort level: Medium to high, as it involves ticket generation and integration with the email system.

## 5. Payment Processing Integration:

Description: Integrate a third-party payment gateway (e.g., PayPal, Stripe) to handle secure payments for tickets. Provide a receipt post-payment.

Effort level: High, since it requires understanding and implementing external payment APIs.

## 6. Booking Cancellation and Refund:

Description: Allow users to cancel their bookings within certain time limits and receive a refund (based on airline policy). The system should update the seat availability after a cancellation.

Effort level: Moderate, requires logic for refunds and updates to seat availability.

## 7. Flight Details Dashboard:

Description: Create a dashboard where users can view all upcoming flights they’ve booked, including flight number, times, and seat details.

Effort level: Easy to medium, displays stored data for user reference.

## 8. Real-Time Seat Availability Tracking:

Description: Ensure that seat availability is updated in real-time whenever a seat is booked or canceled to prevent overbooking.

Effort level: Medium, needs database management and real-time updating.

## 9. Flight Rescheduling:

Description: Allow users to modify their booking dates and select alternate flights if available. Update their booking details and re-issue confirmation.

Effort level: Medium, involves handling seat reallocation and flight availability checking.

## 10. Admin Panel for Airline Staff:

Description: Provide airline staff with administrative tools to add, update, or remove flights from the system. Staff can also view all current bookings and passenger details.

Effort level: Moderate, involves building an interface for internal use.

## 11. Flight Status Notifications:

Description: Implement an email/SMS notification system to inform passengers about flight status changes (e.g., delays or cancellations).

Effort level: High, involves integrating third-party services for messaging and managing triggers for flight status changes.

## 12. Multi-Language Support:

Description: Enable the system to support multiple languages (e.g., English, Spanish, French), so users can choose their preferred language for the interface.

Effort level: Moderate, requires localization of the UI and text content.

## 13. Search and Filter Flight History:

Description: Allow users to search through their past bookings using filters like flight date, destination, and status. Users can view or re-book past flights.

Effort level: Moderate, involves database querying and display of past data.

## 14. User Profile Management:

Description: Implement a profile management system where users can update personal details (email, phone number, address) and save preferences (e.g., seat type).

Effort level: Medium, involves creating a user-friendly interface for profile updates.

## 15. Printable Boarding Pass Generation:

Description: After booking, allow users to download and print their boarding passes. The boarding pass will include flight details, seat assignment, and a QR code for easy scanning at the airport.

Effort level: Moderate, involves generating a PDF with flight details and adding a QR code.

# Additional Documents

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