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 destination, date, and time. Display matching flights with key details like flight number, departure time, and seat availability.

## 2. Seat Selection:

Description: After choosing a flight, users can view available seats numbers and select their preferred seat type.

## 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).

## 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.

## 5. 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.

## 6. Flight Details Dashboard:

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

## 7. 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.

## 8. Admin Panel System:

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.

## 9. Staff Panel Flights & Passengers Lists:

Description: Provide the staff with a regular panel that look over all the flights and all the passengers to help passengers acquire lost information and have more system security that restricts staff from being admins but keep them with manageable actions.

## 10. 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.

## 11. 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.

## 12. 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).

## 13. 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.

# 14. Database Management:

Description: The system’s data will be stored in an external relational database file using SQLite. This includes the initial setup and ongoing management of data storage. The system will ensure that all program data (e.g., user information, tickets, or schedules) is saved persistently to the database while maintaining synchronized copies within the program’s internal lists for efficient runtime operations.

# 15. Dynamic Database Updating:

Description: The system will provide real-time synchronization between the application and the database. When administrators modify data through the system’s interface—such as adding, editing, or deleting records—these changes will be instantly reflected in the database. This ensures that the stored data always contains the most current information.

# Additional Documents

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