

Smart Airline Reservation Web App

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Abstract:

A computerized reservation system has been employed to store and retrieve useful travel information. These systems have been defined as the PSS or Passenger Service Systems to carry out essential operations in an airline. This enables the incorporation of the latest art technology into a strong platform, that is elastic in the design of an airline. Stable and secure systems in the airline industry depend on several architectures that primarily require the usage of systems simultaneously. Airline ticket booking systems have been conducted through websites and applications in recent times as the tide of technological advancement has impacted e-tourism. Companies design their websites to host many users/customers while aiming to introduce advanced and engaging features. The paper aims at designing a website, based on HTML, and CSS for an effective, quick, and seamless airline ticket booking. Using a secondary methodological approach, the paper reveals that using HTML and CSS for website design can help in making the website more attractive and engaging. In conclusion, the designing of the website for airline ticket booking can simultaneously provide multiple operable features to the users.

Keywords: Airline website, CSS, HTML, online ticket booking, ticket booking website.

INTRODUCTION

An airline reservation system is a platform that is designed to meet the demands of customers and clients who are booking a particular flight online to a certain destination. The main purpose of this software application is to reduce incorrect information given out to airline technicians such as dates of departure or arrival due to language barriers and misunderstanding. This online platform will make it convenient for customers and potential clients to book a flight at any point in time.

The users will also have the right to modify the flight details, make a new reservation, view the flight schedule, and also to cancel the flight as per their wishes.

Furthermore, the Airline reservation system contains details of the flight such as flight costs, passenger reservations, and ticket datasheet records added to its database. Customers do not have to visit the airline office to make a traveling reservation.

This software was designed to eliminate the old manual system and to implement artificial-based technology. The system is user-friendly software that no formal education or profession is needed to make use it.

The airline reservation system provides alternatives for watching identical and non-identical routes available at a particular timeframe. The system checks for available seats on a particular flight and if are to be found available then only a customer would be able to make a reservation hence or otherwise the person will consider choosing other available flights.

LITERATURE REVIEW

"Airline Reservation System" is all about flight ticket booking and managing the flight database as admin. It is a project toward enhancing the relationship between customers and airline agencies through the use of ARSs. This software was built to assist in reserving tickets or canceling a reserved ticket, as well as rescheduling tickets. Since the information will be centralized it can be easily updated in case of any changes to the flight

schedule. The airline reservation system is a Java-based web application that provides flight ticket booking and various facilities. [1]

The airline reservation system is a computerized system that facilitates the booking of airline tickets and related services. It enables passengers to search for flights, make reservations, purchase tickets, and check in for flights from any location with internet access. The airline reservation system also integrates with other systems, such as payment gateways, customer relationship management systems, and flight tracking systems, to provide a complete range of services to passengers. The system's primary objective is to improve the efficiency, security, and usability of the airline reservation process. [2]

This paper presents the idea, design, and prototype of a flight search and airline booking system based on the perspective of user-centered design. To improve the overall flight booking experience, they propose a user-centered design (UCD) based flight search and booking system. User-centered design (UCD) is a design philosophy and process that focuses on the needs, wants, and limitations of the end user of a product or service. The goal of UCD is to design products and services that are easy to use, effective, and enjoyable for the intended users. [3]

This research paper presents a comprehensive study on the implementation of an airline ticket booking system using object-oriented programming (OOP) techniques. The study explores the design, development, and deployment of a robust and scalable system that efficiently manages airline reservations, ticket bookings, and related operations. The paper discusses the growing importance of integrating various subsystems and external services in airline operations, which can be facilitated by the modular nature of OOP.[4]

METHODOLOGY

1. Research Design

The project is developed based on the Software Development Life Cycle (SDLC) model, that is, with an incremental development methodology. The system is developed based on the Model-View-Controller (MVC) architecture, which divides the business logic, user interface, and data management to improve scalability and maintenance.

- The Model (Database Layer) takes care of data storage based on MySQL, with structured handling of data.
- The View (User Interface Layer) is implemented in Java Swing/JavaFX to enable users to interact with the system.
- The Controller (Logic Layer) handles user requests, flight search management, authentication, and data transaction.

The major goal of this research design is to create an efficient, user-friendly, and secure flight booking system offering functionalities for both users (finding flights) and administrators (flight management).

2. Data Collection

To implement the system, real flight data was utilized for system precision.

Data gathering was conducted through the following sources:

- **Primary Data:** Handmade database of flights using sample data, such as airline names, flight times, destinations, and prices.
- **Secondary Data:** Conducted research on available airline reservation systems to examine common booking and management features.
- **User Feedback:** System testing was initially done using a few users to evaluate the user experience, search precision, and admin functionality.

The data gathered was utilized to populate the database and validate various system functionalities such as searching for flights, filtering, and admin-based edits.

3. Analysis & System Development

The data gathered was analyzed and organized to facilitate seamless system functioning.

The analysis was done on:

- **Flight Search Optimization:** Users are able to search flights by departure city, arrival city, date, and price.
- **User Authentication:** Secure login process implemented for users and admins via email-password verification.
- **Database Performance:** Queries optimized for quick retrieval of flight details.

The development of the system was modular-based, such that various components such as user authentication, flight search, and admin management were separately designed and combined.

4. Tools and Technologies used:

IDE: Eclipse (for Java) / VS Code (for Frontend)

Frontend: HTML, CSS (for basic UI)

Backend: Core Java (using Servlets and JSP)

Framework: Java Spring Boot

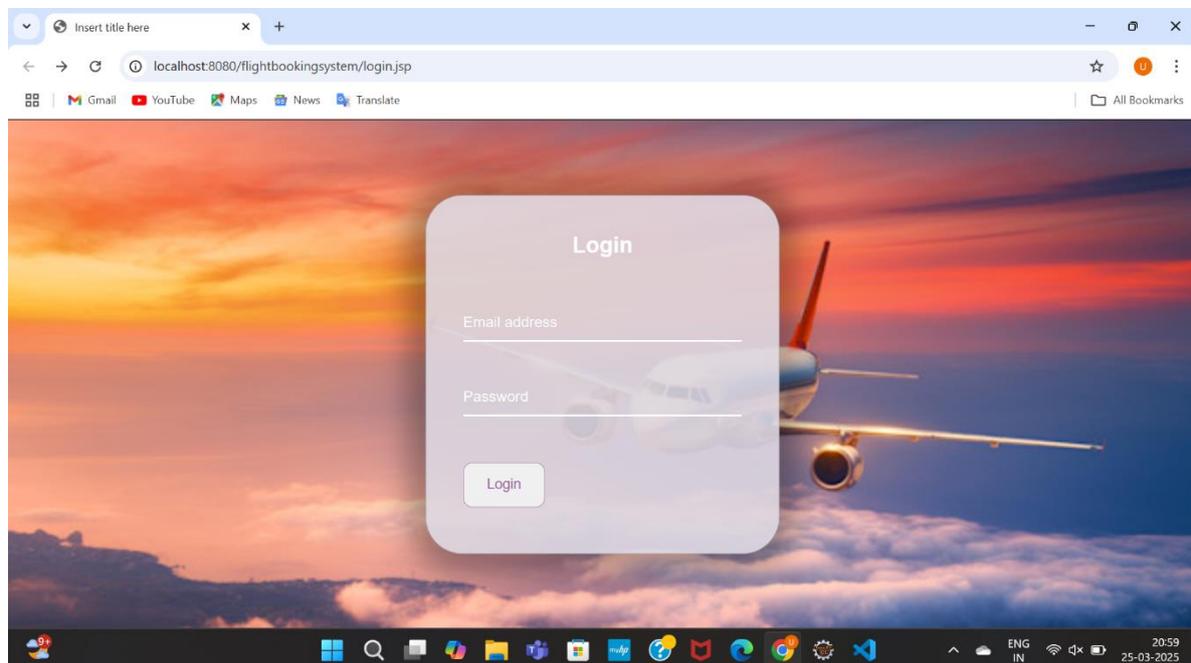
Database: MySQL for storing flight, user, and booking details

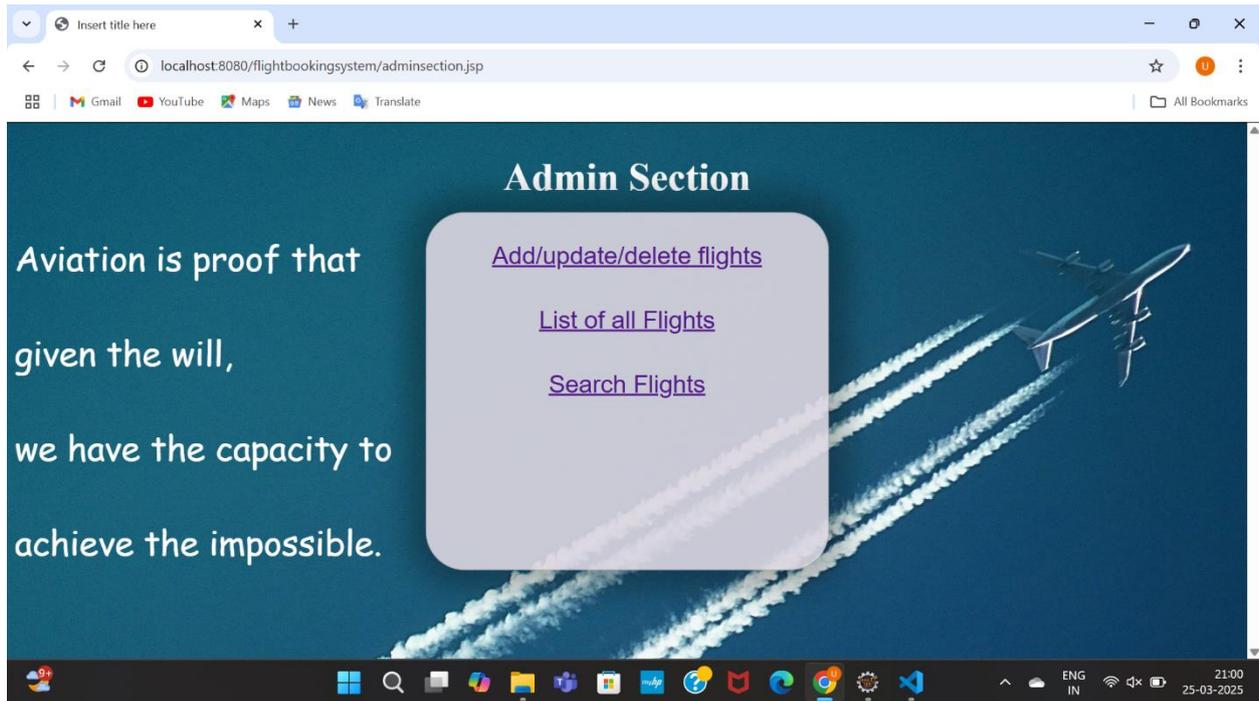
RESULT

This project allows users to view flight details and to reserve, view and cancel tickets by logging in or registering with a new account and reporting any issue if required. Admin is provided with rights to see flight details, reservations, user contacts and some functions like adding flights and collecting reports given by users.

User Interface Screenshots

Login Page:



Admin Section:**CONCLUSION**

We gained much knowledge about object-oriented programming, database management systems, and designing desktop applications through the integration of databases while developing this application. By logging in or registering a new account, users of this project are able to view flight information, book, view, and cancel tickets, and report any problems as needed. It also allows an administrator access to monitor flight details, reservations, contacts of users and additional features such as adding flight details and consolidating user-uploaded reports.

FUTURE SCOPE

Having this system, helps the airline companies to update and save on the flight and package schedules at different times while the customers are able to purchase flight prices, seats, meals, and any other assistance that would make them have a comfortable flight.

Furthermore, for the purpose of the future this project will serve to and be interpreted even by the villagers while, with the creation of this project, we could employ scan codes and apps, all this is attainable by possessing internet thereby possessing adequate infrastructure to offer them with internet that may assist them in saving time going to the city to visit the airline agencies.

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