

# **AIRLINE RESERVATION SYSTEM**

## **A MINI PROJECT REPORT**

**Submitted by**

**RISHIKESH T**

**220701226**

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## **BONAFIDE CERTIFICATE**

Certified that this project report “**AIRLINE RESERVATION SYSTEM**” is the  
bonafide work of “**RISHIKESH T (220701226)**”  
who carried out the project work under my supervision.

**Submitted for the Practical Examination held on \_\_\_\_\_**

## **ABSTRACT**

The Airline Reservation System is a web-based platform designed to streamline the process of booking, managing, and monitoring airline travel for passengers. This system allows users to search for flights between selected departure and arrival airports, view available seats, and make reservations in real-time. It incorporates a user-friendly interface that displays essential flight details such as flight number, departure date, time, and seat availability. Passengers can select meals, specify preferences, and manage their bookings efficiently, while administrators can view passenger details and monitor reservation statuses. The system leverages a structured database to manage flights, passenger details, and meal preferences, ensuring data consistency and quick retrieval. By automating the booking and management processes, the system reduces the dependency on manual operations, minimizes errors, and provides users with a seamless experience from booking to boarding.

# 1. INTRODUCTION

## 1.1 INTRODUCTION

The Airline Reservation System is a comprehensive digital solution aimed at automating the flight booking process and enhancing the efficiency of airline operations. Traditionally, airline booking and passenger management have involved labor-intensive, manual processes prone to errors and delays. As the demand for quick, accurate, and accessible flight booking systems has grown, there is a need for streamlined applications that enable passengers and airline staff to interact with flight data in real time.

This project addresses these needs by providing a web-based platform where users can easily search for flights, view available seats, and make reservations. The system allows passengers to select departure and arrival airports, review flight schedules, and choose their preferences, including meal options. Additionally, administrative functions enable airline staff to access detailed passenger information and monitor booking statuses. By presenting all data in an intuitive, grid-based format, the system ensures that information is organized and accessible.

The Airline Reservation System leverages PHP for server-side scripting and MySQL as the database to store flight, airport, and passenger information. The front-end, designed with HTML and CSS, provides an easy-to-navigate interface, while JavaScript enhances interactivity and responsiveness. Hosted on a local Apache server, this system simulates a live airline reservation environment, enabling users to interact with it seamlessly.

The primary objective of this project is to simplify airline reservations and improve the user experience by delivering a fast, reliable, and efficient system. Through automation and database integration, the Airline Reservation System reduces errors, saves time, and provides a robust tool for managing bookings, making it ideal for the modern airline industry.

## 1.2 OBJECTIVES

### 1. Automate the Booking Process:

- Develop an efficient online platform that allows passengers to search for flights, view schedules, check seat availability, and make reservations with ease, reducing dependency on manual booking processes

### 2. Enhance User Experience:

- Provide a user-friendly interface with an organized, grid-based display of information, enabling users to interact with the system intuitively and effortlessly manage their bookings.

### 3. Streamline Flight Management for Airlines:

- Enable airline staff to access, update, and manage flight schedules and passenger details quickly, ensuring real-time access to essential information.

### 4. Implement Secure and Reliable Data Handling:

- Utilize a secure MySQL database to store and manage passenger, flight, and booking details, ensuring data consistency, integrity, and security..

### 5. Provide Flexible Passenger Options:

- Allow passengers to select personalized preferences, including meal options, to enhance customer satisfaction and meet diverse needs.

### 6. Improve Operational Efficiency:

- Minimize human error, reduce response time, and facilitate a smooth flow of information across departments by centralizing data on a unified platform.

7. Develop a Scalable System: Design the system architecture to support future expansion, allowing for additional features or an increase in user volume as the airline grows

### 8. Simulate Real-Time Airline Operations:

- Create a realistic airline reservation environment on a local server, giving users a real-time experience in viewing and selecting available flights, making it ideal for testing and further development.

## 1.3 MODULES

### 1. Introduction

- Overview: Introduction to the Supermarket Billing System as an advanced, user-friendly software solution designed to streamline the checkout process in retail environments.
- Objectives: Enhance efficiency, accuracy, and customer satisfaction in the billing process.

### 2. Key Features

- Product Selection and Quantity:
  - Functionality: Allows customers to select the quantity of products.
  - Display Total Amount: System displays the total cost of the selected products.
  - Order Placement: Facilitates the placement of orders.
- Order Management: Product Cancellation: Customers can cancel products from their order if needed.
- Payment Integration: Multiple Payment Gateways: Supports various payment options for flexibility in transaction processing.

### 3. System Benefits

- Efficiency: Optimizes transaction speed, reducing checkout time.
- Accuracy: Minimizes human error in the billing process.
- Customer Satisfaction: Ensures a seamless and pleasant shopping experience.

### 4. Scalability and Customization

- Scalability: Suitable for supermarkets of all sizes, from small stores to large chains.
- Customization: Configurable to meet specific business needs and preferences.

### 5. Compliance and Regulatory Support

- Ensures adherence to taxation and regulatory requirements relevant to the retail industry.

### 6. Technical Specifications

- Architecture: Overview of the system architecture, including hardware and software requirements.
- Integration Capabilities: Details on integration with existing systems and third-party services.

### 7. Implementation and Deployment

- Installation: Steps for installing the system in a supermarket.
- Configuration: Guidelines for configuring the system according to the supermarket's requirements.
- Training: Training programs for staff to efficiently use the system.

### 8. Data Analytics and Reporting

- Provides insights into sales trends, inventory management, and customer preferences.

### 9. Maintenance and Support

- Ongoing Support: Details on customer support and maintenance services.
- Updates: Information on system updates and enhancements.

### 10. Conclusion

- Summary of the Supermarket Billing System's impact on retail technology, emphasizing its role in driving operational excellence and improving overall business performance.

## **2. SURVEY OF TECHNOLOGIES**

### **2.1 SOFTWARE DESCRIPTION**

#### **Survey of Technologies for Airline Reservation System**

To build a robust, efficient, and scalable Airline Reservation System, a variety of technologies and frameworks are evaluated across frontend, backend, database management, and security domains. Below is an overview of the key technologies suitable for developing the system:

##### **1. Frontend Technologies**

**HTML5/CSS3:** Standard technologies for structuring and styling the application interface. HTML5 provides semantic elements for a well-organized structure, while CSS3 enhances the design through responsive layouts, animations, and media queries.

**JavaScript:** Essential for dynamic interactions within the user interface. JavaScript can provide immediate feedback on user actions and help validate forms before submission.

**Bootstrap:** A popular CSS framework used to create responsive layouts and pre-styled components, such as forms and buttons, ensuring a professional, mobile-friendly design.

**jQuery:** Lightweight JavaScript library to simplify DOM manipulation, event handling, and AJAX calls, making the interface more interactive and easier to develop.

##### **2. Backend Technologies**

**PHP:** PHP is a widely-used open-source scripting language suitable for building server-side logic, handling user requests, and processing data between the application and the database. PHP works well with MySQL for seamless data interaction.

**AJAX:** Asynchronous JavaScript and XML (AJAX) allows for efficient, real-time data retrieval without reloading the entire page, improving user experience when fetching flight schedules and other data.

### **3. Database Management**

**MySQL:** A reliable, open-source relational database management system, MySQL supports structured data storage and retrieval essential for managing tables such as flights, passengers, bookings, and meals. Its compatibility with PHP makes it suitable for this project's data-intensive requirements.

**SQL Queries:** SQL (Structured Query Language) is used for database interaction, allowing for efficient querying, filtering, and updating of flight schedules and passenger data.

#### **4. Security Technologies**

**HTTPS/SSL:** To ensure data security, SSL (Secure Socket Layer) certificates are essential for encrypting data transmitted between the server and client, protecting sensitive information like passenger details and booking history.

**Data Validation and Sanitization:** PHP-based input validation and sanitization will be implemented to prevent SQL injection and cross-site scripting (XSS), protecting the application from common vulnerabilities.

**Authentication & Authorization:** Basic authentication mechanisms, such as login forms with password hashing, will restrict access to sensitive features, ensuring authorized use by passengers and airline staff.

#### **5. Development Tools**

**XAMPP:** A local development environment that includes PHP, MySQL, and Apache, XAMPP is essential for development, testing, and running the system locally.

**Visual Studio Code:** A widely-used code editor that supports multiple programming languages and extensions, making it suitable for handling HTML, CSS, JavaScript, and PHP development.

#### **6. Testing Tools**

**Postman:** Useful for API testing to ensure the data flows correctly between frontend forms and backend logic, especially during flight search and booking transactions.

**Selenium:** An open-source tool for testing the user interface across browsers, ensuring the reservation system is responsive and functions as expected.



### **3. Requirements and Analysis for Airline Reservation System**

#### **1. Introduction:**

The Airline Reservation System project focuses on providing a streamlined, user-friendly solution for airline staff and passengers to manage flights, bookings, and related services efficiently. Below is a breakdown of the essential functional and non-functional requirements, as well as an analysis of the system's main components and processes.

#### **2. Functional Requirements:**

##### **2.1 User Management:**

- Passenger Registration and Login : Users can register an account, providing personal information, and log in with a secure authentication mechanism.
- Passenger Profile Management: Passengers can update their details, view booking history, and manage their preferences.

##### **2.2 Flight Management**

- Flight Schedules: The system should provide an interface for passengers to view available flights, filter by destination, departure, and arrival times.
- The system must generate an order summary and display it to the customer.
- Booking and Seat Selection: The system should allow passengers to book available flights, select seats, and confirm their booking.

##### **2.3 Reservation and Ticketing**

- Booking Confirmation: Once a flight is booked, the system generates a ticket or booking confirmation that includes relevant details.
- *Payment Gateway Integration*: A secure payment interface where passengers can complete transactions.
- Cancellation and Modification: Users should have the option to cancel or modify their bookings within the allowed time frame.

##### **Meal Selection and Preferences**

- Meal Options: The system should provide meal choices during booking, including special dietary options.
- Preference Storage: Passengers' meal preferences should be stored to personalize future flights.

##### **2.5 Administrative Functions**

- *Flight Management by Airline Staff*: Admins should be able to add, modify, or delete flights and view booking details.

- *User Management by Admins*: Admins should have access to view, update, or restrict user accounts as needed.
- *Report Generation*: The system should generate reports on passenger data, flight occupancy, and revenue.

### **3. Non-Functional Requirements:**

#### **3.1 Performance**

- The system should handle simultaneous booking requests and process payments with minimal delay, especially during peak travel times.

#### **3.2 Reliability**

- System uptime should be 99% or higher to ensure uninterrupted access for users.
- Data backup and recovery should be implemented to prevent data loss.

#### **3.3 Scalability**

- The system should be capable of scaling to accommodate increased traffic during peak seasons.

#### **3.4 Usability**

- The interface should be intuitive and easy to navigate, allowing passengers to complete bookings and modifications easily.

#### **3.5 Security**

- Sensitive data, such as personal details and payment information, should be protected with encryption.
- The system should be resilient against common vulnerabilities like SQL injection and cross-site scripting.

#### **3.6 Compliance**

The system should comply with relevant regulations, such as data privacy laws (GDPR) for handling passenger information.

# 5. RESULTS AND DISCUSSION

## Output screen

HOME

Notes:

- The Passenger Carring Things (or) Bags Should not be more than 75KG
- If it is more Than 75KG You Should Pay Excess Amount for 1KG it is \$100
- The Passenger Should be There in the Airport Before 1 Hour
- You Should Clear All The Verification Process
- All Other Information Will be Given By the Flight Coordinators About Your Safety Measure
- Selected Food will Be Distributed At Perticular Time

Select Airport for Flight

Departure Airport:

John F. Kennedy International - New York

Arrival Airport:

John F. Kennedy International - New York

Search Flight

Flight Details

Flight: AA123

Departure Date: 2024-10-05

Departure Time: 08:30:00

Available Seats: 150

Book Tickets

Flight: AD424

Departure Date: 2024-10-10

Departure Time: 10:30:00

Available Seats: 170

Book Tickets

Flight: GA243

Departure Date: 2024-10-15

Departure Time: 21:30:00

Available Seats: 250

Book Tickets

Name of the passenger

Age

Choose meal option

Vegetarian

Submit

Flight ticket have been booked successfully

## Your Flight Ticket is Booked Successfully

The data will be displayed in my SQL database

Extra options

		airport_id	airport_name	location
<input type="checkbox"/>	Edit  Copy  Delete	1	John F. Kennedy International	New York
<input type="checkbox"/>	Edit  Copy  Delete	2	Los Angeles International	Los Angeles
<input type="checkbox"/>	Edit  Copy  Delete	3	San Francisco International	San Francisco
<input type="checkbox"/>	Edit  Copy  Delete	4	O'Hare International	Chicago
<input type="checkbox"/>	Edit  Copy  Delete	5	Heathrow Airport	London
<input type="checkbox"/>	Edit  Copy  Delete	6	Tokyo Haneda Airport	Tokyo
<input type="checkbox"/>	Edit  Copy  Delete	7	Changi Airport	Singapore
<input type="checkbox"/>	Edit  Copy  Delete	8	Sydney Kingsford Smith International	Sydney
<input type="checkbox"/>	Edit  Copy  Delete	9	Hong Kong International	Hong Kong
<input type="checkbox"/>	Edit  Copy  Delete	10	Narita International Airport	Tokyo
<input type="checkbox"/>	Edit  Copy  Delete	11	Mexico City International Airport	Mexico City
<input type="checkbox"/>	Edit  Copy  Delete	12	Moscow Sheremetyevo International	Moscow

☐ Check all    With selected: Edit Copy Delete Export

☐ Show all    Number of rows: 25    Filter rows: Search this table    Sort by key: None

Name_of_the_passenger	Age	Selected_meal
Rishikesh T	19	Non Veg
Ajith	20	Non-Vegetarian
Ajith	20	Non-Vegetarian
Ajith	20	Non-Vegetarian
vishnu	18	Non-Veg-Kids-meal

flight_number	departure_airport	arrival_airport	departure_date	departure_time	available_seats
AA123	1	2	2024-10-05	08:30:00	150
JD424	1	2	2024-10-10	10:30:00	170
GA243	1	2	2024-10-15	21:30:00	250
BA101	1	5	2024-10-06	09:00:00	180
JL567	1	6	2024-10-07	22:00:00	190
AA234	2	1	2024-10-08	11:30:00	160
UA678	2	3	2024-10-09	13:45:00	200
DL910	2	5	2024-10-10	08:00:00	175
CK765	2	9	2024-10-11	19:30:00	180
SQ852	2	7	2024-10-12	23:30:00	150
DL321	3	2	2024-10-13	06:00:00	140
BA321	3	5	2024-10-14	14:00:00	160
JL853	3	6	2024-10-15	22:00:00	180
QF756	3	8	2024-10-16	10:00:00	170
AA789	3	1	2024-10-17	11:30:00	150
UA234	4	1	2024-10-18	08:00:00	200
BA654	4	5	2024-10-19	09:30:00	190
JL789	4	10	2024-10-20	21:00:00	220
AA543	4	6	2024-10-21	13:30:00	170
SU321	4	12	2024-10-22	10:15:00	190
BA987	5	1	2024-10-23	06:30:00	175
AA456	5	4	2024-10-24	11:00:00	180
QF234	5	8	2024-10-25	20:30:00	190
CK654	5	9	2024-10-26	15:00:00	160
SQ123	5	7	2024-10-27	07:30:00	210
JL234	6	1	2024-10-28	08:45:00	180
NH321	6	3	2024-10-29	17:00:00	190
AA765	6	5	2024-10-30	13:15:00	200
CK543	6	9	2024-11-01	19:00:00	190
QF789	6	8	2024-11-02	23:30:00	160
SQ001	7	1	2024-11-05	08:00:00	180
CK101	7	9	2024-11-06	13:30:00	150
BA202	7	5	2024-11-07	21:00:00	160
QF303	7	8	2024-11-08	09:00:00	175
JL404	7	6	2024-11-09	10:00:00	165
QF001	8	1	2024-11-10	07:00:00	190
AA202	8	2	2024-11-11	11:00:00	180
CK303	8	9	2024-11-12	15:00:00	170
SQ404	8	7	2024-11-13	19:30:00	160
JL505	8	10	2024-11-14	06:00:00	150
CK001	9	1	2024-11-15	08:00:00	180
SQ102	9	7	2024-11-16	11:30:00	170
QF203	9	8	2024-11-17	20:00:00	180
JL304	9	10	2024-11-18	09:45:00	165
BA405	9	5	2024-11-19	15:30:00	160
JL001	10	1	2024-11-20	06:00:00	150
AA102	10	2	2024-11-21	12:30:00	180
CK203	10	9	2024-11-22	18:00:00	160
QF304	10	8	2024-11-23	07:30:00	170
SQ405	10	7	2024-11-24	11:00:00	190

## 6. CONCLUSION

The Airline Reservation System successfully addresses the core challenges of modern air travel by delivering a comprehensive, secure, and user-friendly platform for flight management, booking, and passenger services. Through the integration of key functionalities, such as user account management, real-time flight search, seat selection, and secure payment processing, the system enhances both operational efficiency for airline staff and the overall booking experience for passengers. The system's modular structure, combined with robust security protocols and efficient data management, ensures scalability and reliability, supporting both peak travel demand and the growth of airline operations. Furthermore, compliance with data privacy regulations and intuitive design principles establishes a solid foundation for user trust and long-term adoption. In summary, the Airline Reservation System not only simplifies the complexities of airline booking but also provides a flexible and adaptable solution capable of evolving with future technological advancements and changing passenger needs. This project demonstrates a successful application of modern software practices, ensuring the system can continue to deliver reliable, high-quality service in a dynamic industry environment.

