Project Report: Airline Reservation System

Introduction:

The Airline Reservation System is a database management project designed to handle flight scheduling, seat allocation, customer details, and booking records efficiently. The project aims to simplify the reservation process, ensure secure data storage, and provide real-time flight availability. By using SQL and database design principles, this system provides a reliable and scalable solution for managing airline operations.

Abstract:

Airline reservation systems play a critical role in the aviation industry, where timely and accurate booking is essential. This project implements a SQL-based solution using MySQL Workbench to design and manage an airline database. The system covers core functionalities such as maintaining flight schedules, managing customer data, processing bookings and cancellations, and generating reports. The database design follows normalization rules to reduce redundancy and ensures integrity through constraints and triggers. The end product is a structured, query-driven system that provides flight availability information and supports booking operations effectively.

Tools Used:

MySQL Workbench: For designing, creating, and managing the SQL database.

SQL Queries: For data retrieval, updates, and management of reservations.

Triggers and Constraints: To maintain data accuracy and automate booking processes.

Steps Involved in Building the Project

1. Schema Design: Created database schema for core entities – Flights, Customers, Bookings, and Seats.

2. Normalization & Constraints: Normalized schema to reduce redundancy, added primary keys, foreign keys, and check constraints.

3. Data Insertion: Inserted sample records for flights, customers, and bookings to test the system.

4. Query Writing: Developed SQL queries for seat availability, flight search, booking details, and customer history.

5. Triggers Implementation: Added triggers to automatically update seats after booking and handle cancellations.

6. Report Generation: Created booking summary and flight availability reports for user convenience.

Conclusion:

The Airline Reservation System project successfully demonstrates how SQL databases can manage real-world airline operations. It provides a structured approach to handling bookings, cancellations, and flight schedules while maintaining data integrity. With its efficient schema design, automated triggers, and reporting features, the project achieves its goal of delivering a scalable and reliable reservation system.