Project Report: Airline Reservation System

1. Introduction

This project involves the design and implementation of a relational database system for managing airline reservations using MySQL. The system handles flights, customers, seat availability, and bookings through a well-structured schema and SQL logic. It provides functionality for querying and reporting airline data, which can assist in real-time operations and decision-making.

2. Abstract

The Airline Reservation System project replicates the core functionalities of an actual airline's backend operations. It uses SQL to manage data storage, relationships, and automated logic. The project demonstrates concepts like database normalization, data integrity, use of triggers, and views to summarize booking statistics. The goal is to simulate a simplified yet effective system suitable for academic and learning purposes.

3. Tools Used

- MySQL Workbench
- SQL (DDL, DML, Triggers, Views)
- Sample dataset with synthetic entries for flights, customers, and bookings

4. Steps Involved in Building the Project

1. Designed four main database tables: Flights, Customers, Seats, and Bookings.
2. Applied normalization and constraints such as primary and foreign keys.
3. Populated the tables with over 200 rows of sample data.
4. Developed SQL queries for searching flights, checking seat availability, and retrieving

customer bookings.

5. Implemented triggers to manage seat availability dynamically and avoid double bookings.

6. Created a summary view to calculate total bookings, cancellations, and occupancy rates per flight.

5. Conclusion

This project effectively demonstrates how SQL can be used to model real-world scenarios such as airline booking systems. It provides a complete backend solution capable of tracking flights and customer interactions. The database is scalable and offers a foundation that can be extended with new features like payment processing or user authentication. Overall, it serves as a practical and academic showcase of SQL capabilities.