Airline Reservation System – Project Report

Introduction

This project implements a simplified airline reservation system using MySQL. It provides a structured schema to manage aircrafts, flights, customers, bookings, and seat allocations. The system also demonstrates triggers, views, and transactions to ensure data integrity and automate seat allocation and billing.

Abstract

The system allows managing aircraft seat maps, creating flight schedules, customer bookings, and automatic seat assignments. Business rules such as preventing overbooking, updating fare amounts dynamically, and releasing seats on booking cancellations are handled using triggers. Views provide easy access to availability and booking summaries.

Tools Used

The project is developed using: - MySQL (database design and implementation) - SQL Triggers and Views (for automation and data integrity) - Recursive CTEs and Inserts (for seat map generation) - ReportLab (to generate this project report in PDF format)

Steps Involved in Building the Project

1. Designed core tables for aircrafts, flights, customers, bookings, and seats. 2. Implemented constraints and relationships to enforce referential integrity. 3. Inserted sample data for aircrafts, flights, and customers. 4. Defined views to summarize flight availability and booking details. 5. Created triggers to handle seat allocation, prevent overbooking, and auto-update booking amounts. 6. Demonstrated booking creation, seat assignment, and cancellation scenarios.

Conclusion

The project successfully simulates an airline reservation system with essential functionalities like booking, seat allocation, availability checking, and cancellation handling. With views and triggers, the system ensures automation, accuracy, and real-time seat management. This foundation can be extended to a full-scale reservation system with additional features like payments and loyalty programs.

Sample Outputs

Flight Availability

Flight No	Origin	Destination	Departure	Arrival	Base Fare	Total Seats	Available Seats
AI501	HYD	DEL	2025-09-10 08:30	2025-09-10 10:40	4200.00	20	18
AI502	DEL	HYD	2025-09-10 18:30	2025-09-10 20:40	4400.00	20	20
6E111	HYD	BLR	2025-09-10 07:00	2025-09-10 08:15	3200.00	9	9

Booking Summary

Booking Ref	Customer	Flight	Status	Seats	Total Amount
PNR12345HYD	Aarav Kumar	AI501	CONFIRMED	2	8400.00

Available Seats for Flight AI501

Seat No	Class
3C	ECONOMY
3D	ECONOMY
4A	ECONOMY
4B	ECONOMY