# INTERNSHIP REPORT
# ON
# AIRLINE RESERVATION SYSTEM

## INTRODUCTION

Airline Reservation System is software which is helpful for ticketing manager as well as the customers. In the later system all the activities were done manually. It was very time consuming and costly. Our Airline Reservation System deals with the various activities related to the Flights.

There are mainly 3 modules in this software:

- Flight Reservation module.
- Flight Cancellation Module.
- Flight Postpone Module.

In the Software only user with the legal username and password can sign in. A ticketing manager can book, cancel or postpone any flight for any customer. Flights are booked through Flight Reservation Module in which all the details regarding customer and his flight are entered. A receipt no. is provide to every customer which is unique for each customer and with the help of which cancellation and postpone of flight can be done.

## ABSTRACT

The Airline Reservation System is a comprehensive software solution designed to streamline and automate the booking and management of airline services. It facilitates seamless interactions between airlines, customers, and administrative staff, ensuring efficient handling of flights, seat allocations, reservations, and customer data.

This system allows users to search for available flights, reserve or cancel seats, and view booking confirmations in real-time. It includes a robust backend database schema that manages critical entities such as Airports, Flights, Seats, Customers, and Bookings, all interconnected with integrity constraints to ensure accuracy and consistency.

Advanced features like seat generation, booking status tracking, and real-time availability checks are implemented through automated SQL triggers and functions. These mechanisms ensure that overbooking is prevented and that the system responds dynamically to status changes such as cancellations.

By leveraging modern database design principles and SQL programming, the system ensures data reliability, operational efficiency, and scalability. It serves as a foundational model for developing real-world airline management applications or integrating with front-end systems for full-scale deployment.

## TOOLS USED

### 1. Database Management System

- **PostgreSQL**
  - A powerful open-source relational database system used to manage and store all airline reservation data.

### 2. SQL (Structured Query Language)

- Used for creating schemas, inserting data, defining constraints, querying records, and handling business logic.

**3. DDL – Data Definition Language**

- CREATE DATABASE: To initialize a new database.
- CREATE TABLE: To define tables like Airports, Flights, Customers, Seats, and Bookings.
- DROP DATABASE: (commented out) to delete the database if it exists.
- **Constraints Used:**
    - PRIMARY KEY, FOREIGN KEY, UNIQUE, CHECK, NOT NULL

## STEPS INVOLVED IN BUILDING THE PROJECT

1. Database Initialization:
    - A new database "Airline Reservation" is created with UTF-8 encoding and default settings suitable for English (India).
2. Core Tables:
    - Airports: Stores airport information, identified by a 3-character code (AirportCode).
    - Flights: Represents flight details including flight number, origin and destination airport codes, timing, and seat capacity.
    - Customers: Holds customer personal information.
    - Seats: Lists all individual seats on a flight, including class (e.g., Economy).
    - Bookings: Tracks customer seat reservations, linking customers and flights, including booking time and status.
3. Data Integrity & Constraints:
    - Foreign keys maintain referential integrity between flights, airports, customers, and seats.
    - Unique constraints prevent duplicate seat bookings.
    - A CHECK constraint ensures valid seat capacity.
    - Triggers enforce business rules like:
        - Prevent overbooking (via check_seat_capacity).
        - Handle post-cancellation operations (via trg_on_cancel).
4. Sample Data & Queries:
    - Airports (BOM, DEL) and a flight (AI101) are inserted.
    - 180 seats are auto-generated for the flight.
    - A sample customer is added and a seat is booked.
    - Queries check seat availability and flights on specific dates.
5. Reports:
    - A final query displays current booking statistics: total seats booked, capacity, and available seats per flight.

## CONCLUSION

Based on the preparation & analysis of Airline Reservation System, it can be concluded that Airline Reservation system is better than the manual System can be used by the ticketing manager to make transactions for the customers regarding flights. The objective of software planning is to provide a frame work that enables the manger to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progresses.