ASSIGNMENT- 1

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1 Airline Reservation and Flight Management System

create a database for Managing airline reservation, flight Schedules, seating arrangements and baggaging tracking.

Requirements :

Design tables for flights, passengers, reservations, seating and baggage.

Write store procedures to handle reservations, cancellations and seat upgrades.

Implement triggers to manage seat available and update passenger lists in real time.

Write queries to analyze popular routes, seat utilization and baggage claimtimes.

Solution :-

Database design

Tables
1. Flight Table
2. passengers Table
3. Reservations Table
4. Seating Table
5. Baggage Table

SQL Table Definitions

Create Table Flights (
        flight_id Int primary Key;

```sql
    ... varchar(50),
    .departure_airport varchar(50),
    arrival_airport varchar(50),
    departure_time datetime,
    arrival_time datetime,
    status varchar(20)
);

create table passengers (
    passenger_id int primary key,
    first_name varchar(50),
    last_name varchar(50),
    passport_number varchar(20) unique,
    contact_info varchar(100)
);

create table Reservation (
    reservation_id int primary key,
    flight_id int,
    passenger_id int,
    reservation_date datetime,
    status varchar(20),
    Foreign Key (flight_id) References flights (flight_
    Foreign Key (passenger_id) References passengers (
        passenger_id)
);

create table Seating (
    seat_id int primary key,
    flight_id int,
    seat_number varchar(5),
    is_available boolean Default true,
```

```sql
    reservation_id int,
    Foreign key (flight_id) References flights (flight_id),
    Foreignkey (reservation_id) References Reservations
                            (reservation_id)
);

create table baggage (
    baggage_id int primary key,
    reservation_id int,
    weight Decimal (5, 2),
    baggage_tag Varchar (20),
    Status Varchar (20),
    Foreign key (reservation_id) References Reservations
                            (reservation_id).
);
```

Stored procedures

1. Add a Reservation

```sql
create procedure Addreservation (
        In p_flight_id int,
        In p_passenger_id int
)
Begin
    Insert into Reservations (flight_id, passenger_id
            reservation_date, Status)
    Values (p_flight_id, p_passenger_id, now(),
                            'Booked');

End;
```

2. cancel a Reservation

```sql
create procedure cancelReservation (
        In p_reservation_id Int
)
```

```
Begin
    update Reservations set status = 'cancelled' where
        reservation_id = p_reservation_id;
    update Seating Set is_available = True, reservation
    _id = Null where reservation_id = p_reservation_id;
End;
```

3. upgrade a Seat

```
create procedure upgradeseat (
    in p_reservation_id INT,
    In new_seat_number Narchar(5)
)
Begin
    update Seating Set is_available = True,
    reservation_id = Null where reservation_id = p_
                                reservation_id;
    update Seating Set is_available = False, reservation
    _id = p_reservation_id where Seat_number =
                        new_seat_number;
```

Triggers

1. Trigger to Manage Seat Availability

```
create Trigger ManageSeatAvailability
After Insert on Reservations
For Each Row
Begin
    update Seating set is_available = False, reserv
    _id = New.reservation_id where seat_id =
                        New.seat_id;
End;
```

```sql
Avg (Timestampdiff (minute, arrival_time, claim_
      times)) As avg_claim_time
From Baggage
Join Flights using (flight_id)
where status = 'claimed'
Group by flight_id;
```

4. Flight occupancy
```sql
Select flight_id, count(*) As total_seats,
   Sum (is_available = False) As occupied,
   Sum (is_available = True) As available

From Seating
Group by flight_id;
```

5. Monthly Revenue
```sql
Select Month (reservation_date) As Month,
       Count(*) * 300 As estimated_revenue
From Reservations
where status = 'Booked'
Group by Month;
```

6. Frequent Flyers
```sql
Select passenger_id, count(*) As total_reserv
From Reservations
Group by passenger_id
Order by total_reservation Desc
Limit 5;
```

7. Top 3 Heaviest Bags per flight
```sql
Select flight_id, baggage_id, weight

From Baggage
Order by flight_id, weight Desc
Limit 3;
```