SQL Capstone Project

Please answer the following questions using Airline DB database.

Instruction to attempt questions:

- Students need to write queries for the questions mentioned in the using Airline DB database
- Read the questions carefully before writing the query in **Airline Playground** (in the Playground chapter of SQL)
- Airline DB: https://www.skillovilla.com/playground/sql?exerciseId=0181e251-6ea8-4595-ae2b-0c690119f8db

How to submit the capstone:

- Copy the SQL query code and paste it in the answer section in this file.
- Once the assignment is done, submit the file over LMS.

Invalid Submissions:

- Pasting pictures of the code as answer is **NOT** acceptable.
- Uploading output data (CSVs) of the SQL queries is **NOT** acceptable.

Write your answers(query) in the answer and submit it. To write the answer in the assignment, please follow the below example in yellow

Example:

Questions*: Extract all the columns of the flights table*

Answer: *SELECT * FROM flights*

SQL Capstone Project

Attempt the following Questions-

1. ***Represent the "book_date" column in "yyyy-mmm-dd" format using Bookings table***

Expected output: book_ref, book_date (in "yyyy-mmm-dd" format) , total amount

Answer:

```
select
    book_ref,
    to_char(book_date,'yyyy-mm-dd'),
    total_amount
from bookings
```

2. **Get the following columns in the exact same sequence.**

Expected columns in the output: ticket_no, boarding_no, seat_number, passenger_id, passenger_name.

Answer:

```
select
    t.ticket_no,
    bp.boarding_no,
    bp.seat_no as seat_number,
    t.passenger_id,
    t.passenger_name
from tickets t
 join boarding_passes bp
on t.ticket_no=bp.ticket_no
```

3. **Write a query to find the seat number which is least allocated among all the seats?**

Answer:

```
Select
    s.seat_no as seat_number,
    count(*) as allocation_count
from seats s
left join boarding_passes bp
on s.seat_no=bp.seat_no
 group by 1
```

```
order by allocation_count asc
--limit 1 (lowest count =1 for 3 seats, so here I used limit 3)
limit 3
```

4. ***In the database, identify the month wise highest paying passenger name and passenger id.***

Expected output: Month_name("mmm-yy" format), passenger_id, passenger_name and total amount

Answer:

```
with MonthWise as (
    select
    to_char(b.book_date,'mon-yy') as Month_name,
    t.passenger_id,
    t.passenger_name,
    sum(b.total_amount) as total_amount
    from tickets t
join bookings b
on t.book_ref=b.book_ref
group by 1,2,3
),
  highestTotal as (
        select
        *,
        dense_rank() over(partition by Month_name order by
total_amount desc) as rank
      from MonthWise
 )
select
Month_name,
passenger_id,
passenger_name,
total_amount
from highestTotal
where rank=1
```

5. ***In the database, identify the month wise least paying passenger name and passenger id?***

Expected output: Month_name("mmm-yy" format), passenger_id, passenger_name and total amount

Answer:

```
with MonthWise as (
        select
        to_char(b.book_date,'mon-yy') as Month_name,
        t.passenger_id,
         t.passenger_name,
         sum(b.total_amount) as total_amount
         from tickets t
         join bookings b
    on t.book_ref=b.book_ref
    group by 1,2,3
),
   LowestTotal as (
         select
         *,
        dense_rank() over(partition by Month_name order by
total_amount asc) as rank
       from MonthWise
 )
select
Month_name,
passenger_id,
passenger_name,
total_amount
from LowestTotal
where rank=1
```

6. **Identify the travel details of non stop journeys or return journeys (having more than 1 flight).**

Expected Output: Passenger_id, passenger_name, ticket_number and flight count.

Answer:

```
select
    passenger_id,
    passenger_name,
    t.ticket_no as ticket_number
    count(flight_id) as flight_count
from tickets t
left join boarding_passes bp
on t.ticket_no = bp.ticket_no
group by 1,2,3
having count(flight_id)>1
```

7. **How many tickets are there without boarding passes?**

Expected Output: just one number is required.

Answer:

```
select
      count(t.ticket_no)
from tickets t
left join boarding_passes bp
on t.ticket_no = bp.ticket_no
where boarding_no is NULL
```

8. **Identify details of the longest flight (using flights table)?**

Expected Output: Flight number, departure airport, arrival airport, aircraft code and durations.

Answer:

```
with FlightDetails AS (
    select
        flight_no as Flight_number,
        departure_airport,
```

```
                arrival_airport,
                aircraft_code,
            (scheduled_arrival - scheduled_departure) as durations
          from flights
          order by durations desc
        ),
        LongestFlight as (
                select *,
                   dense_rank() over(order by durations desc) rnk
                from FlightDetails
          )

    select
          Flight_number,
        departure_airport,
        arrival_airport,
        aircraft_code,
       durations
from LongestFlight
where rnk=1
```

9. **Identify details of all the morning flights (morning means between 6AM to 11 AM, using flights table)?**

Expected output: flight_id, flight_number, scheduled_departure, scheduled_arrival and timings.

Answer:

```
select
            flight_id,
            flight_no as flight_number,
            scheduled_departure,
            scheduled_arrival,
        case
```

```
                    when extract(hour from scheduled_departure)
                     between 6 and  11   then  'Morning'
                    else 'Not Morning'
                end as  timings
            from flights
            where extract(hour from scheduled_departure)
            between 6 and 11
```

10. Identify the earliest morning flight available from every airport.
Expected output: flight_id, flight_number, scheduled_departure, scheduled_arrival, departure airport and timings.

Answer:

```
with flightdetails as(
        select
            flight_id,
            flight_no as flight_number,
           scheduled_departure,
          scheduled_arrival,
          departure_airport,
           case
              when extract(hour from  scheduled_departure )
                   between 2 and 6 then 'Early Morning'
              else 'Not Early Morning'
         end as timings
      from flights
      where extract(hour from scheduled_departure) between 2
and 6
  ),
MorningFlightsTimings as (
      select
            *,
```

```
        row_number() over(partition by departure_airport order by
timings) as row_num
      from flightdetails
)
  select
      flight_id,
      flight_number,
      scheduled_departure,
      scheduled_arrival,
      departure_airport,
      timings
from MorningFlightsTimings
where row_num=1
```

11. Questions: Find list of airport codes in Europe/Moscow timezone
Expected Output: Airport_code.

Answer:

```
select
      distinct airport_code
from airports
where timezone='Europe/Moscow'
```

12. Write a query to get the count of seats in various fare condition for every aircraft code?
Expected Outputs: Aircraft_code, fare_conditions ,seat count

Answer:

```
select
      aircraft_code,
      fare_conditions,
      count(seat_no) as seat_count
from seats
group by 1,2
```

13. How many aircrafts codes have at least one Business class seats?
Expected Output : Count of aircraft codes

Answer:

```
select
    count(distinct(aircraft_code))
from seats
where fare_conditions = 'Business'
```

14. Find out the name of the airport having maximum number of departure flight
Expected Output : Airport_name

Answer:

```
with maximum_no_of_Flights as
(
        select
            airport_name,
            count(departure_airport) as flight_count
        from airports a
        join flights f
          on a.airport_code=f.departure_airport
        group by 1
)
select
        airport_name
from maximum_no_of_Flights
order by flight_count desc
limit 1
```

15. Find out the name of the airport having least number of scheduled departure flights
Expected Output : Airport_name

Answer:

```
with Least_No_of_Flights as
(
        select
            airport_name,
            count(departure_airport) as flight_count
        from airports a
```

```
        join flights f
         on a.airport_code=f.departure_airport
       group by 1
)
select
        airport_name
from Least_no_of_Flights
order by flight_count asc
limit 1
```

16. How many flights from 'DME' airport don't have actual departure?
Expected Output : Flight Count

Answer:

```
select
        count(flight_id) as flight_count
from flights
where departure_airport ='DME'
        and actual_departure is NULL
```

17. Identify flight ids having range between 3000 to 6000
Expected Output : Flight_Number , aircraft_code, ranges

Answer:

```
select
        distinct f.flight_no as flight_number,
        a.aircraft_code,
        a.range as ranges
        from flights f
 join aircrafts a
on  a.aircraft_code = f.aircraft_code
where a.range between 3000 and 6000
```

18. Write a query to get the count of flights flying between URS and KUF?
Expected Output : Flight_count

Answer:

```
select
        count(flight_id)
from flights
where departure_airport in ('URS', 'KUF')
        and arrival_airport in ('URS', 'KUF')
```

19. **Write a query to get the count of flights flying from either from NOZ or KRR?**
Expected Output : Flight count

Answer:

```
select
        count(flight_id)
from flights
where departure_airport in ('NOZ','KRR')
```

20. **Write a query to get the count of flights flying from KZN,DME,NBC,NJC,GDX,SGC,VKO,ROV**
Expected Output : Departure airport ,count of flights flying from these airports.

Answer:

```
select
        departure_airport,
        count(flight_id) as flight_count
 from flights
 where departure_airport in
('KZN','DME','NBC','NJC','GDX','SGC','VKO','ROV')
 group by 1
```

21. **Write a query to extract flight details having range between 3000 and 6000 and flying from DME**
Expected Output :Flight_no,aircraft_code,range,departure_airport

Answer:

```
select
    distinct f.flight_no,
    a.aircraft_code,
    a.range,
    f.departure_airport
from flights f
```

```
join aircrafts a
on f.aircraft_code =a.aircraft_code
where  a.range between 3000 and 6000
        and departure_airport='DME'
```

22. **Find the list of flight ids which are using aircrafts from "Airbus" company and got cancelled or delayed**

Expected Output : Flight_id,aircraft_model

Answer:

```
select
    f.flight_id,
    a.model as aircraft_model
from flights f
join aircrafts a
on f.aircraft_code=a.aircraft_code
where a.model like '%Airbus%'
    and f.status in ('Cancelled','Delayed')
```

23. **Find the list of flight ids which are using aircrafts from "Boeing" company and got cancelled or delayed**

Expected Output : Flight_id,aircraft_model

Answer:

```
select
    f.flight_id,
    a.model as aircraft_model
from flights f
join aircrafts a
on f.aircraft_code=a.aircraft_code
where a.model like '%Boeing%'
    and f.status in ('Cancelled','Delayed')
```

24. **Which airport(name) has most cancelled flights (arriving)?**

Expected Output : Airport_name

Answer:

```
with cancelled_flight_details as (
                    select
                          a.airport_name,
                         count(f.arrival_airport)
                    from flights f
                    join airports a
                    on a.airport_code = f.departure_airport
                    where f.status like 'Cancelled'
                    group by 1
                    order by 2 desc
                    limit 1
                )
                select
                      airport_name
                from cancelled_flight_details
```

25. ***Identify flight ids which are using "Airbus aircrafts"***
Expected Output : Flight_id,aircraft_model

Answer:

```
select
    f.flight_id,
    a.model as aircraft_model
from flights f
join aircrafts a
on f.aircraft_code=a.aircraft_code
where a.model like '%Airbus%'
```

26. ***Identify date-wise last flight id flying from every airport?***
Expected Output: Flight_id,flight_number,schedule_departure,departure_airport

Answer:

```
with lastflight_dateWise as  (
    select
        f.flight_id,
        f.flight_no as flight_number,
        f.scheduled_departure,
        f.departure_airport,
        DATE(f.scheduled_departure) as departure_date,
```

```
                    row_number () over(partition by
f.departure_airport, DATE(f.scheduled_departure) order by
f.scheduled_departure desc) as row_num
   from flights f
)

select
  flight_id,
  flight_number,
  scheduled_departure,
  departure_airport
from lastflight_dateWise
where row_num=1
```

27. ***Identify list of customers who will get the refund due to cancellation of the flights and how much amount they will get?***
Expected Output : Passenger_name,total_refund.

Answer:

```
select
    t.passenger_name,
    sum(tf.amount) as total_refund
from tickets t
join ticket_flights tf
on t.ticket_no=tf.ticket_no
join flights f
on tf.flight_id=f.flight_id
where f.status = 'Cancelled'
group by 1
```

28. ***Identify date wise first cancelled flight id flying for every airport?***
Expected Output : Flight_id,flight_number,schedule_departure,departure_airport

Answer:

```
with cancelled_flight_datewise as (
    select
```

```
                flight_id,
                flight_no as flight_number,
                scheduled_departure,
                departure_airport,
                DATE(scheduled_departure) as departure_date,
            dense_rank() over(partition by departure_airport,
DATE(scheduled_departure) order by scheduled_departure) as rnk
             from flights
             where status='Cancelled'
)
select
    flight_id,
    flight_number,
    scheduled_departure,
     departure_airport
from cancelled_flight_datewise
where rnk=1
```

29. ***Identify list of Airbus flight ids which got cancelled.***
Expected Output : Flight_id

Answer:

```
select
    flight_id
from flights f
join aircrafts a
on f.aircraft_code=a.aircraft_code
where f.status = 'Cancelled' and a.model like  '%Airbus%'
```

30. ***Identify list of flight ids having highest range.***
Expected Output : Flight_no, range

Answer:

```
with highestrange as (
        select
            f.flight_id,
```

```
                a.range,
                rank () over(order by range desc) as rnk
                from flights f
            join aircrafts a
            on f.aircraft_code=a.aircraft_code
 )
 select
       flight_id,
      range
from highestrange
where rnk =1
```