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*

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-MMM-DD') as book_date,
    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
        b.ticket_no,
        b.boarding_no,
        b.seat_no,
        t.passenger_id,
        t.passenger_name
from boarding_passes b
join tickets t
on b.ticket_no = t.ticket_no
```

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

Answer:
```
select
        seat_no
from boarding_passes
group by seat_no
order by count (*) asc
limit 1
```

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:
```
select
        to_char (book_date, 'mmm-yy') as month_name,
        t.passenger_id,
        t.passenger_name,
        sum (b.total_amount) as total_amount
from bookings b
join tickets t
on b.book_ref = t.book_ref
group by to_char (book_date, 'mmm-yy'), t.passenger_id,
t.passenger_name
order by month_name, total_amount desc;
```

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:
```
select month_name, passenger_id, passenger_name,
total_amount
        From
        (select
                to_char (book_date, 'mmm-yy') as month_name,
                t.passenger_id,
                t.passenger_name,
                sum (b.total_amount) as total_amount,
                rank () over (partition by to_char(book_date, 'mmm-
yy') order by sum (b.total_amount)) as rank
          from bookings b
          join tickets t
          on b.book_ref = t.book_ref
          group by to_char (book_date, 'mmm-yy'), t.passenger_id,
t.passenger_name
          ) as ranked_passengers
          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
                t.passenger_id,
                t.passenger_name,
                b.ticket_no,
                Count (b.flight_id) as flight_count
         from tickets t
         join boarding_passes b
         on t.ticket_no = b.ticket_no
         group by 1, 2 , 3
         having count (b.flight_id) > 1
```

7. **How many tickets are there without boarding passes?**
Expected Output: just one number is required.

Answer:
```
select
        count (*) as ticket_count
    from tickets t
    left join boarding_passes b
    on t.ticket_no = b.ticket_no
    where boarding_no is null
```

output- 251

8. **Identify details of the longest flight (using flights table)?**
Expected Output: Flight number, departure airport, arrival airport, aircraft code and durations.

Answer:
```
select
        flight_no,
        departure_airport,
        arrival_airport,
        aircraft_code,
         (scheduled_arrival - scheduled_departure) as
duration
    from flights
    order by 5 desc
    limit 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,
        scheduled_departure,
        scheduled_arrival,
        CAST(scheduled_departure AS time) as timing
    FROM flights
    WHERE CAST(scheduled_departure AS time) BETWEEN '06:00:00'
AND'11:00:00'
```

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 EarlyMorningFlights AS
(SELECT flight_id,
        flight_no,
        scheduled_departure,
        scheduled_arrival,
        departure_airport,
        CAST(scheduled_departure AS time) as timing,
        ROW_NUMBER() OVER(PARTITION BY departure_airport ORDER BY
scheduled_departure) AS row_num
FROM flights
WHERE CAST(scheduled_departure AS time)BETWEEN '06:00:00' AND
'11:00:00')
SELECT
flight_id,
flight_no,
scheduled_departure,
scheduled_arrival,
departure_airport,
timing
FROM EarlyMorningFlights
WHERE row_num = 1
```

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

Answer:
```
select
            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) as count_aircraft_codes
      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: select
             airport_name,
             count (f.flight_id) as count_flights
      from flights f
      join airports a
      on f.departure_airport = a.airport_code
      group by airport_name
      order by count (f.flight_id) desc
      limit 1;
```

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

```
Answer: select
             airport_name,
             count (f.flight_id) as count_flights
      from flights f
```

```
join airports a
on f.departure_airport = a.airport_code
group by airport_name
order by count (f.flight_id) 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
f.flight_no,
f.aircraft_code,
a.range
FROM flights as f
JOIN aircrafts AS a
ON f.aircraft_code=a.aircraft_code
WHERE a.range BETWEEN 3000 AND 6000
GROUP BY f.flight_no, f.aircraft_code, a.range
ORDER BY a.range
```

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 = 'URS' and arrival_airport = 'KUF')
or (departure_airport = 'KUF' AND arrival_airport = 'URS')
```

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', 'KKR')
```

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_counts
      from flights
      where departure_airport in
('KZN','DME','NBC','NJC','GDX','SGC','VKO','ROV')
      group by departure_airport
```

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
f.flight_no,
f.aircraft_code,
a.range,
f.departure_airport
FROM flights AS f
JOIN aircrafts AS a
ON f.aircraft_code = a.aircraft_code
WHERE a.range BETWEEN 3000 AND 6000 AND departure_airport = 'DME'
GROUP BY f.flight_no,f.aircraft_code, a.range, f.departure_airport
ORDER BY a.range
```

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 model like '%Airbus%'
        and (status = 'Cancelled' or status = '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 model like '%Boeing%'
       and (status = 'Cancelled' or status = 'Delayed');
```

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

Expected Output : Airport_name

```
select
       a.airport_name,
       count (*) as cancelled_flights
from flights f
join airports a
on f.arrival_airport = a.airport_code
where status= 'Cancelled'
group by airport_name
order by cancelled_flights desc
limit 1;
```

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 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 LastFlights AS
(SELECT
f.flight_id,
f.flight_no,
f.scheduled_departure,
f.departure_airport,
MAX(scheduled_departure) OVER(PARTITION BY departure_airport,
DATE(scheduled_departure)) AS max_scheduled_departure
FROM flights AS f)
SELECT
flight_id,
flight_no,
scheduled_departure,
departure_airport
FROM LastFlights
WHERE scheduled_departure=max_scheduled_departure
ORDER BY 2
```

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:

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

```
Answer: SELECT
```

```
flight_id,
flight_no,
scheduled_departure,
departure_airport
FROM
(
SELECT
flight_id,
flight_no,
scheduled_departure,
departure_airport,
ROW_NUMBER() OVER(PARTITION BY departure_airport ORDER BY
scheduled_departure ASC) AS m
FROM flights
WHERE status='cancelled') AS t
WHERE m = 1
ORDER BY departure_airport,scheduled_departure
```

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

```
Answer: SELECT
f.flight_id
FROM flights f
JOIN aircrafts a
ON f.aircraft_code=a.aircraft_code
WHERE a.model LIKE '%Airbus%' AND f.status='Cancelled'
```

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

```
Answer: SELECT
f.flight_no,
max(a.range) as range
FROM flights f
JOIN aircrafts a
ON f.aircraft_code=a.aircraft_code
GROUP BY flight_no
```

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