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
t.ticket_no,
bp.boarding_no,
bp.seat_no,
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:

```
with table1 as
(select
seat_no,
count(ticket_no) as count_ticket_no
from boarding_passes
group by 1),
table2 as
(select
*,dense_rank()over(order by count_ticket_no asc) as ranks
from table1)
select
seat_no,
count_ticket_no
from table2
where ranks=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:

```
with table1 as
(select
to_char(b.book_date,'mmm-yy') as month_name,
t.passenger_id,
t.passenger_name,
b.total_amount
from tickets t
left join bookings b
on t.book_ref=b.book_ref),
table2 as
(select
*,dense_rank()over(partition by month_name order by total_amount
desc) as ranks
from table1)
select
month_name,
passenger_id,
passenger_name,
total_amount
from table2
where ranks=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 table1 as
(select
to_char(b.book_date,'mmm-yy') as month_name,
t.passenger_id,
t.passenger_name,
b.total_amount
```

```
from tickets t
left join bookings b
on t.book_ref=b.book_ref),
table2 as
(select
*,dense_rank()over(partition by month_name order by total_amount
asc) as ranks
from table1)
select
month_name,
passenger_id,
passenger_name,
total_amount
from table2
where ranks=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,
t.ticket_no,
count(f.flight_no)
from tickets t
join ticket_flights tf
on t.ticket_no=tf.ticket_no
join flights f
on tf.flight_id=f.flight_id
group by 1,2,3
having count(f.flight_no)>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 bp.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 table1 as
(select
flight_no,
departure_airport,
arrival_airport,
aircraft_code,
cast(actual_departure as time) as a,
cast(actual_arrival as time) as b
from flights),
table2 as
(select
*,(b-a) as Durations
from table1)
select
flight_no,
departure_airport,
arrival_airport,
aircraft_code,
max(durations) as Durations
from table2
group by 1,2,3,4
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:

```
with table1 as
(select
flight_id,
flight_no,
scheduled_departure,
scheduled_arrival,
cast(scheduled_departure as time) as Timings
from flights),
table2 as
(select
*
from table1
where timings between '06:00:00' and '11:00:00'
)
select
*
from table2
```

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 table1 as
(select
flight_id,
flight_no,
scheduled_departure,
scheduled_arrival,
departure_airport,
cast(scheduled_departure as time) as Timings
from flights),
table2 as
(select
*
```

```
from table1
where timings between '02:00:00' and '06:00:00'
)
select
*
from table2
```

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
order by 1
```

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

Answer:

```
select
count(aircraft_code) as Count_of_aircraft_codes
from seats
group by fare_conditions
having fare_conditions='Business' and count(seat_no)>=1
```

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

Answer:

```
with table1 as
(select
a.airport_name,
count(flight_no) as flight_count
from airports a
left join flights f
on a.airport_code=f.departure_airport
group by 1),
table2 as
(select
*,dense_rank()over(order by flight_count desc) as ranks
from table1)
select
airport_name
from table2
where ranks=1
```

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

Answer:

```
with table1 as
(select
a.airport_name,
count(flight_no) as flight_count
from airports a
left join flights f
on a.airport_code=f.departure_airport
group by 1),
table2 as
(select
*,dense_rank()over(order by flight_count asc) as ranks
from table1)
select
airport_name
from table2
where ranks=1
```

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

Answer:

```
select
count(flight_no) 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 as ranges
from flights f
left join aircrafts a
on f.aircraft_code=a.aircraft_code
where 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_no) as flight_count
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_no) as flight_count
from flights
where departure_airport='NOZ' or departure_airport='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_no) as count_of_flights_flying_from_these_airports
from flights
where departure_airport
in('KZN','DME','NBC','NJC','GDX','SGC','VKO','ROV')
group by 1
order by 2 desc
```

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 f
join aircrafts a
on f.aircraft_code=a.aircraft_code
where (a.range between 3000 and 6000) and f.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
left join aircrafts a
on f.aircraft_code=a.aircraft_code
where a.model like '%Airbus%' and (f.status='Cancelled' or f.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
left join aircrafts a
on f.aircraft_code=a.aircraft_code
where a.model like '%Boeing%' and (f.status='Cancelled' or f.status
='Delayed')
```

24. **Which airport(name) has most cancelled flights (arriving)?**
Expected Output : Airport_name

Answer:

```
with table1 as
(select
a.airport_name,
count(f.flight_no) as count_flight_no
from airports a
left join flights f
on a.airport_code=f.arrival_airport
where f.status='Cancelled'
group by 1),
table2 as
(select
*,
```

```
dense_rank()over(order by count_flight_no desc) as ranks
from table1)
select
airport_name
from table2
where ranks=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
left 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 table1 as
(select
flight_id,
flight_no,
scheduled_departure,
departure_airport,
cast(scheduled_departure as date) as dates
from flights),
table2 as
(select
*,
dense_rank()over(partition by departure_airport order by dates desc)
as ranks
from table1)
select
flight_id,
flight_no,
scheduled_departure,
departure_airport
from table2
where ranks=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,
tf.amount as total_refund
from tickets t
left 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'
```

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

Answer:

```
with table1 as
(select
flight_id,
flight_no,
scheduled_departure,
departure_airport,
cast(scheduled_departure as date) as dates
from flights
where status='Cancelled'),
table2 as
(select
*,
dense_rank()over(partition by departure_airport order by dates asc)
as ranks
from table1)
select
flight_id,
flight_no,
scheduled_departure,
departure_airport
from table2
where ranks=1
```

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

Answer:

```
select
f.flight_id
from flights f
left 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_id,
max(a.range) as ranges
from flights f
left join aircrafts a
on f.aircraft_code=a.aircraft_code
group by 1
order by 2 desc
```