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-mon-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
   bp.ticket_no,
   bp.boarding_no,
   bp.seat_no as seat_number,
   t.passenger_id,
   t.passenger_name
from boarding_passes as bp
join tickets as t
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
    seat_no,
    count (seat_no)
from boarding_passes
group by seat_no
having count(seat_no) = (select min(seat_count)
                    from (select count(seat_no) as seat_count
                          from boarding_passes
                          group by seat_no) as counts);
```

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 monthly_total 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,
        rank() over (partition by to_char(b.book_date, 'mon-yy')
order by sum(b.total_amount) desc) as rank
from tickets as t
join bookings as b
on t.book_ref = b.book_ref
group by 1,2,3)
select
    month_name,
    passenger_id,
    passenger_name,
    total_amount
from monthly_total
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 monthly_total 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,
     rank() over (partition by to_char(b.book_date, 'mon-yy') order
by sum(b.total_amount) asc) as rank
from tickets as t
join bookings as b
on t.book_ref = b.book_ref
group by to_char(b.book_date, 'mon-yy'), t.passenger_id,
t.passenger_name)
select
    month_name,
    passenger_id,
```

```
    passenger_name,
    total_amount
from monthly_total
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,
    t.ticket_no as ticket_number,
    count(tf.flight_id) as flight_count
from tickets as t
join ticket_flights as tf
on t.ticket_no = tf.ticket_no
group by t.passenger_id, t.passenger_name, t.ticket_no
having count(tf.flight_id) > 1;
```

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

Answer:

```
select
    count(*) as tickets_without_boarding_passes
from tickets as t
left join boarding_passes as bp
on t.ticket_no = bp.ticket_no
where bp.ticket_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:

```
select
    flight_no,
    departure_airport,
    arrival_airport,
    aircraft_code,
    actual_arrival - actual_departure as durations
```

```
from flights
where actual_arrival - actual_departure = (
        select max(actual_arrival - actual_departure)
        from flights);
```

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
12 then 'Morning Flight'
        when extract (hour from scheduled_departure) between 12 and
20 then 'Afternoon Flight'
        else 'Night Flight'
    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 t1 as (
select
    flight_id,
    flight_no as flight_number,
    scheduled_departure,
    scheduled_arrival,
    departure_airport,
    case
        when extract (hour from scheduled_departure) between 6 and
12 then 'Morning Flight'
        when extract (hour from scheduled_departure) between 12 and
20 then 'Afternoon Flight'
```

```
        else 'Night Flight'
    end as timings,
    rank () over (partition by departure_airport order by
scheduled_departure asc) as rank
from flights
where extract (hour from scheduled_departure) between 6 and 11)

select
    flight_id,
    flight_number,
    scheduled_departure,
    scheduled_arrival,
    departure_airport,
    timings
from t1
where rank = 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 (*) as seat_count
from seats
group by 1,2
order 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_of_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:

```
with departure_counts as (
select
    departure_airport,
    count(*) as flight_count
from flights
group by departure_airport)

select a.airport_name
from departure_counts as dc
join airports as a
on dc.departure_airport = a.airport_code
where dc.flight_count = (select max(flight_count) from
departure_counts);
```

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

Answer:

```
with departure_count as (
select
    departure_airport,
    count(*) as flight_count
from flights
group by departure_airport)

select a.airport_name
from departure_count as dc
join airports as a
on dc.departure_airport = a.airport_code
where dc.flight_count = (select min(flight_count) from
departure_count);
```

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

Answer:

```
select count(*) 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 as flight_number,
    a.aircraft_code,
    a.range as ranges
from flights as f
join aircrafts as 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 (*) 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 (*) as flight_count
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 (*)
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
    f.flight_no,
    a.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 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 as f
join aircrafts as a
on f.aircraft_code = a.aircraft_code
where (a.model like '%Airbus%') and (f.status = 'Cancelled' or
f.actual_departure > f.scheduled_departure);
```

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 as f
join aircrafts as a
```

```
on f.aircraft_code = a.aircraft_code
where (a.model like '%Boeing%') and (f.status = 'Cancelled' or
f.actual_departure > f.scheduled_departure);
```

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

Answer:

```
with cancelled_flights as (
select
    arrival_airport,
    count (*) as cancelled_count
from flights
where status = 'Cancelled'
group by 1)

select a.airport_name
from airports as a
join cancelled_flights as c
on c.arrival_airport = a.airport_code
where c.cancelled_count =  (select max (cancelled_count) from
cancelled_flights);
```

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 as f
join aircrafts as a
on a.aircraft_code = f.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 last_flights as (
select
    flight_id,
    flight_no as flight_number,
```

```
    scheduled_departure,
    departure_airport,
    rank() over (partition by departure_airport,
date(scheduled_departure) order by scheduled_departure desc) as
flight_rank
    from flights)

select
    flight_id,
    flight_number,
    scheduled_departure,
    departure_airport
from last_flights
where flight_rank = 1
order by scheduled_departure;
```

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 flights as f
join ticket_flights as tf
on f.flight_id = tf.flight_id
join tickets as t
on tf.ticket_no = t.ticket_no
where f.status = 'Cancelled'
group by t.passenger_name
order by total_refund desc;
```

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_flights as (
select
    flight_id,
    flight_no as flight_number,
    scheduled_departure,
    departure_airport,
```

```
    row_number() over (partition by departure_airport,
date(scheduled_departure)order by scheduled_departure asc) as
flight_rank
from flights
where status = 'Cancelled')

select
    flight_id,
    flight_number,
    scheduled_departure,
    departure_airport
from cancelled_flights
where flight_rank = 1;
```

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

Answer:

```
select f.flight_id
from flights as f
join aircrafts as 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,
    a.range
from flights as f
join aircrafts as a
on f.aircraft_code = a.aircraft_code
where a.range = (select max(range) from aircrafts)
order by range desc;
```