Airline Database SQL Analytics

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
order by 3 desc
```

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 as t
inner join BOARDING_PASSES as bp
on t.ticket_no = bp.ticket_no
order by 1
```

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

Answer:

```
with allocated_seat as
 (select
    s.seat_no,
    count (bp.seat_no) as allocated_seat_count
```

```
from SEATS as s
left join BOARDING_PASSES as bp
on bp.seat_no=s.seat_no
group by 1
order by 2,1),
count_based_rank as
(select *,
rank() over(order by allocated_seat_count) as seat_rank
from allocated_seat
)
select seat_no
from count_based_rank
where seat_rank = 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 monthwise as (select
b.book_ref,
to_char(b.book_date,'Mon-yy') as Month_Name,
t.passenger_id,
t.passenger_name,
sum (b.total_amount) as total_amount
From bookings as b
inner join tickets as t
on b.book_ref=t.book_ref
group by 1,2,3,4),
Amount_rank as (select
*,
rank() over (partition by Month_Name order by total_amount desc) as
monthwise_rank
from monthwise)
select Month_Name,
passenger_id,
passenger_name,
total_amount
```

```
from Amount_rank

where monthwise_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

b.book_ref,

to_char(b.book_date,'Mon-yy') as Month_Name,

t.passenger_id,

t.passenger_name,

sum (b.total_amount) as total_amount

From bookings as b

inner join tickets as t

on b.book_ref=t.book_ref

group by 1,2,3,4),

Amount_rank as (select

*,

rank() over (partition by Month_Name order by total_amount asc) as

monthwise_rank

from monthwise)

select Month_Name,

passenger_id,

passenger_name,

total_amount

from Amount_rank

where monthwise_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,
```

```sql
    t.ticket_no,
    Count (bp.flight_id) as flight_count
    from Tickets as T
    inner join BOARDING_PASSES as BP
    ON BP.ticket_no=t.ticket_no
    Group by 1,2,3
    Having Count (bp.flight_id)>1
    order by  Count (bp.flight_id)
```

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

```sql
with Boarded as (select

ticket_no as boarded

From BOARDING_PASSES

group by 1

order by 1),

ticket_booked as (select

ticket_no as booked

from TICKETS

order by 1)

select

COUNT(BOOKED)

FROM ticket_booked AS TB

LEFT JOIN Boarded AS B

ON TB.booked=B.boarded

WHERE B.BOARDED IS NULL
```

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

```sql
with flight_duration as (select

Flight_no,

departure_airport,

arrival_airport,

aircraft_code,

scheduled_arrival-scheduled_departure as duration

from flights

group by 1,2,3,4,5),

ranks as ( select

*,

rank()over(order by duration desc  )

from flight_duration )

select

Flight_no,

departure_airport,

arrival_airport,

aircraft_code,

duration

from ranks

where rank = 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

```
with flights_time as (select
flight_id,
flight_no,
scheduled_departure,
scheduled_arrival,
to_char (scheduled_departure, 'HH24:MI:SS') as timing
From flights
group by 1,2,3,4)
Select
flight_id,
flight_no,
scheduled_departure,
scheduled_arrival,
timing
from flights_time
where timing between '06:00:00' and '11:00:00'
order by timing
```

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

```
with Flight_details as (select
flight_id,
flight_no,
scheduled_departure,
scheduled_arrival,
departure_airport,
to_char (scheduled_departure,'HH24:MI:SS') AS timing
From Flights
where  to_char (scheduled_departure,'HH24:MI:SS') between '06:00:00'
and '11:00:00'
group by 1,2,3,4,5),
```

```
Early_departure as (select
*,
rank()over(partition by      departure_airport order by timing ) as
Departure_ranking
from Flight_details)
select
flight_id,
flight_no,
scheduled_departure,
scheduled_arrival,
departure_airport,
timing
From Early_departure
where Departure_ranking = 1
order by 6
```

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

```
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

```
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

```
select
count(*) as count_of_aircraft_codes
from
(Select
    aircraft_code
From SEATS
where fare_conditions = 'Business'
group by 1) as Table1
```

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

```
with table_1 as (Select
f.Departure_airport,
a.airport_name,
count(f.actual_departure) as departure_flight_count
From FLIGHTS as f
inner join Airports as a
on a.airport_code=f.departure_airport
group by 1,2
order by 3 desc),
ranks as ( Select
*,
rank () over (order by departure_flight_count desc) as rnk
From table_1)
select airport_name
from ranks
where rnk = 1
```

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

```
with table_1 as (Select
```

```
f.Departure_airport,
a.airport_name,
count(f.scheduled_departure) as Flight_count
From FLIGHTS as f
inner join Airports as a
on a.airport_code=f.departure_airport
group by 1,2),
ranks as ( Select
*,
rank () over (order by Flight_count) as rnk
From table_1)
select airport_name
from ranks
where rnk = 1
```

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

```
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

```
select f.flight_no,
f.aircraft_code,
a.range
from FLIGHTS as f
left join aircrafts as a
on f.aircraft_code=a.aircraft_code
where range between 3000 and 6000
group by 1,2,3
order by 3 desc
```

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

```
select

count (distinct flight_no ) as Flight_count

From flights

where departure_airport in ('URS','KUF') AND arrival_airport in

    ('KUF','URS')
```

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

```
select

    COUNT( DISTINCT 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.

```
select

    departure_airport,

    count (distinct flight_no) as count_of_flights

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

```
select

    f.flight_no,

    f.aircraft_code,

    a.range,

    f.departure_airport
```

```
From flights as f

left join aircrafts as a

on f.aircraft_code = a.aircraft_code

where departure_airport = 'DME' and Range between 3000 and 6000

group by 1,2,3,4

order by range desc
```

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

left join aircrafts as a

on f.aircraft_code = a.aircraft_code

where status in ('Cancelled','Delayed') and model ilike '%Airbus%'
```

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

left join aircrafts as a

on f.aircraft_code = a.aircraft_code

where status in ('Cancelled','Delayed') and model ilike '%boeing%'
```

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

Answer

```
with Flight_details as (select

f.arrival_airport,

a.airport_name,

count (f.Flight_id ) as Flight_count

from flights as f

left join  Airports as a
```

```
on f.arrival_airport=a.airport_code
where status='Cancelled'
group by 1,2),
rnk as (
    select *,
    rank() over (order by Flight_count desc) as ranks
    from Flight_details
)
select
    airport_name
from rnk
where ranks = 1
```

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

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

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

```
with table_1 as (select
    flight_id,
    flight_no,
    scheduled_departure,
    departure_airport,
    to_char (scheduled_departure,'yyyy-mm-dd') as dates,
    to_char (scheduled_departure, 'HH24:MI:SS') as timing
    from flights),
ranks as (
    select *,
```

```
       rank()over( partition by dates,departure_airport order by timing
    desc ) as rnk
       from table_1)
select
      flight_id,
      flight_no,
      scheduled_departure,
      departure_airport
From ranks
where rnk = 1
order by 3 desc
```

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

```
with cte as (select
f.flight_id,
f.status,
t.book_ref,
t.passenger_name,
sum (tf.amount) as total_refund
from  tickets as t
inner join ticket_flights as tf
on t.ticket_no = tf.ticket_no
inner join flights as f
on f.flight_id = tf.flight_id
where status = 'Cancelled'
group by 1,2,3,4)
select
passenger_name,
total_refund
from cte
```

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

```
with table_1 as (select
```

```sql
    flight_id,
    flight_no,
    scheduled_departure,
    departure_airport,
    status,
    to_char (scheduled_departure,'HH24:MI:SS') as timing,
    to_char (scheduled_departure,'yyyy-mm-dd') as dates
    from flights
    where status= 'Cancelled'),
ranks as (
    select *,
    rank()over( partition by dates,departure_airport order by timing)
    as rnk
    from table_1)
select
    flight_id,
    flight_no,
    scheduled_departure,
    departure_airport
From ranks
where rnk = 1
order by 3
```

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

Answer:
```sql
select
    f.flight_id
From flights as f
left join aircrafts as a
on f.aircraft_code = a.aircraft_code
where model ilike '%Airbus%' and status = 'Cancelled'
```

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

Answer:
```sql
select flight_no,
range
```

```sql
from (select
f.flight_no,
a.range,
rank ()over(order by a.range desc ) as rnk
From flights as f
left join aircrafts as a
on f.aircraft_code = a.aircraft_code
group by 1,2
) as table1
where rnk = 1
order by 1
```