

## SQL Capstone Project

### Answers for the following SQL Capstone Project Questions

**1. Represent the "book\_date" column in "yyyy-mm-dd" format using Bookings table**

Expected output: book\_ref, book\_date (in "yyyy-mm-dd" format) , total amount

**Answer:**

```
SELECT
    book_ref,
    TO_CHAR(book_date, 'YYYY-MM-DD') as formatted_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,
    t.passenger_id,
    t.passenger_name
FROM boarding_passes as bp
JOIN tickets as t
ON bp.ticket_no = t.ticket_no
ORDER BY boarding_no
```

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

**Answer:**

```
SELECT
    seat_no
FROM (
    SELECT
        seat_no,
        COUNT(*) as seat_count
    FROM boarding_passes
```

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```
GROUP BY seat_no
ORDER BY seat_count
LIMIT 1
) as seat_no
```

### 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 MonthlyHighestAmounts AS (
    SELECT
        TO_CHAR(b.book_date, 'Mon-YY') as Month_Name,
        t.passenger_id,
        t.passenger_name,
        b.total_amount,
        ROW_NUMBER () OVER ( PARTITION BY TO_CHAR (
b.book_date, 'Mon-YY') ORDER BY b.total_amount DESC ) as
Row_Num
    FROM bookings b
    JOIN tickets t
    ON b.book_ref = t.book_ref
)
SELECT
    Month_Name,
    passenger_id,
    passenger_name,
    total_amount
FROM MonthlyHighestAmounts
WHERE Row_Num = 1
ORDER BY Month_Name
```

### 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:

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```
WITH MonthlyLeastAmounts AS (  
SELECT  
    TO_CHAR(b.book_date, 'Mon-YY') as Month_Name,  
    t.passenger_id,  
    t.passenger_name,  
    b.total_amount,  
ROW_NUMBER () OVER ( PARTITION BY TO_CHAR ( b.book_date,  
'Mon-YY') ORDER BY b.total_amount ASC ) as Row_Num  
FROM bookings b  
JOIN tickets t  
ON b.book_ref = t.book_ref  
)  
SELECT  
    Month_Name,  
    passenger_id,  
    passenger_name,  
    total_amount  
FROM MonthlyLeastAmounts  
WHERE Row_Num = 1  
ORDER BY Month_Name
```

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_id) AS flight_count  
FROM tickets t  
JOIN ticket_flights f  
ON t.ticket_no=f.ticket_no  
GROUP BY t.passenger_id, t.passenger_name, t.ticket_no  
HAVING COUNT(f.flight_id) = 1 OR COUNT(f.flight_id) > 1
```

7. How many tickets are there without boarding passes?

Expected Output: just one number is required.

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### Answer:

```
SELECT
    COUNT ( * ) AS ticket_count_without_boarding_pass
FROM tickets t
LEFT JOIN boarding_passes b
ON t.ticket_no = b.ticket_no
WHERE b.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,
    (scheduled_arrival-scheduled_departure)/60 as duration
FROM flights
ORDER BY duration 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.

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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  
    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

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**Answer:**

```
SELECT
    aircraft_code,
    fare_conditions,
    COUNT(*) AS seat_count
FROM seats
GROUP BY aircraft_code, fare_conditions
ORDER BY aircraft_code, fare_conditions
```

**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_aircrafts
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
FROM airports
WHERE airport_code=(
    SELECT
        departure_airport
    FROM flights
    GROUP BY departure_airport
    ORDER BY COUNT(*) DESC
    LIMIT 1
)
```

**15. Find out the name of the airport having least number of scheduled departure flights**

Expected Output : Airport\_name

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**Answer:**

```
SELECT
    airport_name
FROM airports
WHERE airport_code = (
    SELECT
        departure_airport
    FROM flights
    GROUP BY departure_airport
    ORDER BY COUNT(*) ASC
    LIMIT 1
)
```

**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,
    f.aircraft_code,
    a.range
FROM flights f
JOIN aircrafts 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
```

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**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'
```

**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 = '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 AS departure_airport,
    COUNT(*) AS Flight_count
FROM flights
WHERE departure_airport IN
('KZN', 'DME', 'NBC', 'NJC', 'GDX', 'SGC', 'VKO', 'ROV')
GROUP BY departure_airport
ORDER BY Flight_count
```

**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,
```



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```
    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 1,2,3,4  
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  
FROM flights F  
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  
FROM flights F  
JOIN aircrafts A  
ON F.aircraft_code = A.aircraft_code  
WHERE A.model LIKE '%Boeing%' AND (F.status = 'Cancelled' OR  
F.status = 'Delayed')
```

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

Expected Output : Airport\_name

**Answer:**

```
SELECT
    a.airport_name
FROM airports AS a
JOIN flights AS f
ON a.airport_code=f.arrival_airport
WHERE f.status='Cancelled'
GROUP BY a.airport_name
ORDER BY COUNT(*) 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
FROM flights AS f
JOIN aircrafts AS 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 Last_Flights 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
```

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```
)  
SELECT  
    flight_id,  
    flight_no,  
    scheduled_departure,  
    departure_airport  
FROM Last_Flights  
WHERE scheduled_departure=max_scheduled_departure  
ORDER BY flight_no
```

**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 refund_amount  
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:**

```
SELECT  
    flight_id,  
    flight_no as flight_number,  
    CAST(scheduled_departure AS DATE) AS scheduled_departure,  
    departure_airport  
FROM  
    flights
```

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```
WHERE
    status = 'Cancelled'
GROUP BY 2,1
ORDER BY 1 asc, 2 asc
```

**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
```