**SQL Queries :**

The project contains a variety of SQL queries to extract and analyze data from the Airline database.

**-- Booking Date Formatting**

SELECT book\_ref, TO\_CHAR(book\_date, 'yyyy-mon-dd') AS book\_date, total\_amount

FROM bookings;

**-- Passenger Details**

SELECT t.ticket\_no, boarding\_no, seat\_no, passenger\_id, passenger\_name

FROM boarding\_passes b

INNER JOIN tickets t ON b.ticket\_no = t.ticket\_no;

**-- Least Allocated Seat**

WITH T1 AS

(

SELECT seat\_no, COUNT(seat\_no) AS CNT

FROM boarding\_passes

GROUP BY seat\_no

)

SELECT seat\_no

FROM T1

WHERE CNT = (SELECT MIN(CNT) FROM T1);

**-- Highest Paying Passenger by Month**

WITH T1 AS

(

SELECT TO\_CHAR(book\_date, 'mon-yy') AS month\_name, passenger\_id, passenger\_name, SUM(total\_amount) AS tot\_amount

FROM tickets t

JOIN bookings b ON t.book\_ref = b.book\_ref

GROUP BY 1, 2, 3

),

T2 AS

(

SELECT month\_name, passenger\_id, passenger\_name, tot\_amount,

RANK() OVER (PARTITION BY month\_name ORDER BY tot\_amount DESC) AS rnk

FROM T1

)

SELECT month\_name, passenger\_id, passenger\_name, tot\_amount

FROM T2

WHERE rnk = 1;

**-- Lowest Paying Passenger by Month :**

WITH T1 AS

(

SELECT TO\_CHAR(book\_date, 'mon-yy') AS month\_name, passenger\_id, passenger\_name, SUM(total\_amount) AS tot\_amount

FROM tickets t

JOIN bookings b ON t.book\_ref = b.book\_ref

GROUP BY 1, 2, 3

),

T2 AS

(

SELECT month\_name, passenger\_id, passenger\_name, tot\_amount,

RANK() OVER (PARTITION BY month\_name ORDER BY tot\_amount) AS rnk

FROM T1

)

SELECT month\_name, passenger\_id, passenger\_name, tot\_amount

FROM T2

WHERE rnk = 1;

**-- Non-stop or Return Journeys :**

SELECT passenger\_id, passenger\_name, t.ticket\_no, COUNT(flight\_id) AS flight\_count

FROM tickets t

JOIN ticket\_flights f ON t.ticket\_no = f.ticket\_no

GROUP BY 1, 2, 3

HAVING COUNT(flight\_id) > 1;

**-- Tickets Without Boarding Passes :**

SELECT COUNT(ticket\_no) AS ticket\_count

FROM tickets

WHERE ticket\_no NOT IN (SELECT ticket\_no FROM boarding\_passes);

**-- Longest Flight Details**

WITH T1 AS

(

SELECT flight\_no, departure\_airport, arrival\_airport, aircraft\_code,

(scheduled\_arrival - scheduled\_departure) AS duration,

RANK() OVER (ORDER BY (scheduled\_arrival - scheduled\_departure) DESC) AS rnk

FROM flights

)

SELECT flight\_no, departure\_airport, arrival\_airport, aircraft\_code, duration

FROM T1

WHERE rnk = 1;

**-- Morning Flights**

SELECT flight\_id, flight\_no, scheduled\_departure, scheduled\_arrival, timings

FROM

(

SELECT flight\_id, flight\_no, scheduled\_departure, scheduled\_arrival,

CASE

WHEN CAST(scheduled\_departure AS TIME) BETWEEN '06:00:00' AND '11:00:00' THEN 'Morning Flight'

ELSE 'Not Morning Flight'

END AS timings

FROM flights

) as slots

WHERE timings = 'Morning Flight';

**-- Earliest Morning Flight from Each Airport**

WITH T1 AS (

SELECT flight\_id, flight\_no, scheduled\_departure, scheduled\_arrival, departure\_airport,

RANK() OVER (PARTITION BY departure\_airport ORDER BY scheduled\_departure) AS rnk,

CASE

WHEN CAST(scheduled\_departure AS TIME) BETWEEN '02:00:00' AND '06:00:00' THEN 'Early Morning Flight'

ELSE 'Not Morning Flight'

END AS timings

FROM flights

WHERE CAST(scheduled\_departure AS TIME) BETWEEN '02:00:00' AND '06:00:00'

)

SELECT flight\_id, flight\_no, scheduled\_departure, scheduled\_arrival, departure\_airport, timings

FROM T1

WHERE rnk = 1;

**-- List of Airport Codes in Europe/Moscow Timezone**

SELECT airport\_code

FROM airports

WHERE timezone = 'Europe/Moscow';

**-- Seat Count by Fare Condition for Every Aircraft Code**

SELECT aircraft\_code, fare\_conditions, COUNT(seat\_no) AS seat\_count

FROM seats

GROUP BY aircraft\_code, fare\_conditions;

**-- Aircraft Codes with Business Class Seats**

SELECT COUNT(DISTINCT aircraft\_code) AS count\_of\_aircraft

FROM seats

WHERE fare\_conditions = 'Business';

**-- Airport with Maximum Number of Departure Flights**

WITH T1 AS

(

SELECT departure\_airport, airport\_name,

RANK() OVER (ORDER BY COUNT(flight\_id) DESC) AS rnk

FROM flights f

JOIN airports a ON f.departure\_airport = a.airport\_code

GROUP BY departure\_airport, airport\_name

)

SELECT airport\_name

FROM T1

WHERE rnk = 1;

**-- Airport with Least Number of Scheduled Departure Flights**

WITH T1 AS

(

SELECT departure\_airport, airport\_name, COUNT(flight\_id),

RANK() OVER (ORDER BY COUNT(flight\_id)) AS rnk

FROM flights f

JOIN airports a ON f.departure\_airport = a.airport\_code

WHERE status = 'Scheduled'

GROUP BY departure\_airport, airport\_name

)

SELECT airport\_name

FROM T1

WHERE rnk = 1;

**-- Flights from ‘DME’ without Actual Departure**

SELECT COUNT(flight\_id) AS flight\_count

FROM flights

WHERE departure\_airport = 'DME' AND

actual\_departure IS NULL;

**-- Flight IDs with Range Between 3000 to 6000**

SELECT flight\_no, f.aircraft\_code, range

FROM flights f

JOIN aircrafts a ON f.aircraft\_code = a.aircraft\_code

WHERE range BETWEEN 3000 AND 6000;

**-- Count of Flights between URS and KUF?**

SELECT COUNT(distinct flight\_id) as flight\_count

FROM flights

WHERE departure\_airport IN ('URS','KUF') AND

arrival\_airport IN ('URS','KUF')

**-- Count of Flights flying from either from NOZ or KRR**

SELECT COUNT(distinct flight\_id) as flight\_count

FROM flights

WHERE departure\_airport IN ('NOZ','KRR')

**-- Count of Flights flying from KZN, DME, NBC, NJC, GDX, SGC, VKO, ROV**

SELECT departure\_airport, COUNT(DISTINCT flight\_id) as count\_of\_flights

FROM flights

WHERE departure\_airport IN ('KZN','DME','NBC','NJC','GDX','SGC','VKO','ROV')

GROUP BY departure\_airport

**-- Flight details with range between 3000 and 6000 and flying from DME**

SELECT flight\_no, f.aircraft\_code, range, departure\_airport

FROM flights f

INNER JOIN aircrafts a on f.aircraft\_code = a.aircraft\_code

WHERE departure\_airport = 'DME' AND

range BETWEEN 3000 AND 6000

GROUP BY 1,2,3,4

**-- Flight IDS using aircrafts from “Airbus” company and got Cancelled or Delayed**

SELECT Flight\_id, model as aircraft\_model

FROM flights f

INNER JOIN aircrafts a ON f.aircraft\_code = a.aircraft\_code

WHERE model LIKE '%Airbus%' AND

status IN ('Cancelled','Delayed')

**-- Flight IDS using aircrafts from “Boeing” company and got Cancelled or Delayed**

SELECT Flight\_id, model as aircraft\_model

FROM flights f

JOIN aircrafts a ON f.aircraft\_code = a.aircraft\_code

WHERE model LIKE '%Boeing%' AND

status IN ('Cancelled','Delayed')

**-- Airport with most cancelled flights (arriving)**

With T1 as

(

SELECT airport\_name, count(airport\_name),

RANK() OVER (order by count(airport\_name) desc) as RNK

FROM flights f

JOIN airports a on f.arrival\_airport = a.airport\_code

WHERE status = 'Cancelled'

GROUP BY airport\_name

)

SELECT airport\_name

FROM T1

WHERE RNK = 1

**-- Flight IDs using “Airbus aircrafts”**

SELECT Flight\_id, model as aircraft\_model

FROM flights f

JOIN aircrafts a ON f.aircraft\_code = a.aircraft\_code

WHERE model LIKE '%Airbus%'

**-- Last Flight ID from every airport**

With T1 as

(

SELECT Flight\_id, flight\_no, scheduled\_departure, departure\_airport,

RANK() OVER (Partition by departure\_airport,date (scheduled\_departure) order by scheduled\_departure desc) as RNK

FROM flights

ORDER BY departure\_airport, scheduled\_departure

)

SELECT Flight\_id, flight\_no, scheduled\_departure, departure\_airport

FROM T1

WHERE RNK = 1

**-- Customers and the refund amount whose flights got cancelled**

SELECT Passenger\_name, sum(total\_amount) as total\_refund

FROM tickets t

JOIN ticket\_flights tf ON t.ticket\_no = tf.ticket\_no

JOIN bookings b ON t.book\_ref = b.book\_ref

JOIN flights f ON tf.flight\_id = f.flight\_id

WHERE status = 'Cancelled'

GROUP BY 1

**-- First Cancelled Flight ID of every airport?**

With T1 as

(

SELECT \*

FROM flights

WHERE status = 'Cancelled'

),

T2 as

(

SELECT Flight\_id, flight\_no, scheduled\_departure, departure\_airport,

RANK() OVER (Partition by arrival\_airport,date (scheduled\_departure) order by scheduled\_departure) as RNK

FROM T1

)

SELECT Flight\_id, flight\_no, scheduled\_departure, departure\_airport

FROM T2

WHERE RNK = 1

**-- Cancelled Flight IDs**

SELECT Flight\_id

FROM flights f

LEFT JOIN aircrafts a on f.aircraft\_code = a.aircraft\_code

WHERE model like '%Airbus%' AND status = 'Cancelled'

**-- Flight IDs with highest range**

With T1 as

(

SELECT flight\_id, range,

RANK() OVER (ORDER BY range desc) as RNK

FROM flights f

JOIN aircrafts a ON f.aircraft\_code = a.aircraft\_code

GROUP BY 1,2

)

SELECT flight\_id, range

FROM T1

WHERE RNK = 1