Day 3 – Sub Queries, Set Operations and CTEs

1. Write a query to display the average monthly ticket cost for each flight in ABC Airlines. The query should display the Flight_Id, From_location, To_location, Month Name as "Month_Name" and average price as "Average_Price". Display the records sorted in ascending order based on flight id and then by Month Name.

```
SELECT afd.flight_id, af.from_location, af.to_location,
       DATENAME(month, afd.flight_departure_date) AS Month_Name,
       AVG(afd.price) AS Average_Price
FROM air_flight_details AS afd
JOIN air_flight AS af
ON afd.flight_id = af.flight_id
WHERE airline_name = 'ABC'
GROUP BY afd.flight_id, af.from_location, af.to_location,
         DATENAME(month, afd.flight_departure_date)
ORDER BY flight_id, Month_Name;
```

Results Messages

	flight_id	from_location	to_location	month_name	Average_Price
1	F103	Guwahati	Chennai	September	5000.000000
2	F104	Hyderabad	Bangalore	December	5800.000000
3	F105	Hyderabad	Bangalore	April	6000.000000

2. Write a query to display the customer(s) who has/have booked least number of tickets in ABC Airlines. The Query should display profile_id, customer's first_name, Address and Number of Tickets booked as "No_of_Tickets". Display the records sorted in ascending order based on customer's first name.

```
SELECT app.profile_id, app.first_name, app.address,
       COUNT(ati.ticket_id) AS No_of_Tickets
FROM air_ticket_info AS ati
JOIN air_passenger_profile AS app
ON app.profile_id = ati.profile_id
JOIN air_flight_details AS afd
ON afd.flight_id = ati.flight_id
JOIN air_flight AS af
ON af.flight_id = afd.flight_id
GROUP BY app.profile_id, app.first_name, app.address
HAVING COUNT(ati.ticket_id) = (
```

```
    SELECT MIN(ticket_count)
    FROM (
        SELECT COUNT(ati.ticket_id) AS ticket_count
        FROM air_ticket_info AS ati
        JOIN air_passenger_profile AS app
        ON app.profile_id = ati.profile_id
        JOIN air_flight_details AS afd
        ON afd.flight_id = ati.flight_id
        JOIN air_flight AS af
        ON af.flight_id = afd.flight_id
        GROUP BY app.profile_id
    ) AS min_ticket_count
)
ORDER BY app.first_name;
```

Results Messages

	profile_id	first_name	address	No_of_Tickets
1	P002	Anita	Hyderabad	1

3. Write a query to display the number of flight services between locations in a month.
The Query should display From_Location, To_Location, Month as “Month_Name” and number of flight services as “No_of_Services”. The records should be displayed in ascending order based on From_Location, To_Location and Month Name.

```
SELECT af.from_location, af.to_location,
       DATENAME(month, afd.flight_departure_date) AS Month_Name,
       COUNT(af.flight_id) AS No_of_Services
FROM air_flight_details AS afd
JOIN air_flight AS af
ON afd.flight_id = af.flight_id
GROUP BY af.from_location, af.to_location,
         DATENAME(month, afd.flight_departure_date)
```

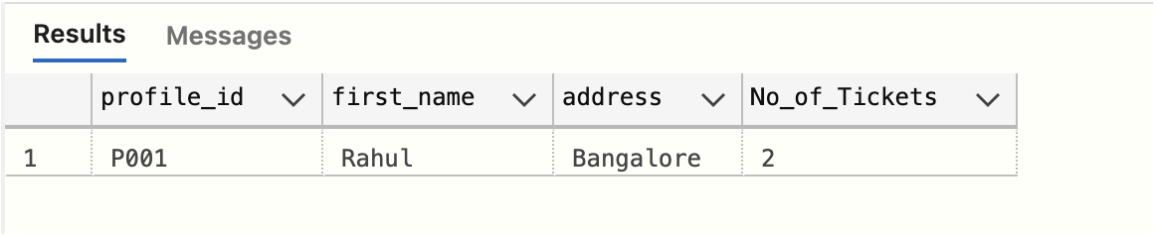
```
ORDER BY af.from_location, af.to_location, Month_Name;
```

Results Messages

	from_location	to_location	month_name	(No column name)
1	Bangalore	Delhi	October	2
2	Guwahati	Chennai	September	2
3	Hyderabad	Bangalore	April	1
4	Hyderabad	Bangalore	December	1
5	Hyderabad	Mumbai	October	1

4. Write a query to display the customer(s) who has/have booked maximum number of tickets in ABC Airlines. The Query should display profile_id, customer's first_name, Address and Number of Tickets booked as "No_of_Tickets". Display the records sorted in ascending order based on customer's first name.

```
SELECT app.profile_id, app.first_name, app.address,
       COUNT(ati.ticket_id) AS No_of_Tickets
FROM air_ticket_info AS ati
JOIN air_passenger_profile AS app
ON app.profile_id = ati.profile_id
JOIN air_flight_details AS afd
ON afd.flight_id = ati.flight_id
JOIN air_flight AS af
ON af.flight_id = afd.flight_id
GROUP BY app.profile_id, app.first_name, app.address
HAVING COUNT(ati.ticket_id) = (
   SELECT MAX(ticket_count)
   FROM (
      SELECT COUNT(ati.ticket_id) AS ticket_count
      FROM air_ticket_info AS ati
      JOIN air_passenger_profile AS app
      ON app.profile_id = ati.profile_id
      JOIN air_flight_details AS afd
      ON afd.flight_id = ati.flight_id
      JOIN air_flight AS af
      ON af.flight_id = afd.flight_id
      GROUP BY app.profile_id
   ) AS max_ticket_count
)
ORDER BY app.first_name;
```



Results Messages

	profile_id	first_name	address	No_of_Tickets
1	P001	Rahul	Bangalore	2

5. Write a query to display the number of tickets booked from Chennai to Hyderabad.
The Query should display passenger profile_id, first_name, last_name, Flight_Id, Departure_Date and number of Tickets booked as “No_of_Tickets”. Display the records sorted in ascending order based on profile id, flight id and departure date.

```
SELECT app.profile_id, app.first_name, app.last_name,
       af.flight_id, afd.flight_departure_date,
       COUNT(ati.ticket_id) AS No_of_Tickets
FROM air_ticket_info AS ati
JOIN air_flight_details AS afd
ON ati.flight_id = afd.flight_id
AND ati.flight_departure_date = afd.flight_departure_date
JOIN air_flight AS af
ON ati.flight_id = af.flight_id
JOIN air_passenger_profile AS app
ON app.profile_id = ati.profile_id
WHERE af.from_location = 'Chennai'
AND af.to_location = 'Hyderabad'
GROUP BY app.profile_id, app.first_name, app.last_name,
        af.flight_id, afd.flight_departure_date
ORDER BY profile_id, flight_id, flight_departure_date;
```

Results Messages

profile_id	first_name	last_name	flight_id	address	flight_departu…	No_of_Tickets

6. Write a query to display flight id, from location, to location and ticket price of flights whose departure is in the month of April.

```
SELECT afd.flight_id, af.from_location, af.to_location, afd.price
FROM air_flight_details AS afd
```

```
JOIN air_flight AS af
ON afd.flight_id = af.flight_id
WHERE MONTH(afd.flight_departure_date) = 4;
```

Results Messages

Results grid

	flight_id	from_location	to_location	price
1	F103	Guwahati	Chennai	5500.00
2	F103	Guwahati	Chennai	4500.00

7. Write a query to display the average cost of the tickets in each flight on all scheduled dates. The query should display flight_id, from_location, to_location and Average price as "Price". Display the records sorted in ascending order based on flight id, from_location and to_location.

```
SELECT afd.flight_id, af.from_location, af.to_location,
      AVG(afd.price) AS Price
FROM air_flight_details AS afd
JOIN air_flight AS af
ON afd.flight_id = af.flight_id
GROUP BY afd.flight_id, af.from_location, af.to_location
ORDER BY afd.flight_id, af.from_location, af.to_location;
```

Results Messages

Bangalore

	flight_id	from_location	to_location	Price
1	F101	Bangalore	Delhi	5650.000000
2	F102	Hyderabad	Mumbai	4500.000000
3	F103	Guwahati	Chennai	5000.000000
4	F104	Hyderabad	Bangalore	5800.000000
5	F105	Hyderabad	Bangalore	6000.000000

8. Write a query to display the customers who have booked tickets from Chennai to Hyderabad. The query should display profile_id, customer_name (combine first_name & last_name with comma), address of the customer. Display unique customers only and sort by profile id.

```
SELECT app.profile_id,
       CONCAT(app.first_name, ',', app.last_name) AS customer_name,
       app.address
FROM air_ticket_info AS ati
JOIN air_flight_details AS afd
ON ati.flight_id = afd.flight_id
AND ati.flight_departure_date = afd.flight_departure_date
JOIN air_flight AS af
ON ati.flight_id = af.flight_id
JOIN air_passenger_profile AS app
ON app.profile_id = ati.profile_id
WHERE af.from_location = 'Chennai'
AND af.to_location = 'Hyderabad'
GROUP BY app.profile_id, app.first_name, app.last_name, app.address
ORDER BY app.profile_id;
```

9. Write a query to display profile id of the passenger(s) who has/have booked maximum number of tickets. In case of multiple records, display the records sorted in ascending order based on profile id.

```
SELECT app.profile_id, COUNT(ati.ticket_id) AS No_of_Tickets
FROM air_ticket_info AS ati
JOIN air_passenger_profile AS app
ON ati.profile_id = app.profile_id
GROUP BY app.profile_id
HAVING COUNT(ati.ticket_id) = (
   SELECT MAX(ticket_count)
   FROM (
      SELECT COUNT(ticket_id) AS ticket_count
      FROM air_ticket_info
      GROUP BY profile_id
   ) AS max_ticket
)
```

```
ORDER BY app.profile_id;
```

Results Messages

	profile_id	(No column name)
1	P001	1
2	P002	1

10. Write a query to display the total number of tickets booked in each flight in ABC Airlines. The Query should display flight_id, from_location, to_location and number of tickets as "No_of_Tickets". Display only flights with at least one ticket booked and sort by flight id.

```
SELECT af.flight_id, af.from_location, af.to_location,
      COUNT(ticket_id) AS No_of_Tickets
FROM air_ticket_info AS ati
JOIN air_flight_details AS afd
ON ati.flight_id = afd.flight_id
AND ati.flight_departure_date = afd.flight_departure_date
JOIN air_flight AS af
ON afd.flight_id = af.flight_id
WHERE airline_name = 'ABC'
GROUP BY af.flight_id, af.from_location, af.to_location
HAVING COUNT(ticket_id) >= 1
ORDER BY af.flight_id;
```

Results Messages

	flight_id	from_location	to_location	No_of_Tickets