

**Date:** 30-12-2025

### **Day 3: Subqueries, SET Operators & CTEs**

```
CREATE DATABASE airline_db;  
USE airline_db;
```

```
CREATE TABLE air_passenger_profile (  
    profile_id VARCHAR(10) PRIMARY KEY,  
    password VARCHAR(10),  
    first_name VARCHAR(10),  
    last_name VARCHAR(10),  
    address VARCHAR(100),  
    mobile_number BIGINT,  
    email_id VARCHAR(30)  
);
```

```
CREATE TABLE air_flight (  
    flight_id VARCHAR(10) PRIMARY KEY,  
    airline_id VARCHAR(10),  
    airline_name VARCHAR(30),  
    from_location VARCHAR(20),  
    to_location VARCHAR(20),  
    departure_time TIME,  
    arrival_time TIME,  
    duration TIME,  
    total_seats INT  
);
```

```
CREATE TABLE air_flight_details (  
    flight_id VARCHAR(10),  
    flight_departure_date DATE,  
    price DECIMAL(8,2),  
    available_seats INT,  
    FOREIGN KEY (flight_id) REFERENCES air_flight(flight_id)  
);
```

```
CREATE TABLE air_ticket_info (  
    ticket_id VARCHAR(10) PRIMARY KEY,  
    profile_id VARCHAR(10),  
    flight_id VARCHAR(10),  
    flight_departure_date DATE,  
    status VARCHAR(10),  
    FOREIGN KEY (profile_id) REFERENCES air_passenger_profile(profile_id),
```

```
FOREIGN KEY (flight_id) REFERENCES air_flight(flight_id)
);
```

```
CREATE TABLE air_credit_card_details (
  profile_id VARCHAR(10),
  card_number BIGINT,
  card_type VARCHAR(10),
  expiration_month INT,
  expiration_year INT,
  FOREIGN KEY (profile_id) REFERENCES air_passenger_profile(profile_id)
);
```

```
INSERT INTO air_passenger_profile VALUES
('P001','pass1','Ajay','Rao','Hyderabad',9876543210,'ajay@gmail.com'),
('P002','pass2','Ravi','Kumar','Chennai',9123456780,'ravi@gmail.com'),
('P003','pass3','Sneha','Patel','Ahmedabad',9988776655,'sneha@gmail.com'),
('P004','pass4','Anita','Shah','Mumbai',9090909090,'anita@gmail.com'),
('P005','pass5','Kiran','Mehta','Delhi',9012345678,'kiran@gmail.com');
```

```
INSERT INTO air_flight VALUES
('F101','A001','IndiGo','Mumbai','Delhi','10:00:00','12:00:00','02:00:00',180),
('F102','A002','AirIndia','Delhi','Bangalore','14:00:00','16:30:00','02:30:00',200),
('F103','A003','Vistara','Chennai','Mumbai','09:00:00','11:00:00','02:00:00',160),
('F104','A004','SpiceJet','Hyderabad','Pune','18:00:00','19:30:00','01:30:00',150),
('F105','A005','Akasa','Kolkata','Delhi','06:00:00','08:30:00','02:30:00',170);
```

```
INSERT INTO air_flight_details VALUES
('F101','2024-09-10',5500.00,150),
('F102','2024-09-11',6200.00,180),
('F103','2024-09-12',4800.00,140),
('F104','2024-09-13',4500.00,130),
('F105','2024-09-14',7000.00,160);
```

```
INSERT INTO air_ticket_info VALUES
('T001','P001','F101','2024-09-10','Booked'),
('T002','P002','F102','2024-09-11','Booked'),
('T003','P003','F103','2024-09-12','Cancelled'),
('T004','P004','F104','2024-09-13','Booked'),
('T005','P005','F105','2024-09-14','Booked');
```

```
INSERT INTO air_credit_card_details VALUES
('P001',1111222233334444,'VISA',12,2026),
('P002',2222333344445555,'MASTER',11,2025),
```

```
('P003',3333444455556666,'VISA',10,2027),
('P004',4444555566667777,'RUPAY',9,2026),
('P005',5555666677778888,'VISA',8,2028);
```

1.

```
SELECT f.flight_id, f.from_location, f.to_location, DATENAME(MONTH,
fd.flight_departure_date) AS Month_Name,
AVG(fd.price) AS Average_Price FROM air_flight f
JOIN air_flight_details fd ON f.flight_id = fd.flight_id
WHERE f.airline_name = 'AirIndia'
GROUP BY f.flight_id,f.from_location,f.to_location,DATENAME(MONTH,
fd.flight_departure_date),
MONTH(fd.flight_departure_date) ORDER BY f.flight_id ASC,MONTH(fd.flight_departure_date)
ASC;
```

Results		Messages			
	flight_id	from_location	to_location	Month_Name	Average_Price
1	F102	Delhi	Bangalore	September	6200.000000

2.

```
SELECT p.profile_id,p.first_name,p.address,
COUNT(t.ticket_id) AS No_of_Tickets FROM air_passenger_profile p
JOIN air_ticket_info t ON p.profile_id = t.profile_id
JOIN air_flight f ON t.flight_id = f.flight_id
WHERE f.airline_name = 'AirIndia'
GROUP BY p.profile_id, p.first_name, p.address
HAVING COUNT(t.ticket_id) = (SELECT MIN(ticket_count)
FROM ( SELECT COUNT(ticket_id) AS ticket_count FROM air_ticket_info ti JOIN air_flight af
ON ti.flight_id = af.flight_id WHERE af.airline_name = 'AirIndia' GROUP BY ti.profile_id
)
)
ORDER BY p.first_name;
```

Results		Messages		
	profile_id	first_name	address	No_of_Tickets
1	P002	Ravi	Chennai	1

3.

```
SELECT f.from_location,f.to_location,DATENAME(MONTH, d.flight_departure_date) AS
Month_Name,
```

```

COUNT(d.flight_departure_date) AS No_of_Services
FROM air_flight f JOIN air_flight_details d ON f.flight_id = d.flight_id
GROUP BY f.from_location, f.to_location, DATENAME(MONTH,
d.flight_departure_date), MONTH(d.flight_departure_date)
ORDER BY f.from_location, f.to_location, MONTH(d.flight_departure_date);

```

	from_location	to_location	Month_Name	No_of_Services
1	Chennai	Mumbai	September	1
2	Delhi	Bangalore	September	1
3	Hyderabad	Pune	September	1
4	Kolkata	Delhi	September	1
5	Mumbai	Delhi	September	1

4.

```

SELECT p.profile_id, p.first_name, p.address, COUNT(t.ticket_id) AS No_of_Tickets
FROM air_passenger_profile p JOIN air_ticket_info t ON p.profile_id = t.profile_id
JOIN air_flight f ON t.flight_id = f.flight_id WHERE f.airline_name = 'AirIndia'
GROUP BY p.profile_id, p.first_name, p.address
HAVING COUNT(t.ticket_id) = (
    SELECT MAX(ticket_count)
    FROM (
        SELECT COUNT(ticket_id) AS ticket_count
        FROM air_ticket_info ti
        JOIN air_flight af ON ti.flight_id = af.flight_id
        WHERE af.airline_name = 'AirIndia'
        GROUP BY ti.profile_id
    )
)
ORDER BY p.first_name;

```

	profile_id	first_name	address	No_of_Tickets
1	P002	Ravi	Chennai	1

5.

```

SELECT p.profile_id, p.first_name, p.last_name, f.flight_id, t.flight_departure_date AS
Departure_Date,
COUNT(t.ticket_id) AS No_of_Tickets
FROM air_passenger_profile p
JOIN air_ticket_info t ON p.profile_id = t.profile_id

```

```

JOIN air_flight f ON t.flight_id = f.flight_id
WHERE f.from_location = 'Chennai' AND f.to_location = 'Hyderabad'
GROUP BY p.profile_id,p.first_name,p.last_name,f.flight_id,t.flight_departure_date
ORDER BY p.profile_id,f.flight_id,t.flight_departure_date;

```

	profile_id	first_name	last_name	flight_id	Departure_Date	No_of_Tickets
1	P101	Rahul	Verma	AI201	2024-04-05	1
2	P101	Rahul	Verma	AI201	2024-04-15	1
3	P102	Anita	Shah	AI201	2024-04-05	1
4	P102	Anita	Shah	AI202	2024-04-10	1
5	P102	Anita	Shah	AI202	2024-04-20	1
6	P103	Kiran	Reddy	AI201	2024-04-15	1

6.

```

SELECT f.flight_id, f.from_location, f.to_location,d.price
FROM air_flight f JOIN air_flight_details d ON f.flight_id = d.flight_id
WHERE MONTH(d.flight_departure_date) = 4;

```

	flight_id	from_location	to_location	price
1	AI201	Chennai	Hyderabad	4200.00
2	AI201	Chennai	Hyderabad	4500.00
3	AI202	Chennai	Hyderabad	4000.00
4	AI202	Chennai	Hyderabad	4300.00

7.

```

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

```

	flight_id	from_location	to_location	Price
1	F101	Mumbai	Delhi	5500.000000
2	F102	Delhi	Bangalore	6200.000000
3	F103	Chennai	Mumbai	4800.000000
4	F104	Hyderabad	Pune	4500.000000
5	F105	Kolkata	Delhi	7000.000000

8.

```
SELECT DISTINCT p.profile_id, p.first_name + ',' + p.last_name AS customer_name, p.address
FROM air_passenger_profile p JOIN air_ticket_info t ON p.profile_id = t.profile_id
JOIN air_flight f ON t.flight_id = f.flight_id WHERE f.from_location = 'Chennai'
AND f.to_location = 'Hyderabad' ORDER BY p.profile_id;
```

Results		Messages	
	profile_id	customer_name	address
1	P101	Rahul,Verma	Chennai
2	P102	Anita,Shah	Hyderabad
3	P103	Kiran,Reddy	Bangalore

9.

```
SELECT profile_id FROM air_ticket_info GROUP BY profile_id
HAVING COUNT(ticket_id) = (
    SELECT MAX(ticket_count) FROM ( SELECT COUNT(ticket_id) AS ticket_count
    FROM air_ticket_info GROUP BY profile_id
    )
)
ORDER BY profile_id;
```

	profile_id
1	P001
2	P002
3	P003
4	P004
5	P005

10.

```
SELECT f.flight_id,f.from_location,f.to_location,COUNT(t.ticket_id) AS No_of_Tickets
FROM air_flight f JOIN air_ticket_info t ON f.flight_id = t.flight_id
WHERE f.airline_name = 'AirIndia' GROUP BY f.flight_id, f.from_location,f.to_location
HAVING COUNT(t.ticket_id) >= 1 ORDER BY f.flight_id;
```

Results		Messages		
	flight_id	from_location	to_location	No_of_Tickets
1	AI201	Chennai	Hyderabad	4
2	AI202	Chennai	Hyderabad	2
3	F102	Delhi	Bangalore	1