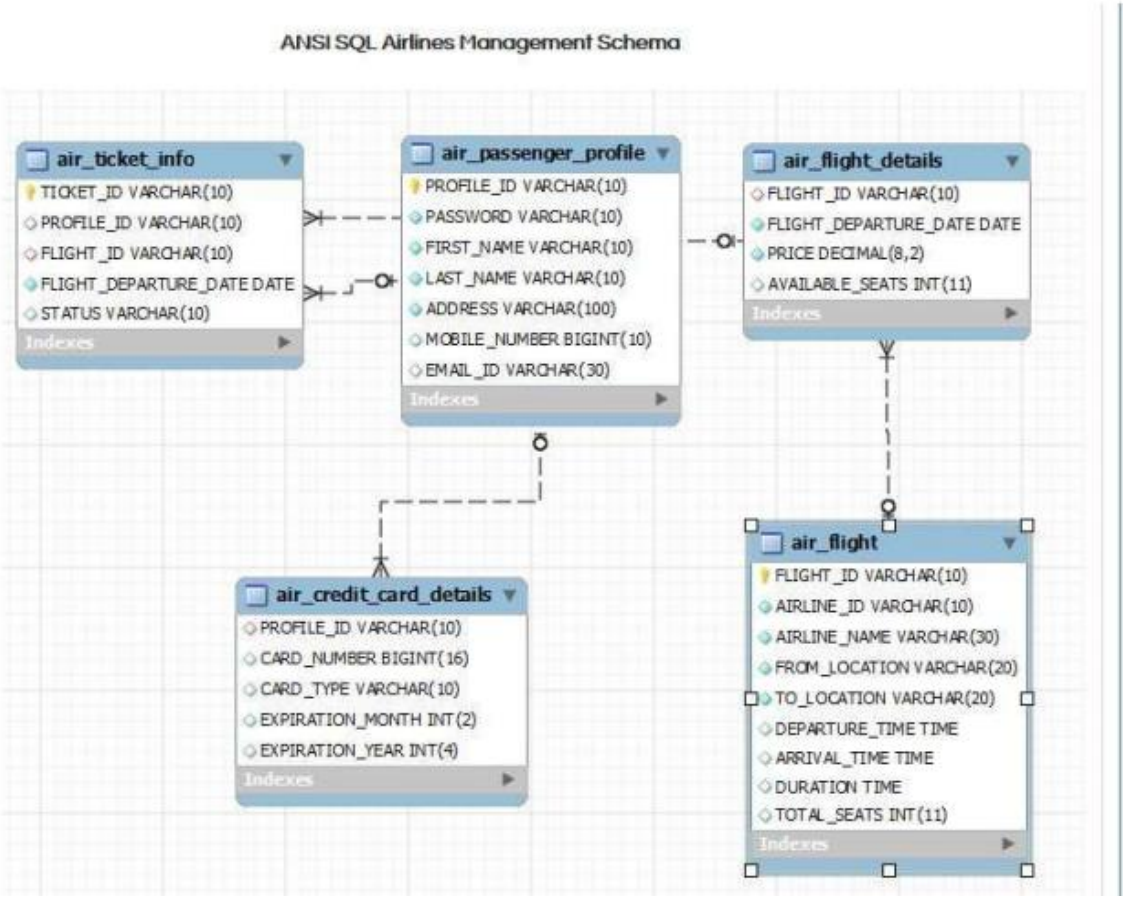
AIRLINES DATABASE SUBQUERIES AND JOINQUERIES ASSIGNMENT

ER DIAGRAM:



Air_Passenger_Profile Table Creation:

```
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)
);
```

Air_Flight Table Creation:

```
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
);
```

Air_Flight_Details Table Creation:

```
create table air_flight_details (
   flight_id varchar(10),
   flight_departure_date date,
   price decimal(8,2),
   available_seats int,
   primary key (flight_id, flight_departure_date),
   foreign key (flight_id) references air_flight(flight_id)
);
```

Air_Ticket_Info Table Creation:

```
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, flight_departure_date)
        references air_flight_details(flight_id, flight_departure_date)
);
```

Air_Credit_Card_Details Table Creation:

```
create table air_credit_card_details (
    profile_id varchar(10),
    card_number bigint,
    card_type varchar(10),
    expiration_month int,
    expiration_year int,
    primary key (card_number),
    foreign key (profile_id) references air_passenger_profile(profile_id)
);
```

Air_Passenger_Profile Table Values Insertion Command:

```
insert into air_passenger_profile values
('P001','pwd101','Anand','Kumar','Hyderabad',9876543210,'anand@gmail.com'),
('P002','pwd102','Ravi','Teja','Chennai',9123456780,'ravi@gmail.com'),
('P003','pwd103','Sita','Rao','Bangalore',9988776655,'sita@gmail.com'),
('P004','pwd104','Rahul','Sharma','Delhi',9012345678,'rahul@gmail.com'),
('P005','pwd105','Neha','Singh','Mumbai',9345678901,'neha@gmail.com'),
('P006','pwd106','Arjun','Patel','Ahmedabad',9567890123,'arjun@gmail.com'),
('P007','pwd107','Kiran','Reddy','Chennai',9789012345,'kiran@gmail.com');
```

	profile_id	password	first_name	last_name	address	mobile_number	email_id
1	P001	pwd101	Anand	Kumar	Hyderabad	9876543210	anand@gmail.com
2	P002	pwd102	Ravi	Teja	Chennai	9123456780	ravi@gmail.com
3	P003	pwd103	Sita	Rao	Bangalore	9988776655	sita@gmail.com
4	P004	pwd104	Rahul	Sharma	Delhi	9012345678	rahul@gmail.com
5	P005	pwd105	Neha	Singh	Mumbai	9345678901	neha@gmail.com
6	P006	pwd106	Arjun	Patel	Ahmedabad	9567890123	arjun@gmail.com
7	P007	pwd107	Kiran	Reddy	Chennai	9789012345	kiran@gmail.com

Air_Flight_Details Table Values Insertion Command:

```
insert into air_flight_details values
('F101','2024-03-15',4200,60),
('F101','2024-04-10',4500,55),
('F101','2024-04-25',4700,50),
('F102','2024-04-05',4300,70),
('F102','2024-05-12',4600,65),
('F103','2024-03-20',6200,80),
('F103','2024-04-18',6500,75),
('F104','2024-04-02',5200,40),
('F105','2024-05-08',3900,60),
('F106','2024-04-22',6100,85);
```

	flight_id	flight_departure_date	price	available_seats
1	F101	2024-03-15	4200.00	60
2	F101	2024-04-10	4500.00	55
3	F101	2024-04-25	4700.00	50
4	F102	2024-04-05	4300.00	70
5	F102	2024-05-12	4600.00	65
6	F103	2024-03-20	6200.00	80
7	F103	2024-04-18	6500.00	75
8	F104	2024-04-02	5200.00	40
9	F105	2024-05-08	3900.00	60
10	F106	2024-04-22	6100.00	85

Air_Ticket_Info Table Values Insertion Command:

```
insert into air_ticket_info values
```

('T001','P001','F101','2024-04-10','booked'),

('T002','P001','F101','2024-04-25','booked'),

('T003','P001','F102','2024-04-05','booked'),

('T004','P002','F101','2024-03-15','booked'),

('T005','P002','F102','2024-04-05','booked'),

('T006','P003','F103','2024-03-20','booked'),

('T007','P004','F104','2024-04-02','booked'),

('T008','P004','F104','2024-04-02','booked'),

('T009','P005','F105','2024-05-08','booked'),

('T010','P006','F106','2024-04-22','booked'),

('T011','P007','F101','2024-04-10','booked'),

('T012','P007','F102','2024-04-05','booked'),

('T013','P007','F101','2024-04-25','booked');

	ticket_id	profile_id	flight_id	flight_departure_date	status
1	T001	P001	F101	2024-04-10	booked
2	T002	P001	F101	2024-04-25	booked
3	T003	P001	F102	2024-04-05	booked
4	T004	P002	F101	2024-03-15	booked
5	T005	P002	F102	2024-04-05	booked
6	T006	P003	F103	2024-03-20	booked
7	T007	P004	F104	2024-04-02	booked
8	T008	P004	F104	2024-04-02	booked
9	T009	P005	F105	2024-05-08	booked
10	T010	P006	F106	2024-04-22	booked
11	T011	P007	F101	2024-04-10	booked
12	T012	P007	F102	2024-04-05	booked
13	T013	P007	F101	2024-04-25	booked

Air_Credit_Card_Details Table Values Insertion Command:

insert into air_credit_card_details values

('P001',4111222233334444,'visa',12,2026),

('P002',5222333344445555,'master',11,2025),

('P003',4333444455556666,'visa',10,2027),

('P004',5444555566667777,'master',9,2026),

('P005',4000123412341234,'visa',8,2028),

('P006',5100510051005100,'master',7,2027),

('P007',4012888888881881,'visa',6,2026);

	profile_id	card_number	card_type	expiration_month	expiration_year
1	P005	4000123412341234	visa	8	2028
2	P007	4012888888881881	visa	6	2026
3	P001	4111222233334444	visa	12	2026
4	P003	4333444455556666	visa	10	2027
5	P006	5100510051005100	master	7	2027
6	P002	5222333344445555	master	11	2025
7	P004	5444555566667777	master	9	2026

Air_Flight Table Values Insertion Command:

insert into air_flight values

('F101','ABC01','ABC Airlines','Chennai','Hyderabad','08:00:00','09:30:00','01:30:00',180),

('F102','ABC02','ABC Airlines','Chennai','Hyderabad','14:00:00','15:30:00','01:30:00',180),

('F103','ABC03','ABC Airlines','Hyderabad','Delhi','06:00:00','08:30:00','02:30:00',200),

('F104','ABC04','ABC Airlines','Bangalore','Mumbai','10:00:00','11:45:00','01:45:00',150),

('F105','ABC05','ABC Airlines','Chennai','Bangalore','18:00:00','19:30:00','01:30:00',160),

('F106','ABC06','ABC Airlines','Delhi','Chennai','07:00:00','09:30:00','02:30:00',190);

	flight_id	airline_id	airline_name	from_location	to_location	departure_time	arrival_time	duration	total_seats
1	F101	ABC01	ABC Airlines	Chennai	Hyderabad	08:00:00.0000000	09:30:00.0000000	01:30:00.0000000	180
2	F102	ABC02	ABC Airlines	Chennai	Hyderabad	14:00:00.0000000	15:30:00.0000000	01:30:00.0000000	180
3	F103	ABC03	ABC Airlines	Hyderabad	Delhi	06:00:00.0000000	08:30:00.0000000	02:30:00.0000000	200
4	F104	ABC04	ABC Airlines	Bangalore	Mumbai	10:00:00.0000000	11:45:00.0000000	01:45:00.0000000	150
5	F105	ABC05	ABC Airlines	Chennai	Bangalore	18:00:00.0000000	19:30:00.0000000	01:30:00.0000000	160
6	F106	ABC06	ABC Airlines	Delhi	Chennai	07:00:00.0000000	09:30:00.0000000	02:30:00.0000000	190

1.Write a query to display the average monthly Θcket cost for each flight in ABC Airlines. The query should display the Flight_Id, From_locaΘon, To_LocaΘon, 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.

Ans.select a.flight_id,

b.from_location,

b.to_location,

datename(month, a.flight_departure_date) as month_name,

avg(a.price) as Average_Price

from air_flight_details a

join air_flight b on b.flight_id=a.flight_id

group by a.flight_id,

b.from_location,

b.to_location,

datename(month, a.flight_departure_date),

month(a.flight_departure_date)

order by flight_id, month(a.flight_departure_date);

	flight_id	from_location	to_location	month_name	Average_Price
1	F101	Chennai	Hyderabad	March	4200.000000
2	F101	Chennai	Hyderabad	April	4600.000000
3	F102	Chennai	Hyderabad	April	4300.000000
4	F102	Chennai	Hyderabad	May	4600.000000
5	F103	Hyderabad	Delhi	March	6200.000000
6	F103	Hyderabad	Delhi	April	6500.000000
7	F104	Bangalore	Mumbai	April	5200.000000
8	F105	Chennai	Bangalore	May	3900.000000
9	F106	Delhi	Chennai	April	6100.000000

2.Write a query to display the customer(s) who has/have booked least number of Ɵckets 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 oncustomer firstname

Ans.select

```
    a.profile_id,
    a.first_name,
    a.last_name,
    a.address,
    count(b.ticket_id) as no_of_tickets
from air_passenger_profile a
join air_ticket_info b
    on a.profile_id = b.profile_id
group by
    a.profile_id,
    a.first_name,
    a.last_name,
    a.address
having
    count(b.ticket_id) = (
        select min(ticket_count)
        from (
            select count(ticket_id) as ticket_count
            from air_ticket_info
            group by profile_id
        ) t
    )
order by
    a.first_name;
```

	profile_id	first_name	last_name	address	no_of_tickets
1	P006	Arjun	Patel	Ahmedabad	1
2	P005	Neha	Singh	Mumbai	1
3	P003	Sita	Rao	Bangalore	1

3.Write a query to display the number of flight services between locaϴons in a month. The Query should display From_Location, To_Location, Month as "Month_Name" and number of flight services as "No_of_Services". Hint: The Number of Services can be calculated from the number of scheduled departure dates of a flight. The records should be displayed in ascending order based on From_Location and then by To_Location and then by month name.

Ans.select

```
   a.from_location,
   a.to_location,
   datename(month, b.flight_departure_date) as month_name,
   count(b.flight_departure_date) as no_of_services
from air_flight a
join air_flight_details b
   on a.flight_id = b.flight_id
group by
   a.from_location,
   a.to_location,
   month(b.flight_departure_date),
   datename(month, b.flight_departure_date)
order by
   a.from_location,
   a.to_location,
   month(b.flight_departure_date);
```

	from_location	to_location	month_name	no_of_services
1	Bangalore	Mumbai	April	1
2	Chennai	Bangalore	May	1
3	Chennai	Hyderabad	March	1
4	Chennai	Hyderabad	April	3
5	Chennai	Hyderabad	May	1
6	Delhi	Chennai	April	1
7	Hyderabad	Delhi	March	1
8	Hyderabad	Delhi	April	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 in ascending order based on customer's first name.

Ans.select

```
    a.profile_id,
    a.first_name,
    a.last_name,
    a.address,
    count(b.ticket_id) as no_of_tickets
from air_passenger_profile a
join air_ticket_info b
    on a.profile_id = b.profile_id
group by
    a.profile_id,
    a.first_name,
    a.last_name,
    a.address
having
    count(b.ticket_id) = (
        select max(ticket_count)
```

```
    from (
        select count(ticket_id) as ticket_count
        from air_ticket_info
        group by profile_id
    ) t
  )
order by
  a.first_name;
```

	profile_id	first_name	last_name	address	no_of_tickets
1	P001	Anand	Kumar	Hyderabad	3
2	P007	Kiran	Reddy	Chennai	3

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 and then by flight id and then by departure date.

Ans.

```
select
  a.profile_id,
  a.first_name,
  a.last_name,
  b.flight_id,
  b.flight_departure_date,
  count(b.ticket_id) as no_of_tickets
from air_passenger_profile a
join air_ticket_info b
  on a.profile_id = b.profile_id
join air_flight c
  on c.flight_id = b.flight_id
where
  c.from_location = 'Chennai'
```

```
    and c.to_location = 'Hyderabad'
group by
    a.profile_id,
    a.first_name,
    a.last_name,
    b.flight_id,
    b.flight_departure_date
order by
    a.profile_id,
    b.flight_id,
    b.flight_departure_date;
```

	profile_id	first_name	last_name	flight_id	flight_departure_date	no_of_tickets
1	P001	Anand	Kumar	F101	2024-04-10	1
2	P001	Anand	Kumar	F101	2024-04-25	1
3	P001	Anand	Kumar	F102	2024-04-05	1
4	P002	Ravi	Teja	F101	2024-03-15	1
5	P002	Ravi	Teja	F102	2024-04-05	1
6	P007	Kiran	Reddy	F101	2024-04-10	1
7	P007	Kiran	Reddy	F101	2024-04-25	1
8	P007	Kiran	Reddy	F102	2024-04-05	1

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.

Ans.

```
select b.flight_id,
c.from_location,
c.to_location,
b.price
from air_flight c
join air_flight_details b on c.flight_id=b.flight_id
where datename(month,b.flight_departure_date)='April';
```

	flight_id	from_location	to_location	price
1	F101	Chennai	Hyderabad	4500.00
2	F101	Chennai	Hyderabad	4700.00
3	F102	Chennai	Hyderabad	4300.00
4	F103	Hyderabad	Delhi	6500.00
5	F104	Bangalore	Mumbai	5200.00
6	F106	Delhi	Chennai	6100.00

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 and then by from_location and then by to_location.

Ans.select c.flight_id,

c.from_location,

c.to_location,

avg(d.price) as price

from air_flight_details d

join air_flight c on c.flight_id=d.flight_id

group by c.flight_id,c.from_location,c.to_location

order by c.flight_id,c.from_location,c.to_location ;

	flight_id	from_location	to_location	price
1	F101	Chennai	Hyderabad	4466.666666
2	F102	Chennai	Hyderabad	4450.000000
3	F103	Hyderabad	Delhi	6350.000000
4	F104	Bangalore	Mumbai	5200.000000
5	F105	Chennai	Bangalore	3900.000000
6	F106	Delhi	Chennai	6100.000000

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 in b/w), address of the customer. Give an alias to the name as customer_name. Hint: Query should fetch unique customers irrespective of multiple tickets booked. Display the records sorted in ascending order based on profile id.

Ans.select a.profile_id,

CONCAT(a.first_name,',',a.last_name) as customer_name,

a.address

from air_flight c

join air_ticket_info b on c.flight_id=b.flight_id

join air_passenger_profile a on a.profile_id=b.profile_id

where c.from_location='Chennai' and c.to_location='Hyderabad'

group by a.profile_id,CONCAT(a.first_name,',',a.last_name),a.address

order by a.profile_id;

	profile_id	customer_name	address
1	P001	Anand,Kumar	Hyderabad
2	P002	Ravi,Teja	Chennai
3	P007	Kiran,Reddy	Chennai

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

Ans.select

```
   profile_id,
   count(ticket_id) as no_of_tickets
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
      ) t
```

)

order by

profile_id;

	profile_id	no_of_tickets
1	P001	3
2	P007	3

10.Write a query to display the total number of Ɵckets as "No_of_Tickets" booked in each flight in ABC Airlines. The Query should display the flight_id, from_location, to_location and the number of tickets. Display only the flights in which atleast 1 ticket is booked. Display the records sorted in ascending order based on flight id.

Ans.select

a.flight_id,

a.from_location,

a.to_location,

count(b.flight_id) as no_of tickets

from air_flight a

join air_ticket_info b on a.flight_id=b.flight_id

group by a.flight_id,a.from_location,a.to_location

having count(b.flight_id)>1

order by a.flight_id;

	flight_id	from_location	to_location	no_of_tickets
1	F101	Chennai	Hyderabad	5
2	F102	Chennai	Hyderabad	3
3	F104	Bangalore	Mumbai	2