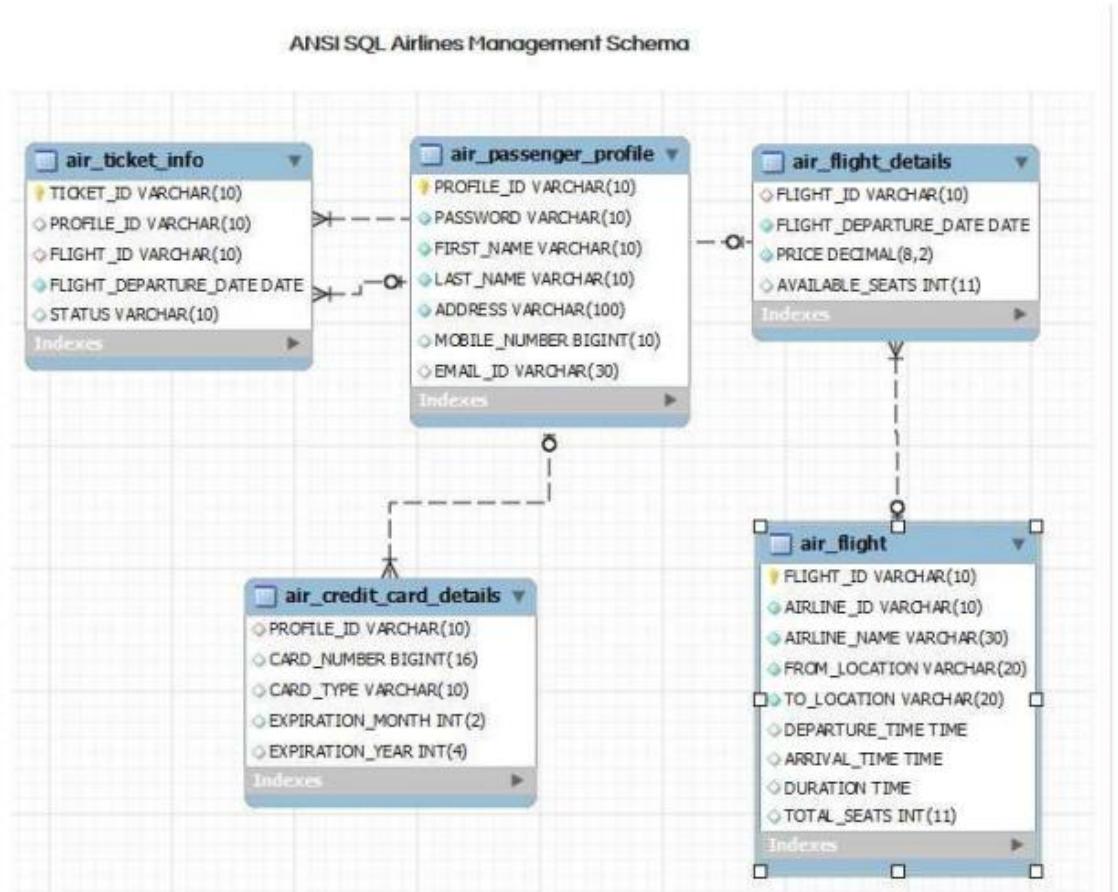


AIRLINES DATABASE SUBQUERIES AND JOINQUERIES ASSIGNMENT

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',401288888881881,'visa',6,2026);

```

	profile_id	card_number	card_type	expiration_month	expiration_year
1	P005	4000123412341234	visa	8	2028
2	P007	401288888881881	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 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.

```
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 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 firstname

Ans. select

```
a.profile_id,  
a.first_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  
join air_flight f  
on f.flight_id = b.flight_id
```

where

```
f.airline_name = 'ABC Airlines'
```

group by

```
a.profile_id,  
a.first_name,  
a.address
```

having

```
count(b.ticket_id) = (  
    select min(ticket_count)  
    from (  
        select count(b2.ticket_id) as ticket_count  
        from air_ticket_info b2  
        join air_flight f2  
        on f2.flight_id = b2.flight_id  
        where f2.airline_name = 'ABC Airlines'  
        group by b2.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 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". 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.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
join air_flight f
on f.flight_id = b.flight_id
where
f.airline_name = 'ABC Airlines'
group by
a.profile_id,
a.first_name,
a.address
having

```

```

count(b.ticket_id) = (
    select max(ticket_count)
    from (
        select count(b2.ticket_id) as ticket_count
        from air_ticket_info b2
        join air_flight f2
        on f2.flight_id = b2.flight_id
        where f2.airline_name = 'ABC Airlines'
        group by b2.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 Tickets 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	F103	Hyderabad	Delhi	1
4	F104	Bangalore	Mumbai	2
5	F105	Chennai	Bangalore	1
6	F106	Delhi	Chennai	1