DAY 3-ASSIGNMENT-SUBQUERIES AND JOINS

use airlinesdb;

Table Air_Passenger_Profile:

```
create table air_passenger_profile(
profileid varchar(10) primary key,
password varchar(10) not null,
firstname varchar(10) not null,
lastname varchar(10) not null,
address varchar(100) not null,
mobilenumber bigint,
emailid varchar(30)
);
```

Table Air_Flight:

```
create table air_flight(
flightid varchar(10) primary key,
airlineid varchar(10) not null,
airlinename varchar(30) not null,
fromlocation varchar(20) not null,
tolocation varchar(20) not null,
departuretime time,
arrivaltime time,
durationtime time,
totalseats int
);
```

Table Air_Ticket_Info:

```
create table air_ticket_info(
ticketid varchar(10) primary key,
profileid varchar(10) foreign key references
air_passenger_profile(profileid) on delete cascade on update cascade,
flightid varchar(10) foreign key references air_flight(flightid) on delete
cascade on update cascade,
flight_departure_date date not null,
status varchar(10)
);
```

Air_Flight_Details Table:

```
create table air_flight_details(
flightid varchar(10) foreign key references air_flight(flightid) on delete
cascade on update cascade,
flight_departure_date date not null,
price decimal(8,2) not null,
availableseats int
);
```

Aircreditcard_Details Table:

```
create table aircreditcard_details(
profileid varchar(10),
cardnumber bigint,
cardtype varchar(10),
expirationmonth int,
expirationyear int,
primary key(profileid,cardnumber)
);
```

Insert

```
insert into air_flight values
('f201','abc01','abc airlines','chennai','hyderabad','08:00','09:30','01:30',180),
('f202','abc01','abc airlines','chennai','hyderabad','18:00','19:30','01:30',180),
('f203','abc01','abc airlines','hyderabad','mumbai','10:00','11:40','01:40',150),
('f204','abc01','abc airlines','mumbai','hyderabad','15:00','16:30','01:30',160),
('f205','abc01','abc airlines','delhi','hyderabad','07:00','09:50','02:50',200);
insert into air_flight_details values
('f201','2025-04-02',2500.00,120),
('f201','2025-04-15',2700.00,100),
('f201','2025-05-10',2600.00,90),
('f202','2025-04-05',3000.00,80),
('f202','2025-04-25',3200.00,60),
('f202','2025-06-12',3100.00,75),
('f203','2025-01-20',1800.00,50),
('f203','2025-02-14',1900.00,40),
('f203','2025-03-18',2000.00,30),
('f204','2025-04-11',2200.00,70),
('f204','2025-07-21',2300.00,65),
('f205','2025-04-09',4500.00,55),
('f205','2025-08-19',4700.00,40);
insert into air_passenger_profile values
('p006','abc222','alice','ray','chennai, india',9000011112,'alice@mail.com'),
```

('p007','abc333','bob','marley','chennai, india',9000022223,'bob@mail.com'),

('p008','abc444','charlie','puth','hyderabad, india',9000033334,'charlie@mail.com'),

('p009','abc555','david','warner','delhi, india',9000044445,'david@mail.com'),

('p010','abc666','eva','green','mumbai, india',9000055556,'eva@mail.com');

insert into air_ticket_info values

('t9101','p006','f201','2025-04-02','booked'),

('t9102','p006','f201','2025-04-15','booked'),

('t9103','p006','f202','2025-04-05','booked'),

('t9104','p007','f203','2025-02-14','booked'),

('t9105','p008','f201','2025-05-10','booked'),

('t9106','p008','f202','2025-04-25','booked'),

('t9107','p008','f202','2025-06-12','booked'),

('t9108','p010','f204','2025-04-11','booked'),

('t9109','p010','f205','2025-04-09','booked'),

('t9110','p010','f205','2025-08-19','booked');

insert into aircreditcard_details values

('p006',666677778888,'visa',4,2027),

('p007',777788889999,'rupay',9,2026),

('p008',888899990000,'mast',12,2028),

('p009',999900001111,'amex',6,2027),

('p010',555544443333,'visa',8,2029);

alter table aircreditcard_details drop constraint pk__aircredi__516f37b5accf4d5e;

alter table aircreditcard_details add constraint fk_pid foreign key(profileid) references air_passenger_profile(profileid);

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_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
af.flightid,af.fromlocation,af.tolocation,datename(month,afd.flight_departure_date) as
MonthName,avg(afd.price) as AveragePrice from air_flight af  join air_flight_details afd
on af.flightid=afd.flightid where af.airlinename='ABC Airlines' group by af.flightid,
af.fromlocation, af.tolocation, datename(month, afd.flight_departure_date)order by
flightid,MonthName;
```

	flightid	fromlocation	tolocation	MonthName	AveragePrice
1	F201	Chennai	Hyderabad	April	2600.000000
2	F201	Chennai	Hyderabad	May	2600.000000
3	F202	Chennai	Hyderabad	April	3100.000000
4	F202	Chennai	Hyderabad	June	3100.000000
5	F203	Hyderabad	Mumbai	February	1900.000000
6	F203	Hyderabad	Mumbai	January	1800.000000
7	F203	Hyderabad	Mumbai	March	2000.000000
8	F204	Mumbai	Hyderabad	April	2200.000000
9	F204	Mumbai	Hyderabad	July	2300.000000
10	F205	Delhi	Hyderabad	April	4500.000000
11	F205	Delhi	Hyderabad	August	4700.000000

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 * from(
select a.profileid,a.firstname,a.address,
(select count(t.ticketid) from air_ticket_info t where a.profileid=t.profileid) as
No_of_tickets
from air_passenger_profile a
) c
where No_of_tickets=(select min(cnt) from
( select count(ticketid) cnt from air_ticket_info  group by profileid) d) order by
firstname;
```

Results Messages

	profileid	firstname	address	No_of_tickets
1	P007	Bob	Chennai, India	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.

```
select af.fromlocation,af.tolocation,datename(month,afd.flight_departure_date) as
monthname,count(afd.flightid) as NO_OF_SERVICES
from air_flight af join air_flight_details afd on af.flightid=afd.flightid group  by
af.fromlocation,af.tolocation,datename(month,afd.flight_departure_date)
order by af.fromlocation,af.tolocation,datename(month,afd.flight_departure_date);
```

Results Messages

	fromlocation	tolocation	monthname	NO_OF_SERVICES
1	Chennai	Hyderabad	April	4
2	Chennai	Hyderabad	June	1
3	Chennai	Hyderabad	May	1
4	Delhi	Hyderabad	April	1
5	Delhi	Hyderabad	August	1
6	Hyderabad	Mumbai	February	1
7	Hyderabad	Mumbai	January	1
8	Hyderabad	Mumbai	March	1
9	Mumbai	Hyderabad	April	1
10	Mumbai	Hyderabad	July	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.

```
select * from(
select a.profileid,a.firstname,a.address,
(select count(t.ticketid) from air_ticket_info t where a.profileid=t.profileid) as
No_of_tickets
from air_passenger_profile a) c where No_of_tickets=(select max(cnt) from
( select count(ticketid) cnt from air_ticket_info  group by profileid) d) order by
firstname;
```

Results | Messages

	profileid	firstname	address	No_of_tickets
1	P006	Alice	Chennai, India	3
2	P008	Charlie	Hyderabad, India	3
3	P010	Eva	Mumbai, India	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.

```
select profileid, firstname, lastname, flightid, flight_departure_date, no_of_tickets
from (
select ap.profileid,
ap.firstname,
ap.lastname,
a.flightid,
a.flight_departure_date,
count(a.ticketid) as no_of_tickets,
af.fromlocation,
af.tolocation
from air_passenger_profile ap
join air_ticket_info a on ap.profileid = a.profileid
join air_flight af on a.flightid = af.flightid
group by ap.profileid, ap.firstname, ap.lastname, a.flightid, a.flight_departure_date,
af.fromlocation, af.tolocation
having af.fromlocation = 'Chennai' and af.tolocation = 'Hyderabad'
) d
order by firstname asc;
```

Results Messages

	profileid	firstname	lastname	flightid	flight_departure_date	no_of_tickets
1	P006	Alice	Ray	F201	2025-04-02	1
2	P006	Alice	Ray	F201	2025-04-15	1
3	P006	Alice	Ray	F202	2025-04-05	1
4	P008	Charlie	Puth	F201	2025-05-10	1
5	P008	Charlie	Puth	F202	2025-04-25	1
6	P008	Charlie	Puth	F202	2025-06-12	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.

```
select f.flightid, f.fromlocation, f.tolocation, fd.price
from air_flight f
join air_flight_details fd on f.flightid = fd.flightid
where datename(month, fd.flight_departure_date) = 'april'
order by f.flightid asc, f.fromlocation asc, f.tolocation asc;
```

Results Messages

	flightid	fromlocation	tolocation	price
1	F201	Chennai	Hyderabad	2500.00
2	F201	Chennai	Hyderabad	2700.00
3	F202	Chennai	Hyderabad	3000.00
4	F202	Chennai	Hyderabad	3200.00
5	F204	Mumbai	Hyderabad	2200.00
6	F205	Delhi	Hyderabad	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 and then by from_location and then by to_location.

```
select f.flightid, f.fromlocation, f.tolocation, avg(fd.price) as price
from air_flight f
join air_flight_details fd on f.flightid = fd.flightid
group by f.flightid, f.fromlocation, f.tolocation
order by f.flightid asc, f.fromlocation asc, f.tolocation asc;
```

Results Messages

	flightid	fromlocation	tolocation	price
1	F201	Chennai	Hyderabad	2600.000000
2	F202	Chennai	Hyderabad	3100.000000
3	F203	Hyderabad	Mumbai	1900.000000
4	F204	Mumbai	Hyderabad	2250.000000
5	F205	Delhi	Hyderabad	4600.000000

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.

```
select distinct ap.profileid as profile_id,
ap.firstname + ',' + ap.lastname as customer_name,
ap.address
from air_passenger_profile ap
join air_ticket_info t on ap.profileid = t.profileid
join air_flight f on t.flightid = f.flightid
where f.fromlocation = 'chennai'
and f.tolocation = 'hyderabad'
order by ap.profileid asc;
```

Results | Messages

	profile_id	customer_name	address
1	P006	Alice,Ray	Chennai, India
2	P008	Charlie,Puth	Hyderabad, India

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 top 1 with ties ap.profileid
from air_passenger_profile ap
join air_ticket_info t on ap.profileid = t.profileid
group by ap.profileid
order by count(t.ticketid) desc;
```

	profileid
1	P006
2	P008
3	P010

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.

```
select f.flightid as flight_id,
f.fromlocation,
f.tolocation,
count(t.ticketid) as no_of_tickets
from air_flight f
join air_ticket_info t on f.flightid = t.flightid
where f.airlinename = 'abc airlines'
group by f.flightid, f.fromlocation, f.tolocation
having count(t.ticketid) >= 1
order by f.flightid asc;
```

Results Messages

	flight_id	fromlocation	tolocation	no_of_tickets
1	F201	Chennai	Hyderabad	3
2	F202	Chennai	Hyderabad	3
3	F203	Hyderabad	Mumbai	1
4	F204	Mumbai	Hyderabad	1
5	F205	Delhi	Hyderabad	2