DBMS ASSIGNMENT - 4

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Section : B

We first create tables :

```sql
create table airport (
 airport_code int primary key ,
 city varchar(50) ,
 state varchar(50) ,
 names varchar(50)
);

create table airplane_type (
 type_name int primary key ,
 max_seats int ,
 company varchar(50)
);

create table airplane (
 airplane_id int primary key ,
 total_no_of_seats int   ,
 type_name  int,
 foreign key (type_name) references airplane_type(type_name)
);
```

```sql
create table leg_instance (
 no_of_avail_seats int ,
 datee timestamp primary key ,
 airport_code int ,
 dep_time int ,
 arr_time int ,
 foreign key (airport_code) references airport(airport_code),
 airplane_id int,
 foreign key (airplane_id) references airplane(airplane_id) ,
 leg_no int ,
 foreign key (leg_no) references flight_leg(leg_no)
);
```

```sql
create table seat (
 seat_no int primary key ,
 cphone int,
 customer_name varchar(50),
 datee timestamp,
 foreign key (datee) references leg_instance(datee)
);

create table flight_leg (
  leg_no int primary key ,
  scheduled_dep_time int,
  scheduled_arr_time int,
  airport_code int,
  foreign key (airport_code) references airport(airport_code) ,
  numbers int ,
  foreign key (numbers) references flight(numbers)
);
```

```sql
create table flight (
 numbers int primary key ,
 airline int ,
 weekdays int
);

create table fare (
 restriction int,
 amount int ,
 numbers int ,
 code int primary key ,
 foreign key (numbers) references flight(numbers)
);
```

```sql
create table can_land (
  airport_code int ,
  type_name int,
  foreign key (airport_code) references airport(airport_code) ,
  foreign key (type_name) references airplane(type_name)
);
```

We now insert data :

```
74      -- Insert data into airport table
75  •   INSERT INTO airport (airport_code, city, state, names)
76      VALUES (1, 'New York', 'New York', 'John F. Kennedy International Airport'),
77             (2, 'Los Angeles', 'California', 'Los Angeles International Airport'),
78             (3, 'Chicago', 'Illinois', 'O''Hare International Airport'),
79             (4, 'Miami', 'Florida', 'Miami International Airport'),
80             (5, 'Denver', 'Colorado', 'Denver International Airport'),
81             (6, 'Dallas', 'Texas', 'Dallas/Fort Worth International Airport'),
82             (7, 'San Francisco', 'California', 'San Francisco International Airport');
83
84      -- Insert data into airplane_type table
85  •   INSERT INTO airplane_type (type_name, max_seats, company)
86      VALUES (1, 100, 'Boeing'),
87             (2, 50, 'Airbus'),
88             (3, 200, 'Embraer'),
89             (4, 150, 'Boeing'),
90             (5, 80, 'Airbus'),
91             (6, 120, 'Embraer'),
92             (7, 60, 'Boeing');
```

```
94      -- Insert data into airplane table
95  •   INSERT INTO airplane (airplane_id, total_no_of_seats, type_name)
96      VALUES (1, 100, 1),
97             (2, 50, 2),
98             (3, 200, 3),
99             (4, 150, 4),
100            (5, 80, 5),
101            (6, 120, 6),
102            (7, 60, 7);
103
104     -- Insert data into flight table
105 •   INSERT INTO flight (numbers, airline, weekdays)
106     VALUES (100, 1, 127),
107            (200, 2, 456),
108            (300, 1, 123),
109            (400, 2, 345),
110            (500, 1, 567),
111            (600, 2, 234),
112            (700, 1, 345);
```

```
114     -- Insert data into flight_leg table
115 •   INSERT INTO flight_leg (leg_no, scheduled_dep_time, scheduled_arr_time, airport_code, numbers)
116     VALUES (1, 1200, 1400, 1, 100),
117            (2, 1600, 1800, 2, 200),
118            (3, 1000, 1200, 3, 300),
119            (4, 1400, 1600, 4, 400),
120            (5, 1800, 2000, 5, 500),
121            (6, 1200, 1400, 6, 600),
122            (7, 1600, 1800, 7, 700);
```

```sql
-- Insert data into leg_instance table
INSERT INTO leg_instance (no_of_avail_seats, datee, airport_code, dep_time, arr_time, airplane_id, leg_no)
VALUES (90, '2022-01-01 12:00:00', 1, 1200, 1400, 1, 1),
       (40, '2022-02-01 16:00:00', 2, 1600, 1800, 2, 2),
       (180, '2022-03-01 10:00:00', 3, 1000, 1200, 3, 3),
       (160, '2022-05-01 18:00:00', 5, 1800, 2000, 5, 5),
       (120, '2022-04-01 14:00:00', 4,1400,1400, 4, 4),
       (80, '2022-06-01 12:00:00', 6, 1200, 1400, 6, 6),
       (60, '2022-07-01 16:00:00', 7, 1600, 1800, 7, 7);

-- Insert data into seat table
INSERT INTO seat (seat_no, cphone, customer_name, datee)
VALUES (1, 11111111, 'Alice', '2022-01-01 12:00:00'),
(2, 22222222, 'Bob', '2022-02-01 16:00:00'),
(3, 33333333, 'Charlie', '2022-03-01 10:00:00'),
(4, 44444444, 'David', '2022-04-01 14:00:00'),
(5, 55555555, 'Emily', '2022-05-01 18:00:00'),
(6, 66666666, 'Frank', '2022-06-01 12:00:00'),
(7, 77777777, 'Grace', '2022-07-01 16:00:00');
```

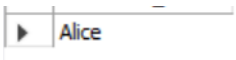
```sql
-- Insert data into fare table
INSERT INTO fare (restriction, amount, numbers, code)
VALUES (1, 200, 100, 1),
(2, 300, 200, 2),
(3, 400, 300, 3),
(4, 500, 400, 4),
(5, 600, 500, 5),
(6, 700, 600, 6),
(7, 800, 700, 7);

-- Insert data into can_land table
INSERT INTO can_land (airport_code, type_name)
VALUES (1, 1),
(2, 2),
(3, 3),
(4, 4),
(5, 5),
(6, 6),
(7, 7);
```

Q1. Find the customer name reserved by maximum number of seats.

```sql
select customer_name from seat
group by customer_name
order by count(distinct seat_no) limit 1;
```

Output :



Find the flight no of all flights that can be used on non-stop flights from B to M.

```
SELECT leg_no FROM flight_leg WHERE scheduled_dep_time = 1400 and scheduled_arr_time = 1600;
```

Output :

	leg_no
▶	4

Find the flight No which charges the lowest fare from city A to city B.

Query :

```
select flight.numbers from flight
join flight_leg on flight_leg.numbers=flight.numbers
join fare on fare.numbers=flight.numbers
where flight_leg.scheduled_arr_code=1400 and flight_leg.scheduled_dep_code=1200
order by fare.amount desc limit 1;
```

Output :

	numbers
▶	600

Find all flights running on every day from city A to city B.

Query :

```
select flight.numbers from flight
join flight_leg on flight_leg.numbers=flight.numbers
where weekdays=127 and flight_leg.scheduled_arr_time=1600 and flight_leg.scheduled_dep_time=1800;
```

Output :

	numbers

Find all flights departing from City X.

Query :

```
select flight.numbers from flight
join flight_leg on flight_leg.numbers=flight.numbers
where flight_leg.scheduled_dep_time=1200;
```

Output :

	numbers
▶	100
	600

Find all the flights which are having greater than 200 seats.

Query :

```
select flight.numbers , airline , weekdays,no_of_avail_seats  from flight
join flight_leg on flight_leg.numbers = flight.numbers
join leg_instance on leg_instance.leg_no = flight_leg.leg_no
where no_of_avail_seats>=100;
```

Output :

numbers	airline	weekdays	no_of_avail_seats
300	1	123	180
400	2	345	120
500	1	567	160

Find how many passengers are traveled from city X on 01-01-2014

Query :

```
select count(distinct seat.customer_name) from seat
join leg_instance on leg_instance.datee = seat.datee
join airplane on airplane.airplane_id = leg_instance.airplane_id
join airplane_type on airplane_type.type_name = airplane.type_name
join can_land on airplane_type.type_name = can_land.type_name
join airport on airport.airport_code = can_land.airport_code
where date(leg_instance.datee) = "2022-07-01" and airport.city = "Chicago"
group by airport.city;
```

Output :

count(distinct seat.customer_name)

Find the flight names which are departs between 5pm to 8 pm at city X

Query :

```
select flight.numbers , flight.airline from flight
join flight_leg on flight_leg.numbers = flight.numbers
join airport on airport.airport_code = flight_leg.airport_code
where airport.city = 'Miami' and flight_leg.scheduled_dep_time >= 1000 and flight_leg.scheduled_dep_time <= 1500;
```

Output :

	numbers	airline
▶	400	2

Find the company name designed by flight AIRBUS123.

Query :

```
SELECT Type_name, Company FROM AIRPLANE_TYPE
WHERE Type_name= 1;
```

Output :

	Type_name	Company
▶	1	Boeing

Find the total no.of hours traveled by the flight AIRBUS123.

Query :

```
select (scheduled_arr_time - scheduled_dep_time)/60 as Total_hours from flight_leg
join airport on airport.airport_code = flight_leg.airport_code
join can_land on airport.airport_code = can_land.airport_code
join airplane_type on airplane_type.type_name = can_land.type_name
where airplane_type.type_name = 1;
```

Output :

	Total_hours
▶	3.3333