Lab Assignment-3

1. Convert the ER Model into Relational Database and create using SQL

Relational Database:

```
           AIRPORT
    ┌──────────────────────┐
    │ PK │ Airport_code     │
    │    │ City             │
    │    │ Name             │
    │    │ State            │
    └──────────────────────┘

          CAN_LAND
    ┌──────────────────────┐
    │ PK1/FK1 │ Airport_code│
    │ PK2/FK2 │ Type_name   │
    └──────────────────────┘

         AIRPLANE_TYPE
    ┌──────────────────────┐
    │ PK │ Type_name        │
    │    │ Max_seats        │
    │    │ Company          │
    └──────────────────────┘

           AIRPLANE
    ┌──────────────────────┐
    │ PK │ Airplane_id      │
    │    │ Total_no_of_seats│
    │ FK │ Type_name        │
    └──────────────────────┘

         FLIGHT_LEG
    ┌──────────────────────┐
    │ PK │ Leg_no           │
    │ FK │ Airport_code     │
    │ FK │ Number           │
    │    │ Scheduled_dep_time│
    │    │ Scheduled_arr_time│
    └──────────────────────┘

         LEG_INSTANCE
    ┌──────────────────────┐
    │ PK │ Date             │
    │    │ Field            │
    │ FK │ Leg_no           │
    │ FK │ Airport_code     │
    │ FK │ Airplane_id      │
    │    │ Dep_time         │
    │    │ Arr_time         │
    └──────────────────────┘

            SEAT
    ┌──────────────────────┐
    │ PK │ Seat_no          │
    │    │ Customer_name    │
    │    │ Cphone           │
    │ FK │ Date             │
    └──────────────────────┘

           FLIGHT
    ┌──────────────────────┐
    │ PK │ Number           │
    │    │ Airline          │
    │    │ Weekdays         │
    └──────────────────────┘

            FARE
    ┌──────────────────────┐
    │ PK │ Code             │
    │    │ Restrictions     │
    │    │ Amount           │
    │ FK │ Number           │
    └──────────────────────┘
```

Creating using SQL:

create table Flight (

    Numbers int NOT NULL,

    Airline int NOT NULL,

    Weekdays int NOT NULL,

    PRIMARY KEY (Numbers)

);

insert into Flight values (1,4,6);

insert into Flight values (2,5,7);

insert into Flight values (3,2,3);

CREATE table Fare(

    Code int NOT NULL,

    Restrictions varchar2(50) NOT NULL,

```sql
    Amount int NOT NULL,

    Numbers int NOT NULL,

    PRIMARY KEY (Code),

    FOREIGN KEY (Numbers) REFERENCES Flight(Numbers)

);

insert into Fare values (111,'No Tax',50000,1);

insert into Fare values (222,'100 Rupee Tax',30000,2);

insert into Fare values (333,'No Tax',60000,3);

CREATE table Airport(

    Airport_code int NOT NULL,

    City varchar2(50) NOT NULL,

    State varchar2(50) NOT NULL,

    Names varchar2(50) NOT NULL,

    PRIMARY KEY (Airport_code)

);

insert into Airport values (1111,'Hyderabad','Telangana','Gandhi Airport');

insert into Airport values (2222,'Mumbai','Maharashtra','Shivaji Airport');

insert into Airport values (3333,'Delhi','Delhi','Redemption Airport');

CREATE table Airplane_type(

    Type_name varchar2(50) NOT NULL,

    Max_seats int NOT NULL,

    Company varchar2(50) NOT NULL,

    PRIMARY KEY (Type_name)

);

insert into Airplane_type values ('Passenger',8,'Airbus');

insert into Airplane_type values ('Passengerbus',12,'Emirates');

insert into Airplane_type values ('Passengerplane',7,'IndiGO');

CREATE table Can_Land(

    Airport_code int NOT NULL,

    Type_name varchar2(50) NOT NULL,
```

```sql
    FOREIGN KEY (Airport_code) REFERENCES Airport(Airport_code),

    FOREIGN KEY (Type_name) REFERENCES Airplane_type(Type_name)

);

insert into Can_Land values (1111,'Passenger');

insert into Can_Land values (2222,'Passengerbus');

insert into Can_Land values (3333,'Passengerplane');

CREATE table Airplane(

    Airplane_id int NOT NULL,

    Total_no_of_seats int NOT NULL,

    Type_name varchar2(50) NOT NULL,

    PRIMARY KEY (Airplane_id),

    FOREIGN KEY (Type_name) REFERENCES Airplane_type(Type_name)

);

insert into Airplane values (123,80,'Passenger');

insert into Airplane values (456,210,'Passengerbus');

insert into Airplane values (789,70,'Passengerplane');

CREATE table Flight_leg(

    Leg_no int NOT NULL,

    Scheduled_dep_time varchar2(50) NOT NULL,

    Scheduled_arr_time varchar2(50) NOT NULL,

    Airport_code int NOT NULL,

    Numbers int NOT NULL,

    PRIMARY KEY (Leg_no),

    FOREIGN KEY (Airport_code) REFERENCES Airport(Airport_code),

    FOREIGN KEY (Numbers) REFERENCES Flight(Numbers)

);

insert into Flight_leg values (789,'18:00','16:00',1111,1);

insert into Flight_leg values (123,'12:00','10:00',2222,2);

insert into Flight_leg values (456,'15:00','13:00',3333,3);

CREATE table Leg_instance(
```

```
    Dates varchar2(50) NOT NULL,

    No_of_avail_seats int NOT NULL,

    Field_leg int NOT NULL,

    Dep_time varchar2(50) NOT NULL,

    Arr_time varchar2(50) NOT NULL,

    Airport_code int NOT NULL,

    Leg_no int NOT NULL,

    Airplane_id int NOT NULL,

    PRIMARY KEY (Dates),

    FOREIGN KEY (Airport_code) REFERENCES Airport(Airport_code),

    FOREIGN KEY (Leg_no) REFERENCES Flight_leg(Leg_no),

    FOREIGN KEY (Airplane_id) REFERENCES Airplane(Airplane_id)
);
insert into Leg_instance values ('1-1-2022',40,3,'18:00','16:00',1111,789,123);
insert into Leg_instance values ('2-1-2022',90,5,'12:00','10:00',2222,123,456);
insert into Leg_instance values ('3-1-2022',60,4,'15:00','13:00',3333,456,789);
CREATE table Seat(

    Seat_no int NOT NULL,

    Customer_name varchar2(50) NOT NULL,

    Cphone int NOT NULL,

    PRIMARY KEY (Seat_no),

    Dates varchar2(50) NOT NULL,

    FOREIGN KEY (Dates) REFERENCES Leg_instance(Dates)
);
insert into Seat values (34,'John',0123456789,'1-1-2022');
insert into Seat values (44,'Arthur',9876543210,'2-1-2022');
insert into Seat values (69,'Dutch',1234567891,'3-1-2022');
select * from Flight;
select * from Fare;
select * from Airport;
```

select * from Airplane_type;

select * from Can_Land;

select * from Airplane;

select * from Flight_leg;

select * from Leg_instance;

select * from Seat;

Output:

NUMBERS	AIRLINE	WEEKDAYS
1	4	6
2	5	7
3	2	3

Download CSV
3 rows selected.

CODE	RESTRICTIONS	AMOUNT	NUMBERS
111	No Tax	50000	1
222	100 Rupee Tax	30000	2
333	No Tax	60000	3

Download CSV
3 rows selected.

AIRPORT_CODE	CITY	STATE	NAMES
1111	Hyderabad	Telangana	Gandhi Airport
2222	Mumbai	Maharashtra	Shivaji Airport
3333	Delhi	Delhi	Redemption Airport

Download CSV
3 rows selected.

TYPE_NAME	MAX_SEATS	COMPANY
Passenger	8	Airbus
Passengerbus	12	Emirates
Passengerplane	7	IndiGO

Download CSV
3 rows selected.

AIRPORT_CODE	TYPE_NAME
1111	Passenger
2222	Passengerbus
3333	Passengerplane

Download CSV
3 rows selected.

AIRPLANE_ID	TOTAL_NO_OF_SEATS	TYPE_NAME
123	80	Passenger
456	210	Passengerbus
789	70	Passengerplane

Download CSV
3 rows selected.

LEG_NO	SCHEDULED_DEP_TIME	SCHEDULED_ARR_TIME	AIRPORT_CODE	NUMBERS
789	18:00	16:00	1111	1
123	12:00	10:00	2222	2
456	15:00	13:00	3333	3

Download CSV
3 rows selected.

DATES	NO_OF_AVAIL_SEATS	FIELD_LEG	DEP_TIME	ARR_TIME	AIRPORT_CODE	LEG_NO	AIRPLANE_ID
1-1-2022	40	3	18:00	16:00	1111	789	123
2-1-2022	90	5	12:00	10:00	2222	123	456
3-1-2022	60	4	15:00	13:00	3333	456	789

Download CSV
3 rows selected.

SEAT_NO	CUSTOMER_NAME	CPHONE	DATES
34	John	123456789	1-1-2022
44	Arthur	9876543210	2-1-2022
69	Dutch	1234567891	3-1-2022

Download CSV
3 rows selected.

2.Answers of following queries:

1.Find the customer's name, who reserved maximum number of seats:

select Customer_name

from Seat

group by Customer_name

having count(*) >0

Output:

Since every person chose only one seat, as they are equal it will show all names

CUSTOMER_NAME

Dutch

John

Arthur

Download CSV

3 rows selected.

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

select Numbers,MIN(Airline)

from Flight

group by Numbers

Having Min(Airline)=2

Output:

As it is a non-stop flight B to M with only 2 stops ,we have flight number 3 which stops at 2 places.

NUMBERS	MIN(AIRLINE)
3	2

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

select Numbers

from Fare

where Amount=(Select Min(Amount) from Fare)

Output:

The Flight Number 2 has lowest charges around 30,000 than other flight

NUMBERS
2

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

select Numbers

from Flight

where Weekdays=7

Output:

Here only flight runs every day is flight number 2

NUMBERS
2

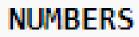Download CSV

5.Find all flights departure from City X

select Numbers

from Flight_leg

where Scheduled_arr_time='16:00'

Output:

The Flight Departure from city X is scheduled at arrival time 16:00 so the flight number is 1

NUMBERS
1

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

select Airplane_ID

from Airplane

where Total_no_of_seats>200

Output:

From the given values we can see the airplane 456 is correct which have greater than 200 seats.

```
AIRPLANE_ID

456
```

Download CSV

7.Find how many passengers are travelled from city X on 01-01-2022

select No_of_avail_seats

from Leg_instance

where Dates='1-1-2022'

Output:

As we can on 1-1-2022 there are 40 members travelled form city X

```
NO_OF_AVAIL_SEATS

40
```

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

select Airplane_ID

from Leg_instance

where Dep_time='18:00'

Output:

As we can the Airplane ID which is the name of the Flight which departs between 5pm to 8 pm

AIRPLANE_ID
123

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9.Find the company name designed the flight AIRBUS123.

select Company

from Airplane_type

where Type_name='Passenger'

Output:

As the Flight Airbus123 is a passenger we can see the company designed the flight Airbus123.

COMPANY
Airbus

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