

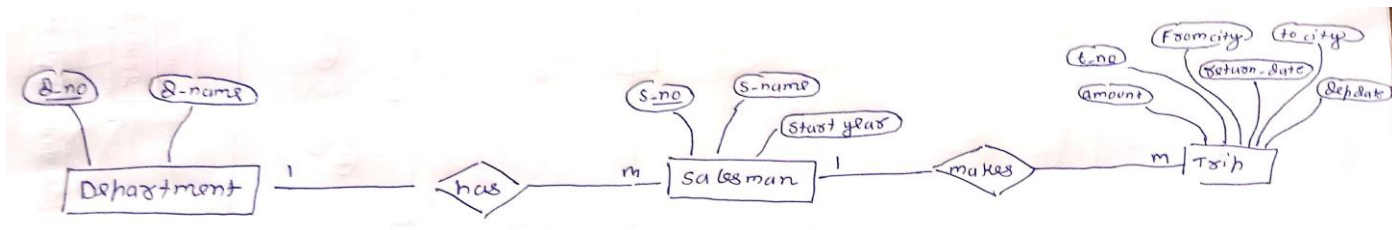
Q.1) Practical Questions on PostgreSQL Consider the following database

Salesman (sno, s_name, start_year)

Trip (tno, from_city, to_city, departure_date, return_date, amount) Dept (deptno, dept_name)

The relationship is as follows. Dept-salesman 1 To M Salesman-Trip 1 ToM

a) Draw the ER diagram for above relational schema and normalize it in 3NF.



b) Create the above database in 3NF form in PostgreSQL using constraints.

```
CREATE TABLE Dept (deptno INT PRIMARY KEY, dept_name VARCHAR(50) NOT NULL);
```

```
CREATE TABLE Salesman (sno INT PRIMARY KEY, s_name VARCHAR(50) NOT NULL, start_year INT, deptno INT REFERENCES Dept(deptno));
```

```
CREATE TABLE Trip (tno INT PRIMARY KEY, from_city VARCHAR(50) NOT NULL, to_city VARCHAR(50) NOT NULL, departure_date DATE, return_date DATE, amount DECIMAL(10,2));
```

```
INSERT INTO Dept (deptno, dept_name) VALUES (10, 'Computer'), (20, 'Marketing'), (30, 'Accounts');
```

```
INSERT INTO Salesman (sno, s_name, start_year, deptno) VALUES (1, 'John', 2020, 10), (2, 'Alice', 2021, 20), (3, 'Bob', 2019, 30), (4, 'Mary', 2022, 10);
```

```
INSERT INTO Trip (tno, from_city, to_city, departure_date, return_date, amount) VALUES (101, 'Mumbai', 'Delhi', '2024-04-01', '2024-04-07', 25000.00), (102, 'Pune', 'Bangalore', '2024-04-10', '2024-04-15', 32000.00), (103, 'Chennai', 'Hyderabad', '2024-04-18', '2024-04-22', 18000.00), (104, 'Kolkata', 'Jaipur', '2024-04-25', '2024-04-30', 40000.00);
```

Q2.) Using above database, solve the following queries:

a) List salesman details whose department is 'Computer'

```
SELECT S.sno, S.s_name, S.start_year, D.dept_name FROM Salesman S INNER JOIN Dept D ON S.deptno = D.deptno WHERE D.dept_name = 'Computer';
```

b) List department wise salesman details

```
SELECT D.dept_name, S.sno, S.s_name, S.start_year FROM Dept D INNER JOIN Salesman S ON S.deptno = D.deptno ORDER BY D.dept_name, S.s_name;
```

c) Find salesman details whose trip budget is less than 30000.

```
SELECT S.sno, S.s_name, T.amount FROM Salesman S INNER JOIN Trip T ON S.sno = T.tno WHERE T.amount < 30000;
```

d) Alter table dept to add attribute 'dept_location'.

```
ALTER TABLE Dept ADD COLUMN dept_location VARCHAR(50);
```