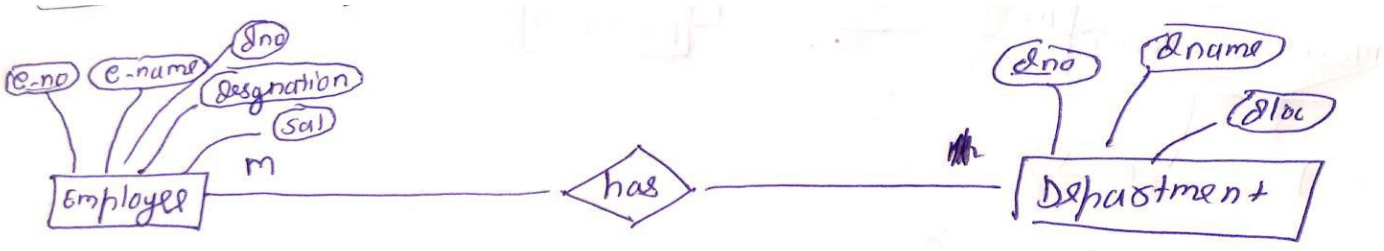
Q.1) Practical Questions on PostgresSQL Consider the following database

Employee (eno, ename, designation, sal)Department
(dno, dname, dloc)

There exists a one-to-many relationship between department and employee. Create the Relations accordingly, so that the relationship is handled properly and the relations are in normalized form(3NF).

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



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

```
CREATE TABLE Department (dno INT PRIMARY KEY, dname VARCHAR(50) NOT NULL, dloc VARCHAR(50) NOT NULL);

CREATE TABLE Employee (eno INT PRIMARY KEY, ename VARCHAR(50) NOT NULL, designation VARCHAR(50) NOT NULL, sal DECIMAL(10,2), dno INT, FOREIGN KEY (dno) REFERENCES Department(dno));

INSERT INTO Department (dno, dname, dloc) VALUES (101, 'Marketing', 'Mumbai'), (102, 'Sales', 'Delhi'), (103, 'Finance', 'Chennai'), (104, 'IT', 'Pune');

INSERT INTO Employee (eno, ename, designation, sal, dno) VALUES (2001, 'Alice Smith', 'Manager', 35000.00, 101), (2002, 'Bob Brown', 'Sales Representative', 22000.00, 102), (2003, 'Charlie Chen', 'Accountant', 28000.00, 103), (2004, 'David Davis', 'H.O.D.', 50000.00, 101), (2005, 'Emily Evans', 'Marketing Associate', 18000.00, 101), (2006, 'Rita Sharma', 'Clerk', 15000.00, 104);
```

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

a) Find the employee details whose name is starts with R.

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SELECT * FROM Employee WHERE ename LIKE 'R%';
```

b) Find sum of salary of employees department wise

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SELECT D.dname, SUM(E.sal) AS total_salary FROM Department D INNER JOIN Employee E ON E.dno = D.dno GROUP BY D.dname;
```

c) Delete employee details who are working as designation ‘clerk’ located in ‘Pune’

```
DELETE FROM Employee E USING Department D WHERE E.designation = 'clerk' AND E.dno = D.dno AND D.dloc = 'Pune';
```

d) List employees with department details whose salary is in between 20000 to 30000.

```
SELECT E.eno, E.ename, E.designation, E.sal, D.dname, D.dloc FROM Employee E INNER JOIN Department D ON E.dno = D.dno WHERE E.sal BETWEEN 20000 AND 30000;
```