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1. Write SQL query to create the above tables

-- Table: DEPARTMENT

CREATE TABLE DEPARTMENT (

ID INT PRIMARY KEY,

Name VARCHAR(255),

Location VARCHAR(255)

);

-- Table: EMPLOYEE

CREATE TABLE EMPLOYEE (

ID INT PRIMARY KEY,

Name VARCHAR(255),

Department INT,

Manager INT,

Salary DECIMAL(10, 2),

FOREIGN KEY (Department) REFERENCES DEPARTMENT(ID),

FOREIGN KEY (Manager) REFERENCES EMPLOYEE(ID)

);

2. Add the keys and indexes for the above table

Primary key for department table:

ID INT PRIMARY KEY

Primary and Foreign key for employee table:

ID INT PRIMARY KEY

FOREIGN KEY (Department) REFERENCES DEPARTMENT(ID),

FOREIGN KEY (Manager) REFERENCES EMPLOYEE(ID)

Creating index on department table:

CREATE INDEX idx\_dept\_location ON DEPARTMENT (Location);

3. Write SQL query to insert the data given

-- Inserting data into DEPARTMENT table

INSERT INTO DEPARTMENT (ID, Name, Location) VALUES

(1, 'Engineering', 'Bangalore'),

(2, 'Sales', 'Delhi'),

(3, 'Operations', 'Delhi'),

(4, 'Product', 'Bangalore'),

(5, 'Production', 'Hyderabad');

-- Inserting data into EMPLOYEE table

INSERT INTO EMPLOYEE (ID, Name, Department, Manager, Salary) VALUES

(1, 'Ram', 1, NULL, 200000),

(2, 'Vimal', 1, 1, 150000),

(3, 'Albert', 1, 1, 100000),

(4, 'John', 2, NULL, 200000),

(5, 'Taj', 2, 4, 100000),

(6, 'Deepak', 2, 4, 75000),

(7, 'Raju', 3, NULL, 100000),

(8, 'Ramesh', 3, 7, 50000),

(9, 'Jyoti', 4, NULL, 200000),

(10, 'Prince', 5, NULL, 200000);

4. Write SQL query to list department wise employee count at each location.

SELECT

D.Location,

D.Name AS Department,

COUNT(E.ID) AS EmployeeCount

FROM

DEPARTMENT D

LEFT JOIN

EMPLOYEE E ON D.ID = E.Department

GROUP BY

D.Location, D.Name;

5. Write SQL query to calculate and list the average salary of employees under each manager.

SELECT

M.Name AS ManagerName,

AVG(E.Salary) AS AverageSalary

FROM

EMPLOYEE E

JOIN

EMPLOYEE M ON E.Manager = M.ID

GROUP BY

M.Name;