

Part A: Table Definition + Data

Table Creation

```
CREATE TABLE Employee ( EmpID INT PRIMARY KEY, EmpName VARCHAR(50), Department VARCHAR(30), Salary DECIMAL(10,2), ManagerID INT, FOREIGN KEY (ManagerID) REFERENCES Employee(EmpID) );
```

Sample Data Insertion

```
INSERT INTO Employee (EmpID, EmpName, Department, Salary, ManagerID) VALUES (1, 'Alice', 'HR', 60000, NULL), (2, 'Bob', 'Sales', 55000, 1), (3, 'Charlie', 'IT', 70000, 1), (4, 'David', 'Sales', 48000, 2), (5, 'Eva', 'HR', 52000, 1), (6, 'Frank', 'IT', 65000, 3), (7, 'Grace', 'Finance', 75000, NULL), (8, 'Hannah', 'Finance', 50000, 7), (9, 'Ian', 'Sales', 47000, 2), (10, 'Jack', 'IT', 72000, 3);
```

This dataset ensures:

- Multiple departments (HR, Sales, IT, Finance).
- Managers exist (Alice manages Bob/Charlie/Eva, Bob manages David/Ian, Charlie manages Frank/Jack, Grace manages Hannah).
- Some employees have no manager (top-level heads).

Questions

1. SELECT Queries (5)

- Display all employees.
- Display employee names and salaries.
- Display employees working in the "Sales" department.
- Display employees with salary greater than 50,000.
- Display employees ordered by salary in descending order.

2. Aggregate Function Queries (5)

- Find the total salary of all employees.
- Find the average salary of employees in the "HR" department.
- Find the maximum salary among employees.
- Find the minimum salary among employees.
- Count the number of employees in each department.

3. Self Join Queries (5)

- Display employee names along with their manager names.
- Display employees who have the same manager.
- Display employees and managers working in the same department.
- Display employees whose salary is less than their manager's salary.
- Display employees whose salary is greater than their manager's salary.

4. Outer Join Queries (5)

- Display all employees and their managers (include employees without managers).
- Display all managers and their subordinates (include managers without subordinates).
- Display employees along with department heads (assume department head is also in Employee table).
- Display employees and managers using LEFT JOIN.
- Display employees and managers using RIGHT JOIN.

5. Table Alter Queries (5)

- Add a new column Email VARCHAR(100).
- Modify the Salary column to DECIMAL(12,2).
- Drop the Email column.
- Rename the column EmpName to EmployeeName.
- Add a new column JoiningDate DATE.