**Experiment 1.2**

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**Subject Name: DBMS Subject Code: 23CSP-333**

1. **Aim:** Solve the following two problem

**Q.1** - You are a Database Engineer at TalentTree Inc., an enterprise HR analytics platform that stores employee data, including their reporting relationships.

The company maintains a centralized Employee relation that holds:

Each employee’s ID, name, department, and manager ID (who is also an employee in the same table).

Your task is to generate a report that maps employees to their respective managers, showing:

The employee’s name and department

Their manager’s name and department (if applicable)

This will help the HR department visualize the internal reporting hierarchy.

**Q.2** - Financial Forecast Matching with Fallback Strategy (hard)

You are a Data Engineer at FinSight Corp, a company that models Net Present Value (NPV)

projections for investment decisions. Your system maintains two key datasets:

1. Year\_tbl: Actual recorded NPV’s of various financial instruments over different years:

ID: Unique Financial instrument identifier.

YEAR: Year of record

NPV: Net Present Value in that year

2. Queries\_tbl: A list of instrument-year pairs for which stakeholders are requesting NPV

values:

ID: Financial instrument identifier

YEAR: Year of interest.

Find the NPV of each query from the Queries table. Return the output order by ID and Year

in the sorted form.

However, not all ID-YEAR combinations in the Queries table are present in the Year\_tbl. If

an NPV is missing for a requested combination, assume it to be 0 to maintain a consistent

financial report.

1. **Code:**

CREATE TABLE EMPLOYEE (

EmpID INT PRIMARY KEY,

EmpName VARCHAR(100),

Department VARCHAR(100),

ManagerID INT

);

INSERT INTO EMPLOYEE (EmpID, EmpName, Department, ManagerID) VALUES

(1, 'Alice Johnson', 'Executive', NULL), -- The CEO, has no manager

(2, 'Bob Williams', 'Technology', 1),

(3, 'Charlie Brown', 'Human Resources', 1),

(4, 'Diana Prince', 'Marketing', 1),

(5, 'Ethan Hunt', 'Technology', 2),

(6, 'Fiona Glenanne', 'Technology', 2),

(7, 'George Costanza', 'Marketing', 4),

(8, 'Hannah Abbott', 'Human Resources', 3);

SELECT

E1.EmpName AS [EMPLOYEE NAME],

E1.Department AS [EMP\_DEPARTMENT],

E2.EmpName AS [MANAGER NAME],

E2.Department AS [MANAGER\_DEPT]

FROM

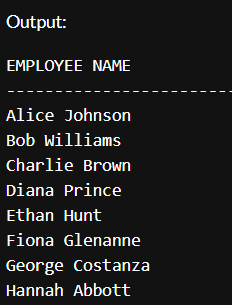
EMPLOYEE AS E1

LEFT OUTER JOIN

EMPLOYEE AS E2

ON

E1.ManagerID = E2.EmpID;



CREATE TABLE Year\_tbl (

ID INT,

YEAR INT,

NPV INT

);

CREATE TABLE Queries (

ID INT,

YEAR INT

);

INSERT INTO Year\_tbl (ID, YEAR, NPV) VALUES

(1, 2018, 100),

(7, 2020, 30),

(13, 2019, 40),

(1, 2019, 113),

(2, 2008, 121),

(3, 2009, 12),

(11, 2020, 99),

(7, 2019, 0);

INSERT INTO Queries (ID, YEAR) VALUES

(1, 2019),

(2, 2008),

(3, 2009),

(7, 2018),

(7, 2019),

(7, 2020),

(13, 2019);

SELECT

Q.ID,

Q.YEAR,

ISNULL(Y.NPV, 0) AS NPV

FROM

Queries AS Q

LEFT JOIN

Year\_tbl AS Y ON Q.ID = Y.ID AND Q.YEAR = Y.YEAR

ORDER BY

Q.ID, Q.YEAR;

