Experiment 2

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1. Aim: To demonstrate the use of self-joins and conditional joins in SQL for managing hierarchical employee relationships and performing conditional lookups using LEFT JOIN and IFNULL across two related tables.
   a. Employee-Manager Hierarchy Using Self-Join
   b. Conditional Join Between Financial Tables
2. Objective:

c To design and populate relational tables with hierarchical and temporal data.
c To perform a self-join on an employee table to retrieve manager-employee relationshi
c To implement a conditional LEFT JOIN between two tables to handle non-matching records.
c To apply the IFNULL function to handle missing values in joined queries.
c To practice using joins for querying structured business-related datasets.

3. DBMS script and output:

Solution-(a)

```
CREATE DATABASE company;
USE company;


CREATE TABLE employee (
    empid INT PRIMARY KEY,
    ename VARCHAR(50),
    department VARCHAR(50),
    managerid INT
);
INSERT INTO employee (empid, ename, department, managerid) VALUES
(1, 'Alice', 'HR', NULL),
(2, 'Bob', 'Finance', 1),
```

```
(3, 'Charlie', 'IT', 1),
(4, 'David', 'Finance', 2),
(5, 'Eve', 'IT', 3),
(6, 'Frank', 'HR', 1);

SELECT
    e.ename AS EmployeeName,
    e.department AS EmployeeDepartment,
    m.ename AS ManagerName,
    m.department AS ManagerDepartment
FROM
    employee e
LEFT JOIN
    employee m ON e.managerid = m.empid;
```

EMPLOYEENAME	EMPLOYEEDEPARTMENT	MANAGERNAME	MANAGERDEPARTMENT
Frank	HR	Alice	HR
Charlie	IT	Alice	HR
Bob	Finance	Alice	HR
David	Finance	Bob	Finance
Eve	IT	Charlie	IT
Alice	HR	-	-

Solution-(b)

```
create database company2;
use  company2;
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,
    IFNULL(y.NPV, 0) AS NPV
FROM
    Queries q
LEFT JOIN
    Year_tbl y ON q.ID = y.ID AND q.YEAR = y.YEAR;
```

ID	YEAR	NPV
3	2009	12
7	2019	0
7	2020	30
13	2019	40
1	2019	113
2	2008	121
7	2018	0

4. Learning Outcomes (What I have Learnt):

- Understand how to model and query hierarchical relationships using self-joins.
- Learn to perform LEFT JOINs to include unmatched records from one table.
- Apply composite join conditions on multiple columns (e.g., ID and YEAR).
- Use IFNULL to handle NULL values in result sets for reporting purposes.
- Develop SQL skills for solving real-world data retrieval scenarios in organizations.