Experiment 2

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

1. Aim:

Demonstrate the application of self-joins and conditional joins in SQL for handling
a. Organizational hierarchy among employees using a self-join on the employee table.
b. Conditional data retrieval from financial records using LEFT JOIN along with IFNULL to manage missing values across two linked tables.

2. Objective:

- Design tables with hierarchy and time data
- Use self-join for employee-manager links
- Apply conditional LEFT JOINs for unmatched data
- Handle nulls using IFNULL
- Query business data using joins

3. DBMS script and output:

Solution-(a)

```
CREATE DATABASE Organization;
USE Organization;

CREATE TABLE Staff (
    staff_id INT PRIMARY KEY,
    staff_name VARCHAR(50),
    team VARCHAR(50),
    supervisor_id INT
```

```
);

INSERT INTO Staff (staff_id, staff_name, team, supervisor_id) VALUES
(101, 'Riya', 'Marketing', NULL),
(102, 'Aman', 'Sales', 101),
(103, 'Neha', 'Tech', 101),
(104, 'Tarun', 'Sales', 102),
(105, 'Kavya', 'Tech', 103),
(106, 'Anil', 'Marketing', 101);

SELECT
s.staff_name AS Employee,
s.team AS Team,
sp.staff_name AS Supervisor,
sp.team AS SupervisorTeam
FROM
Staff s
LEFT JOIN Staff sp ON s.supervisor_id = sp.staff_id;
```

	Employee	Team	Supervisor	SupervisorTeam
1	Riya	Marketing	NULL	NULL
2	Aman	Sales	Riya	Marketing
3	Neha	Tech	Riya	Marketing
4	Tarun	Sales	Aman	Sales
5	Kavya	Tech	Neha	Tech
6	Anil	Marketing	Riya	Marketing

Figure(a): JOIN Operation

Solution-(b)

```
CREATE DATABASE CompanyDB;
USE CompanyDB;

CREATE TABLE Data_tbl (
   EmpID INT,
```

```
    RecordYear INT,
    Revenue INT
);

CREATE TABLE Requests (
    EmpID INT,
    RecordYear INT
);

INSERT INTO Data_tbl (EmpID, RecordYear, Revenue)
VALUES
(10, 2021, 500),
(20, 2022, 700),
(30, 2020, 300),
(10, 2022, 550),
(40, 2019, 600),
(50, 2018, 200),
(20, 2021, 650),
(30, 2021, 0);

INSERT INTO Requests (EmpID, RecordYear)
VALUES
(10, 2022),
(40, 2019),
(50, 2018),
(20, 2020),
(20, 2021),
(20, 2022),
(30, 2021);

SELECT
    r.EmpID,
    r.RecordYear,
    ISNULL(d.Revenue, 0) AS Revenue
FROM
    Requests r
LEFT JOIN
    Data_tbl d ON r.EmpID = d.EmpID AND r.RecordYear = d.RecordYear;
```

	EmpID	RecordYear	Revenue
1	10	2022	550
2	40	2019	600
3	50	2018	200
4	20	2020	0
5	20	2021	650
6	20	2022	700
7	30	2021	0

Figure (b): SQL Operation

4. Learning Outcomes:

- Learn to model hierarchies using self-joins
- Use LEFT JOINs to include unmatched rows
- Apply multi-column join conditions (e.g., ID & YEAR)
- Handle NULLs using IFNULL (or ISNULL in SQL Server)
- Build SQL skills for real-world data queries