Experiment 2

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Semester: 5th **Date of Performance:28-07-25**
Subject Name: ADBMS **Subject Code:23CSP-333**

1. Aim:

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:

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

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. Objective:

- To understand how to use JOINS in SQL.
- To understand the basic SQL Queries.
- To generate hierarchical reports from self-referencing tables.

2. DBMS script and output:

```
CREATE TABLE Year_tbl (
   ID INT,
   YEAR INT,
   NPV FLOAT
);
```

```
CREATE TABLE Queries_tbl (
    ID INT,

 YEAR INT
);

INSERT INTO Year_tbl VALUES
(1, 2020, 10000.50),
(1, 2021, 12000.00),
(2, 2020, 15000.75),
(3, 2021, 18000.00);

INSERT INTO Queries_tbl VALUES
(1, 2020),
(1, 2021),
(1, 2022),
(2, 2020),
(2, 2021),
(3, 2021),
(4, 2022);

SELECT
    Q.ID,
    Q.YEAR,
    ISNULL(Y.NPV, 0) AS NPV
FROM
    Queries_tbl Q
LEFT JOIN
    Year_tbl Y
ON
    Q.ID = Y.ID AND Q.YEAR = Y.YEAR
ORDER BY
    Q.ID, Q.YEAR;
```

3. Output:

ID	YEAR	NPV
1	2020	10000.5
1	2021	12000
1	2022	0
2	2020	15000.75
2	2021	0
3	2021	18000
4	2022	0