

# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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## Experiment 2-B

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### **Aim:**

### **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.

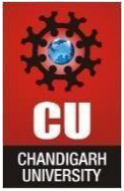
Find the NPV of each query from the Queries table. Return the output order by ID and Year in the sorted form.

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.

### **Code:**

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

```
CREATE TABLE Queries (  
    ID INT,  
    YEAR INT  
);
```



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```
-- Insert data into Year_tbl
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 data into Queries
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)
from Queries AS Q
LEFT OUTER JOIN
Year_tbl AS Y
ON
Q.ID = Y.ID
AND
Q.YEAR = Y.YEAR;
```

## Output:

The screenshot shows the SQL Server Enterprise Manager interface. At the top, there's a toolbar with a zoom dropdown set to 100%, a status bar showing 1 error and 0 warnings, and navigation arrows. Below the toolbar are two tabs: 'Results' (active) and 'Messages'. The 'Results' tab displays a table with 4 columns: 'ID', 'YEAR', and '(No column name)' (which represents NPV). The table contains 7 rows of data, corresponding to the results of the SQL query.

	ID	YEAR	(No column name)
1	1	2019	113
2	2	2008	121
3	3	2009	12
4	7	2018	0
5	7	2019	0
6	7	2020	30
7	13	2019	40