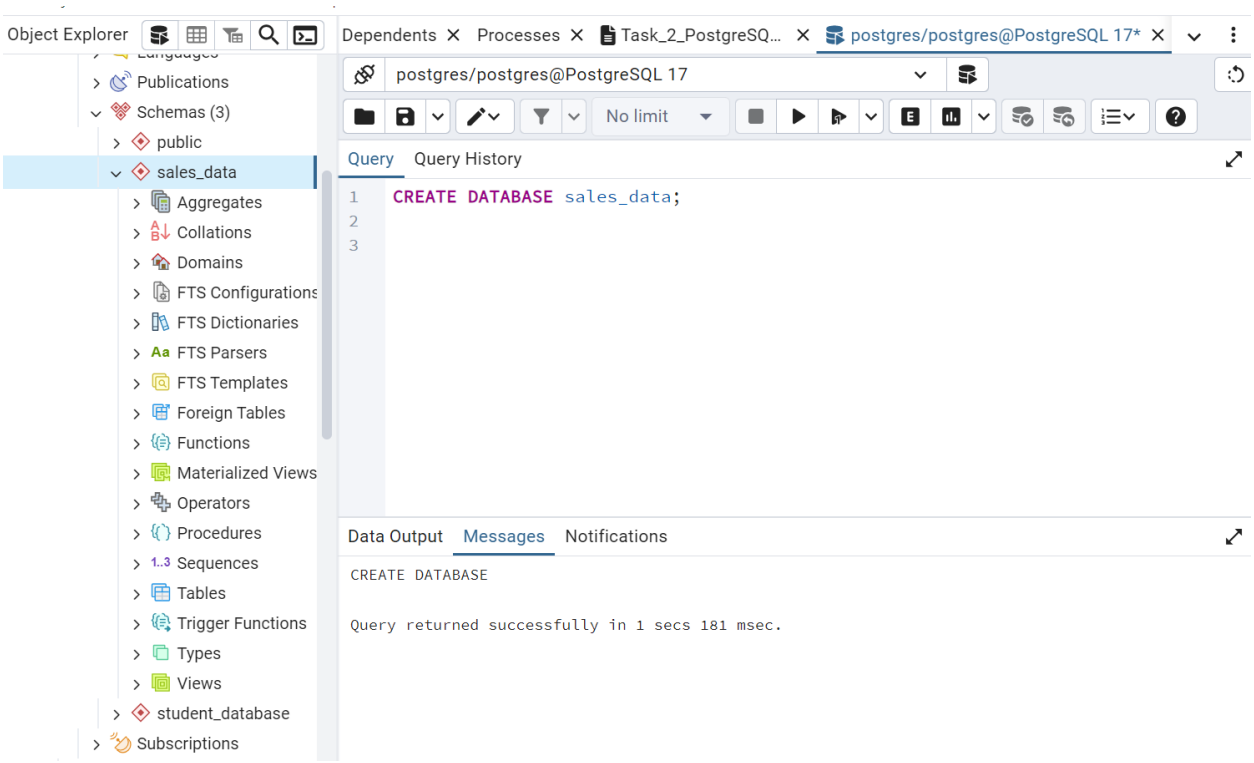
QUERY SHEET

Project: OLAP Operations

Objective: Perform OLAP operations (Drill Down, Rollup, Cube, Slice, and Dice) on the "sales_sample" table to analyze sales data. The project will include the following tasks:

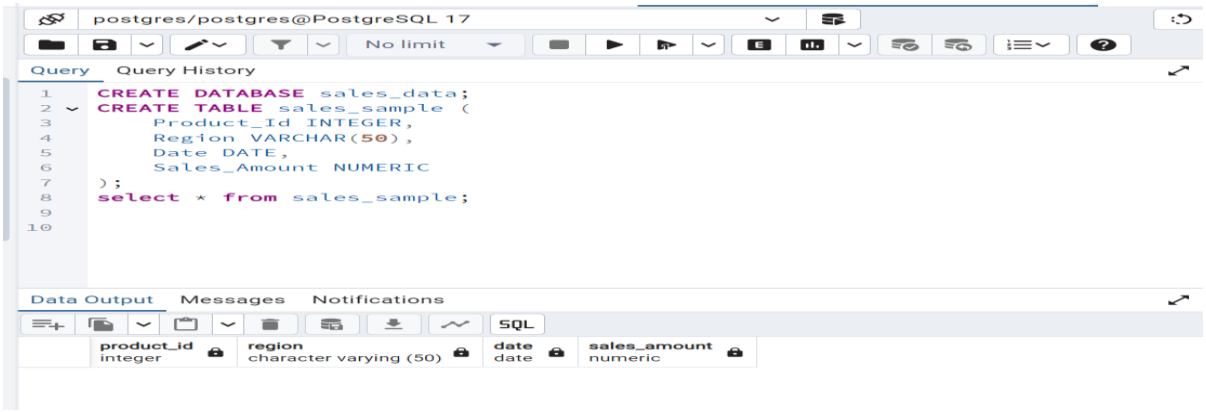
1. Database Creation

a. Create a database to store the sales data.



b. Create a table named "sales_sample" with the specified columns:

- Product_Id (Integer)
- Region (varchar(50))-like East ,West etc
- Date (Date)
- Sales_Amount (int/numeric)



2. Data Creation
Insert 10 sample records into the "sales_sample" table, representing sales data.

```
INSERT INTO sales_sample (Product_Id, Region, Date, Sales_Amount) VALUES
(1, 'East', '2024-01-01', 500),
(2, 'West', '2024-01-02', 700),
(3, 'East', '2024-01-03', 400),
(4, 'North', '2024-01-04', 800),
(5, 'South', '2024-01-05', 600),
(1, 'West', '2024-01-06', 550),
(3, 'East', '2024-01-07', 300),
(2, 'North', '2024-01-08', 650),
(4, 'South', '2024-01-09', 750),
(1, 'West', '2024-01-10', 450);
```

3. Perform OLAP operations

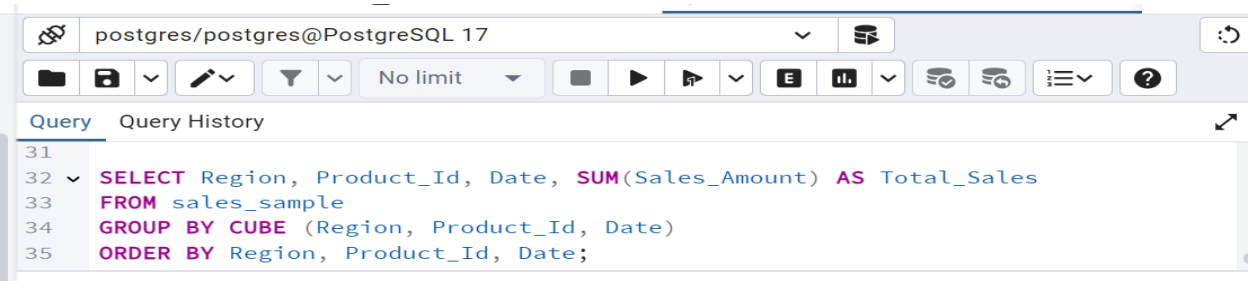
a) Drill Down-Analyze sales data at a more detailed level. Write a query to perform drill down from region to product level to understand sales performance.

```

SELECT Region, Product_Id, SUM(Sales_Amount) AS Total_Sales
FROM sales_sample
GROUP BY Region, Product_Id
ORDER BY Region, Product_Id;
```

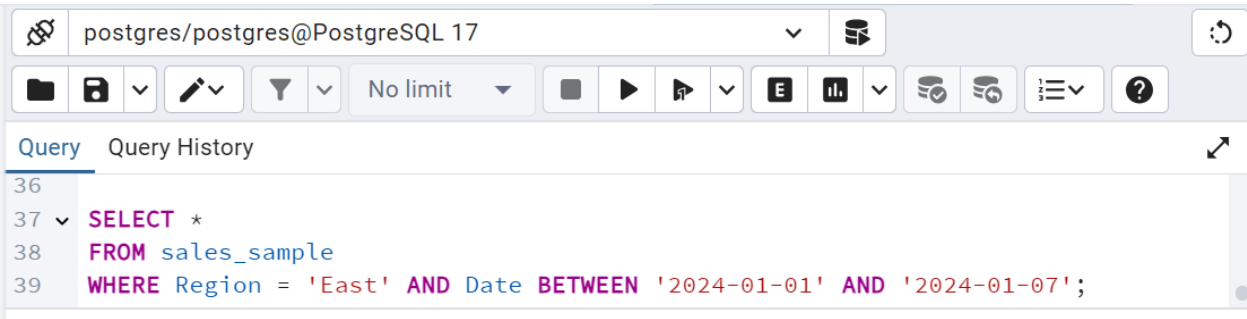
b) Rollup- To summarize sales data at different levels of granularity. Write a query to perform roll up from product to region level to view total sales by region.

```

SELECT Region, Product_Id, SUM(Sales_Amount) AS Total_Sales
FROM sales_sample
GROUP BY ROLLUP (Region, Product_Id)
ORDER BY Region, Product_Id;
```

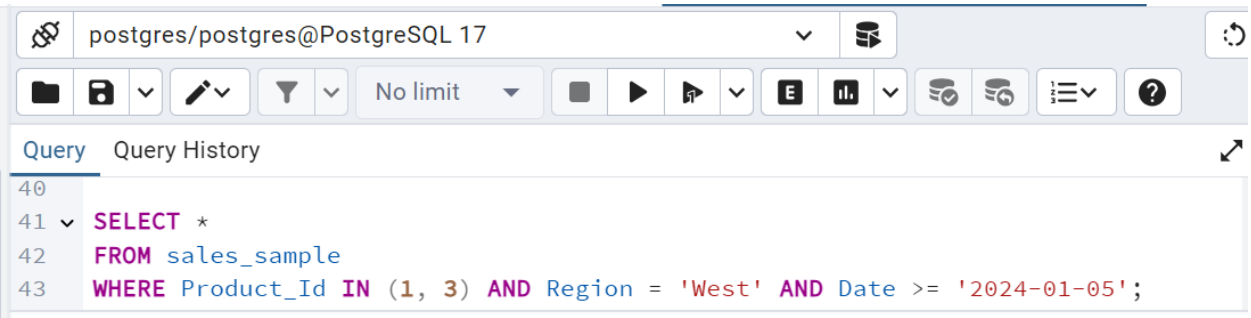
c) Cube - To analyze sales data from multiple dimensions simultaneously. Write a query to Explore sales data from different perspectives, such as product, region, and date.



d) Slice- To extract a subset of data based on specific criteria. Write a query to slice the data to view sales for a particular region or date range.



e) Dice - To extract data based on multiple criteria. Write a query to view sales for specific combinations of product, region, and date



Full Query

```
CREATE DATABASE sales_data;

CREATE TABLE sales_sample (
   Product_Id INTEGER,
   Region VARCHAR(50),
   Date DATE,
   Sales_Amount NUMERIC
);

select * from sales_sample;
```

```
INSERT INTO sales_sample (Product_Id, Region, Date, Sales_Amount) VALUES
(1, 'East', '2024-01-01', 500),
(2, 'West', '2024-01-02', 700),
(3, 'East', '2024-01-03', 400),
(4, 'North', '2024-01-04', 800),
(5, 'South', '2024-01-05', 600),
(1, 'West', '2024-01-06', 550),
(3, 'East', '2024-01-07', 300),
(2, 'North', '2024-01-08', 650),
(4, 'South', '2024-01-09', 750),
(1, 'West', '2024-01-10', 450);

SELECT Region, Product_Id, SUM(Sales_Amount) AS Total_Sales
FROM sales_sample
GROUP BY Region, Product_Id
ORDER BY Region, Product_Id;

SELECT Region, Product_Id, SUM(Sales_Amount) AS Total_Sales
FROM sales_sample
GROUP BY ROLLUP (Region, Product_Id)
ORDER BY Region, Product_Id;

SELECT Region, Product_Id, Date, SUM(Sales_Amount) AS Total_Sales
FROM sales_sample
GROUP BY CUBE (Region, Product_Id, Date)
ORDER BY Region, Product_Id, Date;

SELECT *
FROM sales_sample
```

```
WHERE Region = 'East' AND Date BETWEEN '2024-01-01' AND '2024-01-07';


SELECT *
FROM sales_sample
WHERE Product_Id IN (1, 3) AND Region = 'West' AND Date >= '2024-01-05';
```