

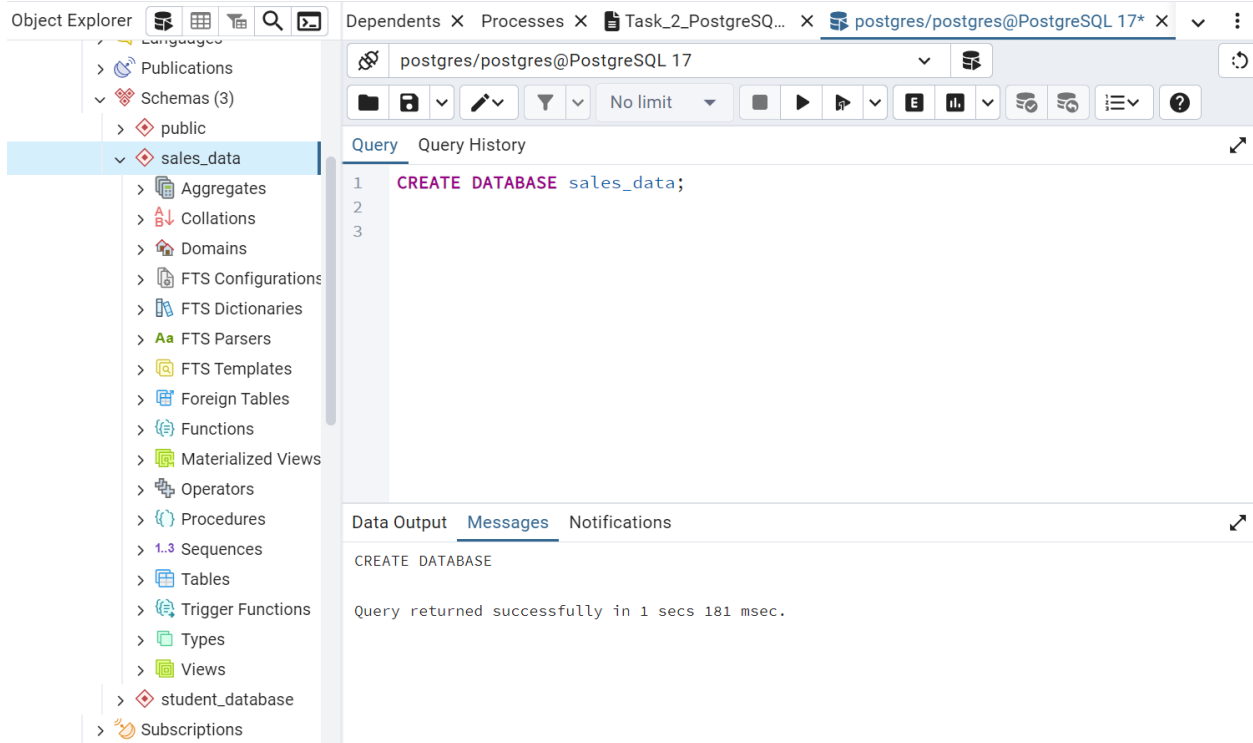
# QUERY SHEET

## 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.

```
10  INSERT INTO sales_sample (Product_Id, Region, Date, Sales_Amount) VALUES
11  (1, 'East', '2024-01-01', 500),
12  (2, 'West', '2024-01-02', 700),
13  (3, 'East', '2024-01-03', 400),
14  (4, 'North', '2024-01-04', 800),
15  (5, 'South', '2024-01-05', 600),
16  (1, 'West', '2024-01-06', 550),
17  (3, 'East', '2024-01-07', 300),
18  (2, 'North', '2024-01-08', 650),
19  (4, 'South', '2024-01-09', 750),
20  (1, 'West', '2024-01-10', 450);
```

## 3. Perform OLAP operations

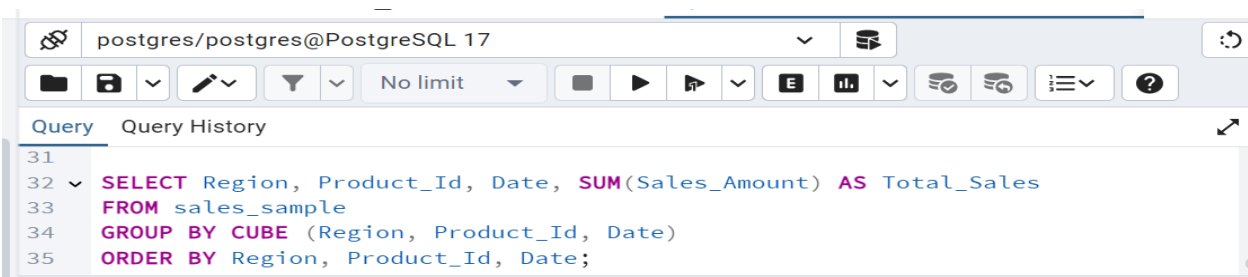
a) Drill Down-Analyze sales data at a more detailed level. Write a query to perform drill down from region to product level to understand sales performance.

```
21
22  SELECT Region, Product_Id, SUM(Sales_Amount) AS Total_Sales
23  FROM sales_sample
24  GROUP BY Region, Product_Id
25  ORDER BY Region, Product_Id;
```

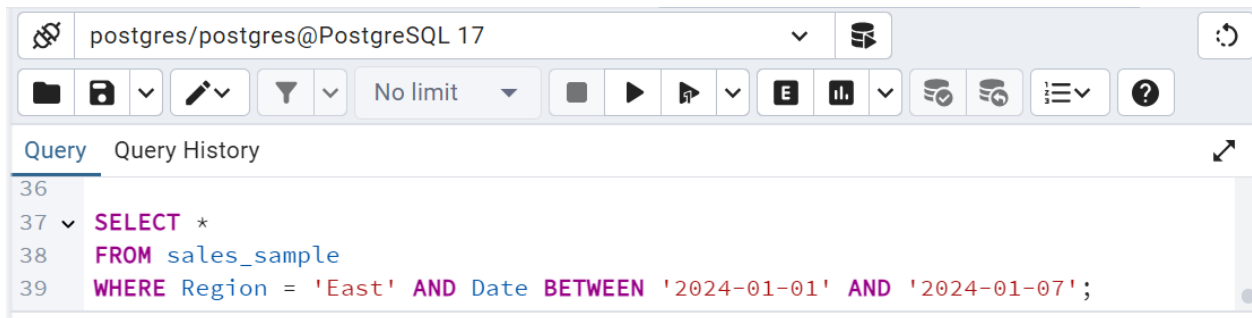
b) Rollup- To summarize sales data at different levels of granularity. Write a query to perform roll up from product to region level to view total sales by region.

```
26
27  SELECT Region, Product_Id, SUM(Sales_Amount) AS Total_Sales
28  FROM sales_sample
29  GROUP BY ROLLUP (Region, Product_Id)
30  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.



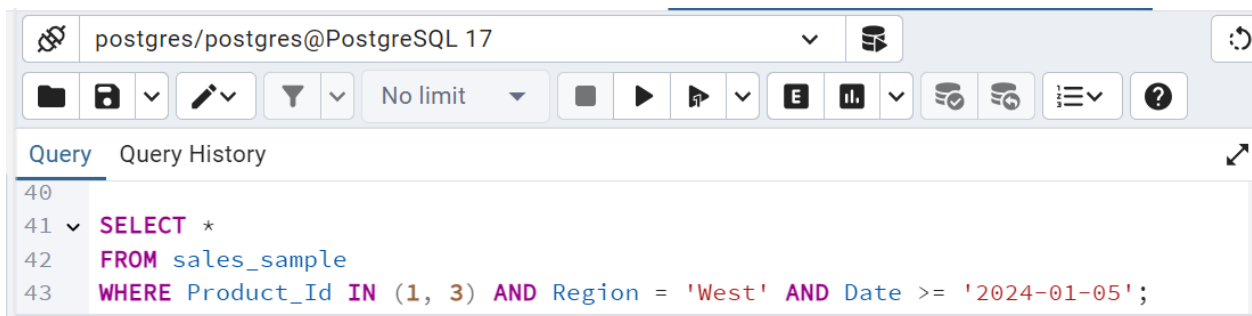
d) Slice- To extract a subset of data based on specific criteria. Write a query to slice the data to view sales for a particular region or date range.



The screenshot shows a PostgreSQL query editor interface. The title bar indicates the connection is 'postgres/postgres@PostgreSQL 17'. The toolbar includes icons for file operations, query execution, and settings. The 'Query' tab is active, showing a SQL query that selects all columns from the 'sales\_sample' table, filtered by 'Region = 'East'' and 'Date BETWEEN '2024-01-01' AND '2024-01-07''.

```
36
37 SELECT *
38 FROM sales_sample
39 WHERE Region = 'East' AND Date BETWEEN '2024-01-01' AND '2024-01-07';
```

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



The screenshot shows a PostgreSQL query editor interface. The title bar indicates the connection is 'postgres/postgres@PostgreSQL 17'. The toolbar includes icons for file operations, query execution, and settings. The 'Query' tab is active, showing a SQL query that selects all columns from the 'sales\_sample' table, filtered by 'Product\_Id IN (1, 3)', 'Region = 'West'', and 'Date >= '2024-01-05''.

```
40
41 SELECT *
42 FROM sales_sample
43 WHERE Product_Id IN (1, 3) AND Region = 'West' AND Date >= '2024-01-05';
```

## 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';