**TASK-4 OLAP OPERATIONS (using PostgreSQL)**

**1.Database Creation**

**Create a database to store the sales data (PostgreSQL)**

CREATE DATABASE sales\_data;

**Create a table named "sales\_sample" with the specified columns:** **Product\_ld (Integer), Region (varchar(50))-like East,West etc, Date (Date), Sales\_Amount (int/numeric)**

CREATE TABLE sales\_sample (

Product\_Id INTEGER,

Region VARCHAR(50),

Date DATE,

Sales\_Amount 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', '2023-01-01', 100),

(2, 'West', '2023-01-02', 200),

(3, 'North', '2023-01-03', 150),

(4, 'South', '2023-01-04', 300),

(1, 'West', '2023-01-05', 250),

(2, 'East', '2023-01-06', 180),

(3, 'South', '2023-01-07', 120),

(4, 'North', '2023-01-08', 280),

(1, 'North', '2023-01-09', 220),

(2, 'South', '2023-01-10', 190);

**3.Perform OLAP operations**

**a) Drill Down - Analyze sales data at a more detailed level. Write a query to perform drill down**

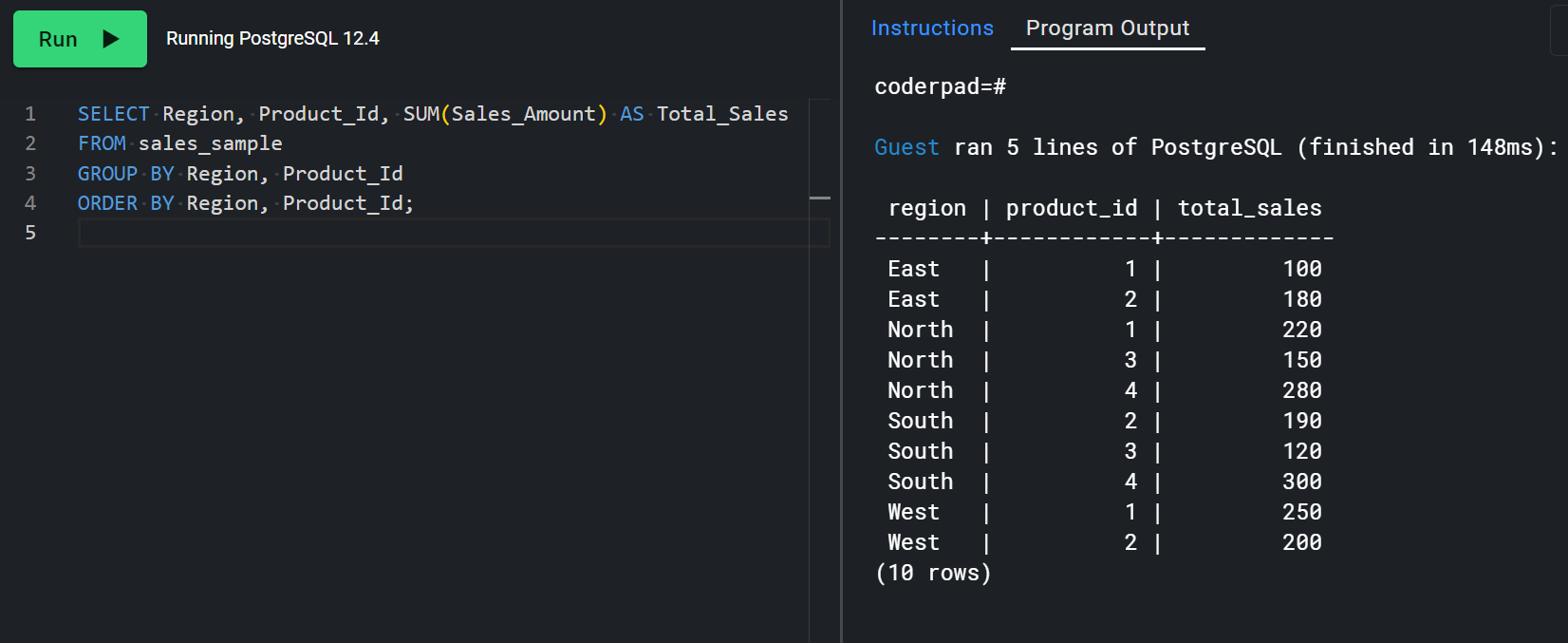
**from region to product level to understand sales performance.**

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**

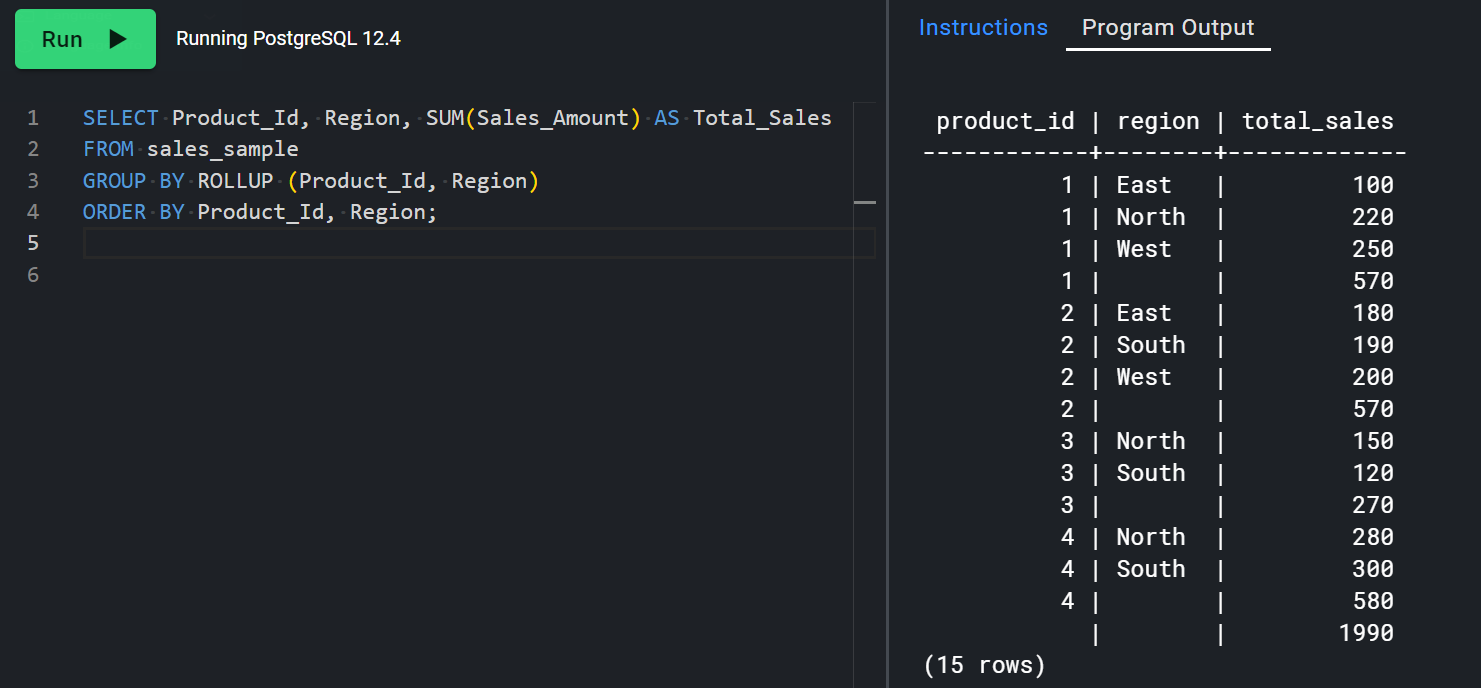
**roll up from product to region level to view total sales by region.**

SELECT Product\_Id, Region, SUM(Sales\_Amount) AS Total\_Sales

FROM sales\_sample

GROUP BY ROLLUP (Product\_Id, Region)

ORDER BY Product\_Id, Region;



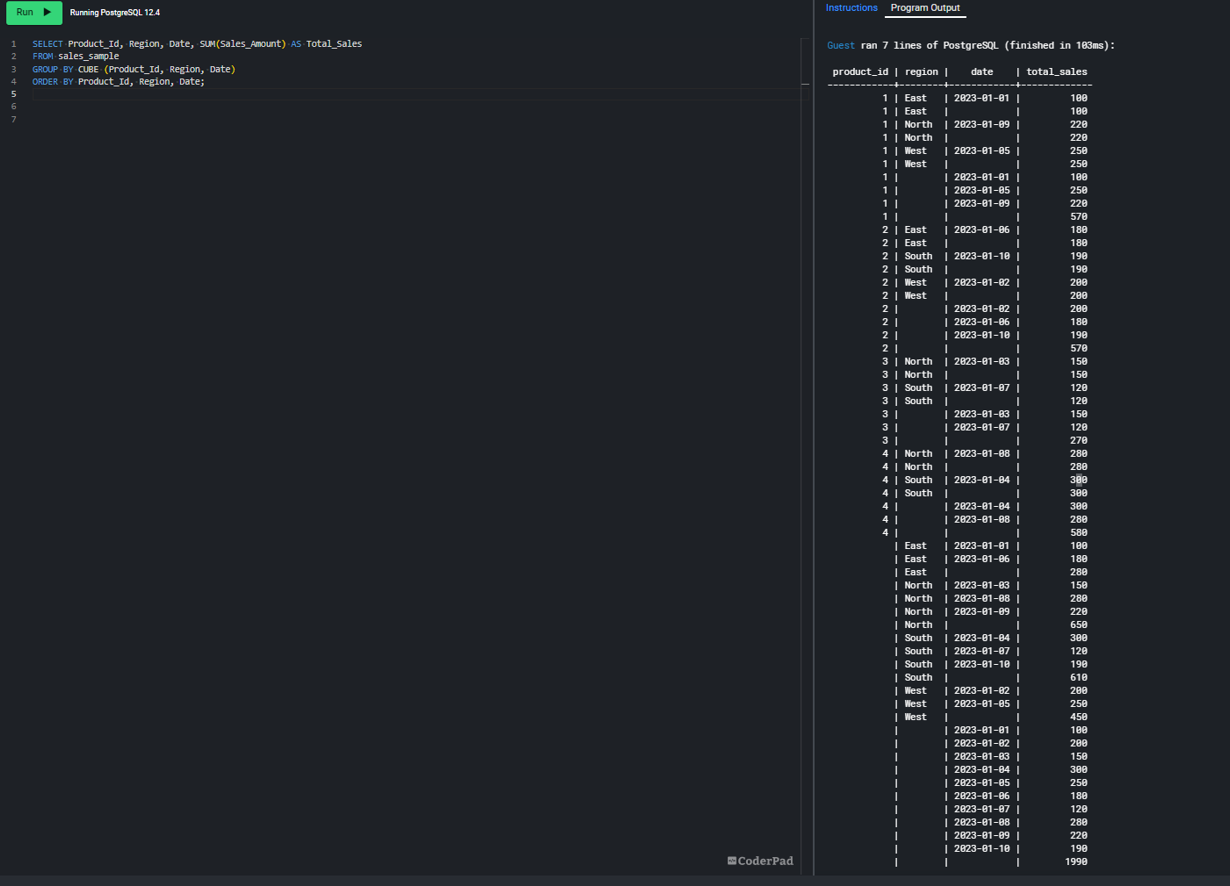
**c) Cube - To analyze sales data from multiple dimensions simultaneously. Write a query to Explore sales data from different perspectives, such as product, region and date.**

SELECT Product\_Id, Region, Date, SUM(Sales\_Amount) AS Total\_Sales

FROM sales\_sample

GROUP BY CUBE (Product\_Id, Region, Date)

ORDER BY Product\_Id, Region, 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**

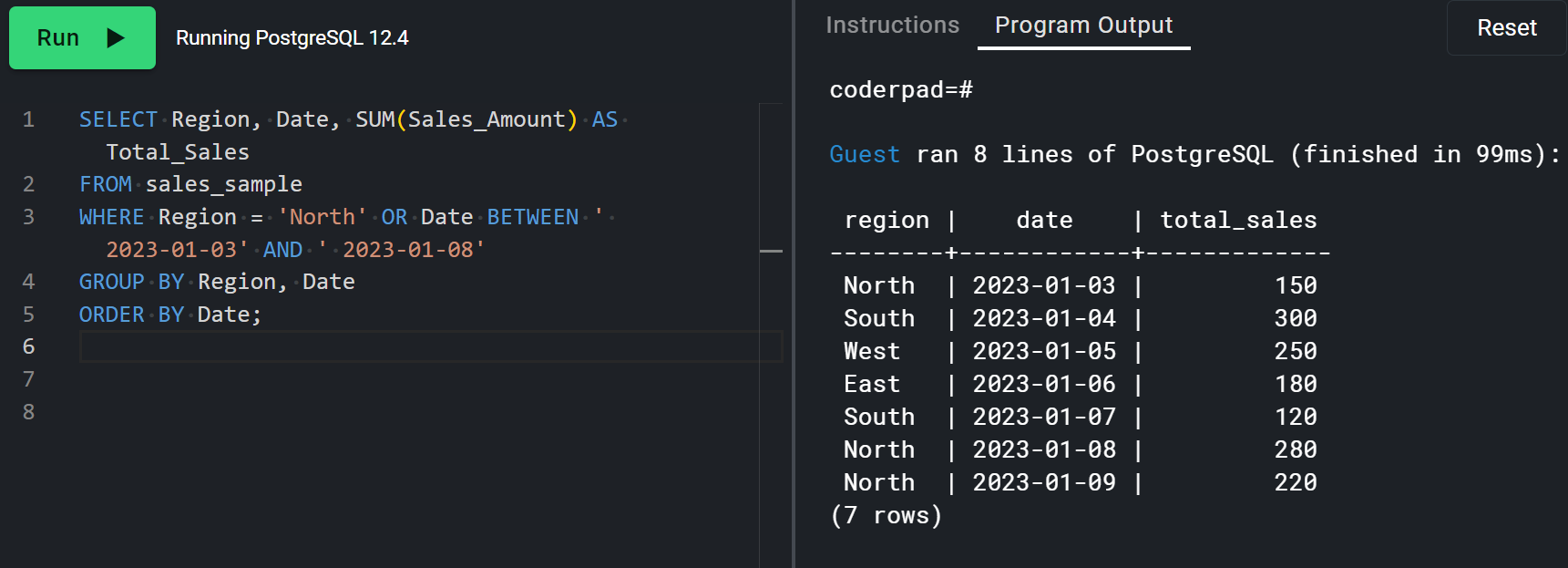
SELECT Region, Date, SUM(Sales\_Amount) AS Total\_Sales

FROM sales\_sample

WHERE Region = 'North' OR Date BETWEEN ' 2023-01-03' AND ' 2023-01-08'

GROUP BY Region, Date

ORDER BY Date;



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

SELECT Product\_Id, Region, Date, SUM(Sales\_Amount) AS Total\_Sales

FROM sales\_sample

WHERE (Product\_Id = '3') AND (Region = 'South') AND (Date = ' 2023-01-07')

GROUP BY Product\_Id, Region, Date;

