Task4

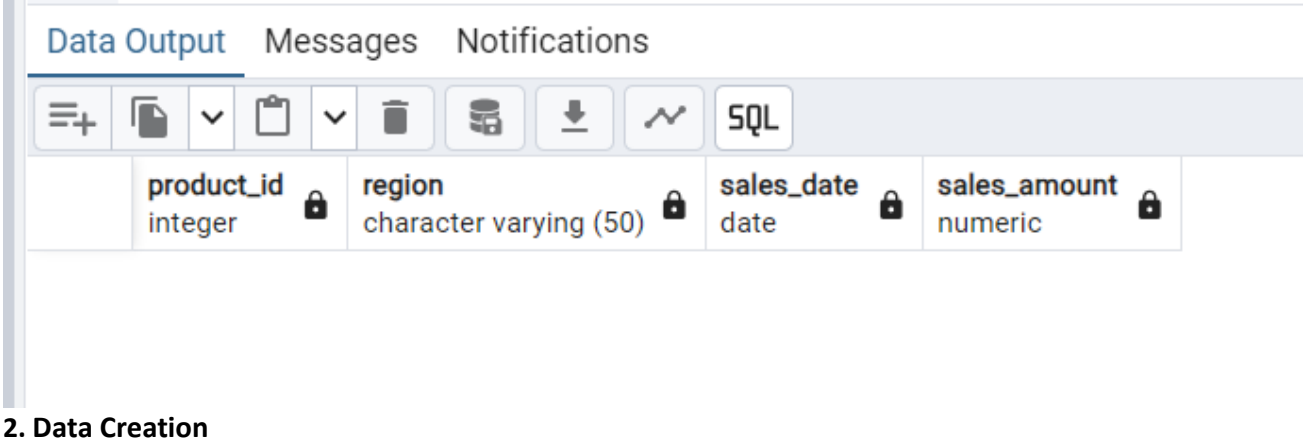
Develop the queries to retrieve information from the OLAP operations performed and to gain a deeper understanding of the sales data through different dimensions, aggregations, and filters.

Project: OLAP Operations (using Redshift or PostgreSQL)

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

Create a database to store the sales data (Redshift or PostgreSQL). 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.

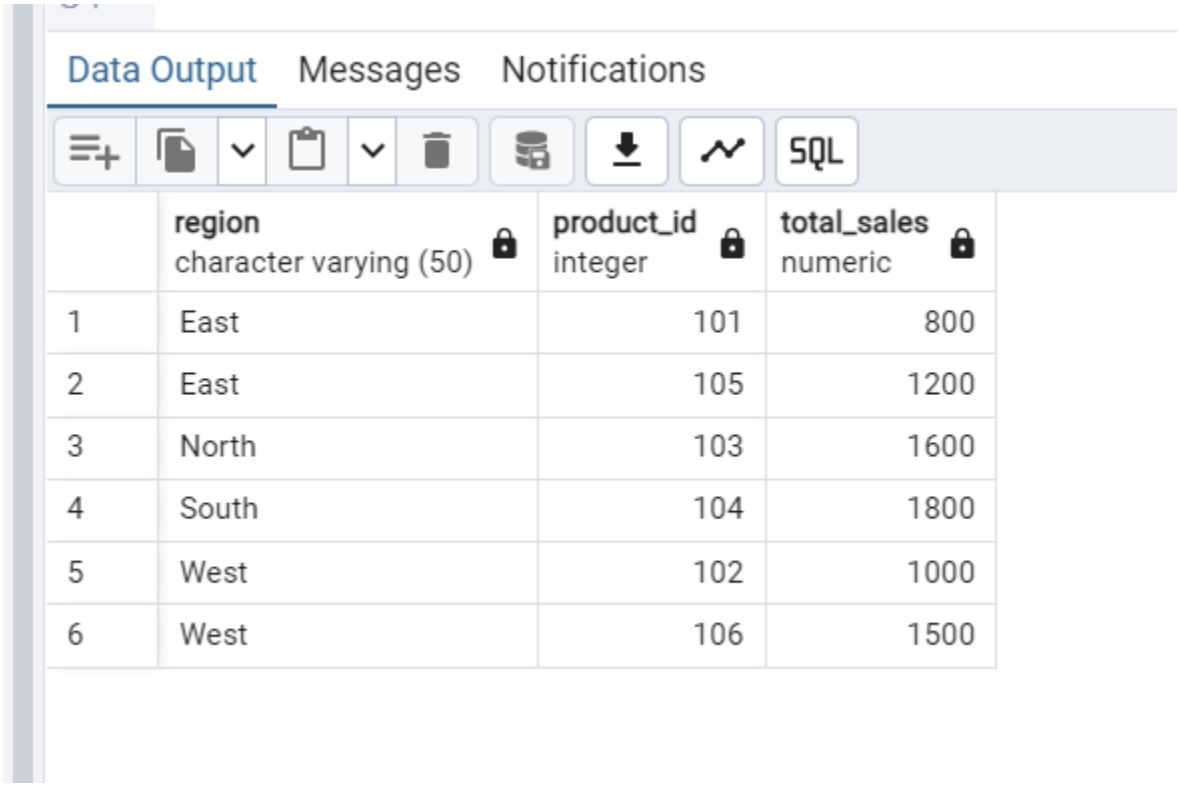
Data Output | Messages | Notifications

SQL

	product_id integer	region character varying (50)	sales_date date	sales_amount numeric
1	101	East	2024-01-15	500
2	102	West	2024-01-15	600
3	103	North	2024-02-01	700
4	104	South	2024-02-01	800
5	101	East	2024-03-10	300
6	102	West	2024-03-15	400
7	103	North	2024-04-20	900
8	104	South	2024-04-20	1000
9	105	East	2024-05-05	1200
10	106	West	2024-05-15	1500

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.

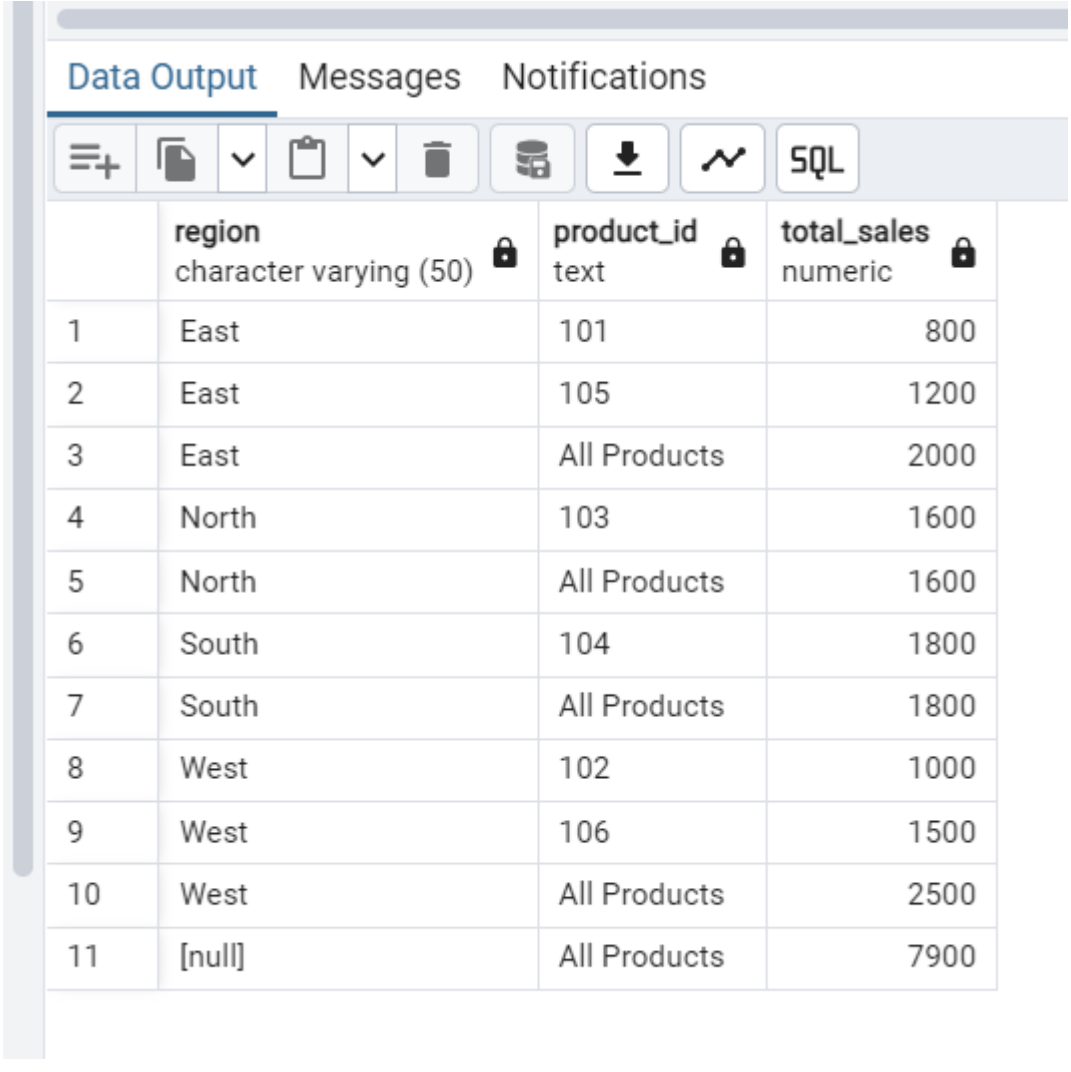


Data Output | Messages | Notifications

SQL

	region character varying (50)	product_id integer	total_sales numeric
1	East	101	800
2	East	105	1200
3	North	103	1600
4	South	104	1800
5	West	102	1000
6	West	106	1500

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.



Data Output | Messages | Notifications

SQL

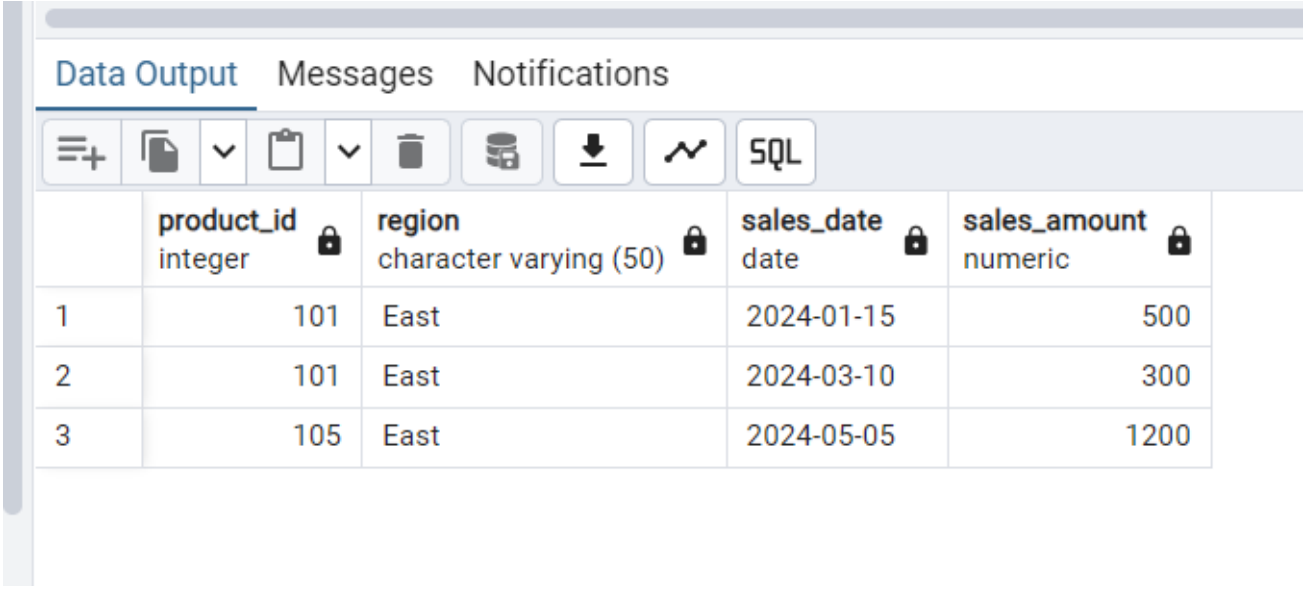
	region character varying (50)	product_id text	total_sales numeric
1	East	101	800
2	East	105	1200
3	East	All Products	2000
4	North	103	1600
5	North	All Products	1600
6	South	104	1800
7	South	All Products	1800
8	West	102	1000
9	West	106	1500
10	West	All Products	2500
11	[null]	All Products	7900

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.

Data Output | Messages | Notifications

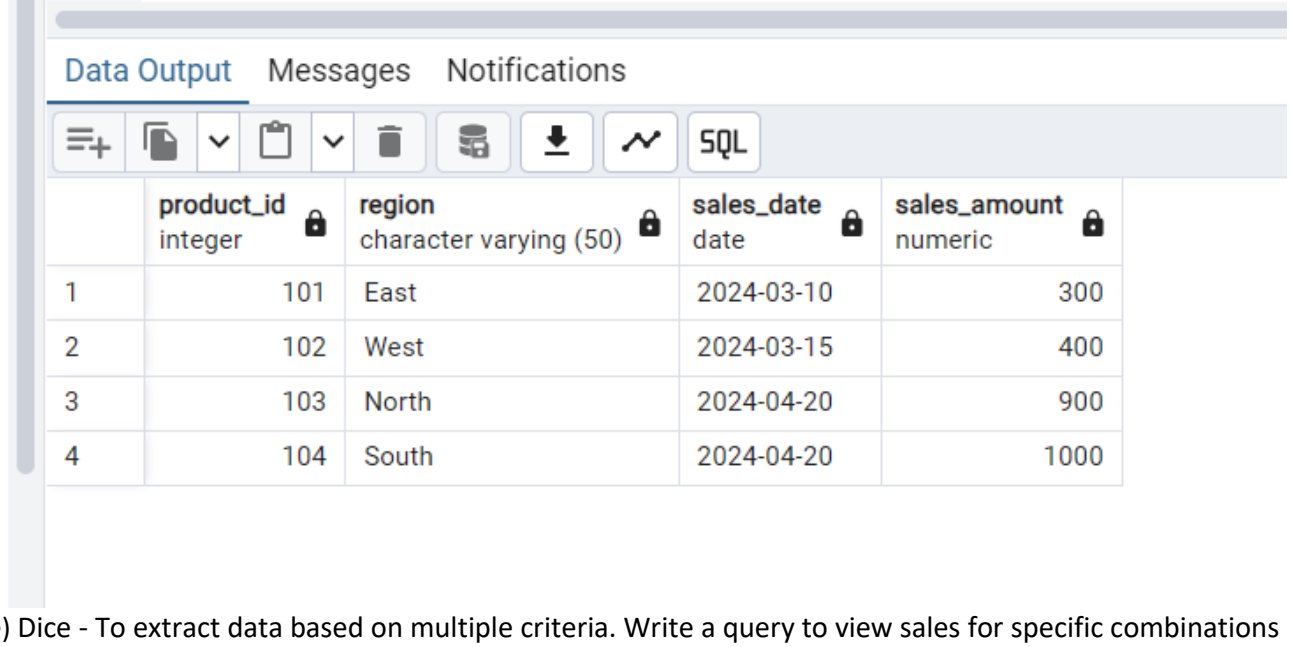
	product_id text	region character varying	sales_date text	total_sales numeric
1	101	All Regions	2024-01-15	500
2	101	All Regions	2024-03-10	300
3	101	All Regions	All Dates	800
4	101	East	2024-01-15	500
5	101	East	2024-03-10	300
6	101	East	All Dates	800
7	102	All Regions	2024-01-15	600
8	102	All Regions	2024-03-15	400
9	102	All Regions	All Dates	1000
10	102	West	2024-01-15	600
11	102	West	2024-03-15	400
12	102	West	All Dates	1000
13	103	All Regions	2024-02-01	700
14	103	All Regions	2024-04-20	900
15	103	All Regions	All Dates	1600

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.



Data Output | Messages | Notifications

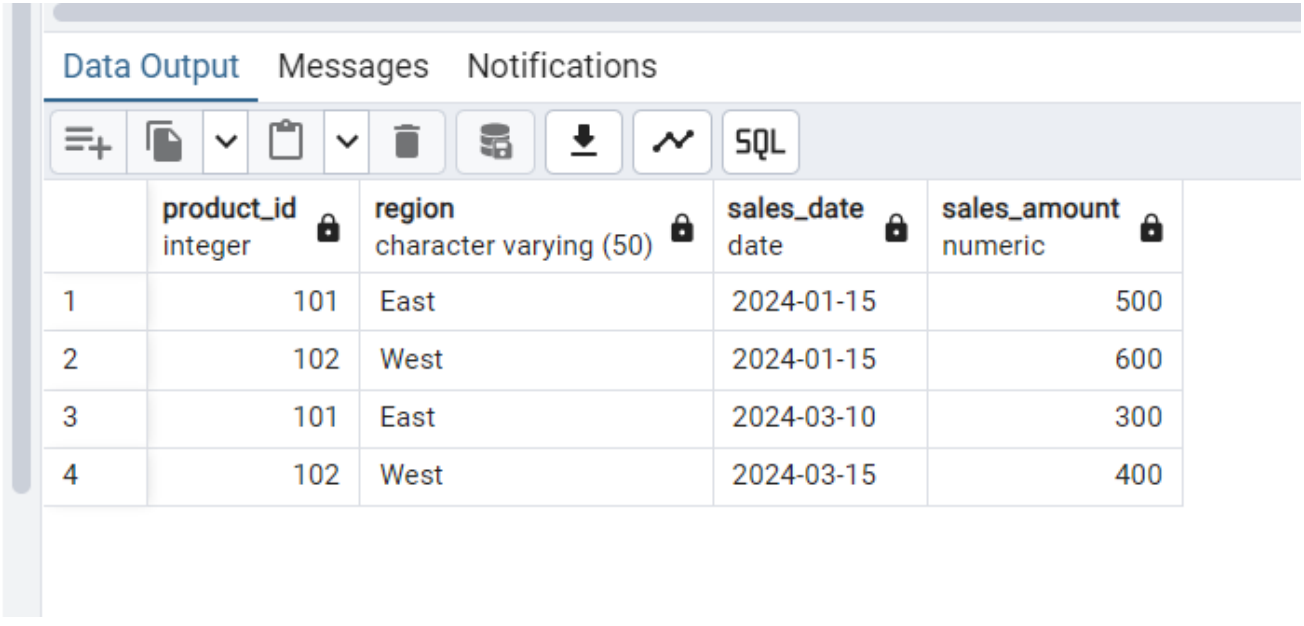
	product_id integer	region character varying (50)	sales_date date	sales_amount numeric
1	101	East	2024-01-15	500
2	101	East	2024-03-10	300
3	105	East	2024-05-05	1200



Data Output | Messages | Notifications

	product_id integer	region character varying (50)	sales_date date	sales_amount numeric
1	101	East	2024-03-10	300
2	102	West	2024-03-15	400
3	103	North	2024-04-20	900
4	104	South	2024-04-20	1000

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



Data Output Messages Notifications

SQL

	product_id integer	region character varying (50)	sales_date date	sales_amount numeric
1	101	East	2024-01-15	500
2	102	West	2024-01-15	600
3	101	East	2024-03-10	300
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