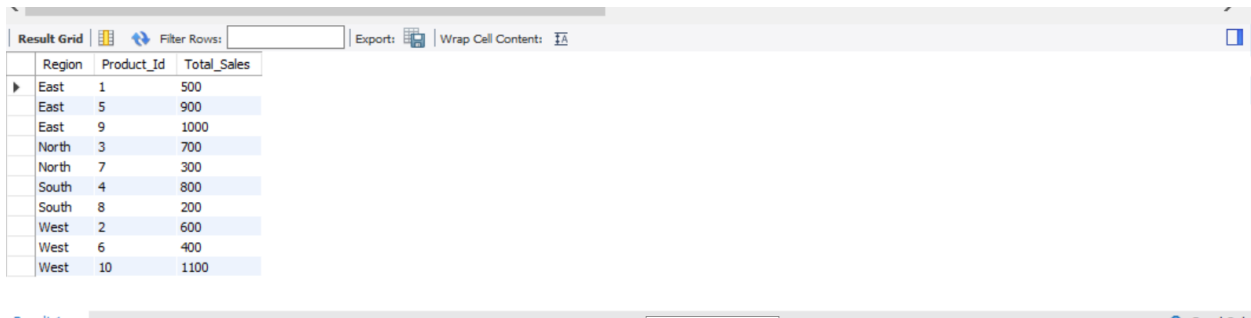# OLAP Operations (using PostgreSQL) OUTPUTS
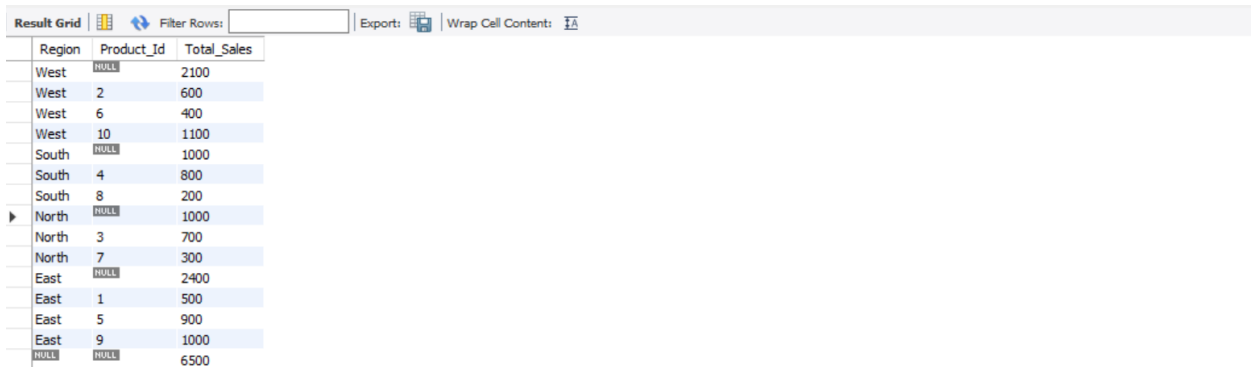
3. Perform OLAP operations

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.
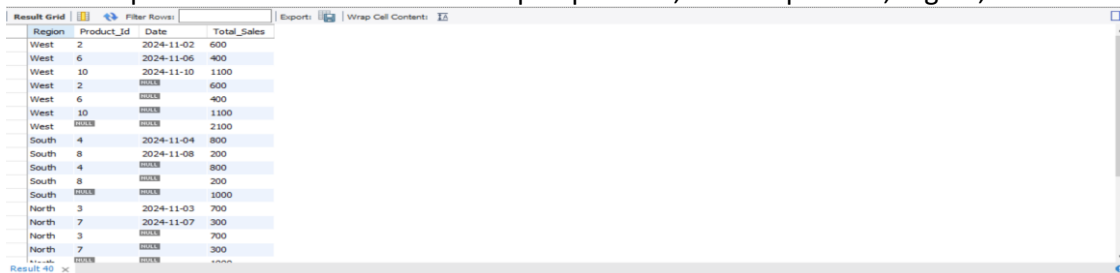
Region	Product_Id	Total_Sales
East	1	500
East	5	900
East	9	1000
North	3	700
North	7	300
South	4	800
South	8	200
West	2	600
West	6	400
West	10	1100

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.

Region	Product_Id	Total_Sales
West	NULL	2100
West	2	600
West	6	400
West	10	1100
South	NULL	1000
South	4	800
South	8	200
North	NULL	1000
North	3	700
North	7	300
East	NULL	2400
East	1	500
East	5	900
East	9	1000
NULL	NULL	6500

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.

Region	Product_Id	Date	Total_Sales
West	2	2024-11-02	600
West	6	2024-11-06	400
West	10	2024-11-10	1100
West	2	NULL	600
West	6	NULL	400
West	10	NULL	1100
West	NULL	NULL	2100
South	4	2024-11-04	800
South	8	2024-11-08	200
South	4	NULL	800
South	8	NULL	200
South	NULL	NULL	1000
North	3	2024-11-03	700
North	7	2024-11-07	300
North	3	NULL	700
North	7	NULL	300

North	NULL	NULL	1000
East	1	2024-11-01	500
East	5	2024-11-05	900
East	9	2024-11-09	1000
East	1	NULL	500
East	5	NULL	900
East	9	NULL	1000
East	NULL	NULL	2400
NULL	NULL	NULL	6500

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.

Product_Id	Region	Date	Sales_Amount
1	East	2024-11-01	500
2	West	2024-11-02	600
3	North	2024-11-03	700
4	South	2024-11-04	800
5	East	2024-11-05	900

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

Result Grid | Filter Rows: | Export: | Wrap Cell Content: ‡A

Product_Id	Region	Date	Sales_Amount
1	East	2024-11-01	500
2	West	2024-11-02	600
5	East	2024-11-05	900