

## 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

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.

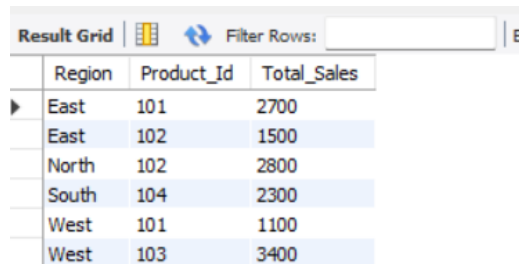
Result Grid					Filter Rows:	Export:	Wrap Cell Contents:
Product_Id	Region	Date	Sales_Amount				
101	East	2025-07-01	1000				
102	East	2025-07-02	1500				
101	West	2025-07-01	1100				
103	West	2025-07-03	2000				
102	North	2025-07-02	1200				
104	South	2025-07-01	1300				
101	East	2025-07-03	1700				
104	South	2025-07-02	1000				
103	West	2025-07-02	1400				
102	North	2025-07-03	1600				

Output			
Action Output			
#	Time	Action	Message
✓ 1	19:52:18	Create Database SalesDB	1 row(s) affected
✓ 2	19:52:18	USE SalesDB	0 row(s) affected
✓ 3	19:52:22	Create Table sales_sample ( Product_Id Int, Region Varchar(50), Date DATE, Sales_Amount Int )	0 row(s) affected
✓ 4	19:52:27	Insert Into sales_sample (Product_Id, Region, Date, Sales_Amount) Values (101, 'East', '2025-07-01', 1000), (10...	10 row(s) affected Records: 10 Duplicates: 0 Warnings: 0
✓ 5	20:04:36	Select * from sales_sample LIMIT 0, 1000	10 row(s) returned

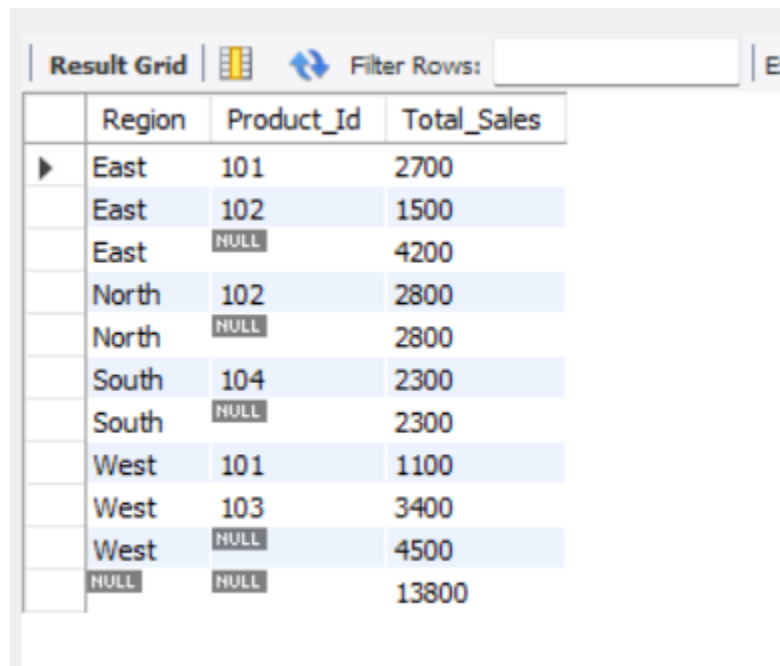
### 3. Perform OLAP operations

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	101	2700
	East	102	1500
	North	102	2800
	South	104	2300
	West	101	1100
	West	103	3400


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
►	East	101	2700
	East	102	1500
	East	NULL	4200
	North	102	2800
	North	NULL	2800
	South	104	2300
	South	NULL	2300
	West	101	1100
	West	103	3400
	West	NULL	4500
	NULL	NULL	13800

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.

by Product\_id ( Done in online SQL server <https://sqlfiddle.com/sql-server>)

Execute  SQL Server	
Product_Id	Total_Sales
101	3800
102	4300
103	3400
104	2300
All Products	13800




-- by Region ( Done in online SQL server <https://sqlfiddle.com/sql-server>)



Region	Total_Sales
All Regions	13800
East	4200
North	2800
South	2300
West	4500

-- by Date( Done in online SQL server <https://sqlfiddle.com/sql-server>)






Date_Perspective	Total_Sales
2025-07-01	3400
2025-07-02	5100
2025-07-03	5300
All Dates	13800

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.

Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content: 				
	Product_Id	Region	Date	Sales_Amount
▶	101	East	2025-07-01	1000
	102	East	2025-07-02	1500
	101	East	2025-07-03	1700

Result Grid   Filter Rows: <input type="text"/> <span>Export</span>				
	Product_Id	Region	Date	Sales_Amount
▶	101	East	2025-07-01	1000
	102	East	2025-07-02	1500
	101	West	2025-07-01	1100
	102	North	2025-07-02	1200
	104	South	2025-07-01	1300
	104	South	2025-07-02	1000
	103	West	2025-07-02	1400

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: <input type="text"/> <span>Export:    W</span>				
	Product_Id	Region	Date	Sales_Amount
▶	101	West	2025-07-01	1100
	103	West	2025-07-03	2000
	103	West	2025-07-02	1400