

# Analysis of Total Sales Using OLAP Queries

## 1. Roll-up Analysis: Total Sales by Country and Quarter

The roll-up query aggregates sales by country and quarter, revealing top-performing regions. Germany, Norway, France, and Italy consistently generated high total sales across quarters, while countries like the Netherlands, Portugal, Spain, and the United Kingdom showed moderate performance. The Unknown Country category had minimal sales, likely due to missing or incomplete customer data. This analysis helps identify strong markets and seasonal trends in sales.

## 2. Drill-down Analysis: Monthly Sales for a Specific Country

Focusing on monthly sales for a specific country (e.g., the UK), we observe fluctuations throughout the year. Peak months (e.g., January and September) and low months (e.g., February and August) indicate seasonal demand variations. Drill-down analysis allows decision-makers to examine performance at a finer granularity, supporting tactical planning such as promotions or stock allocation.

## 3. Slice Analysis: Sales of Electronics Category

The slice query isolates total sales for the Electronics category, which amounted to 144,339.15. This analysis highlights product-specific performance, helping prioritize inventory, marketing campaigns, or product development strategies.

## 4. Insights and Decision-Making Support

The data warehouse consolidates sales, customer, and product data, enabling fast OLAP queries for roll-up, drill-down, and slice analyses. This supports strategic decisions like identifying top-selling countries, seasonal trends, and high-performing product categories. Marketing, inventory, and operational strategies can be tailored based on these insights.

## 5. Effect of Synthetic Data

If the dataset is synthetic, some patterns or volumes may not reflect real-world markets perfectly. However, synthetic data still allows testing OLAP queries, visualizations, and decision-support workflows without exposing sensitive information.