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GLOBAL STORE DATA ANALYSIS

MICROSOFT EXCEL

Microsoft Excel is a spreadsheet application developed by Microsoft, part of the Microsoft Office suite. It is widely used for various tasks, including data entry, calculations, graphing tools, and data analysis. Excel organizes data in a grid of rows and columns, where each intersection is called a cell. Users can perform mathematical operations, create charts, and manage large datasets effectively.

Key Features:

- **Data Organization:** Excel allows users to store and manage data in a structured format, making it easy to sort and filter information.
- **Formulas and Functions:** Users can perform complex calculations using built-in formulas and functions, ranging from simple arithmetic to advanced statistical analysis.
- **Charts and Graphs:** Excel provide tools to create various types of charts and graphs, helping users visualize data trends and patterns.
- **Pivot Tables:** This feature enables user to summarize and analyze large datasets quickly, making it easier to extract meaningful insights.
- **Macros:** Excel supports automation through macros, allowing users to record and execute repetitive tasks efficiently.

POWER QUERY

Microsoft Power Query for Excel is a powerful data transformation and preparation tool integrated into Excel. It simplifies the process of importing, transforming, and combining data from various sources, making it an essential feature for data analysis and business intelligence tasks.

Key Features

Power Query allows users to connect to a wide range of data sources, including Excel files, databases, web pages, and cloud services. It provides a user-friendly interface to shape and clean data without altering the original source. Common transformations include removing columns, changing data types, filtering rows, and merging tables.

The tool operates in four main phases:

- **Connect:** Import data from local files, databases, or cloud services.
- **Transform:** Modify and clean data using the Power Query Editor.
- **Combine:** Merge or append data from multiple sources.
- **Load:** Load the transformed data into Excel worksheets or the Data Model.

POWER BI

Power BI is a powerful business analytics tool that enables organizations to visualize data, share insights, and make data-driven decisions efficiently.

Key Uses:

- **Data Visualization:** Power BI allows users to create interactive and visually appealing reports and dashboards. It transforms complex data into understandable visuals, making it easier for stakeholders to grasp insights quickly.
- **Data Integration:** The tool can connect to a wide variety of data sources, including Excel, SQL databases, cloud services, and more. This integration capability enables users to consolidate data from multiple platforms for comprehensive analysis.
- **Real-Time Analytics:** Power BI provides real-time data monitoring and analytics, allowing businesses to track performance metrics and make timely decisions based on the latest information.
- **Collaboration and Sharing:** Users can easily share reports and dashboards with team members and stakeholders, fostering collaboration and ensuring everyone has access to the same insights.
- **Customizable Dashboards:** Power BI offers customizable dashboards tailored to specific business needs, enabling users to focus on the metrics that matter most to their operations.

SQL

SQL, or Structured Query Language, is a powerful and widely used language for managing and manipulating relational databases. Its uses and benefits are extensive across various industries and applications.

Database Structure Management:

SQL can define and modify the structure of a database, including:

- **Creating Tables:** Defining new tables with specified columns and data types using CREATE TABLE.
- **Modifying Tables:** Adding, modifying, or deleting columns, or changing table properties using ALTER TABLE.
- **Creating Views:** Defining virtual tables based on the results of a query for simplified access or security.
- **Creating Indexes:** Improving query performance by creating indexes on specific columns.

Data Analysis and Reporting:

SQL enables complex data analysis by allowing users to:

- **Filter and Sort Data:** Narrow down and order results based on specific criteria.
- **Join Tables:** Combine data from multiple tables based on common columns.
- **Aggregate Data:** Perform calculations like sums, averages, counts, and group results.
- **Security and Permissions:** SQL allows for setting permissions and access controls to ensure data security and integrity.

Uses of SQL in DBMS:

Data Definition Language (DDL): SQL is used to define and manage the structure of the database. This includes creating, altering, and dropping tables, views, and indexes.

Data Manipulation Language (DML): SQL is used to manage the data within the database. This includes inserting new data, updating existing data, and deleting data from tables.

Data Query Language (DQL): SQL is used to retrieve data from the database based on specific criteria. This is primarily done using the SELECT statement.

Data Control Language (DCL): SQL is used to manage user permissions and access control within the database, ensuring data security.

Transaction Control Language (TCL): SQL facilitates the management of transactions, ensuring data integrity through commands like COMMIT and ROLLBACK, which adhere to ACID properties (Atomicity, Consistency, Isolation, Durability).

PROJECT OVERVIEW

The Global Store project focuses on building an interactive Power BI dashboard to analyze sales, profit, and customer trends across different regions and product categories. The dataset is cleaned, modeled, and visualized to uncover insights such as top-performing markets, profitable product segments, and delivery performance. Key measures are created using DAX to support decision-making. The dashboard helps stakeholders monitor KPIs, identify top-performing, loss-making areas, and improve business strategies through data-driven insights.

Key Features and Analyses

- ❖ **Sales and profit Analysis:** The dashboard visualizes sales and profit metrics across various dimensions, including regions, product categories, and customer segments. This helps identify underperforming areas and opportunities for improvement.
- ❖ **Customer Segmentation:** The project segments customers into different categories (eg: Consumer, Corporate, Home Office) to analyze purchasing behavior and lifetime value. This segmentation aids in targeted marketing and sales strategies.
- ❖ **Operational Metrics:** The dashboard evaluates logistics performance, including shipping modes and costs, to assess operational efficiency. Insights into shipping preferences and cost-effectiveness are crucial for optimizing logistics strategies.
- ❖ **Trend analysis:** The project includes trend analyses over time, allowing users to visualize sales performance and profitability across different periods. This helps in understanding seasonal trends and planning inventory and promotions accordingly.
- ❖ **Interactive Visualizations:** User can interact with the dashboard to explore data dynamically, filtering by various parameters such as country, region, and product category. This interactivity enhances the user experience and facilitates deeper insights.
- ❖ Additionally, year-to-date (YTD) and monthly trend analyses help track financial growth while highlighting category-wise profit progression over time. Interactive filters such as date, category, region, and segment enhance user control and flexibility, enabling dynamic insights based on business needs. Navigation buttons allow smooth page transitions for detailed exploration.
- ❖ This project demonstrates strong business intelligence capabilities in summarizing large datasets, optimizing visual storytelling, and providing actionable insights to support sales strategy, category optimization, and operational improvement.

TOOLS USED

1. **MS Excel:** Basic structure validation
2. **Power Query:** Data cleaning, Transformation
3. **Power BI:** Data modeling, DAX, Reporting

1. MS Excel-Data source

This dataset contains transaction-level sales details including:

- Order & Ship details
- Customer information
- Region & Country fields
- Category & Sub-Category
- Sales, Quantity, Profit, Discount, Shipping Cost

2. Power Query-Data cleaning

The dataset had **two different date formats** for Order Date and Ship Date, causing incorrect sorting, grouping, and time calculations.

Action Performed:

- Standardized data fields using Power Query
- Converted inconsistent date formats into a single standard format (Data type)
- Validated that all data fields display correctly after conversion

Additional Cleaning steps:

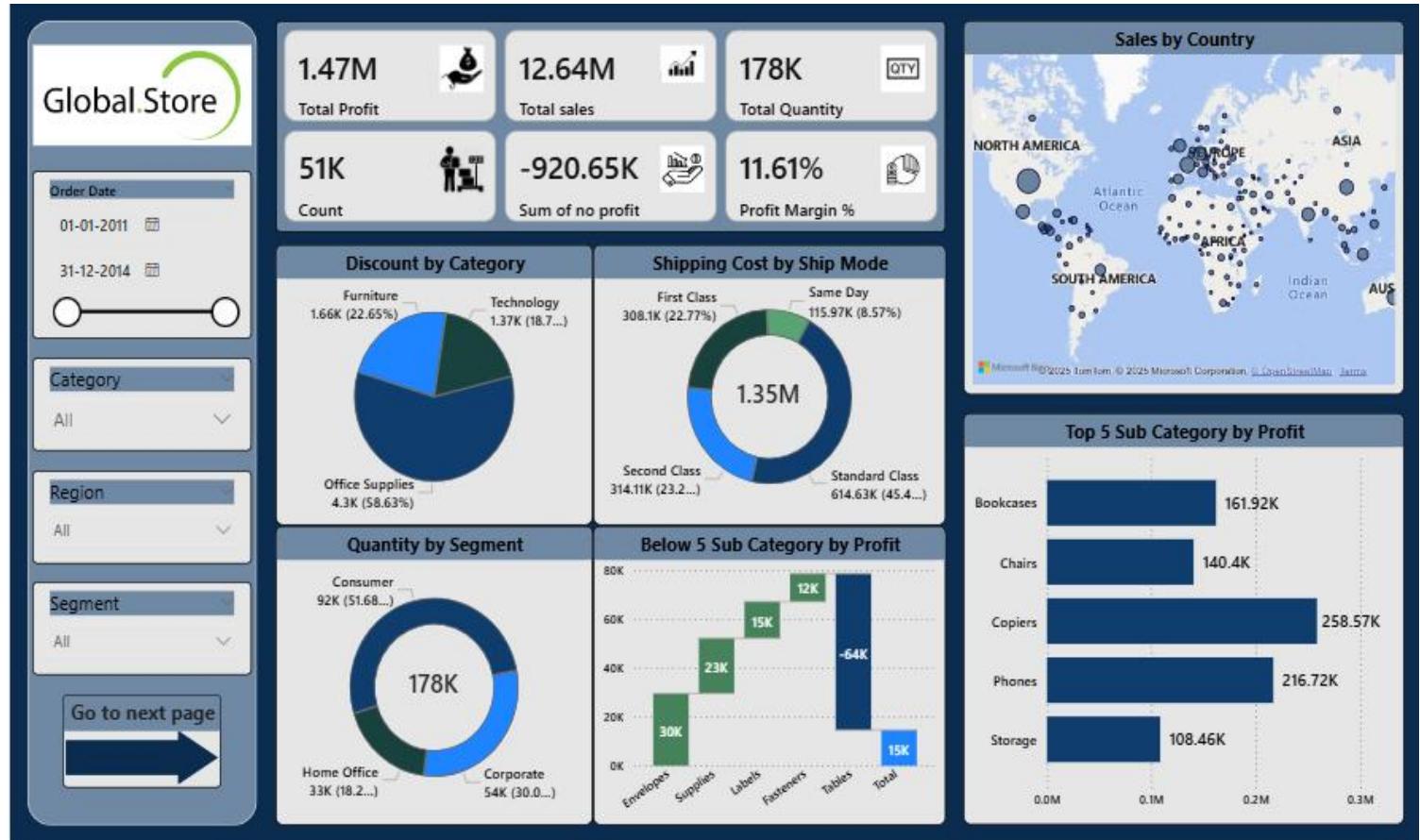
- Verified data types (Text, Number, Date)
- Checked for null values in major fields
- Trimmed & cleaned text fields

3. Power BI-Visualizations:

Designed interactive Power BI dashboard displaying

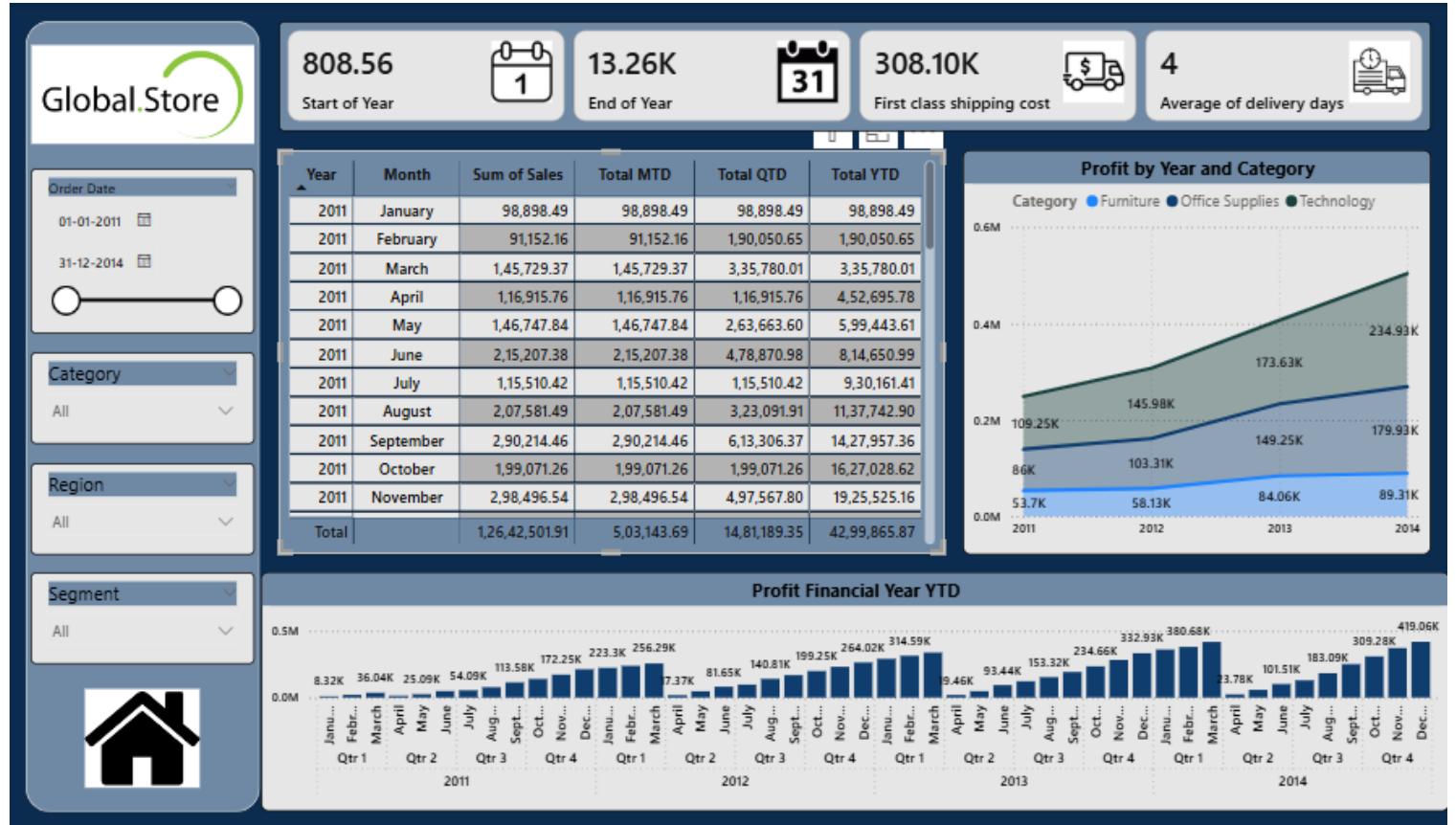
- **KPIs:** Sales, Profit, Quantity, Order count .
- **Maps:** Sales by Country.
- **Pie/Donut Charts:** Discounts by Category, Quantity by Segment, Shipping Cost by Mode.
- **Bar Charts:** Top/Bottom Sub-Categories by Profit.
- **Tables:** Monthly breakdown with MTD, QTD, YTD.
- **Time Service:** Profit trends across months and quarters.
- **Filters/Slicers:** Order Date, Region, Segment for interactive exploration.
- **Page Navigation:** Home page, Next page.

DASHBOARD1



This dashboard provides a **complete overview of business performance**, including total profit, sales, quantity, discount distribution, shipping cost, and product sub-category performance. It also highlights top and bottom 5 sub-categories, customer segments, and geographical sales using a world map. It helps understand overall business health and profitability trends.

DASHBOARD2



This dashboard focuses on **year-wise and month-wise sales performance**, profit trends by category, delivery metrics, and shipping cost insights. It includes detailed MTD, QTD, and YTD summaries, helping track financial progress over time. It is designed to analyze long-term growth, seasonal patterns, and category-wise profit movement.

CHART USED

➤ **Card**

- Total Profit
- Total Sales
- Total Quantity
- Total number of Customers
- Sum of No Profit
- Profit Margin %
- Amount of Start of Year
- Amount of End of Year
- First class Shipping Cost
- Average of Delivery Days

➤ **Map Chart**

- Sales by Country

➤ **Pie Chart**

- Discount by Category

➤ **Donut Chart**

- Shipping cost by Ship mode
- Quantity by Segment

➤ **Clustered Bar Chart**

- Top 5 Sub Category by Profit

➤ **Waterfall Chart**

- Below 5 Sub Category by Profit

➤ **Table**

- Total MTD, QTD, YTD by Sum of Sales

➤ **Clustered Column Chart**

- Profit Financial Year YTD

➤ **Stacked Area Chart**

- Profit by Year and Category

➤ **SLICER**

- Order date
- Category
- Region
- Segment

CARD

1. Total Profit - 1.47

This value represents the **overall profit earned** from all sales transactions. It means the business has generated **1.47 million** in profit after subtracting costs.



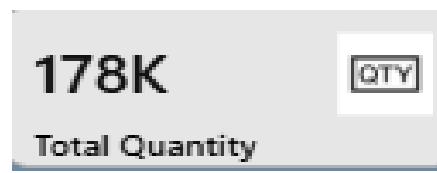
2. Total Sales - 12.64M

This metric shows the **total revenue generated** from sales. The company has recorded **12.64 million** in total sales value.



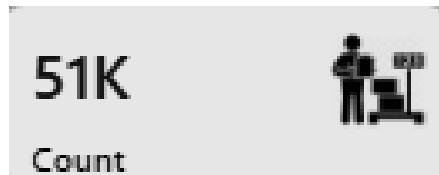
3. Total Quantity - 178K

This shows the **total number of items sold**. The business has sold **178k units** across all products



4. Count - 51K

This represents the **total number of transactions / orders / records** in the dataset. There are **51K entries** processed in total.



5. Sum of No Profit - 920.65K

This shows the **total loss (negative profit) incurred** on unprofitable transactions. The value **-920.65K** indicates that certain sales led to an overall loss of **920,650**.



6. Profit Margin % - 11.61%

- This indicates the **percentage of profit earned relative to total sales**. A profit margin of **11.61%** means:
- For every 100 currency units of sales, the company earns about 11.61 units of profit.



7. Start of Year – 808.56

- This value likely represents the **profit amount recorded at the beginning of the year**.
- The value **808.56** indicate revenue or transaction value around January.
- It helps you understand the starting performance level of the year to compare with the end-of-year performance.



8. End of Year – 13.26K

- This is the **profit amount achieved at the end of the year**.
- The value **13.26K** shows a significant increase compared to the start, indicating strong year-end performance.
- Used for analyzing growth trend from start to end of the year.



9. First Class Shipping Cost – 308.10K

- Represents the **total shipping cost incurred for First-Class orders**.
- The value **308.10K** highlights that First-Class shipping is a major cost contributor.
- Useful for evaluating logistics expenses and identifying cost-saving opportunities.



10. Average Delivery Days – 3.97

- Shows the **average time (in days)** taken to deliver orders.
- A value of **3.97 days (~4 days)** suggests **moderately fast delivery performance**.
- This metric helps assess customer satisfaction and supply-chain efficiency.



SALES BY COUNTRY

(MAP CHART)

This is a geographic bubble map that visualizes sales performance across different countries globally. Each bubble (circle) represents a country, and the size of the bubble indicates the sales volume - larger bubbles mean higher sales, smaller bubbles mean lower sales.

- **Top-Performing Countries:** United States, United Kingdom, Germany, France
 - **Average-Performing Countries:** Australia, China, India, Brazil, South Africa
 - **Low-Performing Countries:** Many countries in Africa, Middle East, Southeast Asia
- Overall, the company's revenue is most concentrated in **Europe and North America**, with **Asia showing growth potential**, while **Africa & South America remain low-performing markets**.



DISCOUNT BY CATEGORY

(PIE CHART)

This is a pie chart that visualizes the proportional distribution of discounts across three business product categories. Pie charts are ideal for showing parts of a whole, making it easy to compare relative sizes at a glance.

1. Office Supplies – 4.3K (58.63%)

- This is the **largest portion** of the chart.
- Indicates that more than half of all discounts are given on Office Supplies.

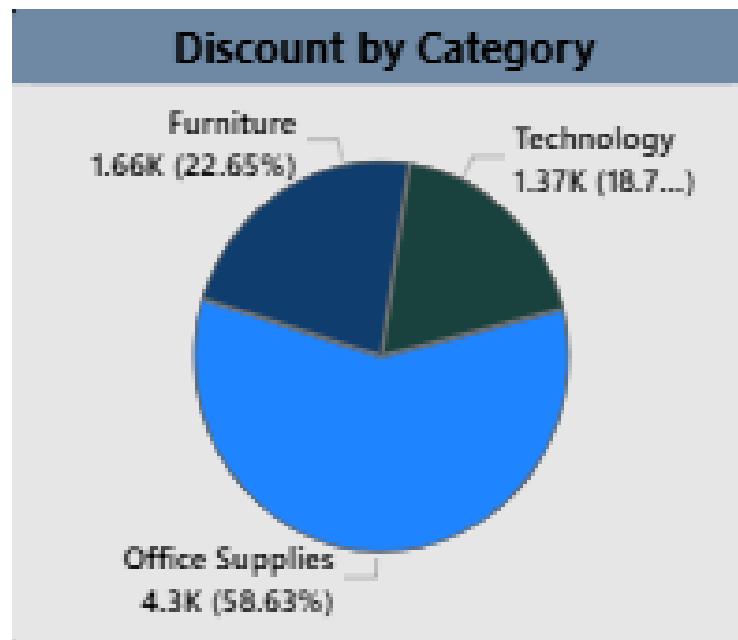
2. Furniture – 1.66K (22.65%)

- Second-highest share.
- Shows that nearly one-fourth of total discounts are allocated to Furniture.

3. Technology – 1.37K (18.73%)

- The **smallest share** among the three categories.
- Indicates fewer discounts are applied to Technology products.

- Most discounts are concentrated in **Office Supplies**, suggesting higher promotional activity in this category.
- **Furniture** and **Technology** receive relatively lower discounts.



SHIPPING COST BY SHIP MODE

(DONUT CHART)

This is a donut chart that visualizes the distribution of shipping costs across four different shipping methods. The donut design provides a modern, clean look while effectively showing proportional relationships.

- **Standard Class** accounts for the largest share of shipping costs at **614.63K**, which is **45.4%** of the total.
 - **Second Class** represents **314.11K**, contributing **23.2%** of the shipping costs.
 - **First Class** shipping cost is **308.1K**, making up **22.77%** of the total.
 - **Same Day** shipping has the smallest share at **115.97K**, which is **8.57%** of shipping costs..
- **Standard Class** is the most used.
- **Same Day** shipping, while faster, is the least utilized.
- Both **First Class** and **Second Class** have similar cost shares, significantly surpassing Same Day but falling well below Standard Class

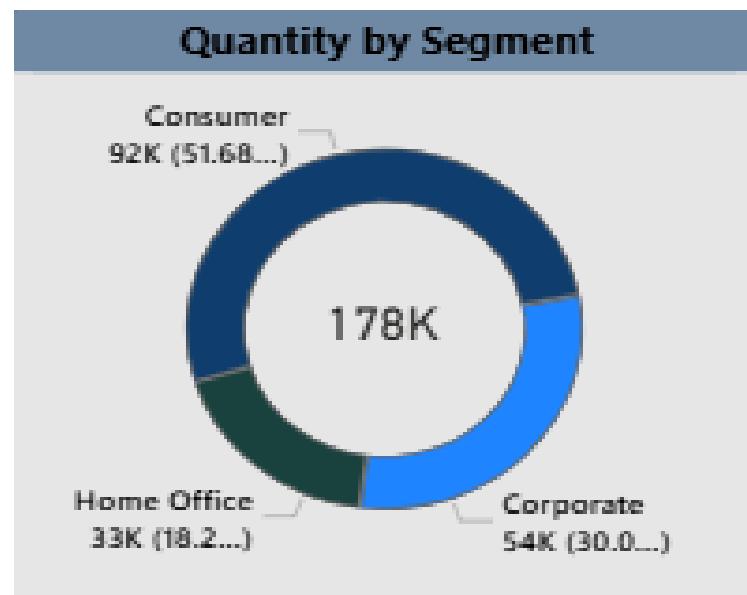


QUANTITY BY SEGMENT

(DONUT CHART)

This donut chart displays how total sales quantity is distributed among three customer segments: Consumer, Corporate, and Home Office. The visualization uses color-coded segments with both absolute values (in thousands) and percentages to clearly communicate the proportional contribution of each segment to overall sales volume.

- **Consumer segment** has the largest share, with **92K** units sold representing **51.68%** of the total quantity.
 - **Corporate segment** accounts for **54K** units, making up **30%** of the sales quantity.
 - **Home Office segment** contributed **33K** units, equating to **18.2%** of the total quantity.
- The majority of products are sold to the **Consumer segment**.
➤ **Corporate sales** are significant but fall behind Consumer.
➤ **Home Office** is the smallest segment by quantity sold, indicating a potential area for growth or differing demand focus.

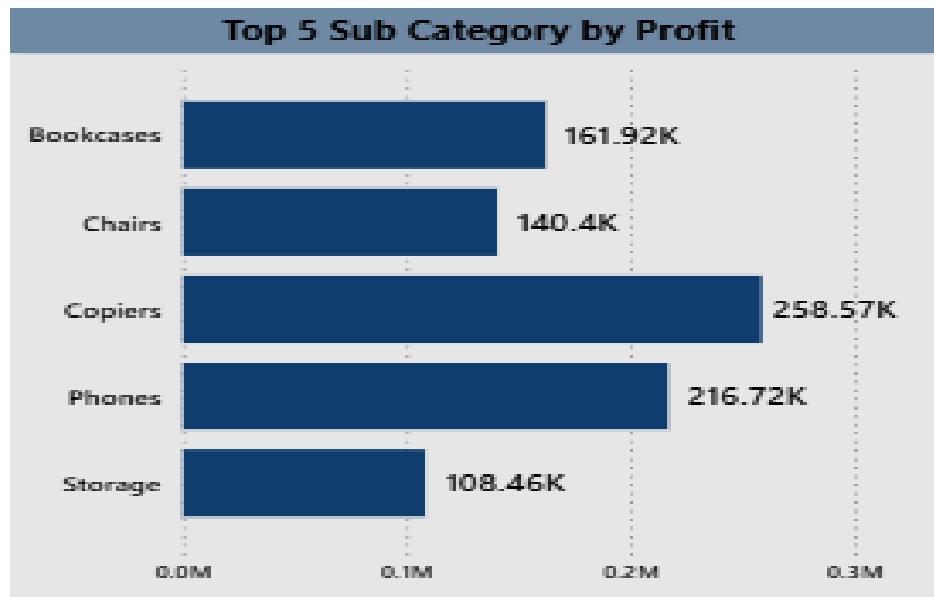


TOP 5 SUB CATEGORY BY PROFIT

(CLUSTERED BAR CHART)

This is a Clustered bar chart designed to display comparative data across categories, where the length of each bar represents the magnitude of profit for each sub-category.

- **Copiers:** Leads with the highest profit at **258.57K**, making it a standout contributor to business profitability.
 - **Phones:** The second most profitable subcategory with **216.72K** in profit.
 - **Bookcases:** Achieved a strong profit of **161.92K**.
 - **Chairs:** Generated a profit of **140.4K**.
 - **Storage:** The lowest among the top five but still substantial, with 108.46K profit.
- **Copiers and Phones** are the dominant profit sources, clearly outperforming other subcategories.
- The entire top five subcategories each yield over 100K in profit, indicating these are the business's star performers.
- Focusing resources and strategy on these categories is likely to maximize returns and maintain strong profitability.

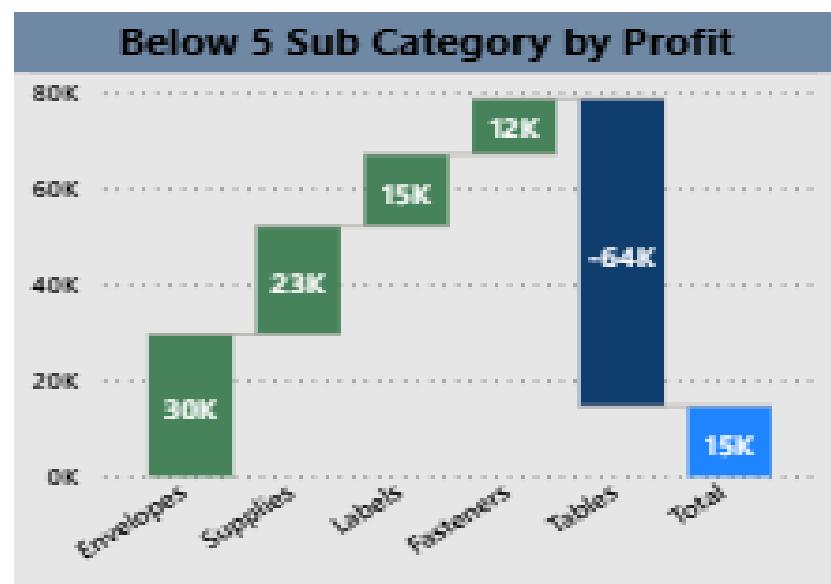


BELOW 5 SUB CATEGORY BY PROFIT

(WATERFALL CHART)

This is a waterfall that visualizes the cumulative effect of the bottom 5 performing sub-categories on overall profitability. Waterfall charts are particularly effective for showing how an initial value is affected by a series of positive or negative values.

- First four sub-categories (Envelopes, Supplies, Labels & Fasteners) show **small positive profits**.
- **Envelopes** contributes the highest profit among the five **30K**.
- **Supplies** contributes the profit of **23K**.
- **Labels** contributes the profit of **15K**.
- **Fasteners** contributes the profit of **12K**.
- **Tables** shows a **major loss of -64K**, reversing the previously gained profits. Due to the large loss from Tables, the combined total becomes **15K**. So, although four categories are profitable, **Tables significantly drags overall profit down**



TOTAL MTD, QTD, YTD BY YEAR & MONTH

(TABLE CHART)

- **Sum of Sales:** Displays the total sales amount for each month, showing individual monthly performance.
- **Total MTD (Month-To-Date):** This is the cumulative total of sales from the start of the current month to the current point in time for each data entry. In this structured table, for historical data, it matches Sum of Sales, but for partial periods, it would be a running sum within the month.
- **Total QTD (Quarter-To-Date):** Cumulative sales from the start of the quarter through the indicated month. This is crucial for identifying how each quarter's sales are ramping up over time.
- **Total YTD (Year-To-Date):** Aggregated sales from the start of the calendar year through the specified month, which is essential for tracking annual sales goals or comparing year-over-year progress.

Year	Month	Sum of Sales	Total MTD	Total QTD	Total YTD
2011	January	98,898.49	98,898.49	98,898.49	98,898.49
2011	February	91,152.16	91,152.16	1,90,050.65	1,90,050.65
2011	March	1,45,729.37	1,45,729.37	3,35,780.01	3,35,780.01
2011	April	1,16,915.76	1,16,915.76	1,16,915.76	4,52,695.78
2011	May	1,46,747.84	1,46,747.84	2,63,663.60	5,99,443.61
2011	June	2,15,207.38	2,15,207.38	4,78,870.98	8,14,650.99
2011	July	1,15,510.42	1,15,510.42	1,15,510.42	9,30,161.41
2011	August	2,07,581.49	2,07,581.49	3,23,091.91	11,37,742.90
2011	September	2,90,214.46	2,90,214.46	6,13,306.37	14,27,957.36
2011	October	1,99,071.26	1,99,071.26	1,99,071.26	16,27,028.62
2011	November	2,98,496.54	2,98,496.54	4,97,567.80	19,25,525.16
Total		1,26,42,501.91	5,03,143.69	14,81,189.35	42,99,865.87

PROFIT FINANCIAL YEAR YTD (CLUSTERED COLUMN CHART)

This chart displays quarterly profit performance across four financial years (**FY 2011 to FY 2014**), where each financial year runs from April to March. The data is presented as a bar chart showing profit values in thousands (K), with each quarter labeled chronologically.

The final bar in each set (March) indicates total annual profit for that financial year. Each subsequent year generally ends on a higher value than the previous, visually confirming profit growth over successive fiscal periods.

The profit at the end of each year increases steadily:

- 2011 finishes at **256.29K**
- 2012 at **338.03K**
- 2013 at **418.04K**
- 2014 peaks at **419.06K**

The chart demonstrates sustained and increasing profit growth across financial years, with each year closing at a higher profit level than the previous one.



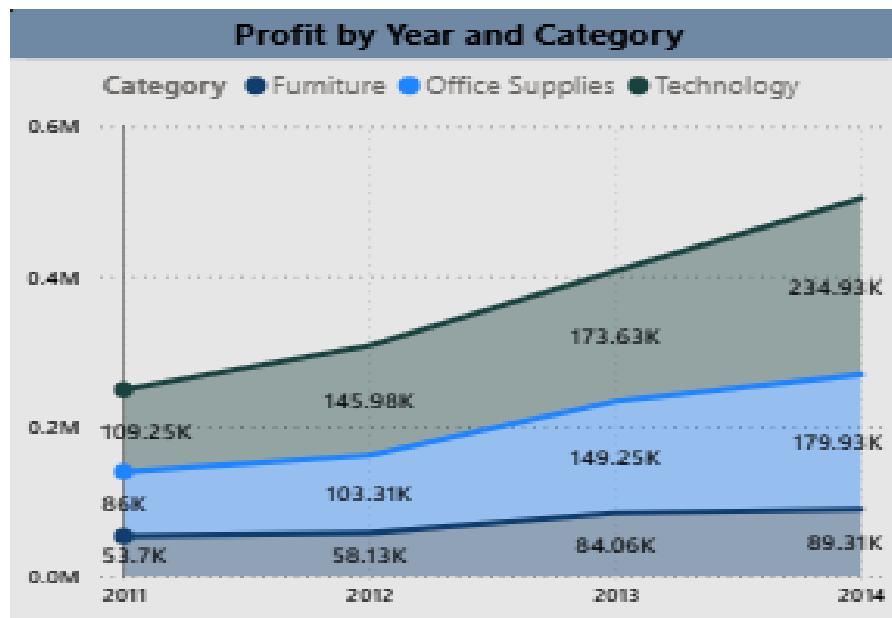
PROFIT BY YEAR AND CATEGORY

(STACKED AREA CHART)

This is a stacked area chart displaying profit performance across three distinct product categories (Furniture, Office Supplies, and Technology) over a 4-year period from 2011 to 2014. The chart includes a legend identifying each category by color, making it easy to track individual and cumulative performance.

- **Technology** shows the highest and fastest-growing profit, rising from **109.25K** in 2011 to **234.93K** in 2014.
- **Office Supplies** maintains steady growth, increasing from **86K** to **179.93K** over the same period.
- **Furniture** has the lowest profit figures but still shows improvement, growing from **53.7K** to **89.31K**.

All three categories demonstrate a Positive upward trend, with Technology leading in profitability and growth.



FILTER & PAGE NAVIGATION

1. Order Date Filter

Range: 01-01-2011 to 31-12-2014

Purpose: Limits the dataset to transactions within this time frame.

Use Case: Helps analyze trends over a specific period (e.g., fiscal year, quarter, or multi-year comparison).

How It Works: When adjusted, all visualizations update to reflect only the data within the selected date range.



2. Category Filter

Options: Furniture, Office Supplies, Technology

Purpose: Focuses analysis on a specific product category.

Use Case: Useful for comparing profitability or sales performance across categories.

How It Works: Selecting a category updates all charts and metrics to show data only for that category.



3. Region Filter

Options: North America, Europe, Asia, etc.

Purpose: Segments data by geographic region.

Use Case: Enables regional performance analysis, helping identify strong or weak markets.

How It Works: Filters all visualizations to reflect data from the selected region(s).



4. Segment Filter

Options: Consumer, Corporate, Home Office

Purpose: Breaks down data by customer type or business segment.

Use Case: Helps understand which customer group contributes most to sales or profit.

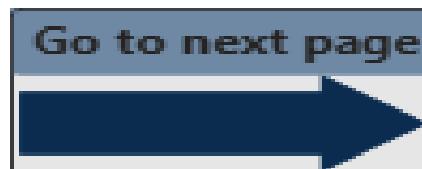
How It Works: Updates all metrics and visuals to show data for the selected segment only.



PAGE NAVIGATION:

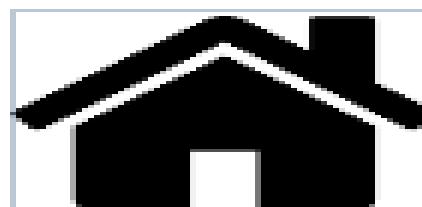
Key Functions:

- Moves user to the detailed analysis page of **Next page** (Year-wise / Category-wise / Profit-trend).
- Allows smooth movement without using page tabs.
- Gives guided navigation so users know how to explore the report.



Key Functions:

- Works as a shortcut to the **Main page**.
- Helps the user quickly return to the first page without scrolling.
- Improves dashboard usability and flow.



CONCLUSION

- The Global Store dashboard offers a detailed and multidimensional view of business performance from 2011 to 2014, revealing key insights across sales, profit, customer segments, and operational costs. With total sales reaching \$12.64M and a profit margin of 11.61%, the business demonstrates solid revenue generation but also highlights areas for margin improvement, especially given the substantial volume of orders yielding no profit.
- The Consumer segment leads in quantity sold, yet Corporate buyers contribute significantly to profitability, suggesting a strategic opportunity to deepen engagement with high-value clients. Product-level analysis shows that Copiers, Phones, and Bookcases are the most profitable sub-categories, while Labels, Fasteners, and Tables underperform—indicating a need for portfolio optimization. Shipping costs are highest for Standard Class, which may reflect customer preference or cost inefficiencies. Discount distribution is heavily skewed toward Office Supplies, potentially impacting margins.
- Geographically, the business maintains a strong presence across North America, Europe, and Asia, supporting its global footprint. Time-series trends in monthly and quarterly sales and profits show consistent growth, with notable spikes in Q4, suggesting seasonal demand patterns. Overall, the dashboard equips decision-makers with critical insights to refine pricing strategies, streamline logistics, and prioritize high-margin products and segments for sustained profitability.