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Research Article

Visualization of XYZ Sales Data Using Power BI: A Case Study of Superstore in the United States

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ABSTRACT

The Sample - Superstore dataset is a collection of retail sales transactions from a major retail chain in the United States, comprising 9,994 rows and 21 attributes. This dataset captures detailed information on individual orders, including order and shipping dates, customer names and segments, geographical locations, product categories and sub-categories, as well as financial metrics such as sales, discounts, and profits. The data spans various regions and customer types, providing a comprehensive overview of business operations across different market segments. The aim of this study is to visualize the Superstore sales data using Power BI, an advanced business intelligence and data visualization tool capable of transforming raw and complex data into clear, interactive, and insightful visual representations. The visualization process involves data loading, transformation using Power Query, model structuring, and dashboard creation. The final dashboards feature bar charts, pie charts, maps, and time-series graphs that present key insights such as regional sales distribution, category-wise profit contributions, customer segmentation analysis, and seasonal sales trends. These visuals reveal patterns in product performance, highlight profitable and underperforming segments, and help identify regional disparities in sales performance. Additionally, the time-based charts provide a better understanding of sales trends throughout the year, offering valuable input for strategic planning and forecasting. Overall, the findings suggest that Power BI is highly effective in making data more accessible and actionable, supporting more informed and accurate decision-making processes for businesses aiming to optimize performance and enhance market responsiveness.

Keywords: Power BI; Data Visualization; Superstore; Business Intelligence; Sales Analysis; Dashboard

1. INTRODUCTION

Digital transformation has driven companies to adopt data-driven strategies to improve efficiency and accuracy in decision-making. In the retail industry, the abundance of transactional data can serve as a strategic source of insights when properly analyzed. Companies like Superstore, operating across various regions in the United States, record detailed sales data that includes orders, customers, geographic regions, product categories, discounts, and profit margins. Through effective visual analysis, this data can be utilized to identify sales trends, product performance, and consumer behavior more comprehensively (Munawir et al., 2025).

However, if a retail company fails to properly analyze its sales data, it can lead to inaccurate decision-making and ineffective sales strategies. Without clear insight into what products are performing well, where profits are highest, or which regions are underperforming, businesses risk making decisions based on incomplete or misleading information. This can result in lost sales opportunities, overspending on underperforming products, and ultimately, decreased profits or financial losses.

The use of data visualization tools such as Microsoft Power BI and other Business Intelligence (BI) platforms has become increasingly popular due to their ability to present data in interactive dashboards, dynamic graphs, and real-time reports. These tools enable integration from various data sources and offer advanced analytics features that help users efficiently extract critical information. With intuitive interfaces, BI platforms allow organizations to visually display patterns and anomalies, thereby accelerating strategic decision-making in dynamic business environments (Sagar et al., 2024; Al-Omoush et al., 2022). Moreover, interactive dashboards have been shown to support real-time multidimensional analysis—combining region, category, and time dimensions—thus enhancing the overall business evaluation process (Gokulpriya, 2024; Aguiar & Alcalá, 2024).

Although visualization tools are widely used, most research remains limited to a single dimension, such as geographic mapping or individual product analysis. This results in a gap in the use of retail data in a multidimensional context involving spatial, categorical, and temporal aspects simultaneously. Previous studies rarely integrate these three dimensions into a single cohesive visualization system, making it difficult for management to obtain a comprehensive view of business performance from multiple perspectives (Komarova & Karabatov, 2023).

In response to these challenges, this study aims to develop a Power BI-based visualization system that integrates geographical region, product category, and time dimensions into a unified analytical framework. This system will visualize Superstore sales data across the United States to identify top-performing regions, high- and low-profit product categories, and revenue and profit trends over time. The resulting visualization is expected to support more informed, data-driven strategic decision-making (Aguiar & Alcalá, 2024; Al-Omoush et al., 2022).

2. RESEARCH METHOD

This study adopts a descriptive approach to analyze and visualize retail sales data using Power BI. The analysis is based on a structured secondary dataset, namely the Sample - Superstore Sales dataset, which is publicly available and widely utilized in data visualization research and training. The goal of this methodology is to extract meaningful business insights from the dataset through the design and development of an interactive dashboard in Power BI.

2.1 Dataset Source and Characteristics

The dataset used in this research is sourced from the Tableau Community (https://community.tableau.com/s/question/0D54T00000CWeX8SAL/sample-superstore-sales-excelxls). It contains historical sales records of a fictional retail company, Superstore, which operates across multiple regions in the United States. The dataset includes key variables such as Order ID, Order Date, Ship Date, Customer Name, Segment, Region, Category, Sub-Category, Sales, Profit, Quantity, and Discount. This dataset has been widely used in both academic literature and industry settings as a standard resource for demonstrating sales analysis, dashboard development, and business intelligence techniques. Its comprehensive structure makes it suitable for exploring spatial (region, city), categorical (product category, customer segment), and temporal (order and ship dates) aspects of sales performance. The dataset spans order records from January 3, 2018, to December 30, 2021, and consists of 9,994 rows and 21 variables. Due to its popularity, the Sample Superstore dataset has been cited and used in various tutorials, data visualization challenges, academic projects, and machine learning model demonstrations, making it a well-recognized benchmark in the field of data analytics.

2.2 Data Processing

The data was initially examined to identify relevant fields for analysis. Power BI was used to import the dataset, where data types were validated, and minor transformations were applied (e.g., creating a calendar table, formatting dates, and extracting year and month components for time series analysis). No significant missing data or inconsistencies were found in the dataset.

2.3 Visualization Framework in Power BI

A unified Power BI dashboard was designed to provide a comprehensive analysis of Superstore's sales performance and shipping operations across multiple dimensions. The dashboard integrates key insights from two main analytical focuses: Sales Overview and Shipping Analysis.

1. Overall Sales Performance

   The dashboard summarizes key performance indicators (KPIs), including total sales, profit, and percentage of returned orders, offering quick insights into overall business health.

2. Product & Profit AnalysiS

   Bar charts break down profit performance across product sub-categories, highlighting top and underperforming areas, while stacked bar and line charts illustrate monthly sales trends, distinguishing between discounted and non-discounted sales.

3. Geographic & Category Filtering

   Interactive slicers enable dynamic filtering by product category, region, state, city, and year, allowing customized exploration of data across different dimensions.

4. Discount Impact Assessment

   Sales are segmented based on discount status, providing clarity on how discount strategies affect revenue streams over time.

5. Shipping & Delivery Insights

   Area line charts track sales by day and ship mode (First Class, Same Day, Second Class, Standard Class), revealing patterns like midweek and weekend peaks. A filled map with overlaid pie charts displays regional shipping preferences, while donut charts summarize order counts by ship mode.

6. Segment & Region Contributions

   Bar and line charts detail sales and quantity distributions across customer segments (Consumer, Corporate, Home Office) and regions (Central, East, South, West), further broken down by shipping methods.

7. Advanced Interactive Analysis

   With built-in filters for shipping categories and multiple years (2018–2022), users can perform deep-dive analyses tailored to specific business questions.

2.4 Interactivity and Dashboard Features

The Power BI dashboard includes slicers and filters that allow users to interact with the data, such as filtering by year, region, product category, and customer segment. These features enable dynamic exploration and deeper analysis of specific aspects of Superstore's sales performance.

3. RESULTS AND DISCUSSION

The findings from this dashboard offer several strategic insights for Superstore's management. Significant sales and profit growth signal that the marketing and sales strategies over the past year have been effective. However, the rise in order return rates raises concerns about customer satisfaction and hidden operational costs. Management should prioritize investigating the root causes to safeguard long-term profitability. A closer look at product sub-categories reveals imbalances in performance across the portfolio. Products like copiers, phones, and storage generate high profits, while items such as bookcases and tables report losses. This suggests the need for a reassessment of unprofitable product lines whether through rebranding, special discounts, or discontinuing distribution. Dashboards help visualize these performance gaps and support targeted management actions (Belghith Ep Kallel et al., 2024).

The monthly sales trends show clear seasonal peaks, especially at year-end, offering opportunities for maximizing targeted marketing campaigns. By planning ahead, the company could strengthen last-quarter efforts to further boost revenues. Real-time dashboards and predictive analytics can enhance this planning by forecasting future demand based on historical data (Mohamad et al., 2023). This provides a competitive advantage in aligning marketing spend with customer behavior patterns. Interestingly, the dominance of full-price sales suggests that price cuts are not always necessary to attract customers. This allows the marketing team to be more selective with discount strategies, preserving profit margins. Research indicates that integrating sales data with real-time dashboards helps companies adjust discounting decisions quickly and effectively (Shelar, 2024). Such tools transform data complexity into actionable, clear insights for sharper business strategies.

Overall, this dashboard serves not just as a monitoring tool but as a foundation for data-driven decision-making. Interactive filters enrich the analysis, allowing teams to explore specific details and develop sharper, market-adapted strategies. As highlighted in business intelligence research, dashboards enable faster and better-informed decisions by visualizing key metrics clearly. Leveraging these tools ensures the company remains agile and competitive in a fast changing market. In the next sections, we will break down the visualization models used in both the Sales Overview and Shipping Analysis dashboards. Each dashboard offers unique insights and uses different visual elements to present key data effectively. By examining them one by one, we can understand how each chart, graph, or interactive filter contributes to deeper business insights. This detailed exploration will help reveal how these dashboards support data-driven decision-making and improve strategic planning.

1. Tile Slicer – Sales Overview Dashboard

Figure 1. Tile Slicre - Sales Overview Dashboard

The tile slicer provides a clear, visual interface for selecting time periods, such as comparing yearly performance from 2018 to 2022. Its main purpose is to make time-based filtering quick and intuitive, allowing users to identify trends over

time at a glance. Unlike dropdowns, the tile format makes it easy to spot which time period is selected, reducing confusion during analysis. This feature is especially useful for managers who need to make fast decisions based on seasonal patterns or year-over-year changes. The insight offered by tile slicers is the ability to visualize temporal dynamics, such as identifying which years saw the highest sales or profit spikes. Users can quickly detect performance shifts, helping them investigate causes behind peaks or declines. Combining tile slicers with other filters deepens the analysis, allowing users to explore how time interacts with product categories or geographic factors. This enhances strategic planning by ensuring decisions are grounded in both time and segment-based data.

2. Dropdown Slicer - Sales Overview Dashboard

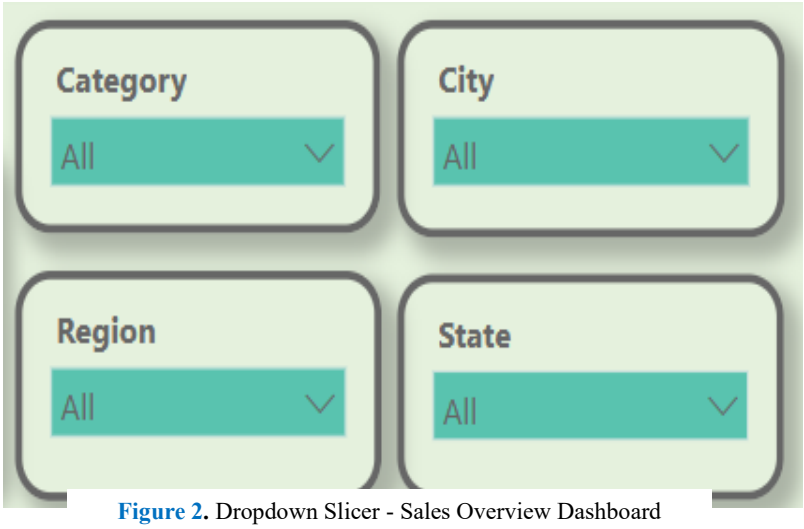

Figure 2. Dropdown Slicer - Sales Overview Dashboard

The dropdown slicer is a compact, efficient filtering tool that allows users to narrow down data based on categories, regions, cities, or states. Its primary purpose is to provide flexibility in exploring specific dimensions without overwhelming the visual space of the dashboard. By offering multiple selectable filters, it empowers users to focus only on the most relevant segments for their analysis. This makes the dashboard experience more interactive and tailored to diverse business needs. The insight from using dropdown slicers is the ability to uncover detailed performance patterns that may be hidden in aggregated data. For example, users can isolate sales figures for a single product category in a specific city to identify local trends or issues. This level of granularity helps management craft more precise strategies, such as targeted promotions or resource allocation. Without such filtering, broad trends might overshadow important local variations that impact business outcomes.

3. KPI Cards - Sales Overview Dashboard

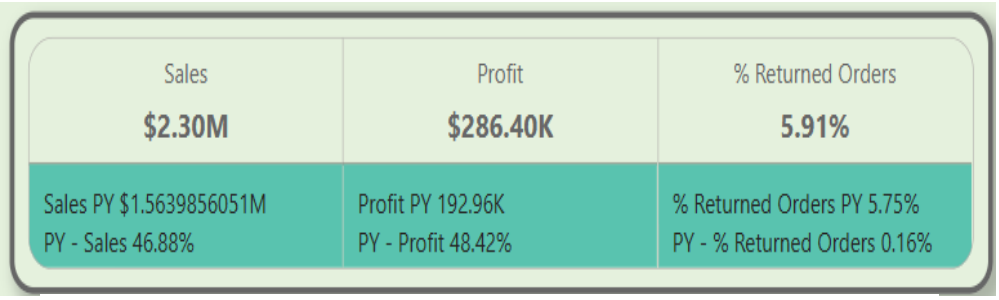

Figure 3. KPI Cards

The visual display in the image provides a summary of key performance indicators (KPIs): sales, profit, and percentage of returned orders. Its main purpose is to give users a quick snapshot of the company's current performance compared to the previous year (PY). By showing both absolute values and percentage growth, the dashboard helps users immediately assess whether performance has improved or declined. This KPI block is essential for high-level monitoring, enabling managers to focus on critical areas without sifting through detailed reports. The insight provided by this KPI summary is that the company experienced a strong growth in both sales (+46.88%) and profit (+48.42%) compared to the previous year, which indicates successful strategy execution. However, the slight increase in the percentage of returned orders (from 5.75% to 5.91%) flags a small but notable issue that may require operational or customer service attention. While financial performance improved significantly, maintaining or reducing return rates is crucial for long-term customer satisfaction. This insight emphasizes the importance of balancing financial gains with product quality and customer experience.

4. Stacked Column Chart - Sales Overview Dashboard

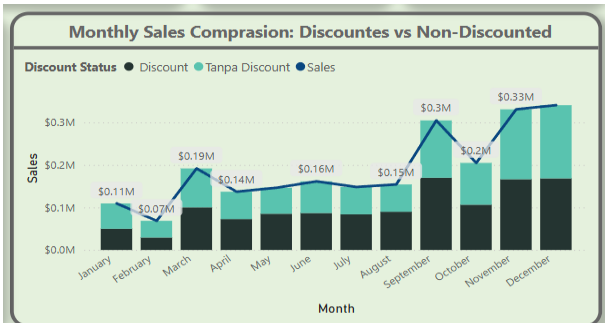

Figure 4. Stacked Column Chart

The stacked column chart in this dashboard is designed to display the profit contributions of multiple subcategories within broader product categories. Its main purpose is to allow users to compare not just the total profit per category but also how each subcomponent contributes to that total. By stacking the data, this chart format visually emphasizes both the category's overall strength and the balance (or imbalance) between its parts. This type of chart is especially useful for understanding whether performance is driven by just one strong subcategory or spread more evenly across several. The insight offered by this stacked column chart is that within each main category, profit performance can vary widely between subcategories. For example, in the technology category, copiers generate a large profit contribution, while machines or accessories contribute far less or even negatively. This pattern helps management identify which subcategories deserve more investment or strategic focus and which might need corrective actions or reevaluation. Overall, the stacked column chart provides a multidimensional perspective, helping decision-makers go beyond surface-level numbers and understand the deeper dynamics within product lines.

5. Line and Stacked Column Chart - Sales Overview Dashboard

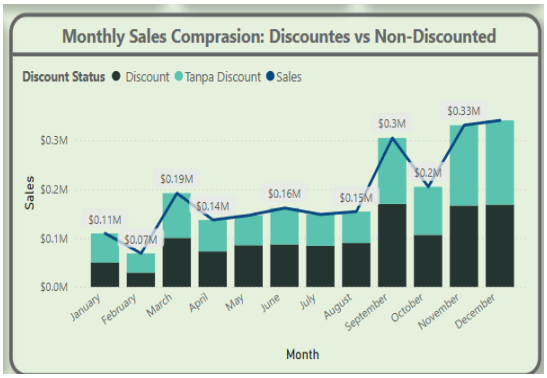

Figure 5. Line and Stacked Column Chart

The line and stacked column chart in this dashboard is designed to compare monthly sales performance, showing both discounted and non-discounted sales alongside total sales trends. Its main purpose is to help users understand how much of the monthly sales volume is driven by discounts versus full price purchases. The stacked column shows the breakdown between discount types, while the line chart overlays the overall sales trend, combining detailed and summary views in one visual. This format is particularly useful for identifying whether sales growth relies more on discounts or steady full-price demand. The insight provided by this chart is that while discount sales contribute significantly to monthly totals, especially during high-sales months like October and November, non-discounted sales also show steady contributions across the year. This suggests that the company maintains a balance between promotional driven spikes and stable base demand, which is crucial for healthy profit margins. Managers can use this view to evaluate whether their discount strategies are sustainable or whether they are eroding long-term value. Overall, the chart supports informed decisions about promotional timing, discount depth, and revenue optimization.

6. Tile Slicer - Shipping Analysis dashboards

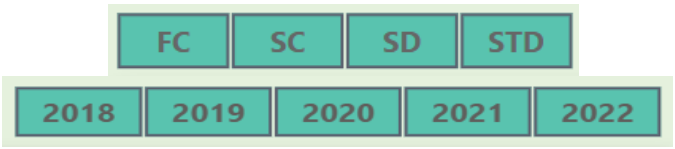

Figure 6. Tile Slicer - Shipping Analysis Dashboards

The Ship Mode and Year tile slicers in the Shipping Analysis Dashboard are designed to provide users with fast, easy-to-use filters to explore logistics data. The Ship Mode slicer (First Class, Second Class, Same Day, Standard) allows the user to isolate performance by shipping method, while the Year slicer (2018–2022) helps focus the analysis on a specific time period. Together, they enable multidimensional exploration by combining transport type with historical trends. This makes the dashboard highly interactive and flexible, allowing users to answer specific business questions with just a few clicks. The insight offered by combining these slicers is the ability to spot patterns in shipping performance over time and across methods — for example, identifying whether Same Day deliveries improved in speed or cost-efficiency over the years. Users can also detect if certain shipping modes became more or less popular in particular years, helping reveal market shifts or operational bottlenecks. By layering ship mode and year, the dashboard allows managers to uncover actionable trends, such as the need to renegotiate carrier contracts or improve service levels for underperforming methods. Overall, these slicers transform static data into dynamic insights that directly support logistics optimization.

7. Area Chart - Shipping Analysis dashboards

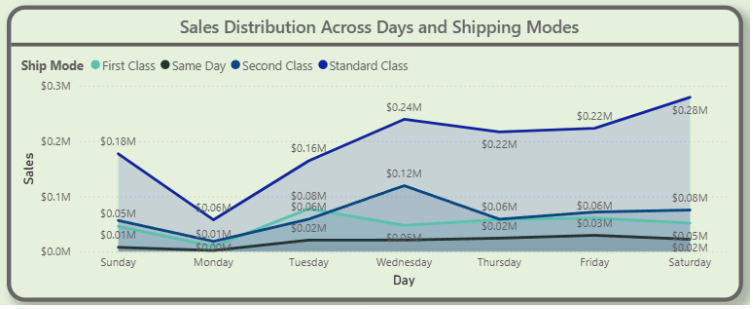

Figure 7. Area Chart

The Area Chart in the Shipping Analysis Dashboard is designed to give users a fast and visual overview of how daily sales are distributed across different shipping modes. This chart maps four key methods First Class, Second Class, Same Day, and Standard over each day of the week. With its layered area display, users can quickly identify which modes dominate on specific days and how total shipping performance fluctuates throughout the week. When combined with the Ship Mode and Year slicers, the Area Chart becomes highly interactive, allowing users to isolate trends by delivery method and time period, revealing deeper operational insights. This enables a more customized analysis of logistics data, helping decision makers ask targeted questions like "Is Same Day service underutilized during weekdays?" or "Does Standard Class consistently lead in weekend sales?"

The insight offered by the Area Chart lies in its ability to reveal clear and recurring usage patterns across shipping methods. For example, Standard Class clearly dominates sales throughout the week, especially on Wednesdays and Saturdays, suggesting customers prioritize lower-cost or reliable shipping on these days. In contrast, Same Day and First Class modes consistently contribute the least, which may indicate limited demand due to pricing or narrow use cases. This kind of visual breakdown helps managers identify underperforming shipping modes, analyze peak activity periods, and assess whether promotional efforts or operational improvements are needed. When layered with slicers, the chart helps uncover deeper trends, such as whether a specific shipping mode gained popularity over time, or if service levels need adjustment based on customer behavior. Ultimately, this insight supports more strategic decisions in carrier negotiations, service design, and cost control.

8. Azure Map - Shipping Analysis dashboards

Figure 8. Azure Map

The Azure Map in the Shipping Analysis Dashboard is designed to provide users with a geographical visualization of shipping preferences across different regions in the United States. Each city or location is represented with a pie chart that illustrates the proportion of shipments using First Class, Second Class, Same Day, and Standard delivery modes. This spatial layout allows users to quickly detect regional variations in shipping behavior and compare customer preferences in urban versus rural areas. When used alongside the Ship Mode and Year slicers, the Azure Map becomes a powerful interactive tool that supports regional analysis over time enabling questions such as "Are certain shipping methods more popular in coastal states?" or "Has demand for Same Day shipping increased in metropolitan areas in recent years?"

The insight offered by the Azure Map lies in its ability to reveal how shipping preferences are influenced by geography. For example, Standard Class is dominant in many inland and eastern regions, likely due to its cost-effectiveness and broad availability. In contrast, urban centers like California and New York show a more balanced use of Same Day and First Class services, possibly reflecting higher customer expectations and faster-paced delivery demands. This visualization enables managers to identify regional service gaps, assess market maturity in specific areas, and explore opportunities for optimizing logistics strategies. Combined with slicers, it can also show shifts in regional demand patterns over the years, helping businesses make informed decisions about distribution network planning, localized marketing, and investment in premium services. Ultimately, the Azure Map transforms raw location based data into actionable geographic insights that directly inform strategic logistics management.

9. Line and Clustered Column Chart - Shipping Analysis dashboard

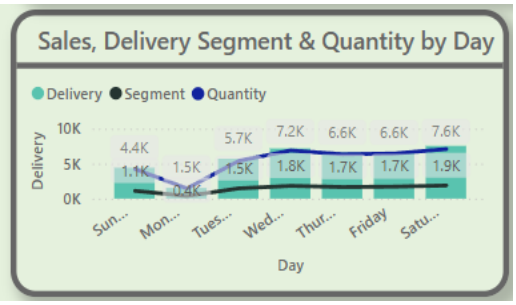

Figure 9. Line and Clustered Column Chart

The Line and Clustered Column Chart in the Shipping Analysis Dashboard is designed to provide a combined view of sales performance, delivery segment, and order quantity by day. The chart uses clustered columns to represent the quantity of items sold and customer segments (e.g., Consumer, Corporate, Home Office), while the line graph overlays delivery volume throughout the week. This integrated visualization helps users compare sales volume against delivery activity and customer segmentation trends, enabling them to understand not just how much is sold and shipped, but to whom and when. When paired with slicers such as Year or Region, the chart becomes highly interactive, allowing users to drill down into specific performance patterns for example, "Which day sees the highest delivery load for corporate clients?" or "Does quantity sold always align with delivery peaks?"

The insight offered by the Line and Clustered Column Chart lies in its ability to highlight correlations and discrepancies between different business metrics. For instance, although Saturday shows the highest quantity sold (1.9K) and delivery volume (7.6K), it doesn't necessarily correspond to higher sales in all segments. Midweek days such as Wednesday and Friday also show strong delivery volumes, suggesting operational load is spread out, not just concentrated on weekends. This chart helps managers spot misalignments between order volume and delivery capacity, evaluate the performance of specific customer segments across the week, and make informed decisions to balance logistics operations. Ultimately, this dual-axis chart provides a comprehensive view of daily performance, supporting smarter planning for staffing, inventory, and transportation needs.

10. Donut Chart - Shipping Analysis dashboards

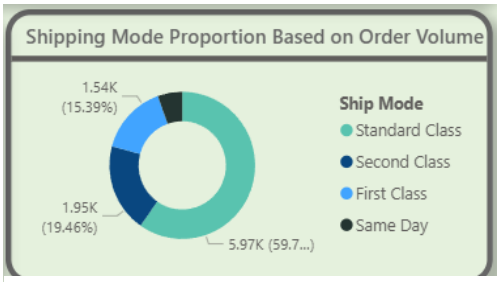

Figure 10. Donut Chart

The Donut Chart in the Shipping Analysis Dashboard is designed to give users a clear and concise view of the proportional distribution of shipping modes based on order volume. This visual shows the percentage and total quantity of orders handled by each shipping method Standard Class, Second Class, First Class, and Same Day. The circular layout makes it easy to compare how frequently each mode is used, and which ones dominate the shipping landscape. When filtered by slicers such as Year or Region, this chart becomes an insightful tool for understanding overall shipping strategy and customer preferences over time or across markets.

The key insight from the Donut Chart is the overwhelming dominance of Standard Class, which accounts for nearly 60% of all order volumes (5.97K orders). This suggests that most customers prioritize affordability and are willing to wait longer for delivery. Second Class and First Class each contribute close to 15–20%, while Same Day shipping makes up the smallest share, highlighting that express delivery is likely reserved for urgent or high-value orders. This breakdown allows logistics managers to evaluate the alignment between service offerings and customer demand, and determine whether there's potential to grow premium or fast-shipping segments. In essence, the Donut Chart provides a snapshot of shipping behavior that can inform service design, pricing strategy, and capacity planning.

11. Line and Clustered Column Chart - Shipping Analysis dashboards

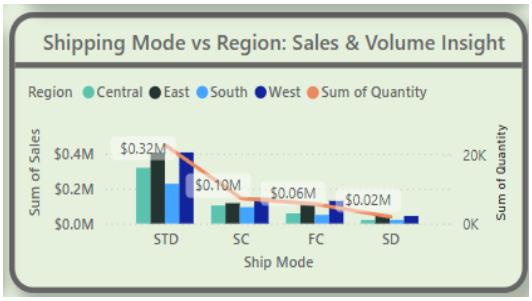

Figure 11. Line and Clustered Column Chart

This Line and Clustered Column Chart is designed to illustrate the relationship between shipping modes, regional performance, and order quantity. The clustered columns represent sales by region (Central, East, South, West) across different shipping methods (Standard, Second Class, First Class, Same Day), while the line chart overlays the total quantity of orders per shipping mode. This visualization enables users to compare how shipping methods perform across regions and whether high sales volumes align with high shipping usage. When filtered using Year or Customer Segment slicers, this chart becomes an interactive tool to uncover geographic and temporal trends, answering questions like "Which region contributes most to Standard Class revenue?" or "Is First Class more prominent in the East compared to other areas?"

The key insight from this chart is the dominance of Standard Class shipping in both sales and quantity, particularly in the East region ($0.32M), which also shows a strong order volume. In contrast, Same Day (SD) and First Class (FC) have significantly lower sales and quantity, indicating they are niche or less utilized options across all regions. Second Class (SC) sees moderate performance, especially in the South and Central areas. This distribution reveals how shipping preferences vary not just by cost or speed, but also by regional logistics infrastructure and customer expectations. Managers can use these insights to optimize resource allocation, evaluate regional delivery strategies, and consider expanding or reducing service offerings based on actual performance. Ultimately, this chart supports more data-driven decisions in regional sales planning and logistics management.

12. Sales Overview and Shipping Analysis Dashboard

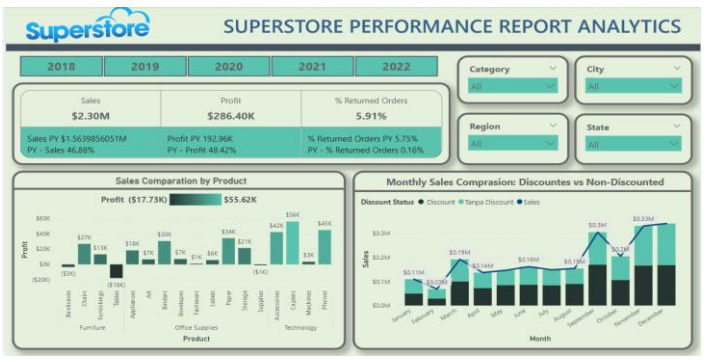

Figure 12. Sales Overview and Shipping Analysis Dashboard

This is the first dashboard is Sales Overview in the "Superstore Performance Report Analytics" series. It is designed to provide a comprehensive overview of overall sales performance, profitability, and the influence of discount strategies across different product categories and time periods. The dashboard integrates key performance indicators with comparative and temporal visualizations, enabling users to gain quick insights into revenue trends, profit margins, and monthly sales dynamics.

At the top of the dashboard, interactive filters (Year, Category, City, Region, and State) are placed prominently, enabling users to drill down into specific data segments. These filters support dynamic customization, allowing for flexible exploration of data based on geographical and categorical dimensions.

Immediately below the filters, three key performance indicators (KPIs) are placed in a centralized panel, showing:

- Total Sales of $2.30M
- Profit of $286.40K
- Returned Orders Rate of 5.91%

Each KPI is accompanied by a comparison to the previous year (PY), illustrating significant growth in both sales (46.88%) and profit (48.42%), while the percentage of returned orders has increased only slightly (0.16%). This KPI box provides a concise snapshot of year-over-year performance and is strategically placed to ensure it captures immediate attention. The bottom section of the dashboard is divided into two core analysis panels. On the left, the "Sales Comparison by Product" chart presents profit margins for various product categories. Here, products such as Phones, Copiers, and Accessories show strong profitability, while categories like Tables and Bookcases exhibit negative profit, indicating areas that may require pricing or cost adjustments. The use of a diverging bar chart effectively distinguishes profitable from unprofitable items. On the right, the "Monthly Sales Comparison: Discounted vs Non-Discounted" chart visualizes the impact of discounting on monthly sales. The bars differentiate between discounted (black) and non-discounted (teal) sales, overlaid with a line graph that shows the total monthly sales trend. The chart reveals that months like October and December achieved the highest sales volume, with both discount and non-discount sales contributing significantly. This provides valuable insights into seasonal demand and the effectiveness of promotional strategies. In summary, the placement of each visual element in this dashboard reflects a deliberate design strategy to support intuitive data navigation. KPI highlights are centralized for immediate visibility, while comparative and trend analyses are positioned below for detailed investigation. The consistency in color use and layout structure enhances readability, and the inclusion of filter controls promotes interactivity and personalized exploration. This dashboard serves as a robust analytical tool for monitoring performance, identifying profitable product lines, and understanding the role of discounts in driving sales.

The second dashboard is Shipping Analysis structured using a hierarchical visual design approach, reflecting the application of effective information visualization principles to support data-driven decision-making. Overall, the layout demonstrates a clear separation between primary, secondary, and supplementary information. The main title, placed prominently at the top alongside the "Superstore" logo, establishes the context of the report. Directly below this, interactive filters for regional categories (FC, SC, SD, STD) and time periods (2018–2022) allow users to dynamically segment the data, enhancing user control and analytical flexibility.

The central visual element of the dashboard is the "Sales and Category by Day and Ship Mode" chart, occupying a dominant position in the middle section. This strategic placement indicates that daily sales trends based on shipping methods are the primary analytical focus. Its central and expansive layout facilitates a comprehensive understanding of temporal patterns. Adjacent to this, on the right side, the "State and Ship Mode" map offers a geographic perspective on shipment distribution across the United States. Although secondary in placement, its positioning and design contribute meaningfully to spatial analysis, complementing the temporal insights presented in the main chart.

The lower portion of the dashboard is divided into three horizontally aligned panels that serve as detailed supporting visualizations. The leftmost panel illustrates daily sales volume segmented by region and category, while the center panel presents the order distribution by shipping method using a donut chart an intuitive and easily interpretable format. The right panel integrates regional and shipping mode dimensions to display both sales volume and quantity shipped, enabling a more nuanced operational and geographical segmentation. From a design perspective, the dashboard employs a soft and coherent color palette featuring shades of blue, green, purple, and orange that aids in category differentiation without overwhelming the viewer. This consistent use of color enhances readability and supports pattern recognition across visual elements. In summary, the dashboard exemplifies sound data visualization practices through the strategic placement of elements according to informational priority, visual coherence, and the integrated presentation of temporal, spatial, and categorical data. Such a design approach is highly relevant for business intelligence applications, where rapid and accurate decision-making is essential.

4. CONCLUSION

Based on the data visualization using Power BI, several key findings emerged from the two developed dashboards: Sales Overview and Shipping Analysis. The Sales Overview dashboard revealed a significant increase in sales (46.88%) and profit (48.42%) compared to the previous year, indicating the success of recent sales strategies. However, a slight rise in product return rates from 5.75% to 5.91% suggests potential issues in product quality or customer service. Furthermore, profit analysis by sub-category showed that products like copiers, phones, and storage generated the highest profits, while bookcases and tables resulted in losses. Seasonal trends were also identified, with a noticeable sales peak at the end of the year, highlighting an opportunity to strengthen marketing efforts during that period.

Meanwhile, the Shipping Analysis dashboard showed that the majority of customers preferred Standard Class shipping, accounting for nearly 60% of total orders, especially in the eastern U.S. Same Day and First Class shipping modes had significantly lower shares, likely due to higher costs or limited availability. Daily shipping analysis revealed that Saturday experienced the highest delivery volume, which is important for operational planning. Based on these findings, it is recommended that the company reassess product quality and customer service to reduce return rates. Strategic promotions should also be considered to improve the performance of underperforming products. Additionally, logistics resources should be allocated more efficiently on peak days, and there is an opportunity to expand fast-shipping services in high-demand regions to enhance customer satisfaction and overall competitiveness.

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