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Report
Analytical Dashboard on Superstore Sales Dataset

The dataset is subset of a Global Superstore dataset which is from a global retail chain that sells office supplies, Furniture and Technology Stuff.

Data source: https://www.kaggle.com/datasets/rohitsahoo/sales-forecasting
Code source: https://github.com/kasun5/Superstore-Sales-DashBoard?tab=readme-ov-file

The dashboard encompasses the following functionalities:

• Summary tab: This section presents visual representations of sales summaries categorized by Customer Segment, Product Items, State, etc.

• Customer Segment tab: Within this tab, detailed visualizations of sales activities for various Customer Segments are displayed.

• Product Items tab: This tab exhibits comprehensive visual representations of sales activities related to Product Items.

• Shipping Mode tab: This section provides visual insights into sales activities associated with Shipping Modes.

Detailed Analysis

Tab 1: Summary Tab

Part 1: Sales Revenue YTD

Sales Revenue YTD (Year-to-Date) refers to the total amount of revenue generated by a company or business from the beginning of the current calendar year up to the present date. It provides a snapshot of the company's sales performance over the specific time frame of the year, allowing for the assessment of financial progress and trends within that period. Calculating Sales Revenue YTD helps businesses track their sales growth, make informed decisions, and compare performance to previous periods or targets.

Here the percentage in green and red demonstrates, percentage change in sales revenue Year-to-Date. It's a measure of how much the sales revenue has increased (Green) or decreased (Red) compared to the same period in the previous year. A positive percentage indicates growth, while a negative percentage indicates a decline.

Part 2: Sales Revenue Month

Sales Revenue Month refers to the total amount of revenue generated by a company or business during a specific calendar month. It represents the financial performance within that particular month, providing insights into the company's sales activities, trends, and achievements during that specific time frame. Analyzing Sales Revenue Month allows businesses to assess the impact of marketing strategies, economic conditions, and other factors on sales performance on a month-to-month basis. This information is valuable for making informed decisions, setting goals, and understanding the dynamics of sales within shorter time intervals.

Percentage in sales revenue month typically refers to the percentage change in sales revenue for a specific month compared to the previous month. It measures the month-over-month growth or decline in sales. This metric helps businesses assess short-term performance and identify trends within a particular month. The formula for calculating the percentage change in sales revenue for a month is:

Percentage Change=

(Sales Revenue in Current Month−Sales Revenue in Previous Month)×100/ Sales Revenue in Previous Month

This formula provides a percentage that indicates the relative change in sales from one month to the next.

Part 3: Orders YTD

Orders YTD (Year-to-Date) refers to the total number of orders received by a company or business from the beginning of the current calendar year up to the present date. It provides a comprehensive overview of the company's order volume and sales activity within the specific time frame of the year. Monitoring Orders YTD helps businesses track their sales performance, gauge customer demand, and assess operational efficiency over the course of the year. This metric is valuable for evaluating business growth, setting targets, and making informed decisions to optimize sales and operations.

Percentage on order YTD refers to the percentage change in the number or value of orders Year-to-Date (YTD) compared to the same period in the previous year. It measures the growth or decline in the volume or value of orders received by a business over the course of the year.

Part 4: Orders Month

"Orders Month" refers to the overall number of orders received by a company or business within a specific calendar month. It represents the aggregated count of all orders placed during that particular month, providing insights into the company's transactional activity and customer demand for that monthly time frame.

Percentage on orders month" typically refers to the percentage change in the number or value of orders for a specific month compared to the previous month. It measures the month-over-month growth or decline in the volume or value of orders received by a business.

Part 5: Revenue by customer segment

It is a distribution of total revenue across different customer segments. This analysis expresses the portion or share of the overall revenue attributed to each customer segment-corporate, consumer, and home office, as a percentage of the total revenue.

It helps businesses understand the contribution of each customer segment to their overall revenue and make informed decisions regarding marketing, sales strategies, and customer relationship management.

Result: Over the observed period, the highest revenue is generated by the consumer segment, followed by the corporate segment, and then the home office segment, in descending order. This information highlights the contribution of each customer segment to the overall revenue, with consumers being the primary source of income, followed by corporate clients and home office customers.

Part 6: Revenue by Item Category

It refers to the breakdown of total revenue based on different categories of items sold. This analysis provides the percentage distribution of revenue across item categories- furniture, office supplies, and technology.

It helps businesses understand the contribution of each category to their overall revenue, enabling organisation to make strategic decisions related to inventory management, marketing, and product offerings.

Result: Over the observed period, it has been noted that revenue by item category is distributed nearly equally across the categories of furniture, office supplies, and technology. Among these, technology holds a slightly greater share of the revenue, followed by office supplies and furnishing, in that order. This suggests a nearly balanced distribution of revenue among the different product categories, with technology contributing slightly more than the others.

Part 7: Revenue Distribution by states

Revenue Distribution by all states of the United States, categorized by dollars spent and visually represented with shades of blue on a map.- This is the depiction of the total revenue generated in each U.S. state, with the intensity of blue shades indicating the corresponding level of dollars spent. This map provides a visual overview of how revenue is distributed across different states, allowing for easy identification of high and low revenue areas.

Result: Over the observed period, it has been noted that the highest revenue is generated from California. This indicates that California is the leading contributor to the overall revenue, outperforming other states in terms of generating income.

Part 8: Revenue Monthly Distribution

Monthly Revenue Distribution for the years 2018 and 2017 presented in a line graph.

This graphical representation that shows how the revenue is distributed on a month-to-month basis for the years 2018 and 2017. The line graph allows for easy comparison of revenue trends over the two-year period, helping to identify patterns, seasonality, and changes in financial performance.

Implication of Tab 1:

1. Revenue Contribution by State (California): California being the leading contributor to overall revenue suggests that the state is a crucial market for the business. This may imply that the company has a strong presence, significant customer base, or effective marketing strategies in California.
2. Peak Sales in November 2018: The maximum sales occurring in November 2018 could be due to seasonal factors, promotions, or specific events during that time. This information can help the business plan future promotions or marketing strategies around periods of historically high sales.
3. Consumer Segment Dominance: If consumers are the biggest contributors to revenue, it implies that targeting and retaining consumer customers should be a priority for the business. Understanding consumer preferences and tailoring strategies to this segment could further enhance revenue.
4. Nearly Equal Revenue Distribution by Item Category: A balanced revenue distribution among furniture, office supplies, and technology suggests a diverse product portfolio or effective marketing across categories. It may indicate that the business is not overly reliant on a single product type.
5. Technology Holds Slightly Greater Share: The slightly greater share of revenue from the technology category indicates a potential area of strength or higher demand. This insight can guide inventory management, marketing efforts, and product development to capitalize on this trend.
6. Periodic Analysis for Strategic Decision-Making: The use of phrases like "over the period" suggests a trend analysis. Regular monitoring of revenue trends, customer segments, and product categories is crucial for strategic decision-making. Periodic assessments allow the company to adapt strategies based on changing market dynamics.
7. Data-Driven Decision Making: The presentation of specific data points implies a commitment to data-driven decision-making. This approach can help the business identify patterns, make informed decisions, and allocate resources effectively.

In summary, the implications include the need for strategic focus on California, leveraging insights from peak sales periods, prioritizing consumer-focused strategies, maintaining a balanced product portfolio, and adopting a data-driven approach for decision-making.

Tab 2: Customer Segment tab

Part 1: Top 10 Customers

A bar chart illustrating the Top 10 Customers.

This displays the ranking and contribution of the top ten customers based on the amount of spending. The chart allows for a quick and clear comparison of the performance of the top customers in all categories.

Analysis: In this part of dashboard, I have used an interactive histogram which has states on X axis and different cases in different years on y axis.

Part 2: Monthly Customer Activities

An interactive dashboard showcasing Monthly Customer Activities, featuring revenue and order counts for consumer, corporate, and home office segments throughout the year. The line graph is configured with months on the x-axis and revenue on the left y-axis. Users can seamlessly switch between viewing monthly revenue and order counts, offering a dynamic and insightful overview of customer engagement trends over the course of the year.

Results: This section unveils key patterns for targeted marketing:

Consumer Segment:

- Target Months: March, September, November
- Insight: March sees spending on expensive items; September and November are peak spending periods.

Home Office Segment:

- Target Month: October
- Insight: October records the highest spending for home office customers.

Corporate Segment:

- Target Month: November
- Insight: November is optimal for targeting corporate customers.

Leveraging these insights allows businesses to tailor marketing strategies for each segment, optimizing engagement and sales during peak months.

Part 3: Customer Order Distribution

A bar chart representing Customer Order Distribution, where the x-axis denotes the number of orders and the y-axis represents the number of customers. This visual display provides an overview of how the customer base is distributed based on the quantity of orders they have

placed. Each bar on the chart corresponds to a specific range of order quantities, and the height of the bar indicates the number of customers falling within that range.

Result:

Distribution analysis reveals that, maximum customers typically purchase only one item per visit. To enhance this metric and increase sales, strategic initiatives should be designed to encourage customers to buy additional items during their visits. This might involve implementing bundling offers, upselling techniques, or creating promotions that incentivize customers to explore and purchase complementary products. By focusing on strategies that aim to increase the average number of items per transaction, businesses can boost revenue and improve overall customer value.

Implications of Tab 2:

There should be an Integrated Approach-

- Comprehensive Marketing Strategy: Combining insights from Customer Order Distribution and Monthly Customer Activities creates a comprehensive marketing strategy.
- Targeted and Efficient: By tailoring strategies to increase the number of items per visit and aligning marketing efforts with peak months for each segment, businesses create a targeted and efficient approach that maximizes revenue potential.

In conclusion, integrating strategies to boost the average number of items per visit with targeted marketing efforts during specific months for each customer segment provides a holistic approach. This approach not only enhances immediate sales but also strengthens overall customer relationships and the long-term value derived from each interaction.

Tab 3: Product Items tab

Part 1: Revenue Generation by Product Items

A pie chart illustrating Revenue Generation by Product Items. Each slice of the pie represents a specific product item, and the size of each slice corresponds to the proportion of total revenue attributed to that particular product. This visual representation provides a clear and concise overview of the contribution of each product item to the overall revenue.

Results:

Results indicate that within each category, there are significant variations in revenue distribution among subcategories:

Furniture Category:

- Major Revenue Contributors: Chairs and tables emerge as the primary revenue drivers in the furniture category. These subcategories play a pivotal role in generating substantial income within the furniture segment.

Office Supplies Category:

- Major Revenue Contributors: Binders take the lead in the office supplies category, followed by storage, appliances, and paper. This insight highlights the key contributors to revenue within the office supplies segment.

Technology Category:

- Revenue Distribution: Within the technology category, revenue is spread across four subcategories. Phones stand out as the top revenue-generating subcategory, followed by copiers, accessories, and machines. This indicates a diversified revenue stream within the technology segment.

These observations provide valuable insights for businesses, allowing them to focus on high-performing subcategories within each main category. Strategic planning and marketing efforts can be tailored to capitalize on the strengths of these specific subcategories, potentially leading to increased overall revenue and improved market performance.

Part 2: Top 10 Product Items

A bar chart depicting the Top 10 Product Items. Each bar in the chart represents a specific product item, and the length of the bar corresponds to its performance metric, such as revenue or sales. This visual representation offers a quick and clear comparison of the top-performing product items based on the revenue generated.

Result:

In the top 10 products, the Canon imageCLASS 2200 Advanced Copier emerges as the highest revenue-generating item. This observation underscores the significant contribution of technology products to the overall sales distribution across categories. The success of the Canon imageCLASS 2200 Advanced Copier not only highlights its individual impact but also elevates the overall share of the technology category in the sales distribution. This insight emphasizes the importance of specific technology products in influencing the overall revenue landscape and signals an opportunity for businesses to strategically leverage and promote high-performing items within the technology segment.

Implications of Tab 3:

Focused Technology Promotion:

- The Canon imageCLASS 2200 Advanced Copier stands out as the highest revenue generator among the top 10 products. This signals an opportunity for businesses to

strategically promote and leverage this specific technology product, potentially further enhancing the overall share of technology in sales.

Optimized Category Strategies:

- Within the furniture category, the major revenue contributors are chairs and tables. In office supplies, binders, storage, appliances, and paper are significant. Recognizing these key subcategories allows businesses to optimize their strategies, concentrating efforts on promoting and managing inventory for these high-performing products.

Targeted Marketing for Subcategories:

- Diversified revenue streams across subcategories within each main category suggest the need for targeted marketing. Businesses can tailor their promotional efforts, highlighting top-performing subcategories in furniture, office supplies, and technology to capture a broader consumer base.

Strategic Inventory Management:

- Identifying the top products in each category facilitates strategic inventory management. Businesses can ensure sufficient stock of high-demand items like the Canon imageCLASS 2200 Advanced Copier, chairs, tables, binders, and other leading products, optimizing sales potential.

Competitive Positioning:

- Understanding the strengths within each category enables businesses to assess their competitive positioning. By emphasizing and reinforcing these strengths, companies can strengthen their market presence and competitiveness, particularly in technology where the Canon imageCLASS 2200 Advanced Copier plays a pivotal role.

Customer-Centric Approach:

- Recognizing customer preferences through top-performing products allows businesses to adopt a customer-centric approach. Tailoring product offerings and marketing strategies based on customer preferences, such as the popularity of specific technology items, enhances customer satisfaction and loyalty.

In conclusion, these specific implications offer targeted insights for businesses, emphasizing the importance of strategic promotion, optimized category management, and a customer-centric approach based on the observed patterns in the provided data.

Tab 4: Shipping Mode tab

Part 1: Revenue Generation Distribution by Shipping Mode

A pie chart illustrating the Distribution of Revenue Generation by Shipping Mode, including Same Day, First Class, Second Class, and Standard Class. Each segment of the pie represents the proportion of total revenue attributed to a specific shipping mode.

Results:

The analysis of Revenue Generation Distribution by Shipping Mode reveals the following:

- The highest percentage of revenue, approximately 54-55%, is generated through standard class shipping.
- The second-highest contribution to revenue comes from second-class shipping, accounting for around 19.5-19.8%.
- First-class shipping follows closely, contributing to revenue in the range of 19-19.3%.
- Same-day shipping represents a smaller share, contributing approximately 6-7% to the overall revenue.

Part 2: Time taken for Shipment by Shipping Mode

A bar chart depicting the Time taken for Shipment by Shipping Mode- Same Day, First Class, Second Class, and Standard Class. The y-axis represents the number of days taken for shipment, while the x-axis denotes the different shipping modes.

Each bar on the chart includes markers indicating the average time, minimum time, and maximum time taken for shipment within each shipping mode category.

Results:

Mode	Mean Time	Maximum Time	Minimum Time
Same Day	0	1	0
First Class	2	3	1
Second Class	3	5	2
Standard Class	5	7	4

Part 3: Order for Product Items by Shipping Mode

A bar chart illustrating the Distribution of Orders for Product Items by Shipping Mode- Same Day, First Class, Second Class, and Standard Class. Each product item is represented by a distinct colour, and the bars are grouped by shipping mode. This visual display provides a clear overview of the order distribution across various product items within each shipping mode, allowing for easy comparison and analysis.

Result:

In the analysis of Product Items ordered by Shipping Mode, it is observed that orders for paper and binders dominate across all shipping modes. Regardless of the chosen shipping method, paper and binders consistently represent the maximum number of orders.

Implication of Tab 4:

Average Delivery time:

The overall average days of delivery is 3.7 days, which is calculated by taking the weighted average of the delivery times for each shipping mode, based on their respective contributions to the total revenue.

Shipping Mode	Revenue Contribution (%)	Delivery Time (Days)	Revenue * Delivery Time
Standard	54.5	5	272.5
Second	19.65	3	58.95
First	19.15	2	38.3
Same-day	6.7	0	0

Total Revenue = 100%

Weighted Average Delivery Time = (272.5 + 58.95 + 38.3 + 0) / 100 = 3.6975 ≈ 3.7 days

As you can see, the average delivery time is heavily influenced by the popularity of standard shipping, which has a longer delivery time compared to other options. However, it's important to consider that this is just a weighted average, and the actual delivery time for your order will depend on the specific shipping mode you choose.

Product Items Ordered by Shipping Mode:

- The dominance of paper and binder orders across all shipping modes suggests a consistent customer preference for these items. Businesses can strategically manage inventory, ensuring an ample supply of paper and binders to meet demand efficiently.

Revenue Generation Distribution by Shipping Mode:

- Standard class shipping emerges as the primary revenue generator, constituting around 54-55% of the total revenue. Second-class shipping follows with

approximately 19.5-19.8%, and first-class shipping contributes around 19-19.3%. Same-day shipping represents a smaller share, contributing approximately 6-7%. Businesses can optimize revenue by aligning promotional efforts and resource allocation with the shipping modes that yield the highest returns.

Time Taken on Shipping Mode:

- Understanding the time taken for each shipping mode is crucial. Businesses can use this information to set customer expectations accurately. For instance, if standard class shipping generates the majority of revenue, communicating a longer delivery time frame may be acceptable to customers. In contrast, for same-day shipping, emphasizing speed and efficiency becomes crucial to meet customer expectations.

In summary, businesses can derive specific implications from the data, such as focusing on inventory management for high-demand items like paper and binders, optimizing revenue through strategic emphasis on the most profitable shipping modes, and aligning customer expectations with the time taken for each shipping method. These insights allow for targeted strategies to enhance overall operational efficiency and customer satisfaction.

Overall Implication:

Insights:

Product Preferences and Inventory Management:

- The dominance of paper and binder orders across all shipping modes indicates a consistent customer preference. Businesses should strategically manage inventory, ensuring sufficient stock of these high-demand items to meet customer demand efficiently.

Revenue Distribution by Shipping Mode:

- Standard class shipping emerges as the primary revenue generator, contributing around 54-55% of the total revenue. Second-class and first-class shipping modes follow with approximately 19.5-19.8% and 19-19.3%, respectively. Same-day shipping, while contributing a smaller share (6-7%), provides an expedited option.

Time Taken on Shipping Mode:

- Understanding the time taken for each shipping mode is crucial for setting accurate customer expectations. For instance, if standard class shipping generates the majority of revenue, businesses can communicate a longer delivery time frame. Conversely, for same-day shipping, emphasizing speed and efficiency becomes crucial to meet customer expectations.

Top 10 Products and Category Revenue Distribution:

- The Canon imageCLASS 2200 Advanced Copier stands out as the highest revenue generator among the top 10 products, emphasizing the importance of technology in sales distribution. Within categories, chairs and tables lead in furniture, binders in office supplies, and a balanced distribution in technology.

Monthly Customer Activities:

- Monthly patterns suggest targeting consumers in March, September, and November, focusing on expensive products in March. Home office customers should be targeted in October, their highest spending month. Corporates are likely to make significant purchases in November.

Recommended Marketing Strategy:

Strategic Inventory Management:

- Maintain ample inventory of high-demand items like paper, binders, and the Canon imageCLASS 2200 Advanced Copier to meet customer demand efficiently.

Promotional Emphasis on Standard Class Shipping:

- Given that standard class shipping contributes the most to revenue, promotional efforts and resource allocation should be optimized for this shipping mode. Consider offering incentives or promotions to encourage customers to choose standard class shipping.

Effective Communication of Delivery Times:

- For standard class shipping, where the majority of revenue is generated, businesses should ensure clear and transparent communication of longer delivery times to manage customer expectations. For same-day shipping, emphasize the speed and efficiency of delivery.

Technology Product Promotion:

- Leverage the success of the Canon imageCLASS 2200 Advanced Copier to promote other technology products. Consider bundling offers or exclusive promotions to boost overall technology sales.

Targeted Monthly Marketing Campaigns:

- Align marketing campaigns with monthly customer activities. For example, consumer-focused promotions in March, September, and November, home office promotions in October, and corporate-focused campaigns in November.

Data-Driven Decision Making:

- Continue the data-driven approach to decision-making. Regularly analyze revenue trends, customer preferences, and product performance for ongoing strategic adjustments.

By implementing these recommended strategies, Superstore can optimize their operations, enhance customer satisfaction, and maximize revenue potential based on the specific insights derived from the provided data.