Assignment: -

Superstore Sales Analysis and Performance

Problem Statement: -

The new store manager of a superstore retail business is seeking assistance in understanding the daily challenges faced by Data Operations. We have been provided with a subset of the sales data typically handled by a Business Intelligence Analyst. Our task is to design a dashboard that can effectively analyze and interpret this data to provide valuable insights to the store manager.

Data Description: -

The dataset includes information about the products, customers, and sales associated with the superstore. It contains columns such as Order ID, Order Date, Ship Date, Ship Mode, Customer ID, Customer Name, Segment, Postal Code, Region, Product ID, Category, Sub-Category, Product Name, Quantity, Discount, Buy Price, and Price Per Each.

Data Cleaning & Modelling: -

Process: Loaded data from an Excel sheet into power BI. In Power Query Editor, handled null columns, merged columns, split column, and managed missing values.

Modeling: Duplicated the main fact table for additional processing. Created three-dimension tables (Customers, Products, Order Details).

Further, established relationships between the fact table and dimension tables and removed duplicates and blanks to refine data for analysis. Utilize a star schema.

Dashboard Design:

Design: Created two pages: Page One, and Page Two.

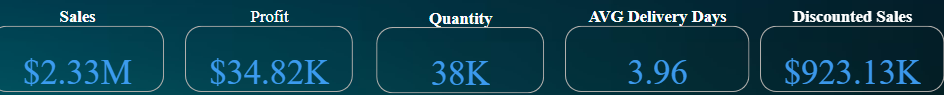
Interactivity: Implemented slicers for navigation: On both pages we can navigate region

wise and year-quarter wise

Analysis:

Key Performance Indicators (KPIs):

1. Sum of sales
2. Sum of Profit
3. Quantity orders
4. Sales of products on which discount is given.



Calculating the sales of products where a discount is given can provide valuable insights into the effectiveness of your discount strategy. By analyzing these sales, you can determine the impact of discounts on overall sales revenue, profit margins, and customer behavior. This information can help you optimize your discount strategy to maximize sales and profitability.

We have calculated discounted sales by summing all the order value where discount is given on respective product is greater than zero.

Visualizations:

Trends: Sales and profit trend monthly. Daily trend of sales with the order of quantity

Sales Analysis:

1. Sales by customer segment category
2. Top five products
3. Overall products category contribution
4. Sales category distribution as

Sales are categorized as "low" -less than 1000.

Sales are categorized as "medium" - less than 3500 and greater than equal to1000.

Sales are categorized as "high" - less than 10,000 and greater than equal to 3500.

Sales are categorized as "very high" otherwise.

A screenshot of a computer screen

Description automatically generated

Other:

Shipment method analysis

Performance of the top-performing state in terms of sales and profit contribution.

Insights as per region:

Central:

Total Sales and Profit: Total sales in the Central region are $500k, with a profit of $1.24k. Every state in the region has an average delivery time of 4 days.

Monthly Sales Increase: Sales show a significant increase at the end of each month.

Low Sales Category: Most of Sales falling into the "low" category amount to $0.27 million.

Top Purchased Products: Top products purchased in the Central region include chairs, phones, binders, and storage devices.

Profit Trends: Overall profit is less compared to the other region. But we can see over the year, the profit has increased. Maximum in 2017 ($329.94)

Top Performing States: Top performing states in the Central region include Texas, Michigan, and Indiana. Overall Texas and Illinois show no profit earnings.

Sales and Profit Trends: Sales, profit, and purchasing quantity have increased significantly over the year in the Central region.

Consumer Segment: The consumer segment has the highest number of customers in the Central region. Consisting of ~45% of customers.

Michigan Performance: Michigan has shown significant performance over the period, with good sales and profit. In year 2017 the total sale generated by store in this state is estimated up to $34,000 and profit earn is nearly $8000.

East:

Total Sales and Profit: Total sales across the region amounts to $695.78k, with a profit of $16.99k.

Sales with Discounts: Order value generated by products with discounts amount to approximately $248.66k.

Monthly Sales Increase: Sales show an increase at the end of each month. Amount up to $145.63K in November month overall.

Average Delivery Time: The average delivery time taken is less than 4 days.

Low Sales Category: Sales falling below $1000 amount up to $0.35 million.

Top Performing Store: New York City is the top performing store, generating sales of $0.36 million and a profit of $0.05 million in 2017.

Sales and Profit Trends: Sales and profit have increased significantly over the years. However, the amount collected from products with discounts has also increased significantly, potentially impacting on overall profit.

West:

Total Sales and Profit: Total sales for the West region sums to $742.93k, with a profit of $17.47k.

Sales with Discounts: Sales of products with discounts total approximately $397.39k.

Monthly Profit Trends: Overall profit collected in each month shows growth, but no profit was generated in April and December.

Sales Growth: Sales in the West region show continuous growth by month. Sales, profit, and quantity of purchases have increased over the years.

Low Sales Category: Sales falling below $1000 amount to $0.44 million.

Top Performing Stores: Top performing stores in the West region include California, Washington, and Arizona.

Delivery Time: Average delivery time has decreased, indicating improved delivery efficiency.

Customer Segment Growth: The corporate segment of customers has increased over time, estimated at 32% overall.

South:

Top Performing Stores: Stores in Virginia, Georgia, and Kentucky have performed well, but there is tough competition between Georgia and Virginia. In 2015, both states had similar sales and profit, but Georgia showed better performance in 2016 and 2017.

Total Sales and Profit: Total sales for the Southern region amount to $393.32k, with a profit of $1.60k.

Consumer Segment: The consumer segment is the highest in the South region, estimated at 52%.

Profit Trends: There was no profit in 2014, but there was an increase in profit in 2015 and 2016. However, profit almost dropped to zero in 2017.

Summary:

Total sales: $2.33 million; Profit: $34.82k.

Average delivery time: 3.96 days.

Total quantity ordered: 38,000.

Sales of discounted products: $923.13k.

Highest sales from standard class shipment.

Customer segments: Consumer > Corporate > Home Office

Sales category: $1.3 million from the “low" category, $0.1 million from "very high" category.

Product categories: Technology ($0.87 million), Office Supply ($0.8 million), Furniture ($0.66 million).

Increasing trends in sales, profit, quantity ordered, and consumer segment (consumer).

Most ordered products: Technology and Office Supply categories.

Recommendations for Future Improvements or Enhancements:

**Discount Strategy Optimization**: Reevaluate discount offerings on low sales category products. Consider reducing discounts or bundling these products with higher-margin items to maintain profitability.

**Product Mix Adjustment**: Modify product offerings by focusing on higher-margin products or introducing new products that align with customer preferences and market trends.

**Customer Segmentation Refinement**: Refine customer segmentation strategies to target high-value customer segments more effectively, ensuring that marketing efforts are directed towards customers with the highest potential for revenue generation.

**Inventory Management Optimization**: Improve inventory management practices to avoid overstocking low-performing products and to ensure that popular products are consistently available to customers.

**Promotional Strategy Revision**: Revise promotional strategies to highlight the value proposition of products in the low sales category, emphasizing quality, unique features, or complementary offerings instead of relying solely on discounts.

**Sales Channel Diversification**: Explore additional sales channels, such as online marketplaces or partnerships with other retailers, to reach a wider audience and increase sales opportunities.

**Customer Engagement Enhancements**: Enhance customer engagement efforts through personalized marketing campaigns, loyalty programs, and improved customer service to increase repeat purchases and customer satisfaction.

**Operational Efficiency Improvements**: Identify and address inefficiencies in operations that may be affecting sales performance, such as delays in order processing or delivery times.

**Competitive Pricing Analysis**: Conduct a competitive pricing analysis to ensure that prices are competitive while maintaining profitability, considering the impact of competitors' discount strategies.

**Data-Driven Decision Making**: Continue to use data analysis to inform decision-making processes, identifying trends and opportunities for improvement in sales and profitability.