Sales Analysis Report for Walmart

CAPSTONE PROJECT

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BADM Batch - 5

The Company Overview

Walmart is a multinational retail corporation based in the United States. It is one of the largest retail chains in the world, operating a chain of hypermarkets, discount department stores, and grocery stores.

OBJECTIVES

The following analysis shows details and insights regarding sales, revenue, profit overall growth of the company Walmart for year 2011-2014. In this report we have drawn actionable measures through analytical techniques to increase sales and growth of Walmart and visualized the data using POWER BI. The purpose of the report is to improve overall sales of Walmart

EXECUTIVE SUMMARY

This executive summary provides an overview of the data visualization project conducted to analyze and present key insights from Walmart's data. The project aimed to improve decision-making, enhance data understanding, and facilitate effective communication within the company by identifying trends, and deriving key insights to inform strategic planning. The sales analysis was conducted for Walmart during the period of 2011-2014.

The analysis was carried out for a specific geographical location that is for the West region in United States. Through effective marketing campaign, customer retention technique, proper employee training, cost and inventory management it is possible to better enhance sales of Walmart.

The Overall Company Statistics for 2011-2014

$ 725.46 K

Walmart's Sales

The analysis revealed variations in sales performance across different product categories. Key product categories, such as office supplies, Technology, and furniture, exhibited significant sales growth and contributed significantly to overall revenue.

$ 108.42 K

Walmart's Profit

Walmart experienced consistent Profit growth during the period under analysis. Over the four-year period, the company's sales revenue increased steadily, indicating a positive sales trajectory and strong market presence. Through analysis, it is forecasted that there will be increase in sales for next subsequent years.

686

Walmart's Total Customer

Methodology

DATA COLLECTION

Data was collected from Walmart internal source. This dataset includes sales records, order date, ship date, product name, product ID, Order ID, Quantity, Profit, Discount, Geographical data.

DATA CLEANING AND PREPARATION

The whole dataset was analyzed for duplicate values. missing values and cleaned using ETL method - Extract, Transform, Load.

TOOLS METHODS USED FOR ANALYSIS

Excel, Power BI, DAX Functions

Some of the DAX Function used are as below:

- Total Sales = SUM(Walmart[Sales])
- New Customer Sales = var customers = VALUES(Walmart[Customer ID]) return CALCULATE([Total Sales],FILTER(customers, CALCULATE(COUNTROWS(Walmart),FILTER(ALLSELECTED(Walmart[Order Date].[Date]),Walmart[Order Date].[Date] < MIN(Walmart[Order Date].[Date])))=0))
- Return Customer Sales = [Total Sales] - [New Customer Sales]
- LOST CUSTOMERS = IF([Sales Last Period],0,1)
- Inventory = [Quantity Ordered]*[Total Sales]
- Days in Inventory = DATEDIFF(Walmart[Order Date],Walmart[Ship Date],DAY)
- Average Inventory Value = [Inventory]/[Total Days in Inventory]
- Total Days in Inventory = SUM(Walmart[Days in Inventory])

- cummulative_sales =
var sales_overall = CALCULATE(SUM(Walmart[Sales]),
ALLSELECTED(Walmart))
var sales_cust = SUM(Walmart[Sales])
var overall_sales_table =
SUMMARIZE(ALLSELECTED(Walmart),
Walmart[Customer Name],
"total_sales", SUM(Walmart[Sales]))
var cumulative_sales =
SUMX(FILTER(overall_sales_table, [total_sales] >= sales_cust),[total_sales])
return cumulative_sales / sales_overall

- Target = Walmart[Sales] + (Walmart[Sales]*0.1)

- Turn Over Ratio = [Total Sales]/[Average Inventory Value]

- Sales Previous Year = CALCULATE(Walmart[Total Sales],PREVIOUSYEAR(Walmart[Order Date])

- Most Sold Product = CALCULATE(MAX(Walmart[Product Name]),FILTER(Walmart,Walmart[Quantity]=MAX(Walmart[Quantity])))

- Least Sold Product = CALCULATE(MIN(Walmart[Product Name]),FILTER(Walmart,Walmart[Quantity] = MIN(Walmart[Quantity])))

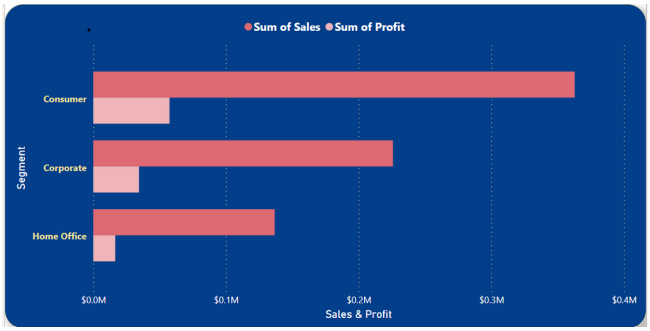
- CONSUMER COUNT = CALCULATE(DISTINCTCOUNT(Walmart[Customer Name]),FILTER(Walmart,Walmart[Segment] = "Consumer"))

- Corporate COUNT = CALCULATE(DISTINCTCOUNT(Walmart[Customer Name]),FILTER(Walmart,Walmart[Segment] = "Corporate"))

- Home office COUNT = CALCULATE(DISTINCTCOUNT(Walmart[Customer Name]),FILTER(Walmart,Walmart[Segment] = "Home Office"))

Profit Analysis

The analysis aimed to evaluate Walmart's profitability, identify factors influencing profit margins, and suggest strategies for enhancing profitability.



There are three customer segments - Consumer, Corporate and Home office in Walmart. Consumer customer tops among other segment. Sum of Sales and total Sum of Profit are positively correlated with each other.

Office Supplies had the highest Profit at $52,609.85, followed by Technology at $44,303.65 and Furniture at $11,504.95. Office Supplies accounted for 48.52% of Total Profit.

Profit trended up, resulting in a 118.78% increase between 2011 and 2014. Profit started trending up on 2011, rising by 118.78% ($23,834.93) in 3 years.Profit jumped from $20,065.69 to $43,900.63 during its steepest incline between 2011 and 2014.

Walmart demonstrated strong profitability during the analyzed period, with consistent growth in net profits. The company's ability to effectively manage costs, optimize operations, and generate revenue contributed to its sustained profitability.

Sales Analysis

Sales analysis provides a clear understanding of revenue trends over time. It helps identify periods of growth, decline, or stagnation, enabling businesses to adapt their strategies accordingly.

Total Sales trended up, resulting in a 69.48% increase between 2011 and 2014. Sales started trending up on 2011, rising by 69.48% ($1,02,749.49) in 3 years. Sales jumped from $1,47,883.03 to $2,50,632.53 during its steepest incline between 2011 and 2014.

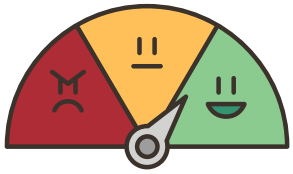
Pareto analysis, also known as the 80/20 rule, is a technique that can be applied to sales analysis to understand the sales performance of Walmart. The Pareto principle suggests that roughly 80% of the effects come from 20% of the causes. In the context of sales analysis, it implies that a significant portion of sales revenue is generated by a small percentage of products or customers

At $14,345.28, Raymond Buch had the highest Total Sales and was 236.18% higher than Jim Kriz, who had the lowest Sum of Sales at $4,267.17. Across all 20 Customer Name, Sales ranged from $4,267.17 to $14,345.28, cummulative_sales ranged from 11.7% to 100.0%. Raymond Buch, Ken Lonsdale, Edward Hooks, Jane Waco, Karen Ferguson, Nick Crebassa,Clay Ludtke, Yana Sorensen Contributed to 80% sales.

Total Sales and total Cummulative sales are negatively correlated with each other. Raymond Buch accounted for 11.72% of Sum of Sales. Sum of Sales and Cummulative sales diverged the most when the Customer Name was Raymond Buch, when Sum of Sales were $14,345.16 higher than Cummulative sales.

Sales started trending up on 2011, rising by 69.48% ($1,02,749.49) in 3 years. At $7,25,457.82, Sum of Sales has exceeded the target goal of $249.14.
At $13,999.96, Canon image CLASS 2200 Advanced Copier had the highest Sum of Sales and was 74.35% higher than Guest Stacker Chair with Chrome Finish Legs, which had the lowest Sum of Sales at $8,030.02.
Sales and Discount are negatively correlated with each other.Canon image CLASS 2200 Advanced Copier accounted for 26.27% of Sum of Sales.Sum of Sales and Sum of Discount diverged the most when the Product Name was Canon image CLASS 2200 Advanced Copier, when Sum of Sales were $13,999.96 higher than Sum of Discount. The most profitable and saleable product was Canon image CLASS 2200 Advanced Copier. The least profitable and saleable product was Lexmark MX611dhe Monochrome Laser Printer. Several marketing campaign and strategies are needed for underperforming products like Avery 511, Bagged Rubber Bands, Coloured push pins.

Customer Analysis



Customer analysis helps identify distinct customer segments based on demographics, behaviors, preferences, or purchasing patterns. This segmentation enables personalized marketing strategies and targeted approaches for different customer groups.

Customer purchase behavior, including frequency, average order value, and product preferences. Understanding these patterns helps optimize pricing, product offerings, and promotions to encourage repeat purchases. The Most Preferred Product by customer are XEROX 225, XEROX 226, XEROX 1949, XEROX 1946, XEROX 1984.

Analyzing customer feedback, reviews, and surveys helps assess customer satisfaction and loyalty. This information allows businesses to address issues, improve customer experience, and foster long-term loyalty.

This analysis helped to identify customers who have stopped purchasing or reduced their engagement with the business. There were total of 662 lost customer. By understanding the reasons behind churn, Walmart can implement retention strategies and win back lost customers.

By analyzing customer purchase history, businesses can identify opportunities for cross-selling or upselling. This helps increase average order value and maximize revenue from existing customers. The top 5 genuine customers were Raymond Buch, Ken Lonsdale, Edward Hooks, Jane Waco, Karen Ferguson.

Customer analysis facilitates personalized marketing campaigns by understanding individual customer preferences and behaviors. Targeted marketing efforts based on customer insights can lead to higher conversion rates and customer engagement. Mapping the customer journey from initial contact to post-purchase interactions helps identify touchpoints, pain points, and opportunities for improvement. Analyzing this journey aids in optimizing customer experience and building stronger relationships.

Return Customer Sales jumped from 0 to 1,95,069.52 during its steepest incline between 2011 and 2014.

Inventory Analysis

Inventory analysis is the process of evaluating and managing a company's inventory to gain insights into its performance, efficiency, and overall financial impact. It involves assessing inventory levels, turnover rates, carrying costs, and other relevant factors to optimize inventory management strategies.

Analyzing inventory levels helps determine if they are too high or too low. Excessive inventory ties up working capital, incurs storage costs, and increases the risk of obsolescence. Insufficient inventory can lead to stockouts, missed sales opportunities, and dissatisfied customers. By analyzing inventory levels, businesses can identify optimal stock levels to balance costs and customer demand. The Average inventory value was found to be $706.90K.

Inventory turnover measures how quickly a company sells or replaces its inventory within a specific period. It is calculated by dividing the cost of goods sold (COGS) by the average inventory value.

High inventory turnover indicates efficient inventory management and healthy sales. Low turnover may indicate slow-moving inventory or poor sales performance. The Turnover ratio is 1.05 for 2011, 1.04 for 2012, 1.06 for 2013, 0.98 for 2014. By Analyzing inventory turnover. we found that we need to identify areas for improvement, such as optimizing production, reducing lead times, or implementing demand forecasting techniques.

Lead time analysis evaluates the time it takes from placing an order to receiving the inventory. By analyzing lead times, businesses can identify bottlenecks, optimize supply chain processes, and reduce stockouts or excessive inventory due to long lead times. This analysis helps streamline procurement and production processes, enhancing overall inventory management efficiency. The average days in inventory was found to be 3.8 days.

Analyzing slow-moving or obsolete inventory is crucial to minimize financial losses and free up valuable storage space.

Inventory Analysis

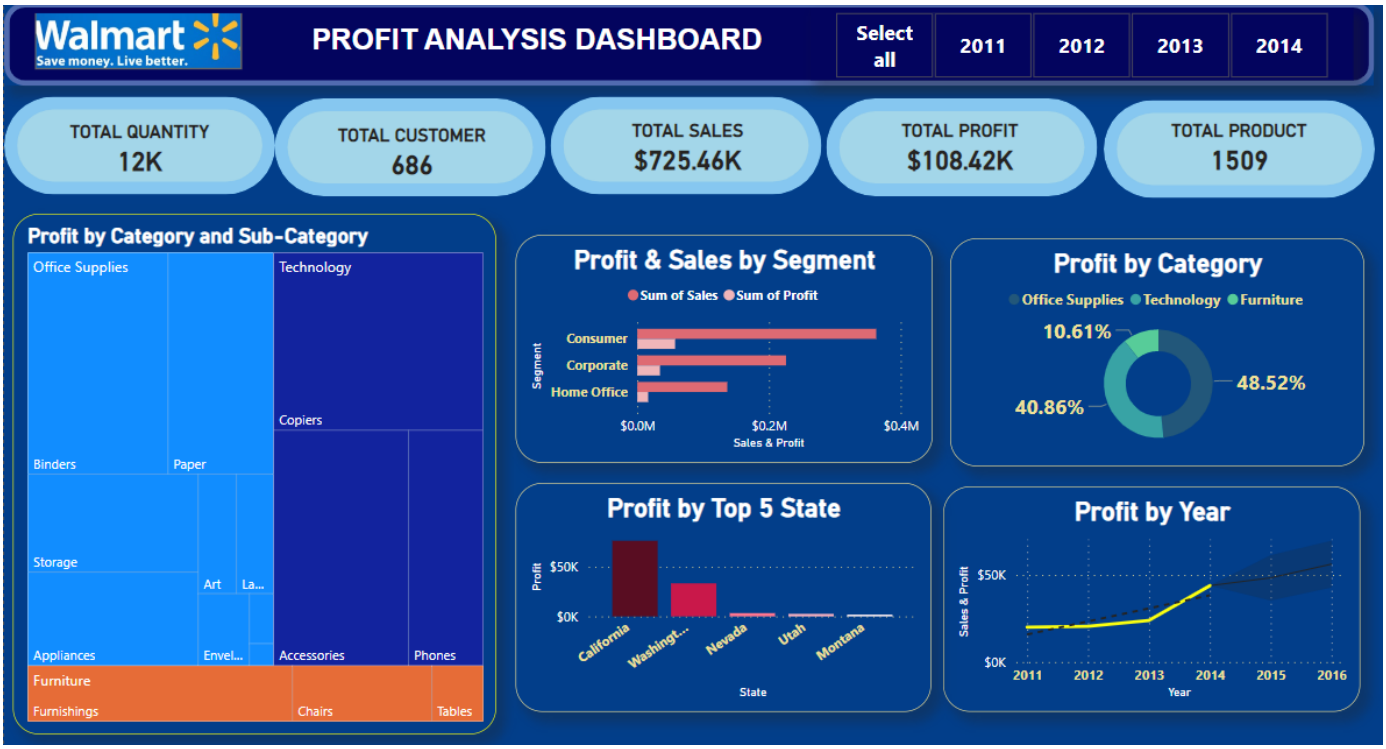
By identifying and addressing slow-moving or obsolete items, businesses can implement strategies such as markdowns, promotions, or liquidation to reduce inventory carrying costs and generate cash flow. The following items like Binders, tables, bookcases, labels, copiers are slow moving and having low turn- over ratio.

We need to regularly review your inventory performance and take action on identified slow-moving inventory. Consider implementing strategies such as targeted promotions, discounts, bundling with faster-selling items, or liquidation to clear out slow-moving inventory and free up storage space.

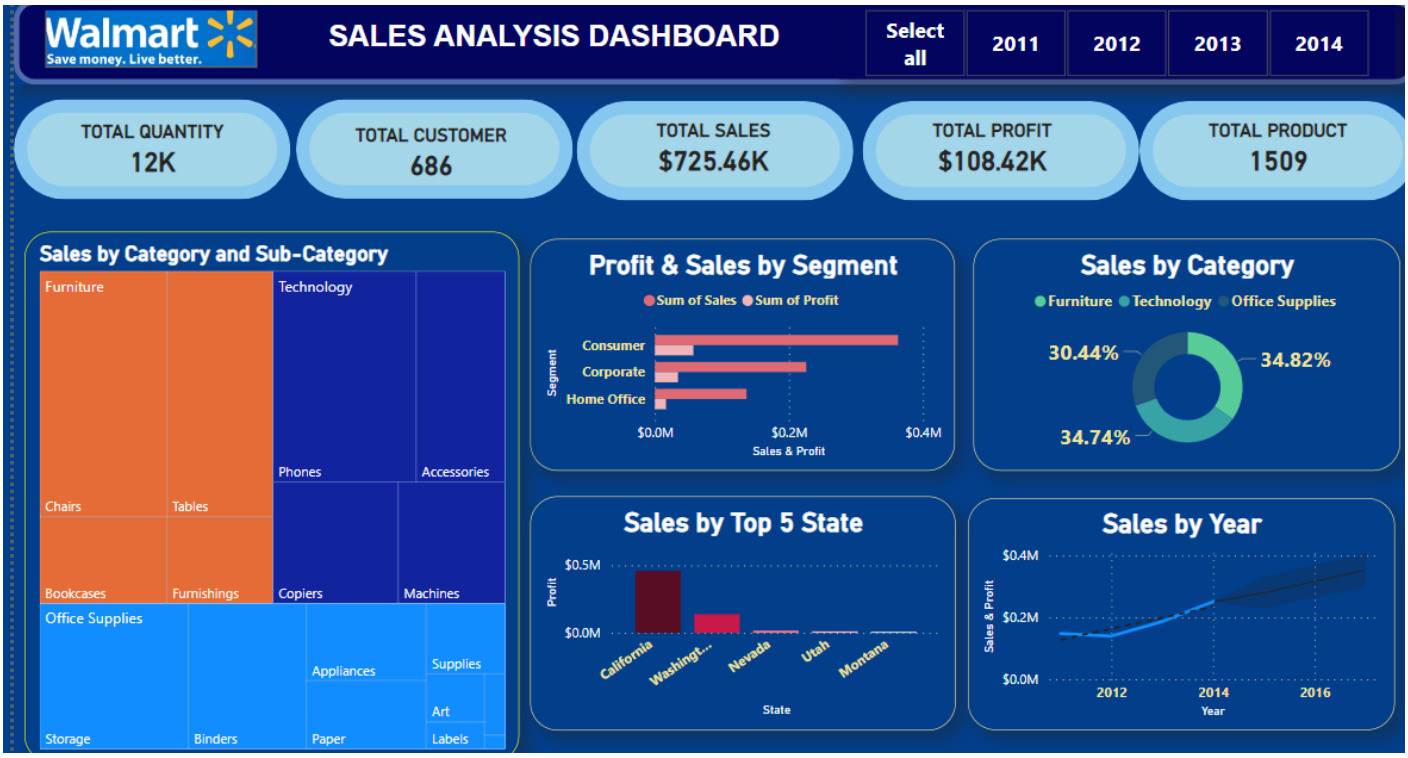
Data Visualization Dashboard

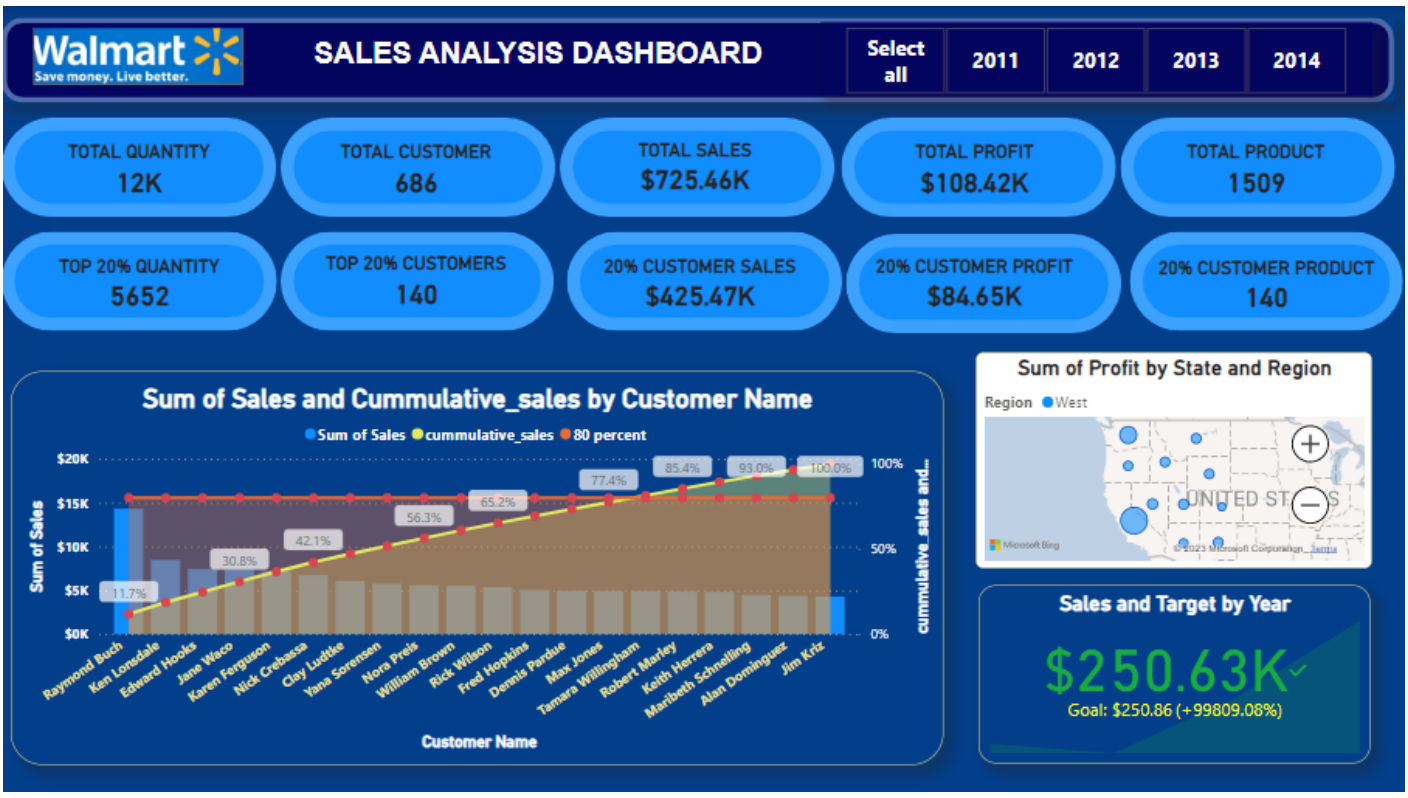
Data visualization is the representation of data in graphical or visual formats to facilitate understanding, analysis, and communication of information. It helps uncover patterns, trends, and insights that might not be immediately apparent in raw data. The following are the data Visualized through Power BI.

WALMART'S PROFIT PORTFOLIO

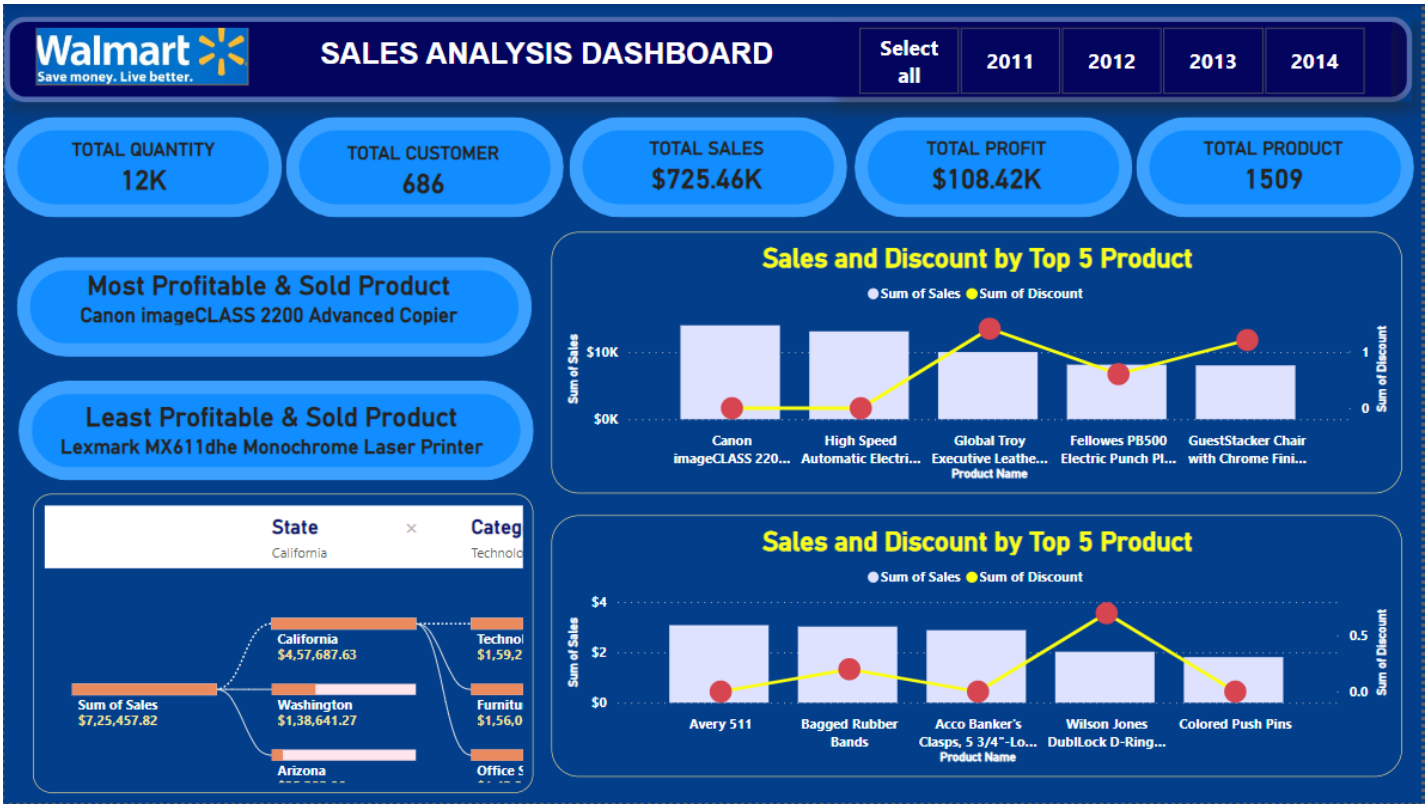


WALMART'S SALES PORTFOLIO

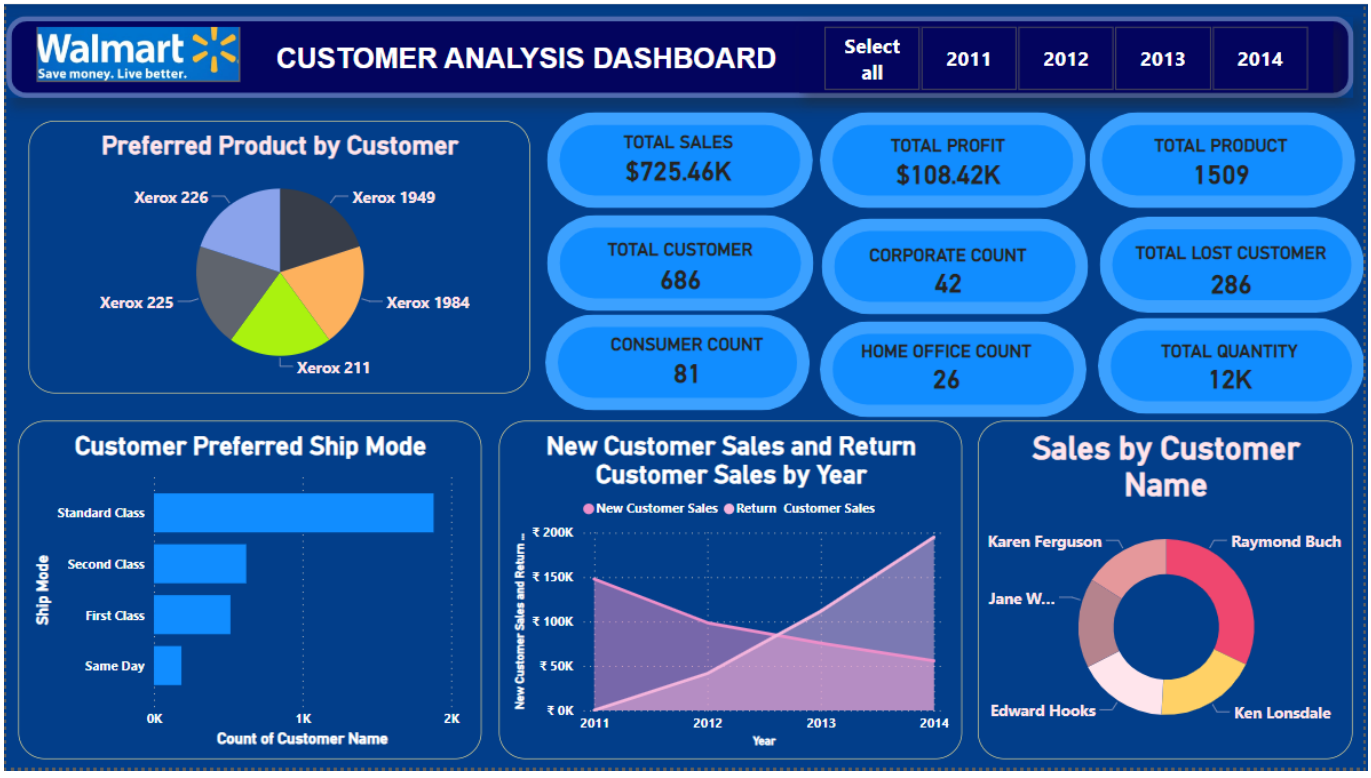




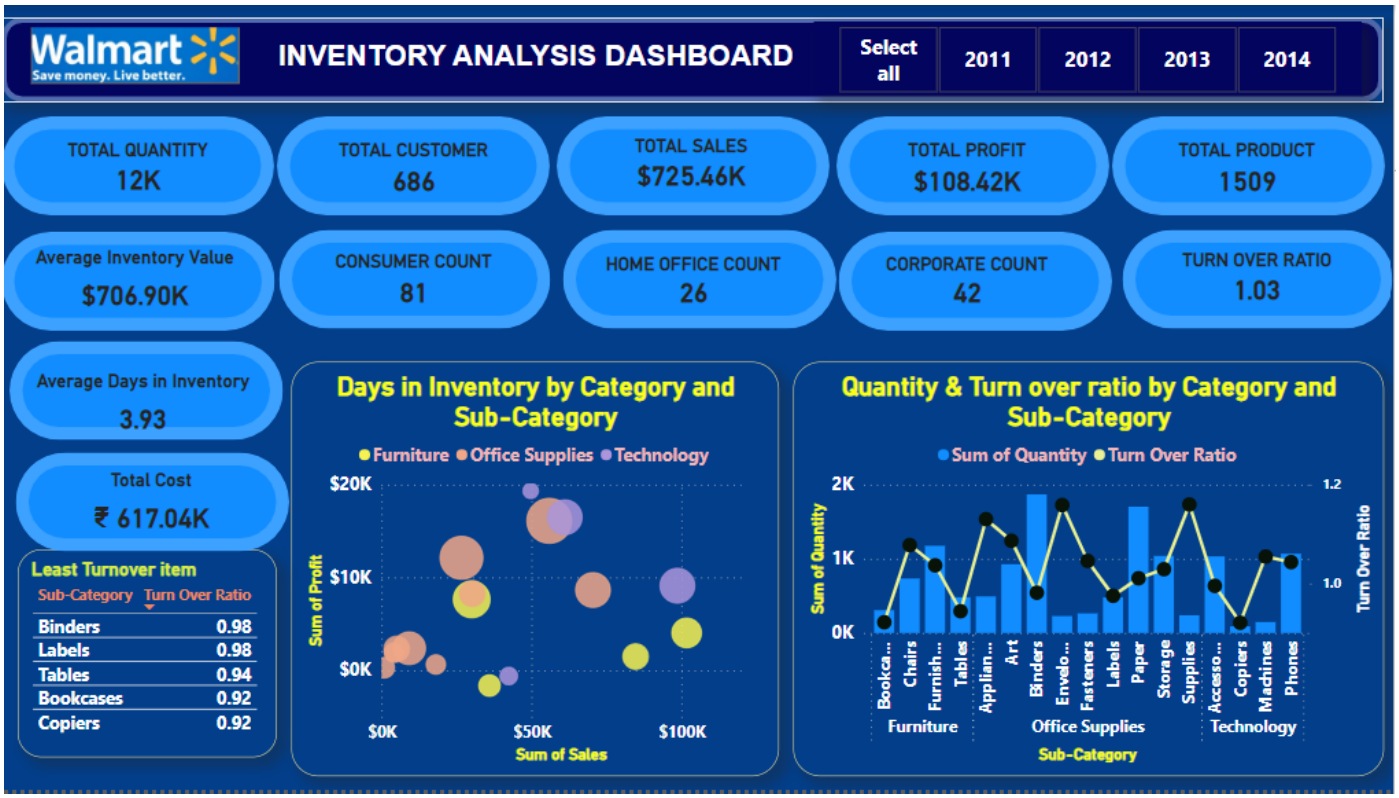
WALMART'S SALES PORTFOLIO



WALMART'S CUSTOMER PORTFOLIO



WALMART'S INVENTORY PORTFOLIO



KEY CHALLENGES & OPPORTUNITY

1. Walmart operates in a highly competitive retail industry. It faces competition from traditional retailers, online retailers like Amazon, and discount stores. Sustaining its market position and profitability requires constantly adapting to changing consumer preferences and improving operational efficiency.

2. Consumer behavior and preferences continually evolve, influenced by factors like technology, demographics, and social trends. Walmart must stay attuned to these changes to meet customer expectations effectively.

3. Ensuring positive labor relations, attracting and retaining talented employees, and addressing concerns related to working conditions remain ongoing challenges for the company.

4. Challenges include maintaining product quality, managing inventory efficiently, optimizing logistics, and ensuring reliable and timely delivery.

5.Maintaining a positive public image and addressing these concerns is crucial for the company's long-term success.

CONCLUSION

The analysis of Walmart's sales data using data visualization tool POWER BI provided valuable insights into company's performance and scope for improvement in some areas.

The Profit analysis indicated positive outcome with profit growing in subsequent year.
Walmart can further drive profit using Pricing Optimization, Cost control & Efficiency, Ecommerce growth strategy, Customer loyalty and retention.

Market penetration was understood using quantity ordered and quantity sold analysis. The volume of products sold was 12K units during the period from 2011-2014.

The sales analysis showed positive growth with patterns and fluctuation during each year. The total sales amount was $725K, indicating a steady growth. The Walmart's Sales can be increased further by enhancing the in-store experience, embracing e-commerce and omnichannel strategies, investing in marketing and advertising and by leveraging data analytics and insights.

Overall, the analysis of Walmart's sales data using Power BI yields valuable insights that can drive sales growth, optimize costs, and enhance profitability. By leveraging these insights, Walmart can make data-driven decisions to improve its business operations.

The data visualization project has successfully transformed complex data into meaningful and actionable insights. By leveraging interactive and visually appealing visuals, stakeholders have gained a deeper understanding of the data, improved decision-making, and enhanced communication. Moving forward, it is recommended to continue investing in data visualization tools, user training, and user-centered design to further enhance the impact of data visualizations within the organization.