Project Report: Superstore Sales Analysis

Introduction :

The Superstore Sales Analysis project aimed to extract valuable insights from sales data collected over the four years. Using Power BI for visualization and Excel for data cleaning, the analysis focused on addressing key challenges in sales performance, customer segmentation, geographical insights, shipping efficiency, product categories, and profitability. Utilizing time series forecasting techniques, the project also included predictions for sales over the next 15 days.

Problem Statement :

The project aimed to answer critical questions, including identifying top and bottom performers, understanding sales trends over time, determining overall sales growth or decline, segmenting customers based on purchasing behavior, examining geographical sales variations, evaluating shipping efficiency, exploring product categories and time forecasting to provides valuable insights into potential future trends and helps in decision-making.

Technologies Used:

- Power BI for visualization
- Excel for data cleaning

Data Source:

The dataset used for this analysis was obtained from a reliable source, specifically Kaggle (https://www.kaggle.com). Kaggle is a renowned platform for accessing and sharing datasets, making it a valuable resource for diverse analytical projects. The problem statement guiding this analysis was formulated through a collaborative interaction with ChatGPT (https://chat.openai.com), an advanced language model developed by OpenAI. Dataset Link : Superstore Sales Dataset (kaggle.com)

Data Details:

Below is an overview of the key attributes included in the dataset:

Total rows: 9801 , Total Columns : 18
1. **Row ID:** A unique identifier for each row in the dataset.
2. **Order ID:** Unique identification for each order placed.
3. **Order Date:** Date when the order was placed.
4. **Ship Date:** Date when the order was shipped.
5. **Ship Mode:** Shipping method used for the order (e.g., Second Class).
6. **Customer ID:** Unique identification for each customer.
7. **Customer Name:** Name of the customer placing the order.
8. **Segment:** Segment to which the customer belongs (e.g., Consumer).
9. **Country:** The country in which the Superstore operates (e.g., United States).
10. **City:** City where the order was placed.
11. **State:** State where the order was placed.
12. **Postal Code:** Postal code of the location.
13. **Region:** Geographic region classification (e.g., South).
14. **Product ID:** Unique identifier for each product.
15. **Category:** Product category (e.g., Furniture).
16. **Sub-Category:** Product sub-category (e.g., Bookcases).
17. **Product Name:** Name of the product.
18. **Sales:** Sales amount for the particular order.

Analysis Overview:

Sales Performance Analysis:
The Superstore achieved a total sales of 2 million with 9800 orders processed, in an average delivery time of 4 days.
The overall trend in sales indicates a decrease in February.
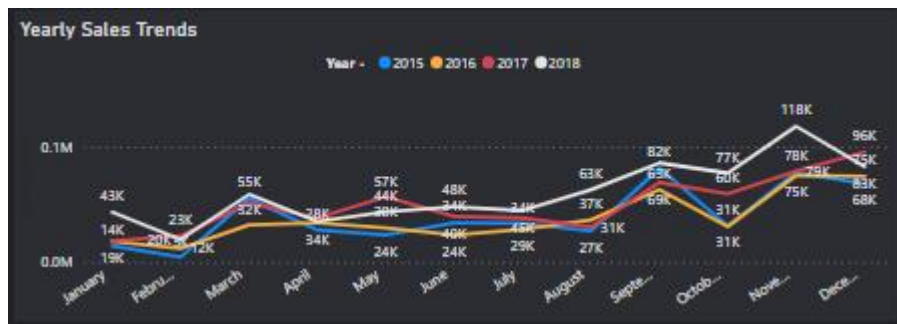
Customer Segmentation:

Year-wise Sales Distribution by Segment:

Year	Consumer(%)	Home Office (%)	Corporate (%)
2015	55.96	18.43	25.61
2016	56.28	16.57	27.15
2017	48.69	48.69	34.03
2018	45.41	45.51	32.77

Consumer segment consistently contributes the highest percentage of sales, averaging around 50.77%. Home Office segment maintains a relatively stable contribution and even have great contribution in year 2017 and 2018, averaging around 18.79%. Corporate segment contributes average around 30.44%.

Geographical Insights:
Overall Regional Sales Distribution:
West Region: Overall Average: 19.82%
East Region: Overall Average: 31.96%
South Region: Overall Average: 27.1%
Central Region: Overall Average: 21.13%

Year-wise Regional Sales Distribution:

| Year	West (%)	East (%)	South (%)	Central (%)
2015	0	16.1	58.1	25.8
2016	0	70.48	18.45	11.07
2017	0	42.77	0	57.23
2018	26.22	53.37	10.21	10.19

Top Performing States: California consistently emerged as the top-performing state, leading in sales with $0.45M in 2015, $0.31M in 2016, $0.17M in 2017, and $1.6K in 2018. Notably, in 2018, Washington claimed the third position, shifting Texas to fourth. In 2019, California retained its lead, followed by Kentucky and New York.

Bottom Performing States: For the bottom-performing states, Maine consistently ranked lowest in sales, with $1.3K. North Dakota and West Virginia also maintained lower sales figures across all years.
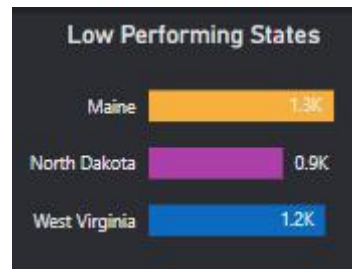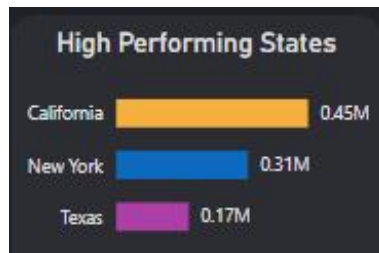
Shipping Analysis:

Across the years, the Superstore maintained a consistent performance in shipping, with an average of 4 days to ship orders. Observing monthly trends, there is a slight decrease in the average days to ship during March and More during January. This could be attributed to various factors such as lower order volumes or optimized logistics during this period.
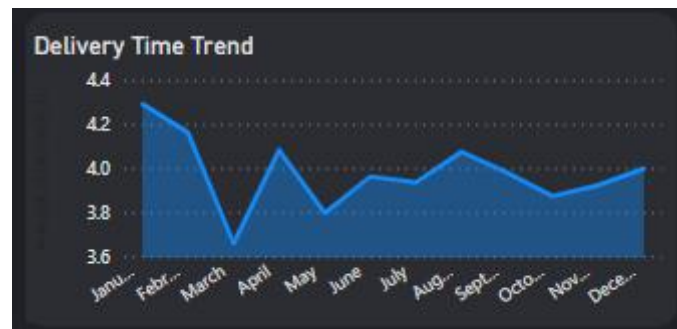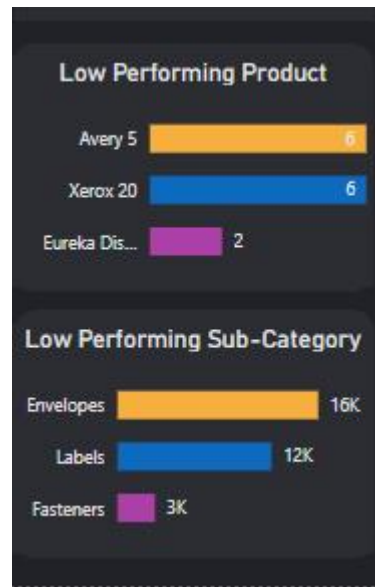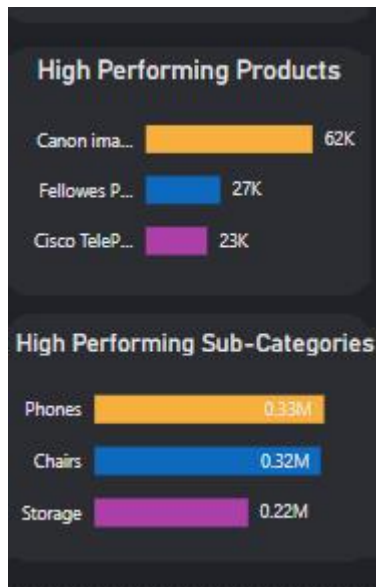

Product, Categories and Sub-Categories:

The Technology category consistently stands out as a top performer across all four years (2015-2018). This category includes high-value products contributing significantly to overall sales. The Phones sub-category within the Technology category emerges as a top performer.
Furniture maintains a strong position among the top-performing categories, Chairs, a sub-category of Furniture, consistently performs well.
Office Supplies demonstrate consistent performance, Storage solutions within the Office Supplies category showcase strong performance, indicating a need for organized and efficient storage solutions.

Sales By Category

Category	Sales
Technology	0.83M
Furniture	0.73M
Office Supplies	0.71M

High Performing Products

Product	Value
Canon ima...	62K
Fellowes P...	27K
Cisco TeleP...	23K

High Performing Sub-Categories

Sub-Category	Value
Phones	0.33M
Chairs	0.32M
Storage	0.22M

Low Performing Product

Product	Value
Avery 5	6
Xerox 20	6
Eureka Dis...	2

Low Performing Sub-Category

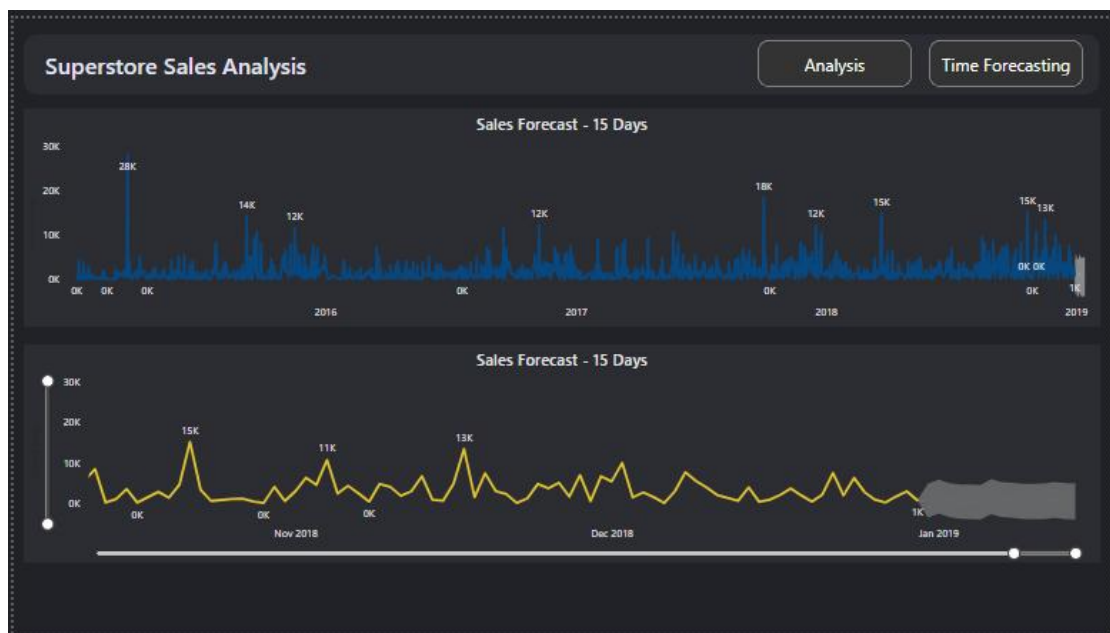| Sub-Category	Value
Envelopes	16K
Labels	12K
Fasteners	3K

Visualizations:

Key visualizations included bar charts, Donut charts, line charts to effectively convey the insights obtained in each section.

Dashboard Image (Analysis Page)

Dashboard Image (Time Forecasting Page)

Key Findings and Conclusion:

The Superstore demonstrated sales performance of total 2 million with 9800 orders processed in an average delivery time of 4 days. A notable trend reveals a dip in sales during February. In terms of customer segmentation, the Consumer segment consistently led with an average of 50.77%, while the Home Office and Corporate segments contributed around 18.79% and 30.44%, respectively. Geographically, the East region consistently outperformed others, averaging around 31.96%, while the South region showed significant fluctuations. Top-performing states included California, New York, and Texas,

though Washington claimed the third position in 2018. Notable bottom-performing states were Maine, North Dakota, and West Virginia. Shipping analysis indicated a steady average of 4 days for order delivery, with slight fluctuations in March and more significant changes in January. The Technology category stood out, especially Phones, and Furniture, particularly Chairs, showcased consistent high performance. Office Supplies, along with strong performance in Storage solutions.

Thank you!