Analytical Super Store Analysis Project using Power BI

Objective:

The primary objective of this analysis is to provide a comprehensive and insightful examination of the Super Store's sales data to identify key trends and areas for improvement. This includes evaluating overall sales performance, profitability, and customer behavior across different segments, regions, and product categories. By leveraging Power BI, we aim to uncover actionable insights that can guide strategic decision-making, optimize marketing efforts, and enhance operational efficiency. Additionally, we will forecast future sales to aid in inventory planning and resource allocation, ultimately driving sustainable growth and competitive advantage for the Super Store.

Datasets Used:

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1) Super store sales dataset

Dataset Description...

1. **Order ID**: Unique identifier for each order.
2. **Order Date**: The date when the order was placed.
3. **Ship Date**: The date when the order was shipped.
4. **Ship Mode**: The mode of shipment for the order (e.g., Standard, Expedited, Same Day).
5. **Consumer ID**: Unique identifier for the consumer who placed the order.
6. **Customer Name**: Name of the customer who placed the order.
7. **Segment**: The market segment of the customer (e.g., Consumer, Corporate, Home Office).
8. **Country**: The country where the order is being shipped.
9. **City**: The city where the order is being shipped.
10. **State**: The state where the order is being shipped.
11. **Region**: The region where the order is being shipped .
12. **Product ID**: Unique identifier for the product ordered.
13. **Category**: The category of the product (e.g., Furniture, Office Supplies, Technology).
14. **Sub Category**: The sub-category of the product (e.g., Chairs, Binders, Phones).

15. **Product Name**: The name of the product ordered.
16. **Sales**: The total sales amount for the order.
17. **Quantity**: The quantity of the product ordered.
18. **Profit**: The profit earned from the order.
19. **Return**: Indicates whether the order was returned (Yes/No).
20. **Payment Mode**: The mode of payment used for the order (e.g., Credit Card, Debit Card, Cash, Online Payment).
21. **Avg Delivery Date**: The average delivery date for the order

Data Cleaning and transformation

To replace 'N/A' from 'Return' column to '0'

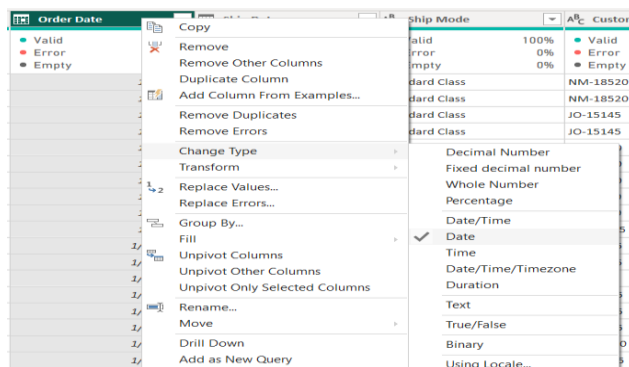- Right click on return column. Go to replace value. Write required condition and click on ok.

To convert data type of 'order date' and 'ship date' column from text to date

Right click on respective column. Click on change type. Select specific requirements.

Introducing Profit Status Column-

Use the following DAX query.

```
1  Profit Status = SWITCH(
2      TRUE(),
3      SuperStore_Sales_Dataset[Profit] > 0, "Profit",
4      SuperStore_Sales_Dataset[Profit] < 0, "Loss",
5      "Breakeven"
6  )
```
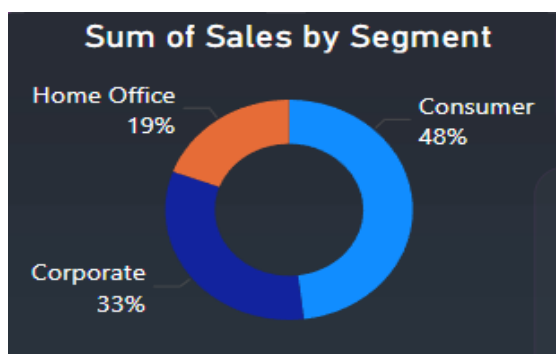
Introducing Delivery Speed Column-

```
1  Delivery Speed = SWITCH(
2      TRUE(),
3      SuperStore_Sales_Dataset[AvgDeliveryDays] < 5, "Fast",
4      SuperStore_Sales_Dataset[Profit] > 5, "Slow",
5      "On Time"
6  )
```

Dashboard Creation--


1. **Sales by Segment**

The above chart illustrates the distribution of sales across different segments, with the Consumer segment leading at 48%, followed by Corporate at 33%, and Home Office at 19%. This indicates that nearly half of the total sales are driven by the Consumer segment, highlighting its significant contribution compared to Corporate and Home Office.

2. **Sales by region**
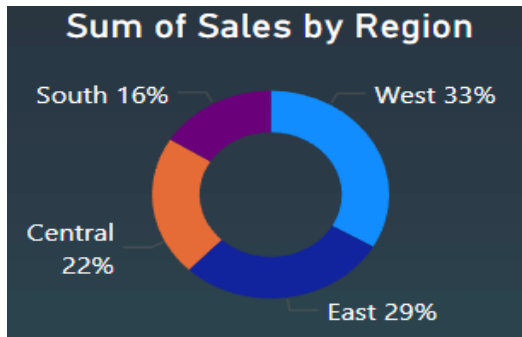
The above chart displays sales distribution by region, with the East region leading at 29%, followed by the West at 23%, and the Central and South regions at 22% and 16%, respectively. This highlights that the East region contributes the most to total sales, while the South region has the smallest share.

3. **Sales by Payment Mode**
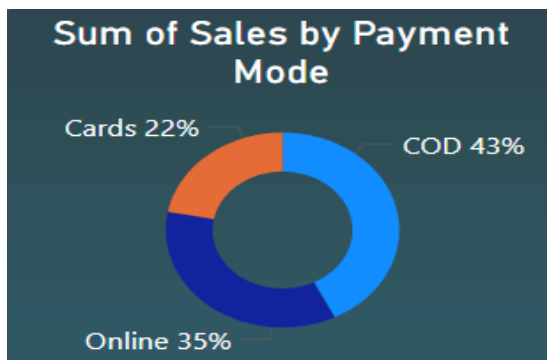
The donut chart shows that Cash on Delivery (COD) leads with 43% of sales, followed by online payments at 35%, and card payments at 22%. This indicates a strong preference for COD, with digital payments being less utilized.

4. **YoY Analysis**
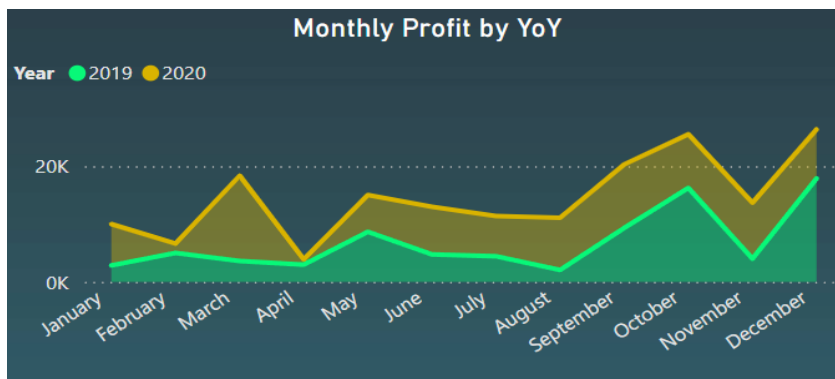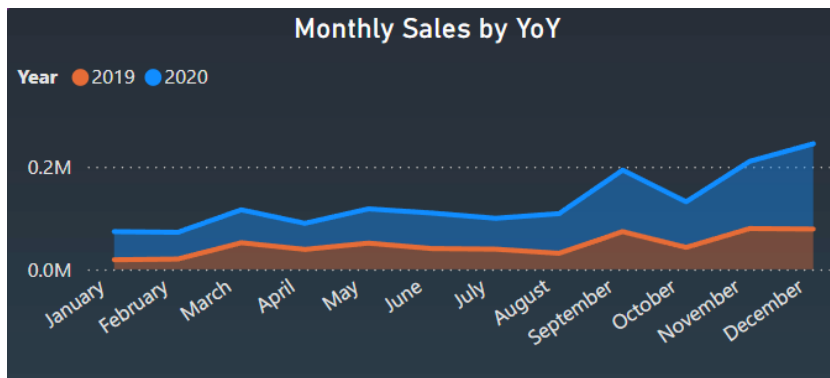
- For each month of the year, overall sales and profit both increased in 2020 compared to 2019.
- For most months, sales are directly proportional to profit.

- In October, despite a decrease in sales, profit increased, while in November, sales increased but profit decreased. This discrepancy underscores the need for a detailed analysis of these two months.

5. Sales by Ship Mode Analysis
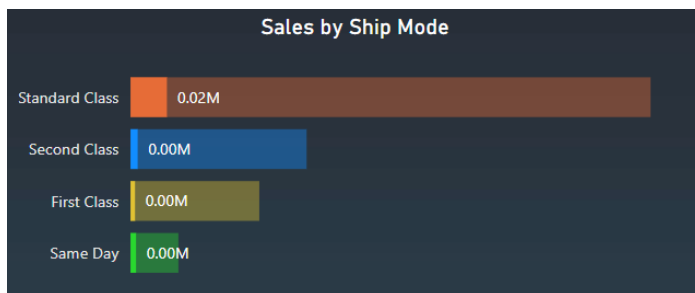
The above chart illustrates sales by ship mode, with Standard Class leading at $0.33 million, followed by Second Class at $0.11 million, First Class at $0.08 million, and Third Class at $0.03 million. This indicates that Standard Class is the dominant shipping mode, significantly outperforming the other classes in terms of sales.

6. Sales by Category
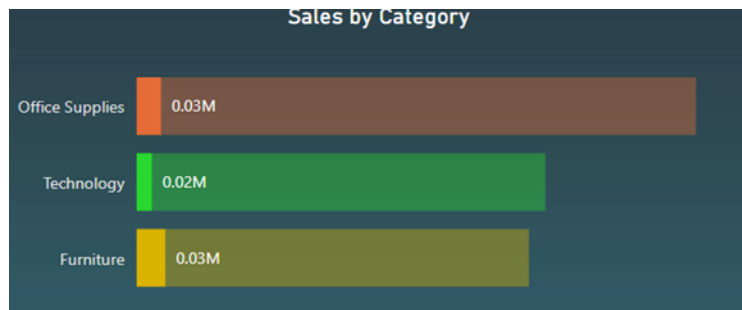
In the sales by category analysis, Office Supplies and Furniture each contribute 0.03M to the total sales, while Technology adds 0.02M. This indicates that Office Supplies and Furniture are the leading categories, with Technology trailing slightly behind.

7. Sales by Sub Category
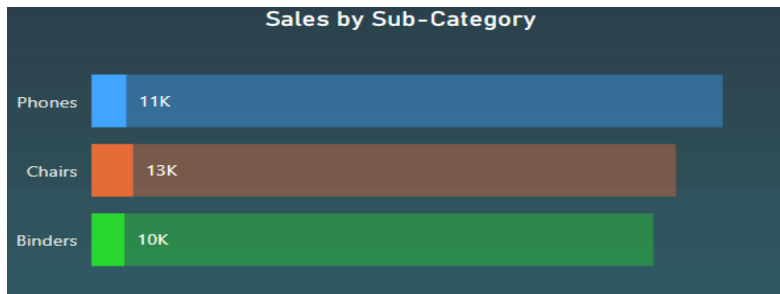
The top three products purchased by customers are Phones, Chairs, and Binders. This indicates strong customer preference and demand for these items.

8. Sales & Profit Analysis by State

In this map visualization, the circle size is directly proportional to the sales volume of each state. Larger circles indicate higher sales, providing a clear visual representation of sales distribution across states.
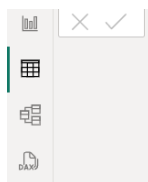
State	Sum of Sales	Sum of Profit
California	335,190.26	49,372.18
New York	186,748.10	41,012.02
Texas	116,261.93	-14,078.16
Washington	92,975.18	21,466.66
Pennsylvania	82,354.95	-9,297.80
Ohio	68,194.86	-9,339.42
Illinois	64,224.33	-9,554.65
Florida	49,915.00	-227.75
Michigan	48,504.68	17,480.28
North Carolina	39,705.13	-4,827.69
Georgia	37,260.69	9,994.42
Virginia	32,721.25	9,657.49
New Jersey	32,086.94	7,213.10

- From the table, we can see that maximum sales are obtained in California, New York, and Texas. While California and New York also show the highest profit, Texas, despite its high sales, is operating at a loss.
- The company is incurring losses in Texas, Pennsylvania, Ohio, Illinois, Florida, and North Carolina. It needs to analyze and address the underlying issues in these states to improve profitability.
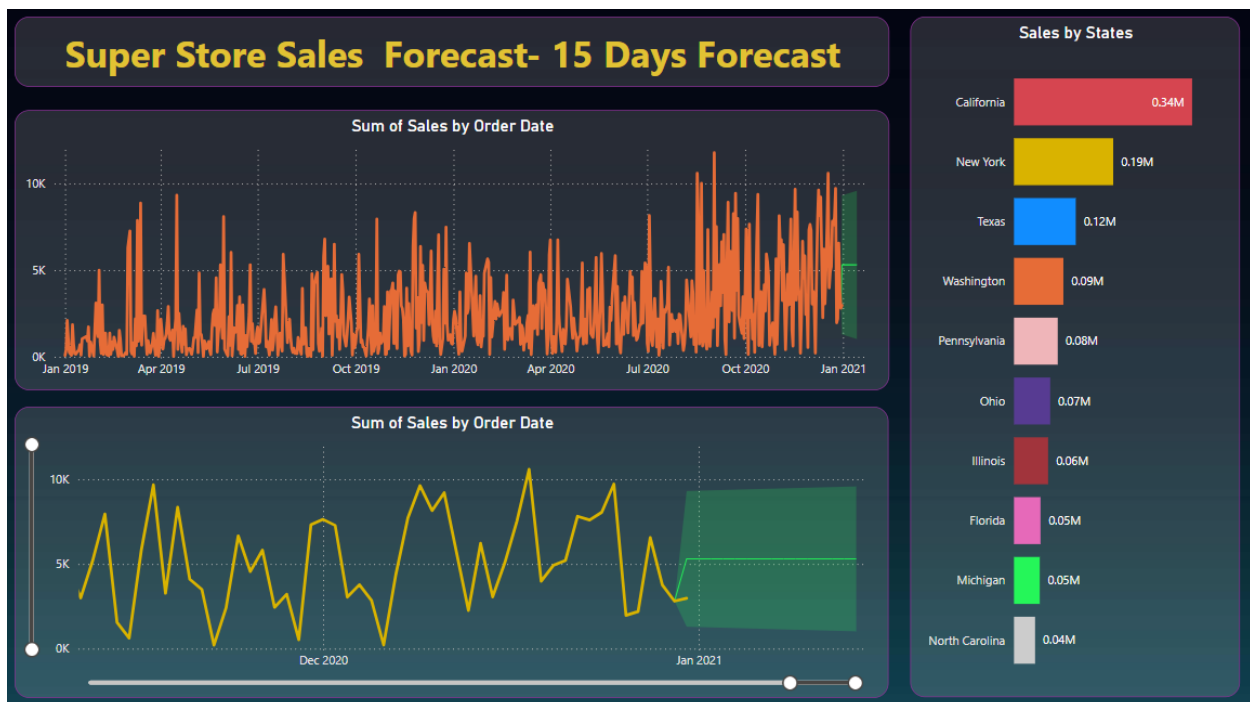
Sales Forecasting Analysis……

Sales Forecast Table

To create a new table representing the data with order dates and total sales, click on "New Table" in Power BI and use the following query:

```
1 Salesforecast = SUMMARIZE('SuperStore_Sales_Dataset',
  SuperStore_Sales_Dataset[Order Date],"Total Sales",SUM
  (SuperStore_Sales_Dataset[Sales]))
```

Sales Forecast Dashboard…

Super Store Sales Forecast- 15 Days Forecast

Sum of Sales by Order Date

Sum of Sales by Order Date

Sales by States

State	Sales
California	0.34M
New York	0.19M
Texas	0.12M
Washington	0.09M
Pennsylvania	0.08M
Ohio	0.07M
Illinois	0.06M
Florida	0.05M
Michigan	0.05M
North Carolina	0.04M

Forecasting of 15 days Sales (1st Jan to 15th Jan)-

Sum of Sales by Order Date
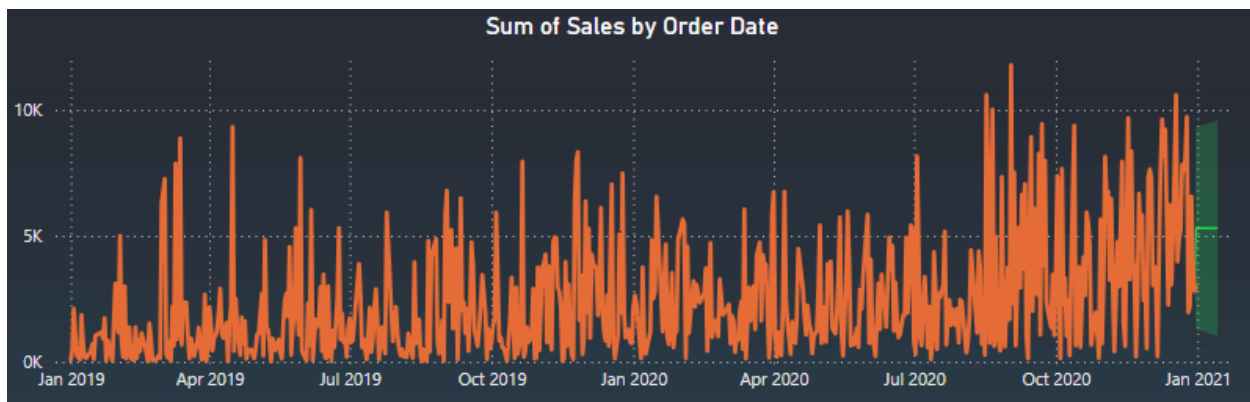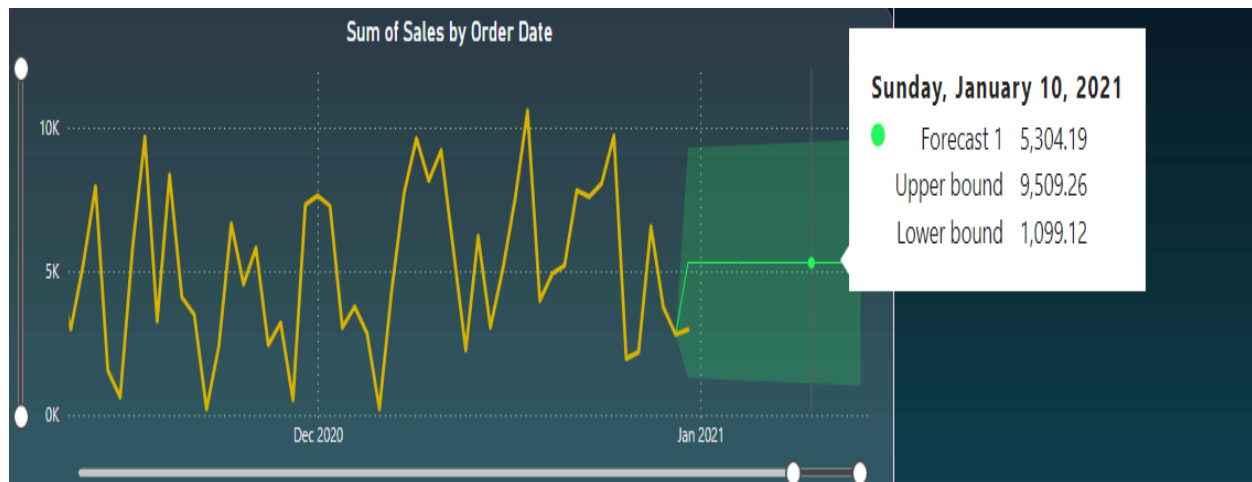
From January 1st to 15th, 2021, the average predicted sale is $5,304, with daily sales showing slight variations. For example, on January 10th, the maximum sale is $9,509, while the minimum sale is $1,099. This highlights the fluctuations in daily sales within this period.

Conclusions…

Overall Sales Growth:

- The super store has experienced substantial growth in both sales and profit from 2019 to 2020. This upward trend is evident in the year-over-year comparison, particularly from August to December, where sales and profits saw significant increases.

Segment Analysis:

- **Consumer Segment Dominance:** The Consumer segment, contributing 48% of total sales, is the largest and most critical segment. Strategies aimed at enhancing customer experience and loyalty in this segment could further boost sales.
- **Corporate and Home Office Segments:** The Corporate and Home Office segments also present significant opportunities, contributing 33% and 19% respectively. Tailored marketing and sales **initiatives targeting these segments can capitalize on their potential.**

Regional Sales Insights:

- **West Region Leadership:** The West region leads with 33% of total sales, indicating a strong market presence. Further investment in marketing and customer engagement in this region could yield higher returns.

- **Opportunities in Other Regions:** The East (29%) and Central (22%) regions also show substantial sales, while the South (16%) has the potential for growth. Regional-specific strategies could help tap into these markets more effectively.

Payment Modes:

- **COD and Online Payments:** Cash on Delivery (43%) and Online payments (35%) are the most popular payment modes. Enhancing the convenience and security of these payment methods can drive higher conversion rates.
- **Card Payments:** Although card payments account for 22%, there is room to promote and incentivize their usage to balance the payment mode distribution.

Shipping Preferences:

- **Standard Shipping Dominance:** Standard shipping is the preferred method (0.33M in sales), suggesting reliability and cost-effectiveness. Maintaining and improving this service can retain customer satisfaction.
- **Expanding Fast Delivery Options:** While Second Class (0.11M) and First Class (0.08M) shipping options are less popular, promoting these faster delivery methods could attract customers needing quicker service.

Product Categories and Sub-Categories:

- **Office Supplies Leading Sales:** Office Supplies (0.64M) is the top-performing category. Ensuring a wide variety of products and competitive pricing in this category is crucial.
- **Technology and Furniture:** With Technology (0.47M) and Furniture (0.45M) also performing well, continuous product innovation and targeted promotions can boost sales further.
- **High-Performing Sub-Categories:** Phones (0.20M) lead among sub-categories, followed by Chairs (0.18M) and Binders (0.17M). Focusing on these high-demand products can drive incremental sales.

Monthly Sales and Profit Trends:

- **Seasonal Peaks:** The significant sales and profit peaks in August and November suggest seasonal trends, possibly tied to back-to-school and holiday shopping periods. Leveraging these peaks with targeted promotions and inventory planning can maximize sales.
- **Consistent Growth:** The overall consistent growth in 2020 indicates a positive business trajectory, emphasizing the importance of maintaining operational efficiency and customer engagement.

15-Day Sales Forecast:

- **Promising Growth:** The sales forecast for the next 15 days shows continued growth, with California and New York expected to lead. These states should receive focused marketing efforts and inventory allocation to meet demand.

- **State-Level Strategies:** Each state's unique market dynamics require tailored strategies. For instance, in Texas, Washington, and Pennsylvania, efforts to understand local preferences and competitive positioning can enhance performance.