

# Super Store Sales Dashboard using Power BI

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## Objective:

To contribute to the success of a business by utilizing data analysis techniques, specifically focusing on time series analysis, to provide valuable insights and accurate sales forecasting.

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## Tools & Technologies Used:

- **Power BI (Desktop)**
  - **Microsoft Excel**
  - **Power Query**
  - **DAX (Data Analysis Expressions)**
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## Procedure:

### 1. Dataset Overview:

- Collected Super Store sales data for the years **2019 and 2020** in Excel format.
- Dataset included fields such as sales, profit, quantity, customer segment, category, sub-category, state, region, and order date.

### 2. Data Import & Cleaning:

- Imported the dataset into Power BI using **Power Query**.
- Cleaned nulls, standardized column names, and transformed data types.

### 3. Dashboard Creation:

- Designed an **interactive and visually intuitive dashboard** showing KPIs, category performance, regional sales, and customer segments.

### 4. KPI Visualization:

- Created visual cards for total sales, total profit, average delivery time, and quantity sold.
- Designed pie charts, bar graphs, and line charts to enhance interpretability.

### 5. DAX and Analysis:

- Used DAX functions for calculated columns and measures (e.g., DATEDIFF, SUM, AVERAGE) for delivery time and aggregations.

### 6. Time Series Analysis & Sales Forecasting:

- Built line charts to show monthly sales trends.

- Applied Power BI's **forecasting features** to predict future sales based on historical patterns.
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### Key Insights:

#### Overall KPIs (2019–2020):

- **Total Sales:** \$1.57M
- **Total Profit:** \$175.26K
- **Average Delivery Time:** 4 days
- **Total Quantity Sold:** 22K units

#### Sales by Payment Mode:

- **Cash on Delivery:** 42.74%
- **Online Payments:** 34.82%
- **Card Payments:** 22.45%

#### Category-wise Sales:

- **Top Category:** Office Supplies (\$0.644M)
- Followed by **Technology**, and **Furniture** being the least.

#### Segment-wise Sales:

- **Consumer Segment:** 48.43%
- Followed by Corporate, with Home Office being the least.

#### Sub-Category Insights:

- **Top Performing Sub-category:** Phones (Technology)
- Other high performers: Chairs (\$0.18M), Binders (\$0.17M)

#### Geographic Insights:

- **Top States for Sales and Profit:**
  - California, New York, Texas
- **Top Region:** West

#### Time-Based Trends:

- **Highest Sales Months:**
  - September (both years) and December
- **Lowest Sales Month:** February
- **Most Profitable Month:**

- September 2020, December 2019
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#### Learning Outcomes:

- Developed proficiency in **Power BI dashboard creation**.
  - Gained hands-on experience in **Power Query** for data transformation.
  - Learned how to use **DAX** for meaningful data calculations.
  - Understood **time series analysis** and applied forecasting for sales prediction.
  - Interpreted key business insights to support decision-making processes.
  - Improved data storytelling and **interactive visualization skills**.
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#### Importance of Time Series Analysis & Sales Forecasting:

Time series analysis allowed the identification of **seasonal trends**, **monthly peaks**, and **downturns** in sales, empowering the business to:

- **Forecast demand** and manage inventory.
- **Plan promotional campaigns** around high-performing months.
- **Make data-driven decisions** to maximize profit.

Sales forecasting provided a **predictive view of future performance**, ensuring that the business stays proactive rather than reactive.

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#### Recommendations:

1. **Promote Sales During Low-Performing Months:**  
Focus on marketing and promotional strategies during February, which consistently shows lower sales.
2. **Leverage Peak Season Insights:**  
Increase stock levels and launch targeted campaigns ahead of September and December to capitalize on high sales trends.
3. **Invest More in High-Performing Categories:**  
Prioritize inventory and marketing efforts toward **Office Supplies** and **Technology** (especially **Phones**).
4. **Expand Consumer-Focused Offerings:**  
As the Consumer segment is the most profitable, tailor offers and services specifically for this audience.
5. **Optimize Delivery Time:**  
Although the average delivery time is 4 days, further reducing it could improve customer satisfaction and repeat sales.

6. **Diversify Payment Options:**

Encourage digital and card payments by offering cashback or incentives to reduce dependency on COD and foster trust.

7. **Focus on High-Yield States and Regions:**

Strengthen operations, logistics, and outreach efforts in **California, New York, and the West region**, which bring the highest returns.

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