

Superstore Sales Performance Dashboard

Sales Performance Analysis of a Retail Superstore Using Python

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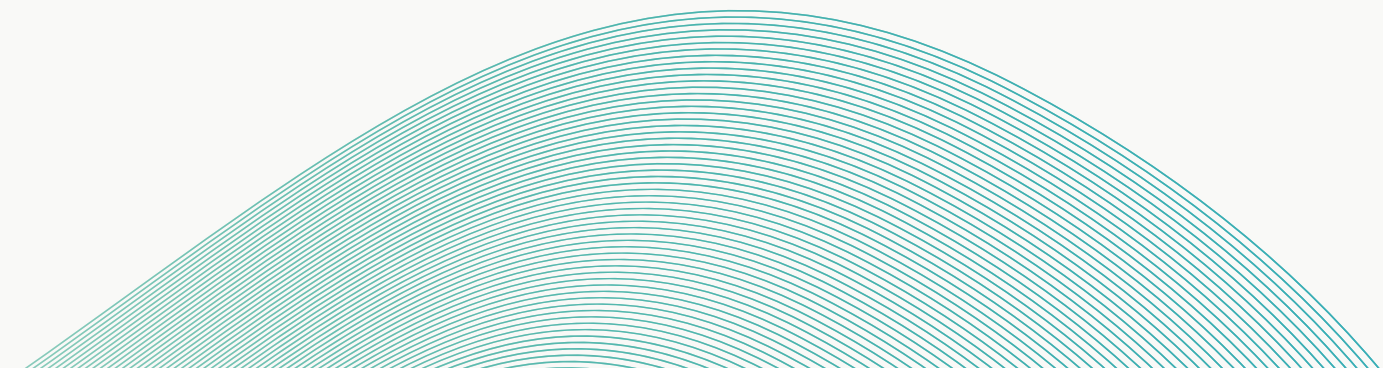


Objective

The goal of this project was to analyze the historical sales data of a retail superstore and uncover actionable insights that can help improve business decisions related to product performance, regional trends, profitability, and customer behavior. An interactive dashboard was created using Python to allow dynamic exploration of the data.



Tools & Technologies Used:

- **Programming Language** : Python
 - **Libraries** : Pandas, Plotly Express, Seaborn, Matplotlib
 - **Environment** : Jupyter Notebook
 - **Dataset** : Sample Superstore Dataset
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Data Preparation:

- Handled encoding issues while reading the CSV using `encoding='latin1'`
- Extracted Month from Order Date
- Grouped data for monthly, category-wise, and regional summaries
- Cleaned and prepared data for plotting (e.g., using `.groupby()`, `.reset_index()`)

Key Analysis and Visualizations:

1. Monthly Sales Trend

- Created a line chart to display monthly sales using `plotly.express.line()`
- Peak sales occur in (Nov–Dec), indicating strong seasonal buying patterns

2. Top 10 Products by Profit

- Sorted the data by profit and used a bar chart to highlight the most profitable products
- Technology products dominate top profit spots, while some high-sales products have poor profit margins

3. Regional Sales Performance

- Compared sales and profits across East, West, Central, and South regions
- West region leads in sales and profit, but Central lags behind despite decent sales

4. Sales by Category

- Technology leads in total sales across all categories.
- Furniture and Office Supplies have competitive sales but lower margins in comparison.

5. Sales by Sub-Category

- Phones and Chairs are top-selling sub-categories.
- Low-performing sub-categories include Fasteners, Envelopes, and Labels.

6. Top 10 Profitable Products

- The Canon imageCLASS 2200 Advanced Copier leads sales significantly, indicating strong demand for high-end office equipment.
- Most top-performing products are related to printing and binding, suggesting office supply items drive major revenue.

7. Discount analysis

- Higher discounts generally correlate with lower or even negative profits.
- The data suggests that offering deep discounts (above 40%) may hurt profitability.
- A more strategic discounting approach could help balance sales volume and profit.

Conclusion :

- November is the top-performing month, pointing to strong seasonal demand.
- Canon imageCLASS Copiers and related office equipment are top revenue generators.
- High discounts often result in negative or reduced profits, especially beyond the 20% mark.
- Profitability varies significantly by region, category, and sub-category, signaling uneven performance across business segments.

Recommendations:

- **Optimize Discount Strategy:** Limit discounts above 20% unless backed by clear ROI; explore targeted promotions instead of flat reductions.
- **Boost Inventory for Bestsellers:** Prioritize high-performing products (e.g., Canon Copiers) during peak seasons like Q4.
- **Region-Specific Marketing:** Focus marketing efforts on underperforming regions with high sales potential to balance revenue.
- **Profit-Focused Product Strategy:** Review low-profit or loss-generating categories and either improve pricing or reduce focus.
- **Seasonal Campaign Planning:** Capitalize on November sales trends with well-timed promotions and stock readiness.