Sales Insights Analysis Report

# Project Title

Superstore Sales Insights Dashboard

# Author

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# Tools Used

Python (Pandas, Matplotlib, Seaborn), Jupyter Notebook

# 1. Objective

The goal of this project is to analyze sales data from a retail superstore to uncover trends, identify top-performing products and customers, evaluate regional performance, and assess the impact of discounts on profitability. The final deliverables include visualizations, key insights, and actionable business recommendations.

# 2. Dataset Overview

- Source: Sample Superstore Dataset (Kaggle)

- Total Records: ~9,994 rows

- Key Columns:

- Order Date, Sales, Profit, Discount

- Product Name, Category, Sub-Category

- Customer Name, Segment, Region, State

# 3. Data Cleaning Process

- Removed duplicate records

- Handled missing values (dropped <0.5% null rows)

- Converted Order Date and Ship Date to datetime format

- Stripped extra spaces, standardized text case in category/product columns

# 4. Exploratory Data Analysis (EDA)

4.1 Sales & Profit Trend Over Time:

- Sales peaked during Nov-Dec, showing a strong year-end seasonal trend.

- Profits fluctuated, with losses during high-discount months.

4.2 Top 10 Products by Sales:

- Products like Chairs, Phones, and Binders contributed the most to revenue.

4.3 Category & Sub-Category Performance:

- Technology generated the highest profits

- Tables had high sales but were mostly unprofitable

4.4 Regional Profitability:

- East region delivered the highest profit, while Central performed inconsistently.

- California was the most profitable state; Texas had high sales but low margins

4.5 Discount vs Profit:

- Clear negative relationship: discounts above 20% often resulted in losses

4.6 Top 10 Customers:

- A small number of customers (top 10) contributed significantly to total revenue

# 5. Key Business Insights

1. East region generated the highest profit, while Central region was less consistent.

2. Tables had high sales but incurred significant losses.

3. Heavy discounting (>20%) led to profit erosion, especially in Furniture.

4. Technology is the most profitable category overall.

5. California is the strongest market in both revenue and profit.

6. Q4 (Oct–Dec) sees a seasonal spike in sales.

# 6. Business Recommendations

1. Restructure discounts on loss-making products like Tables to preserve margins.

2. Increase inventory and marketing for profitable sub-categories like Phones and Binders.

3. Focus campaigns on the East and West regions, where profitability is higher.

4. Monitor and manage loss-making states like Texas and Illinois more closely.

5. Target Home Office and Consumer segments for higher-margin growth.

# 7. Tools & Technologies Used

- Python: Data cleaning & analysis

- Pandas: Data manipulation

- Seaborn: Data visualization

- Matplotlib: Trend plotting

- Jupyter Notebook: Development environment

# 8. Conclusion

This analysis provided actionable insights for a retail business to:

- Refine discount strategies

- Focus on profitable geographies and products

- Align operations with customer and product profitability

The dashboard and report together can support better data-driven decisions.

# Appendices

- superstore\_sales\_cleaned.csv

- Superstore\_EDA.ipynb

- Graphs: Sales Trend, Top Products, Region-wise Profit, etc.