Optimizing Sales and Profitability for a Multi-Category Retail Superstore

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About the Organisation (Superstore)

Superstore is a multi-category retail company operating across the United States

It sells products under three major categories:

- Furniture
- Office Supplies
- Technology

Customers belong to Consumer, Corporate, and Home Office segments.

Operations span four regions: East, West, Central, and South.

The dataset used is a publicly available sample dataset from Kaggle.

Business Problems Addressed

- Identify which product categories and sub-categories generate profit and which cause losses.
- Analyze how discounts and shipping modes affect sales and profitability.
- Study regional and customer segment performance to identify business growth opportunities.

Data Description (Metadata & Descriptive Stats)

Source: Kaggle – Superstore Dataset

Total records: 9,994 transactions

Time period: 2014–2017

Key variables:

- Sales, Profit, Discount, Quantity
- Category, Sub-Category
- Region, State
- Customer Segment, Ship Mode

Descriptive Statistics :

Average sales per order ~ $230

Average profit per order ~ $29

Discounts go up to 80%, which leads to losses

Data Preparation & Methodology

Data Preparation & Initial Analysis

- No Missing value found
- No data cleaning was required as the dataset had no missing values in key fields
- Descriptive statistics calculated for Sales, Profit, Discount, Quantity
- Category, Region, Segment, and Ship Mode level aggregations performed
- Correlation heatmap showed:
  - Huge discount resulted negatively correlation with Profit
- Top loss-making products identified to highlight risk areas

Methodology

- Descriptive statistics to understand data distribution
- Group wise analysis by category, region, and customer segment
- Correlation analysis to study discount-profit impact
- Visualisation based interpretation using dashboards

Analysis Approach & Tools

Tableau

•Interactive dashboards

•Category, region, customer, shipping analysis

Python (Colab)

•Pandas & NumPy for statistics

•Correlation analysis (discount vs profit)

•Loss-making product identification

Methods Used

•Descriptive statistics

•Correlation analysis

•Category & region comparison

•Trend analysis

Key Analysis – Product & Category Performance
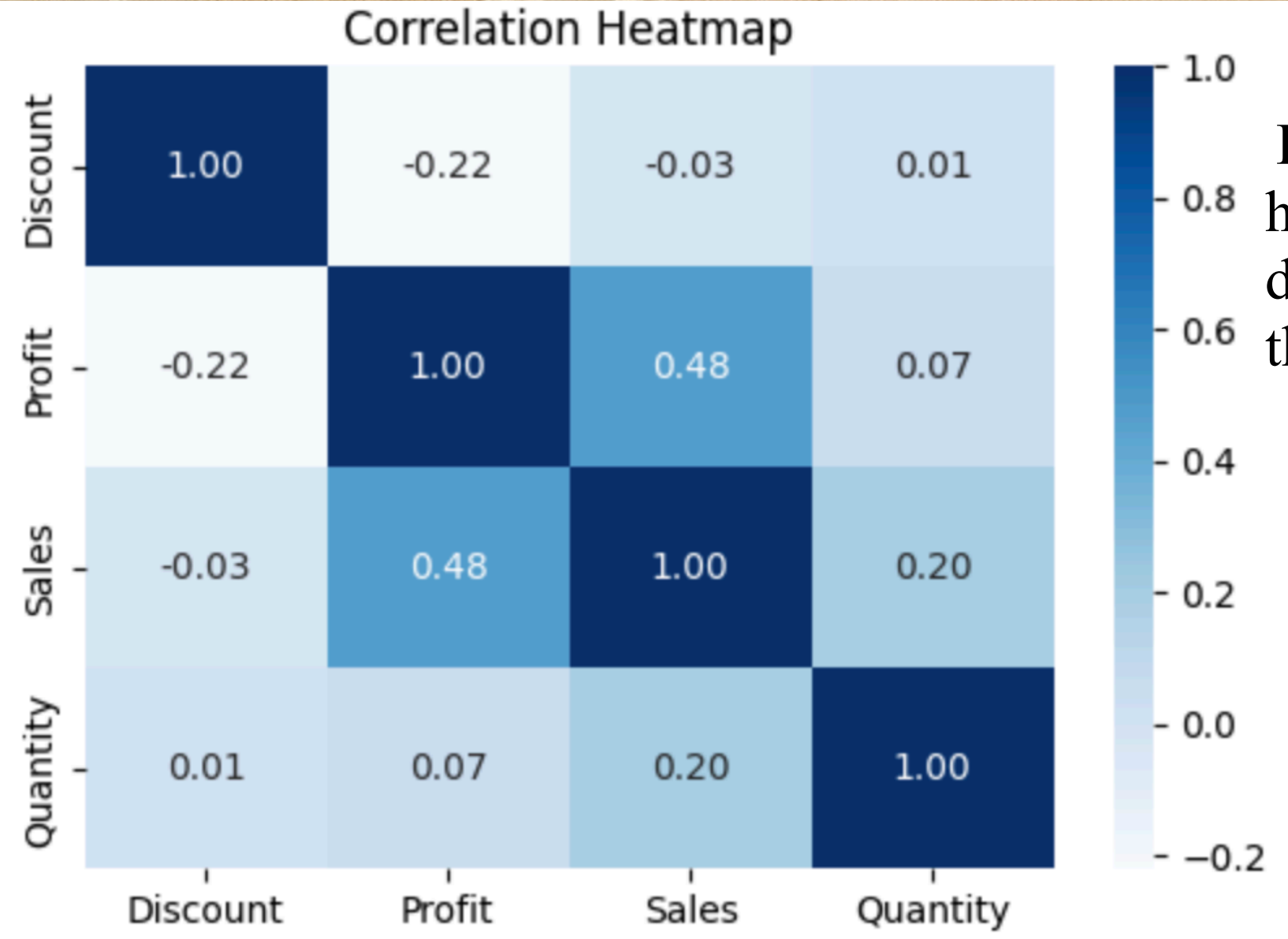
Category & Sub-Category Insights

- Technology:
  - Highest sales (~$836K)
  - Highest profit (~$145K)
  - Phones and Accessories are top contributors
- Office Supplies:
  - Stable sales (~$719K)
  - Good profit (~$122K)
- Furniture:
  - High sales (~$742K)
  - Very low profit (~$18K)
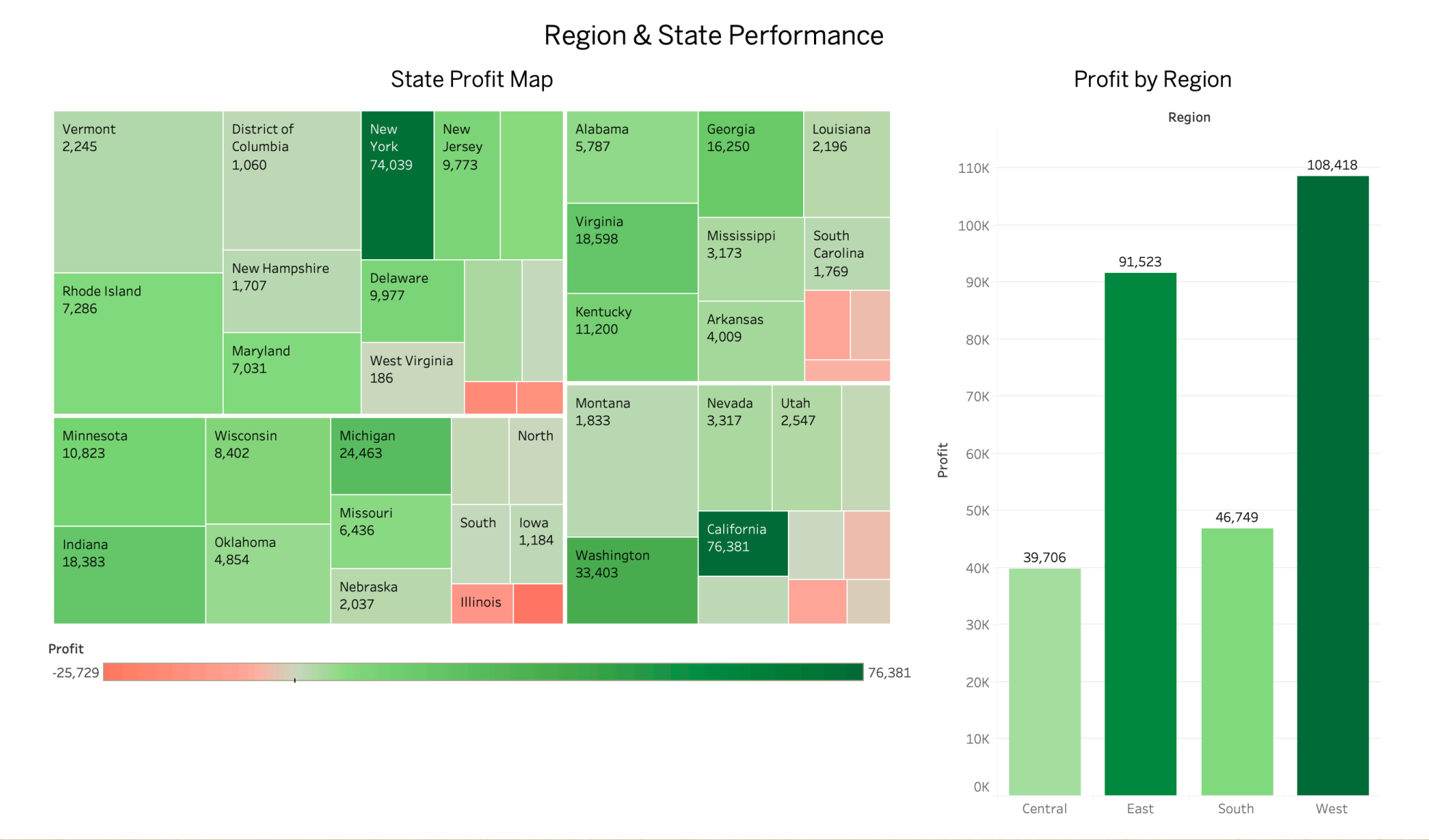 - Tables and Bookcases cause heavy losses

Key Learning:
High sales do not always mean high profit.

Profit is affected more by pricing decisions than by how much is sold. When discounts increase, profit drops quickly, even if sales remain high. This shows that heavy discounting directly weakens margins.

Most of the profit comes from only a few strong regions like the East and West. Other regions contribute much less, which means the business should not follow the same strategy everywhere and instead plan region-specific actions.
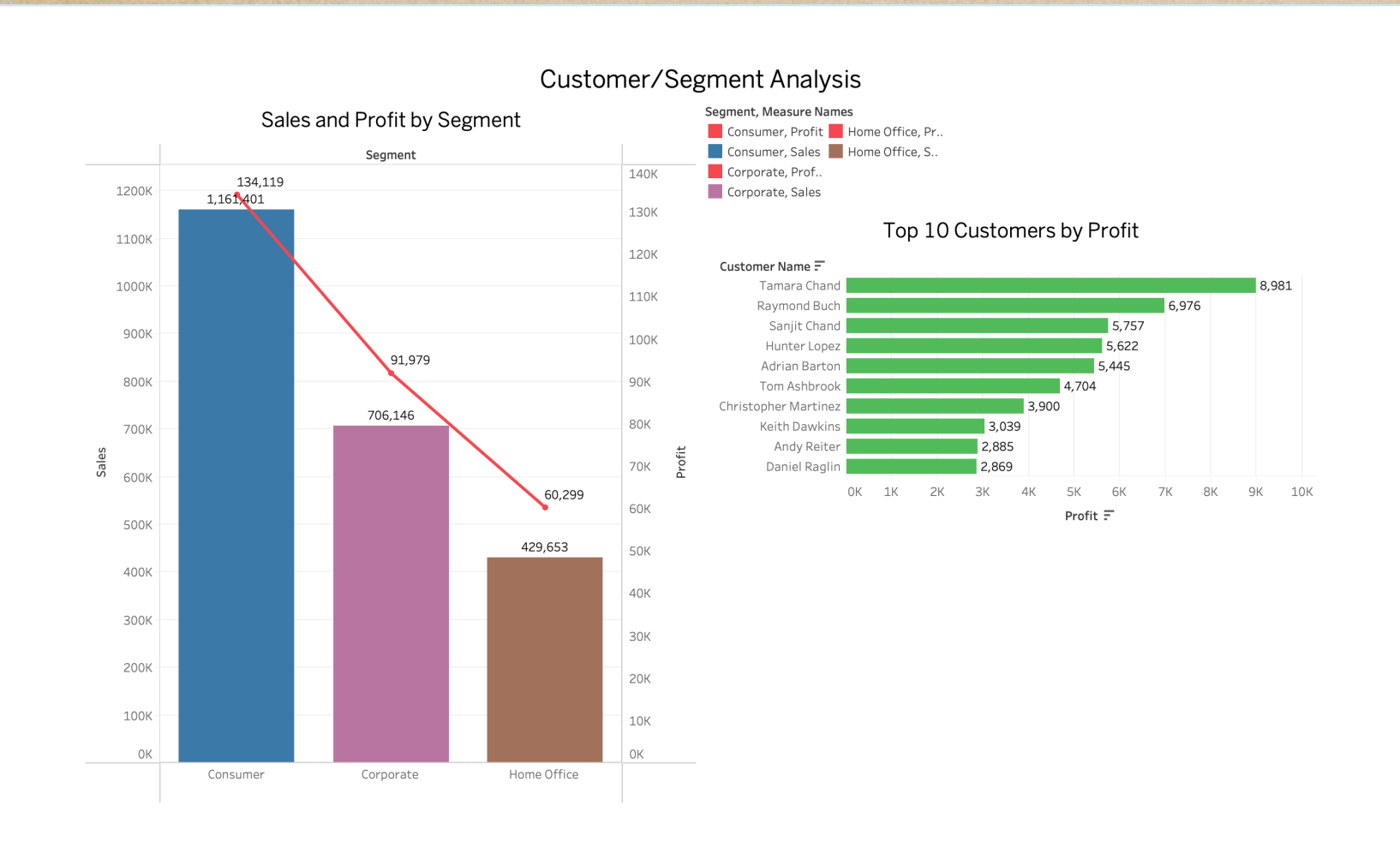
A small number of high value customers generate more profit than of low margin orders. Focusing on quality customers is more beneficial than only increasing order volume.

Key Findings & Business Recommendation

Key Findings

- High sales do not always result in high profit.
- Excessive discounts strongly reduce profitability.
- Furniture category shows frequent losses despite good sales.
- Corporate and Home Office customers generate higher profit per order.
- East and West regions perform better than Central and South.

Business Recommendations

- Limit discounts to selected products and loyal customers.
- Review pricing and shipping costs for Furniture items.
- Promote profitable products like Phones and Accessories.
- Apply region-specific strategies instead of a single uniform approach.

Conclusion

This study applied exploratory data analysis and visual analytics using Python and Tableau to evaluate sales performance, profitability drivers, customer behaviour, and strategy building in a multi-category retail superstore. The analysis highlights that profitability is strongly influenced by discounting decisions, product mix, shipping modes, and regional demand patterns. While overall sales show consistent growth, profit does not increase at the same pace due to margin leakage from excessive discounts, costly logistics, and loss making product categories. The findings clearly demonstrate that data driven decision making is essential for achieving sustainable and profitable business growth.

Key Points:

• High discounts (above 20%) significantly reduce profit, especially for Furniture and Technology products.

• Technology and Office Supplies contribute most to profitability.

• Corporate and Home Office customers generate higher profit per order compared to the Consumer segment.

• East and West regions are strong profit contributors, whereas Central and South regions need some planned strategies.

• Data-driven insights enable better control over pricing, product focus, and regional planning, leading to improved long term business performance.

Thank You