

Data Analytics Report: Sales and Profit Analysis of Superstore

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1. Correlation Matrix:

The correlation matrix provides insights into the relationships between various numerical variables in the dataset.

- Sales vs Profit:** Moderate positive correlation (0.48), indicating higher sales generally lead to higher profits.
- Quantity vs Profit:** Weak positive correlation (0.07), suggesting that higher quantities sold do not necessarily correlate strongly with higher profits.
- Discount vs Profit:** Negative correlation (-0.22), implying that increased discounts tend to lower profits.

Fig 1.1. Correlation Matrix

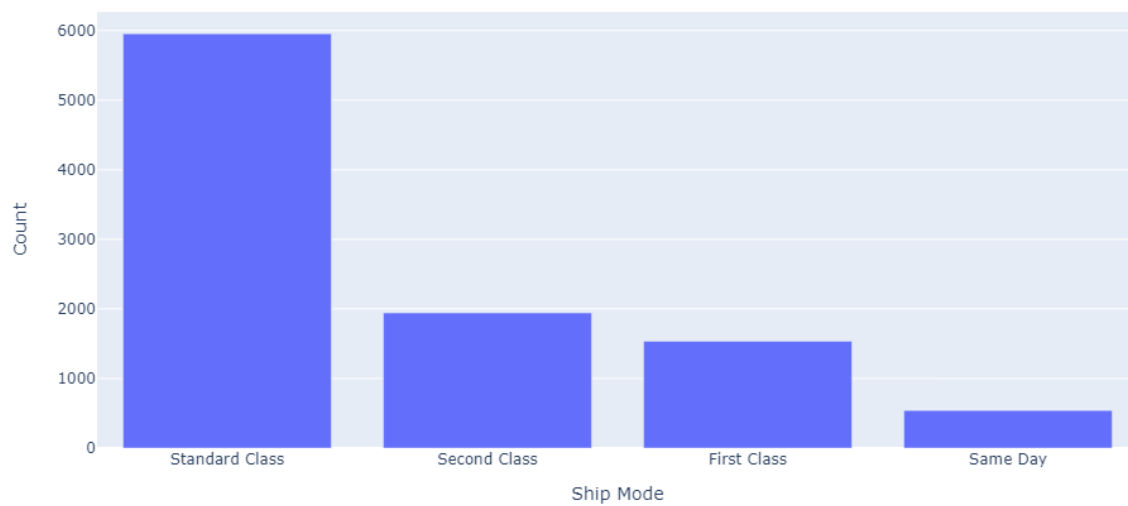


2. Count of Ship Modes:

The distribution of shipping modes used by customers shows preferences as follows:

- **Standard Class:** 5955
- **Second Class:** 1943
- **First Class:** 1537
- **Same Day:** 542

Fig 1.2. Count of Ship Modes

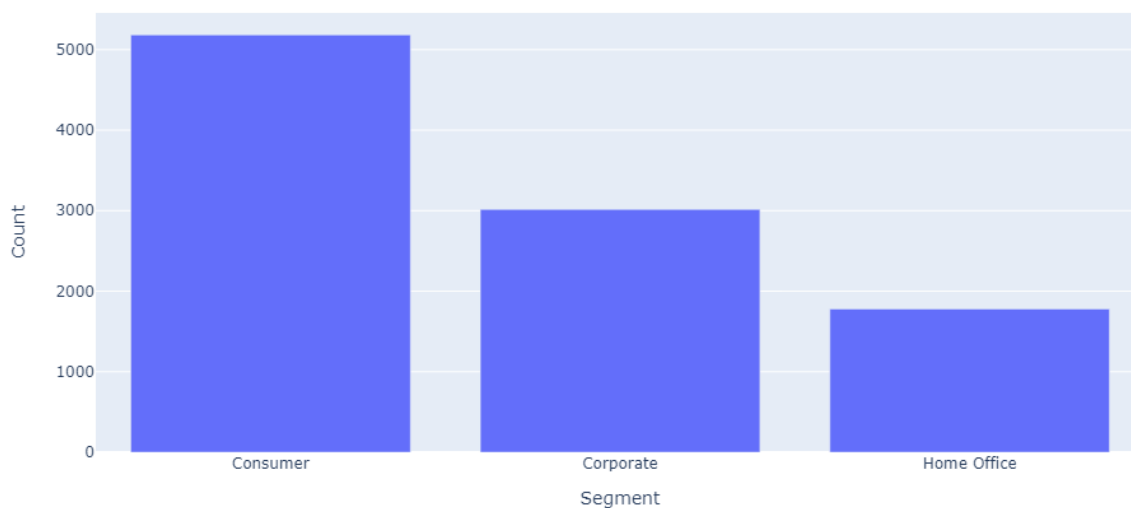


3. Count of Segments:

Analysis of customer segments reveals:

- **Consumer:** 5183
- **Corporate:** 3015
- **Home Office:** 1779

Fig 1.3. Count of Segments

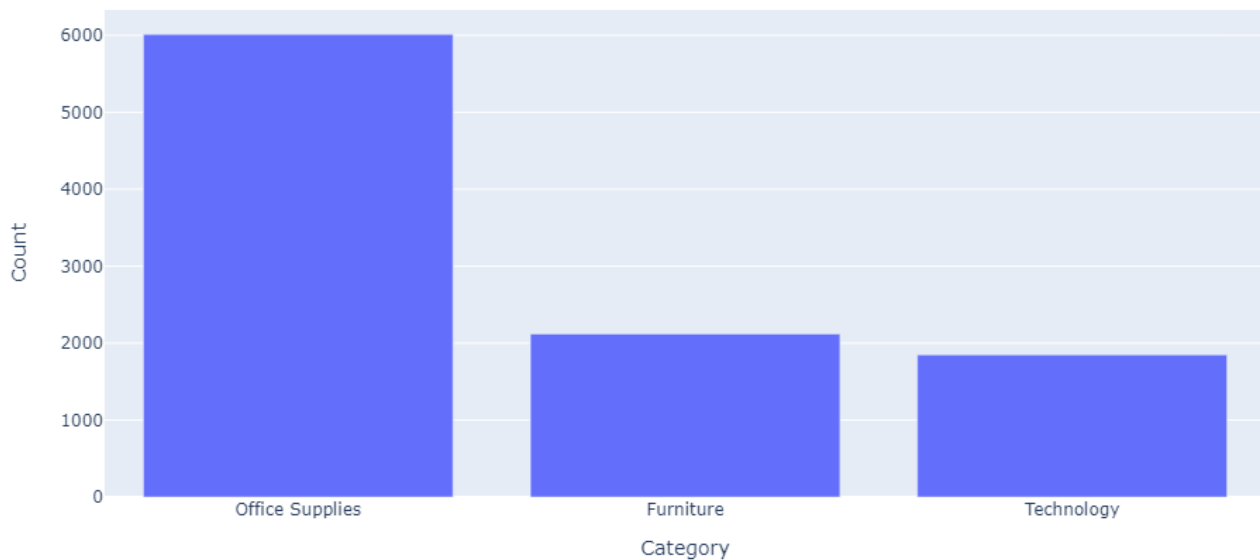


4. Count of Categories:

The distribution of product categories sold:

- **Office Supplies:** 6012
- **Furniture:** 2118
- **Technology:** 1847

Fig 1.4. Count of Categories

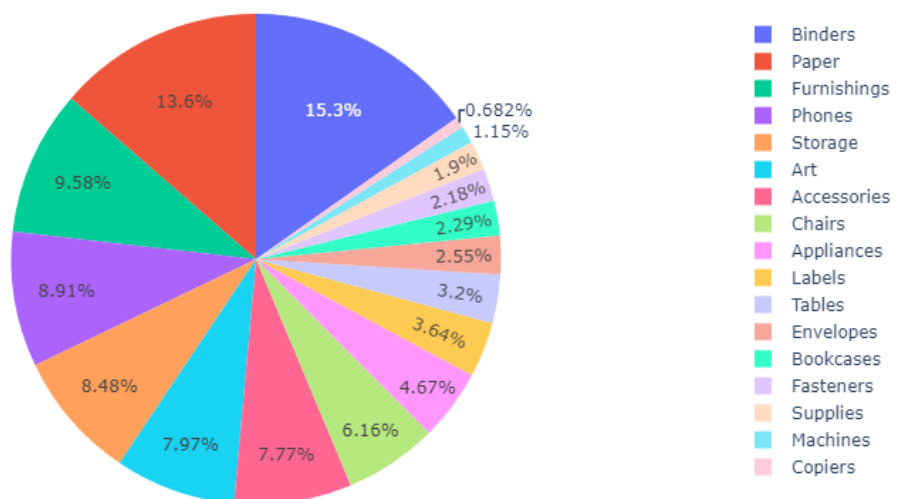


5. Count of Sub-Categories:

Detailed breakdown of sales across sub-categories highlights popular items:

- **Top sub-categories:** Binders (1522), Paper (1359), Furnishings (956)

Fig 1.5. Count of Sub-Categories

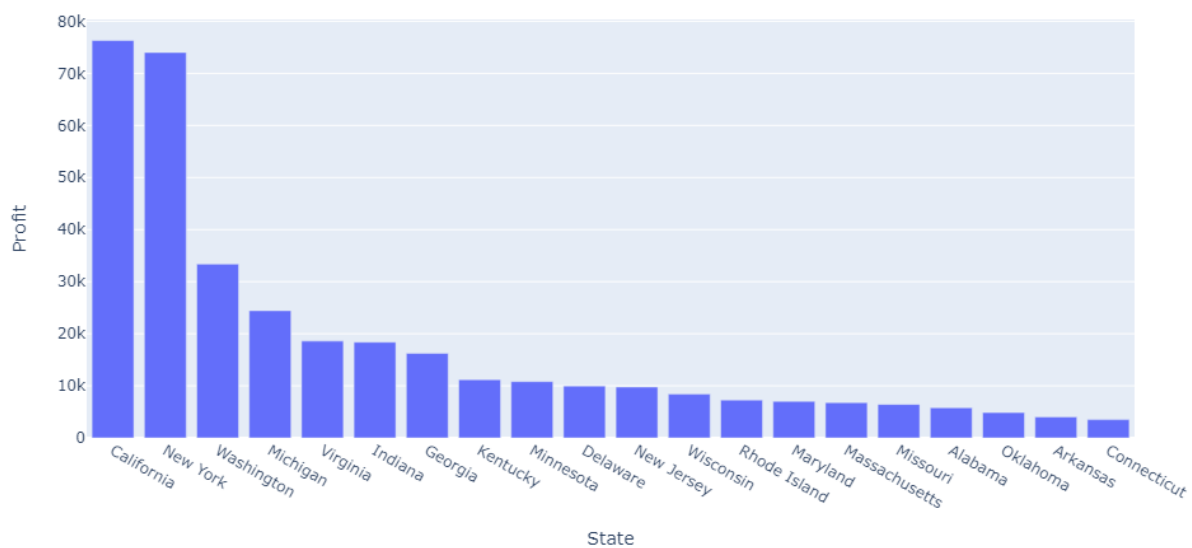


6. Top 20 States by Profit:

A look at profitability across different states:

- **California:** \$76,330.79
- **New York:** \$74,015.46
- **Washington:** \$33,368.24
- **Michigan:** \$24,428.09
- **Virginia:** \$18,597.95

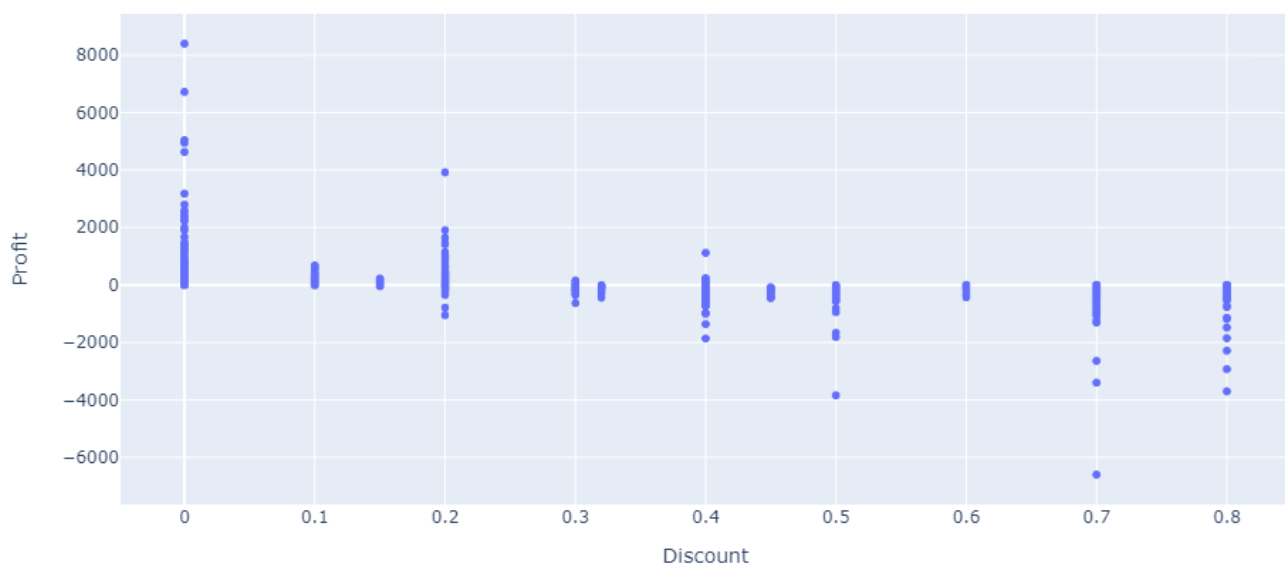
Fig 1.6. Top 20 States by Profit



7. Correlation between Discount and Profit:

There is a negative correlation (-0.22) between discounts offered and overall profitability, indicating that higher discounts generally reduce profits.

Fig 1.7. Discount vs Profit

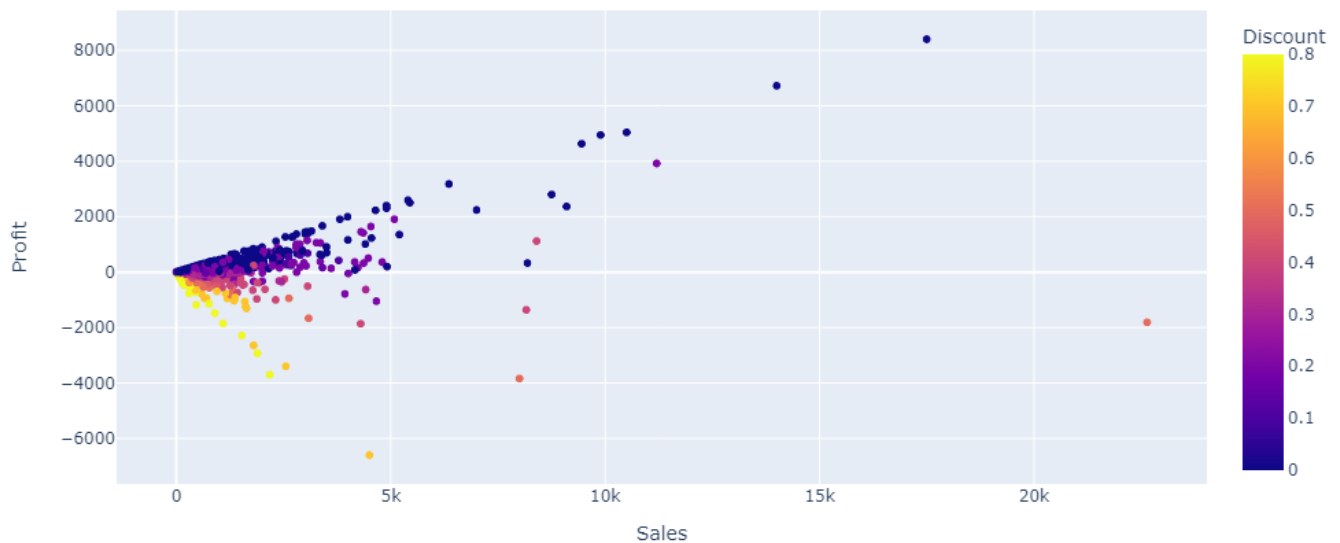


8. Summary of Sales and Profit:

Statistical summary of sales and profit metrics:

- **Mean Sales:** \$230.15
- **Mean Profit:** \$28.69
- **Standard Deviation (Sales):** \$623.72
- **Standard Deviation (Profit):** \$234.46

Fig 1.8. Sales vs Profit colored by Discount

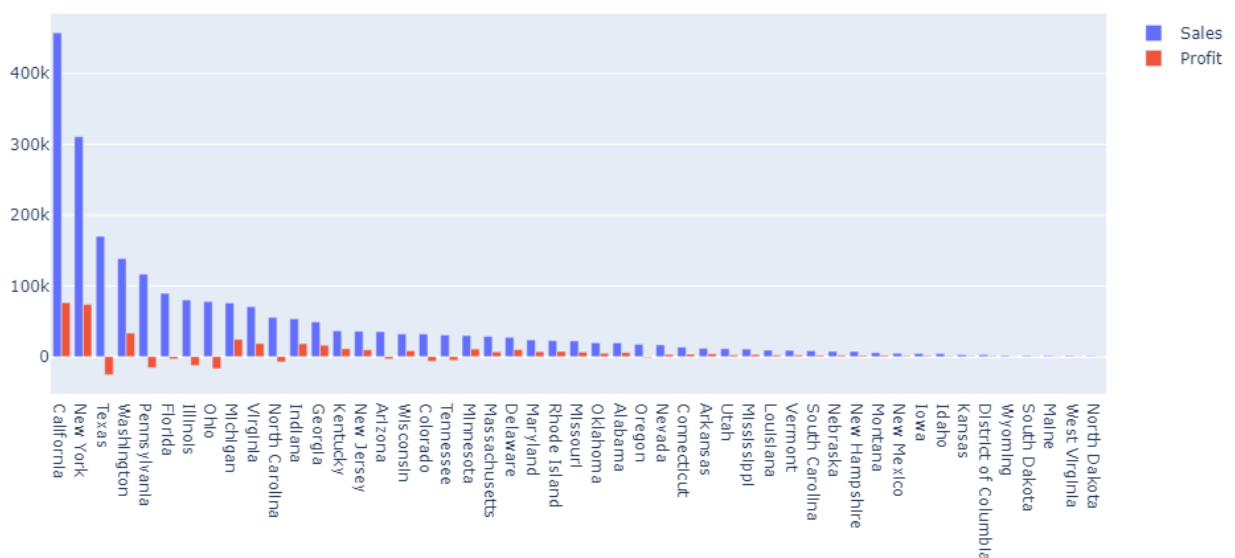


9. Profit and Sales across States:

Analysis of total sales and profit across states:

- **Highest Sales:** California (\$457,576.27)
- **Highest Profit:** California (\$76,330.79)

Fig 1.9. Profit and Sales across States

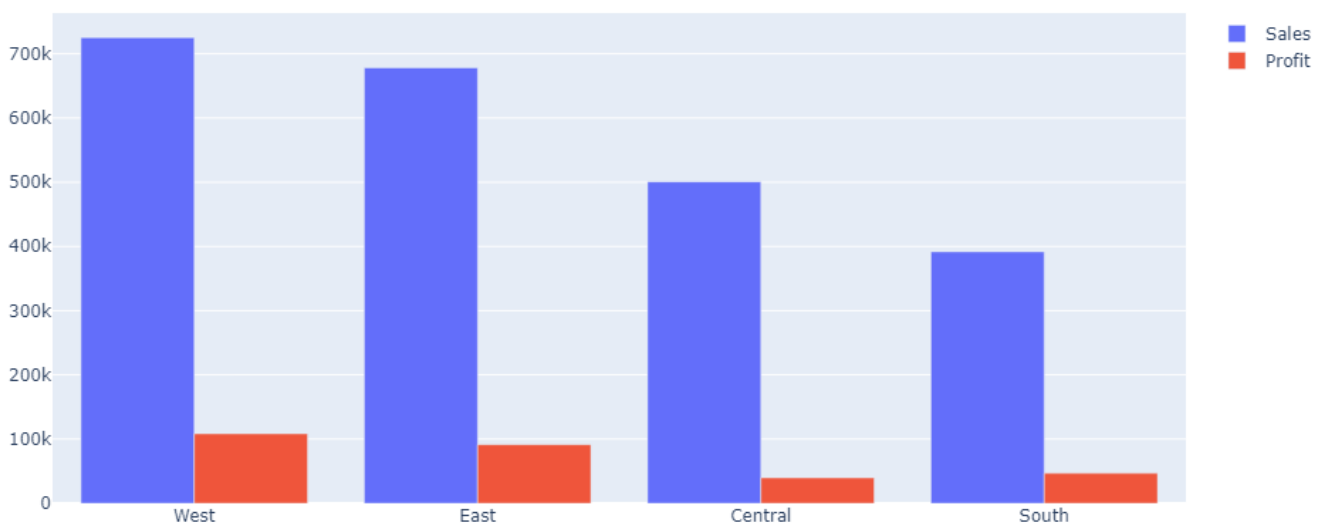


10. Profit and Sales across Regions:

Comparison of sales and profit across different regions:

- **West:** \$725,255.64 (Sales), \$108,329.81 (Profit)
- **East:** \$678,435.20 (Sales), \$91,506.31 (Profit)
- **Central:** \$500,782.85 (Sales), \$39,655.88 (Profit)
- **South:** \$391,721.91 (Sales), \$46,749.43 (Profit)

Fig 1.10. Profit and Sales across Regions



Conclusion:

This analysis provides valuable insights into the sales and profitability trends of the Superstore across different dimensions such as product categories, customer segments, shipping modes, and geographical regions. It highlights areas of strength (e.g., high-profit states like California and New York) and areas for potential improvement (e.g., managing discounts to optimize profitability). These findings can guide strategic decision-making to enhance overall business performance and customer satisfaction.

Suggested Data-Driven Decisions:

Based on the analysed data, trends, and insights, it is suggested that several major decisions can improve market performance. The following five key data-driven decisions are recommended:

- 1. Focus Marketing Efforts on High-Profit States:** States like California, New York, and Washington generate the highest profits. Concentrating marketing and promotional activities in these areas can further enhance revenue.
- 2. Optimize Shipping Modes:** Standard Class is the most frequently used shipping mode. Ensuring efficiency and cost-effectiveness in this mode can improve overall customer satisfaction and reduce shipping costs.
- 3. Adjust Discount Strategies:** The negative correlation between discounts and profits suggests that excessive discounting reduces profitability. Implementing a more balanced discount strategy can help maintain profit margins while still offering value to customers.
- 4. Expand Product Lines in Top-Selling Categories:** Office Supplies and Technology are among the highest-selling categories. Introducing new products or expanding the range within these categories can capture more market share and drive sales growth.
- 5. Segment-Specific Promotions:** With the Consumer segment being the largest, tailored promotions and targeted marketing campaigns for this segment can boost sales. Additionally, developing strategies to grow the Corporate and Home Office segments can diversify revenue streams.