

STAPLES

PRODUCT & CUSTOMER

ANALYSIS

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BACKGROUND

Role and Objective:

- **Position:** Data Engineer / Analyst.
- **Task:** Create a pipeline to store, clean, and analyze sales data.

Analysis Details:

- **Product Analysis:** Top products, Popular products, Category share.
- **Customer Analysis:** Market share, Top location, Sales overtime.

DATASET INFORMATION

- **row_id:** Unique identifier for each row in the dataset.
- **order_id:** Unique identifier for each order placed.
- **order_date:** Date when the order was placed (2015–2018).
- **ship_date:** Date when the order was shipped to the customer.
- **ship_mode:** Method of shipment used for delivering the order.
- **customer_id:** Unique identifier for each customer.
- **customer_name:** Name of the customer who placed the order.
- **segment:** Market segment to which the customer belongs (e.g., Consumer, Corporate).
- **country:** Country where the customer is located (USA only).

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DATASET INFORMATION

- **city:** City where the customer is located.
- **state:** State where the customer is located.
- **postal_code:** Postal code for the customer's shipping address.
- **region:** Geographical region where the customer is located.
- **product_id:** Unique identifier for each product.
- **category:** Category to which the product belongs (e.g., Furniture, Technology).
- **sub_category:** Subcategory to which the product belongs (e.g., Chairs, Copiers).
- **product_name:** Name of the product ordered.
- **sales:** Total sales amount for the order.

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DAGs



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GREAT EXPECTATION

category		
<div>Search</div>		
Status	Expectation	Observed Value
✓	values must belong to this set: Furniture Office Supplies Technology.	0% unexpected
country		
<div>Search</div>		
Status	Expectation	Observed Value
✓	must have greater than or equal to 1 and less than or equal to 1 unique values.	1
order_date		
<div>Search</div>		
Status	Expectation	Observed Value
✓	values must match the following strftime format: %Y-%m-%d.	0% unexpected

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GREAT EXPECTATION

order_id		
<div>Search</div>		
Status	Expectation	Observed Value
✓	values must never be null.	100% not null

postal_code		
<div>Search</div>		
Status	Expectation	Observed Value
✓	values must be greater than or equal to 0 and less than or equal to 99999.	0% unexpected

row_id		
<div>Search</div>		
Status	Expectation	Observed Value
✓	values must be unique.	0% unexpected

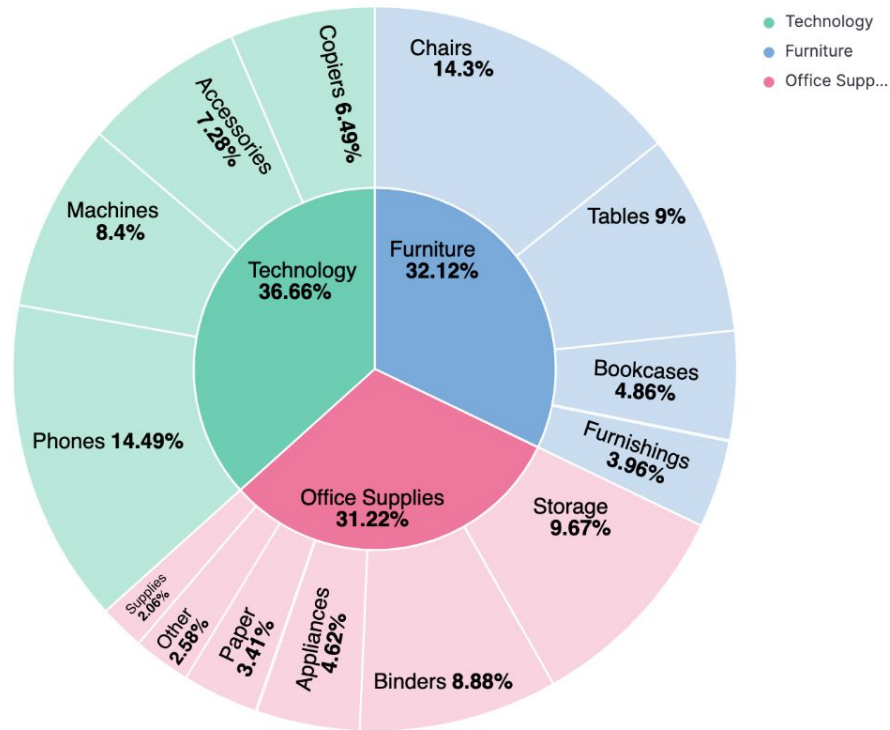
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GREAT EXPECTATION

sales		
<div>Search</div>		
Status	Expectation	Observed Value
✓	value types must belong to this set: <code>float</code> .	float64

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Product Analysis - Market Share



Product Analysis - Market Share

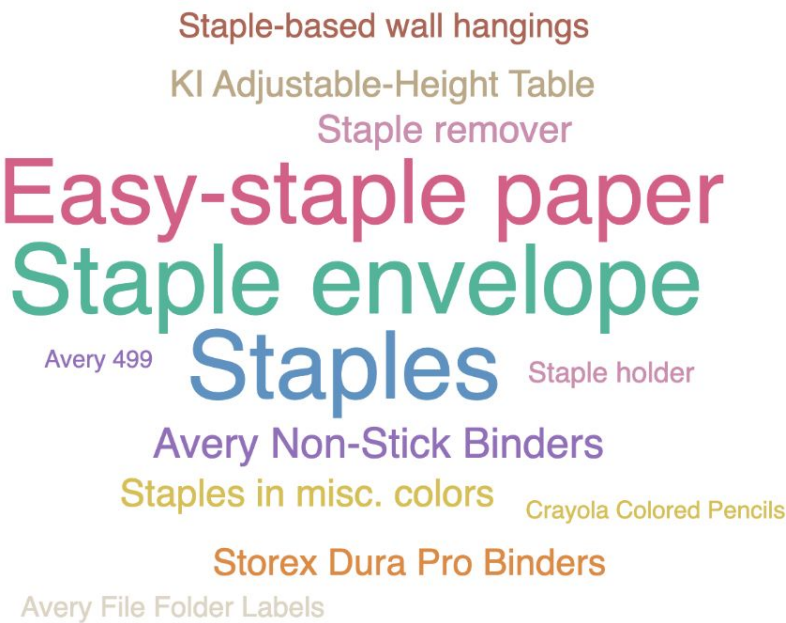
MARKET SHARE PER CATEGORY

Insight:

Balanced Portfolio: The superstore maintains a balanced product portfolio, with no single category overwhelmingly dominating sales. This diversification may mitigate risks associated with demand fluctuations in any single product category.

Recommendation:

Identify Growth Subcategories: While the overall balance is good, focus on underperforming subcategories within each main category to boost their market share.



Most Populat Products - Count of records

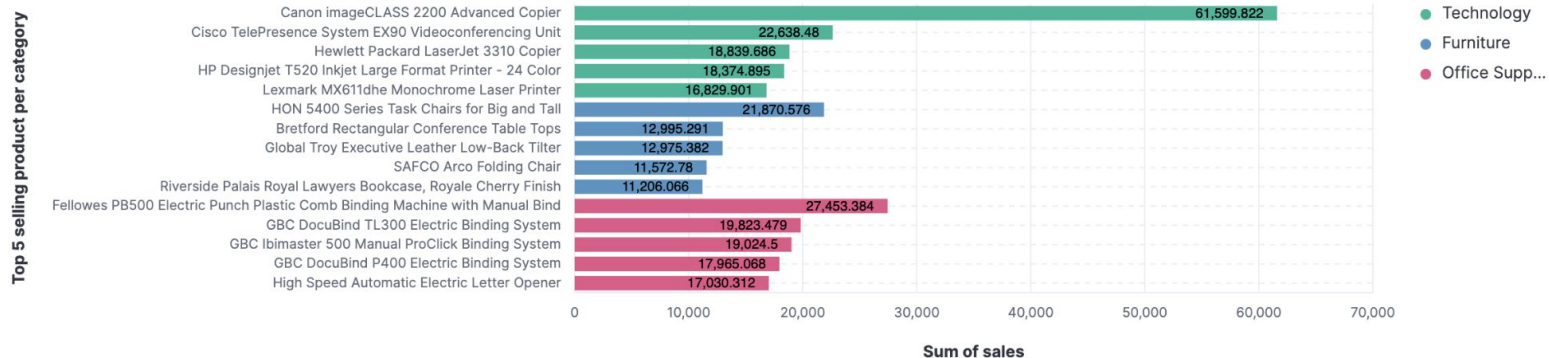
MOST POPULAR PRODUCT

Insight:

Staples Popularity: The prominence of words related to staples, such as "Easy-staple paper," "Staple envelope," "Staples," "Staple remover," and "Staple holder," indicates that staples and related products are selling in high volumes. These items appear frequently and in large font, signifying their popularity among consumers.

Recommendation:

Increase Margin: Given the high volume of sales and popularity of staple-related products, consider increasing the profit margin slightly on these popular items. This approach can enhance revenue without significantly affecting consumer demand, leveraging their established market presence.



TOP SELLING PRODUCT PER CATEGORY

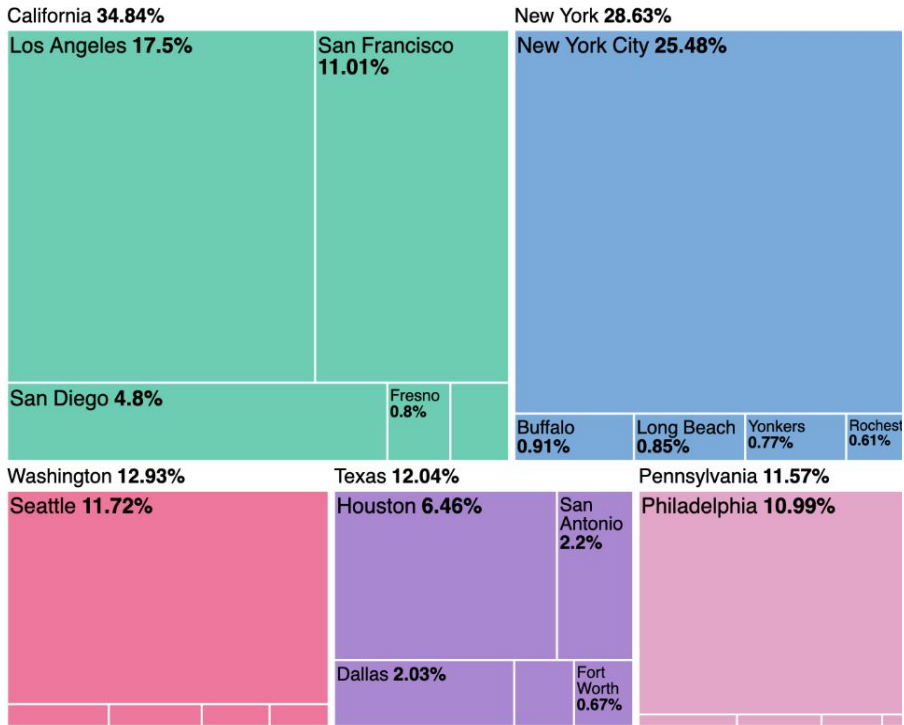
Insights:

- The **Technology** category, especially the "Canon imageCLASS 2200 Advanced Copier," outperforms the top sellers in other categories significantly highlighting a strong market demand for high-end technological products.
- While **Furniture** and **Office Supplies** categories have notable top sellers, they do not reach the sales volume seen in the Technology category.

Recommendation:

- **Expand Premium Technology Range:** Increase the selection of high-end technology products, focusing on areas with proven demand such as advanced copiers and videoconferencing units.
- **Leverage Success Factors:** Analyze the key features of top-selling items in the Furniture and Office Supplies categories. Apply these insights to enhance other products within these categories to increase their market appeal and sales.

Customer Analysis - Top Revenue Location



Customer Analysis - Top Revenue Location

MARKET SHARE PER LOCATION

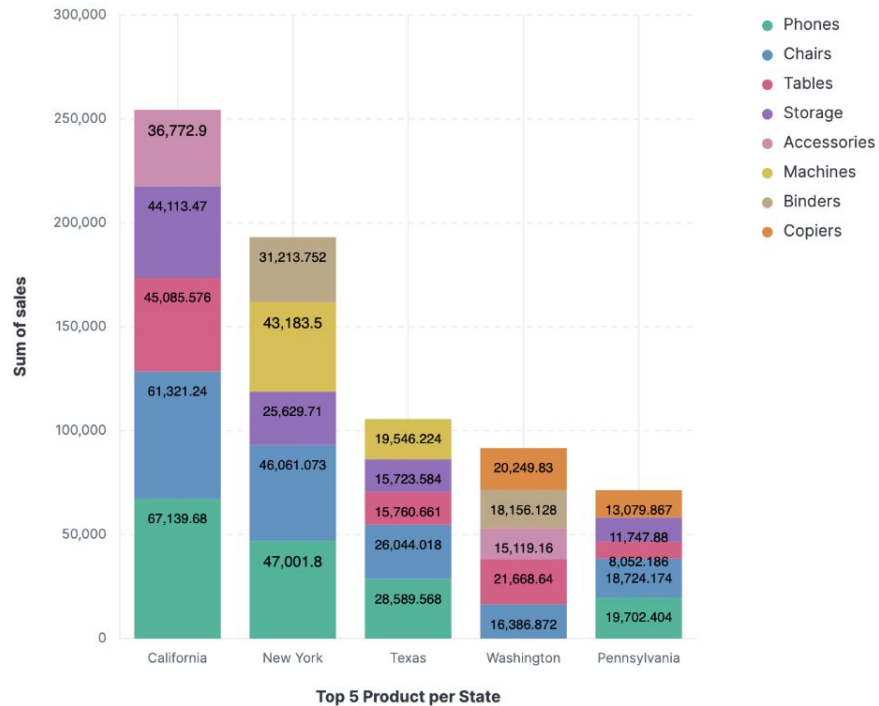
Insight:

The sales are heavily concentrated in major urban areas with California and New York City being the top revenue generators. This indicates a strong market presence and customer base in these areas.

Recommendation:

- **Strengthen Market Presence:** In locations where the company already has significant market share, such as Los Angeles and New York City, continue to strengthen market presence through targeted marketing and customer engagement strategies.
- **Expand in High-Potential Areas:** Cities like Seattle, Houston, and Philadelphia show significant revenue contributions but have room for growth. Consider expanding marketing and distribution efforts in these areas.
- **Explore Underpenetrated Markets:** Areas with lower revenue contribution like Fresno, Buffalo, and Fort Worth could represent untapped markets. Conduct market research to understand potential demand and tailor offerings accordingly.

Customer Analysis - Top Products



Customer Analysis - Top Products

TOP 5 PRODUCT PER LOCATION

Insight:

Phones and Chairs are consistently the top-selling products across all featured states, indicating strong demand for these items nationwide. Machines and Accessories also appear frequently, suggesting their widespread use and popularity. The presence of specific items like Tables in California and New York, Storage in Texas and Washington, and unique to Pennsylvania, Binders and Copiers, reflect regional preferences or operational needs.

Recommendation:

- **Enhance Marketing and Inventory for Phones and Chairs:** Given their universal popularity, increase marketing efforts and stock levels for these products in all states.
- **Tailor Product Selection to Regional Demands:** Identify and cater to the unique needs of each state. For instance, increase the availability of Tables in California and New York, and enhance the selection of Storage solutions in Texas and Washington.

Sales Overtime Comparison (Top 2 State)



SALES OVERTIME IN TOP 2 STATE

Insights:

1. **Seasonal Trends:** Sales in both states are influenced by seasonal trends, with significant increases typically in the middle and end of the year.
2. **Higher Volume in California:** California consistently outperforms New York in sales, indicating a larger customer base or higher demand.
3. **End-of-Year Surge:** The significant rise in sales during October could be linked to end-of-year budget spending or holiday shopping.

Recommendations:

1. **Maximize Peak Seasons:** Intensify marketing and stock inventory in anticipation of high sales periods, especially from July to October.
2. **Increase Engagement during Low Seasons:** Implement sales promotions or special events in January and April to boost sales during typically low periods.
3. **Customize Strategies for Each State:** Given the higher sales volume in California, tailor strategies to maintain dominance while devising specific approaches to boost New York's market performance.

CONCLUSION – INSIGHT

1. **Product Trends:** There is a clear preference for specific products such as Phones, Chairs, and Technology items, indicating robust markets for these categories.
2. **Geographic Variances:** Different states show varying preferences and sales volumes, with California and New York leading in overall sales but with distinct top-selling items.
3. **Seasonal Sales Fluctuations:** There are notable seasonal trends affecting sales, particularly a surge in the later part of the year, likely tied to end-of-year purchasing behaviors.

CONCLUSION – RECOMMENDATION

1. **Focus on High-Demand Products:** Increase inventory and marketing efforts around universally popular products like Phones and Chairs, while also catering to local preferences in different states.
2. **Seasonal Strategy Adjustment:** Plan for the end-of-year sales increase with appropriate stock levels and marketing campaigns, and develop strategies to counteract sales slumps in traditionally low months.
3. **Regional Tailoring:** Customize product offerings and marketing strategies to meet the unique demands of each geographic location, leveraging the differences in top-selling products per state.
4. **Revenue Optimization:** For staple products and other high-volume sellers, consider adjusting pricing and margins to increase revenue without compromising demand.

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THANK YOU

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