Storytelling with Data

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Introduction

I conducted a return analysis for “Super Store,” focusing on return rate and total returns. While total returns show the absolute number of returned products, return rate is a more insightful metric as it measures returns relative to sales, offering a clearer view of return trends.

My analysis identified location and time of year as key factors driving returns. Certain locations had consistently higher return rates, possibly due to regional customer preferences, product availability, or service differences. Additionally, returns fluctuated seasonally, likely influenced by holiday shopping, promotional periods, or post-seasonal dissatisfaction.

By understanding these patterns, Super Store can take proactive steps to minimize returns, optimize inventory, and improve customer satisfaction.

Understanding of Analysis

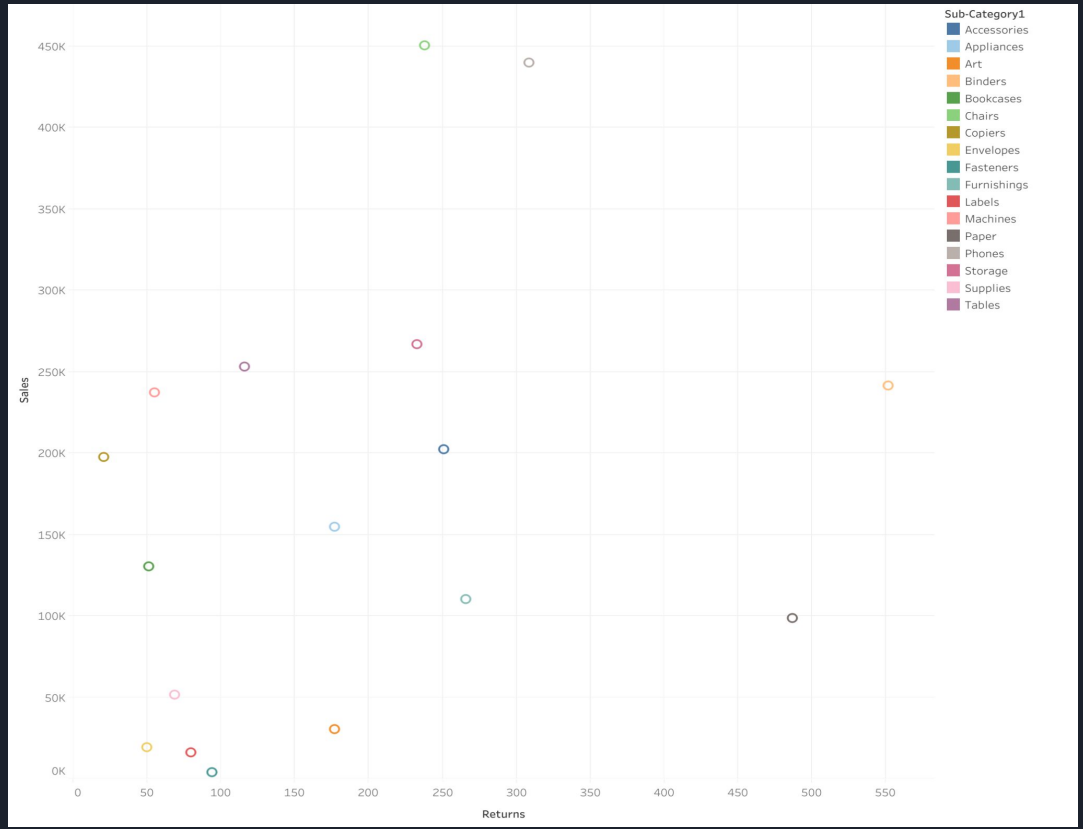
My return analysis indicates that the key root causes of returns are often influenced by the time of year and the shipping mode used. During peak seasons, such as holidays, the volume of returns tends to increase, typicallydue to higher consumer expectations and increased sales volumes. Additionally, the shipping mode can impact the condition of the product upon arrival, which might contribute to a higher return rate if items are damaged or delayed. In terms of metrics, both return rate and total cost of returns are the most valuable indicators. The return rate is essential because it shows the proportion of returns relative to sales, providing insight into the efficiency of sales and product offerings. The total cost of returns is also important as it helps to quantify the financial impact of returns on the company, including processing and restocking costs. Each metric has its use depending on the context: return rate is preferable when analyzing product performance and customer satisfaction, while total cost is more valuable when assessing the broader financial impact on the business.

Grape

Interestingly, when examining profits and returns, there doesn't appear to be a negative relationship as expected. While one might assume that higher return rates would correlate with lower profits, the data suggests that when profits increase, returns also tend to increase, and when profits decrease, returns relatively follow the same pattern.

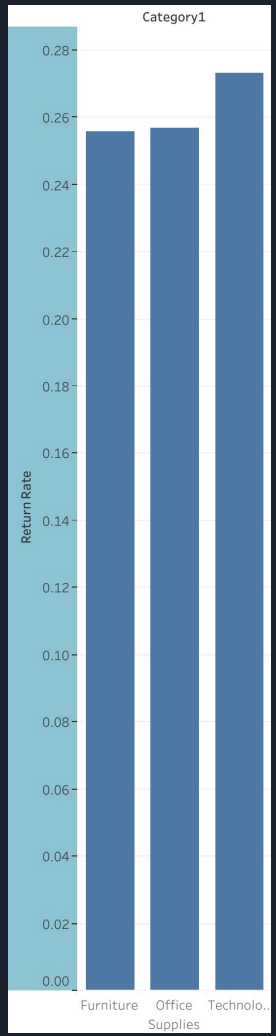
Sales vs. Returns

The scatter plot displays the correlation between total sales and total returns, aggregated by product subcategory, revealing whether higher sales lead to more returns. While a positive correlation is expected in many cases, some subcategories may show weaker or even negative correlations, indicating variations in product return rates.



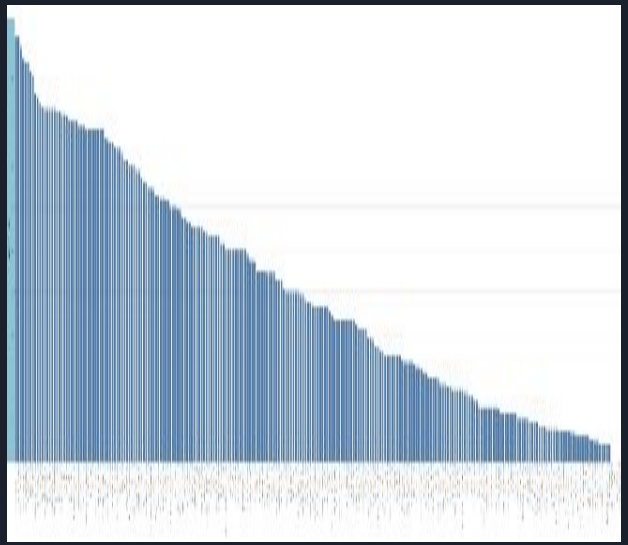
Return Rate by Customer

The bar chart illustrates the return rate for each product category, highlighting which categories experience the highest and lowest percentages of returns. This visualization helps identify trends in customer returns, potentially pointing to quality issues or mismatched customer expectations in specific categories.



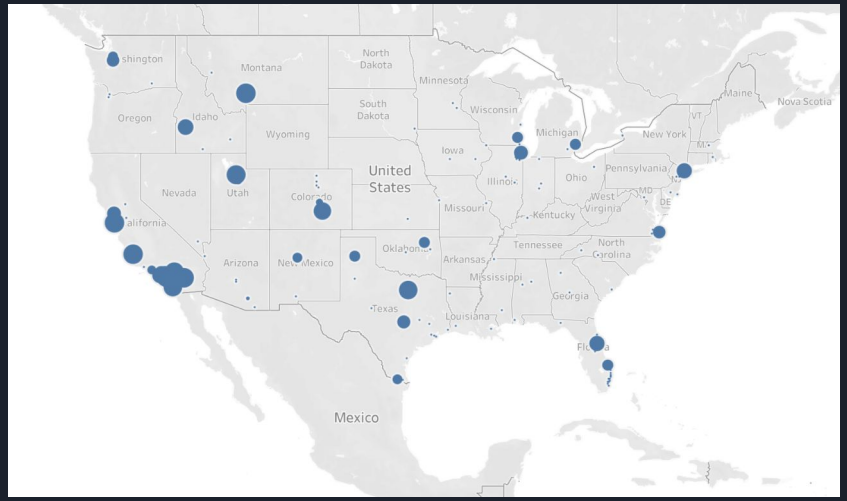
Return Rate by Customer

The chart displays the return rate by customer, focusing on those with multiple orders to identify patterns in return behavior. By filtering out customers with only one order, the analysis highlights repeat buyers more prone to making returns, helping uncover potential trends or issues.



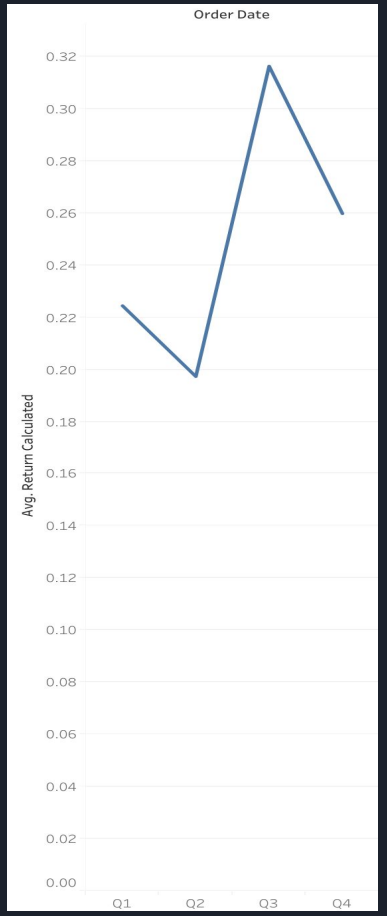
Return Rate by City

The map visualizes the return rate across different geographic regions, such as states or cities, to identify potential patterns in returned orders. This analysis helps determine whether certain areas have higher return rates, which could indicate regional differences in customer preferences, shipping issues, or product satisfaction.



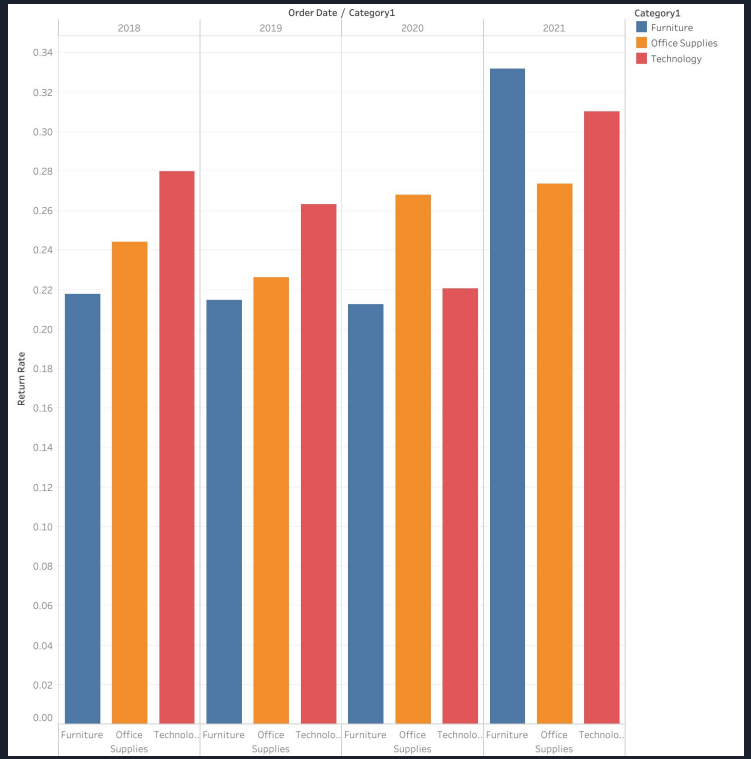
Return Rate by Quarter

The chart shows the return rate by quarter, revealing potential seasonal trends in returned orders. This analysis helps determine if returns spike during certain times of the year, such as post-holiday periods or sales events.



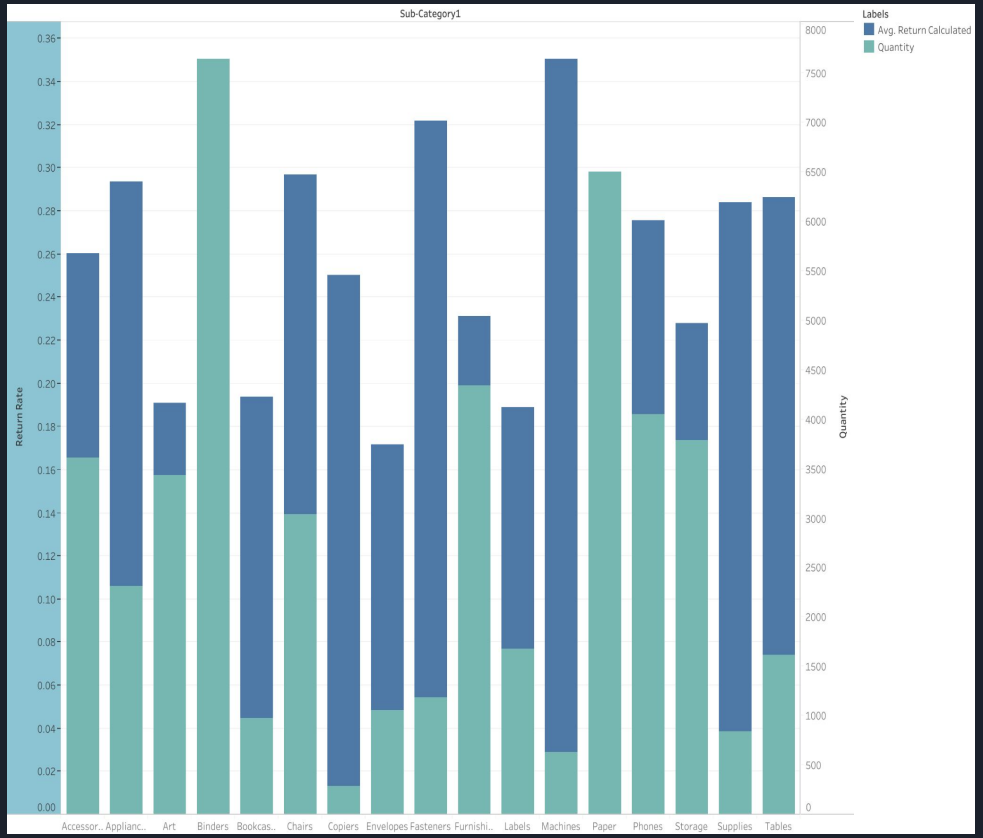
Return Rate by Year and Category

The mixed graph compares return rates across different years (2018–2021) for categories like Furniture, Office Supplies, and Technology, highlighting how return patterns have evolved over time. This visualization helps identify whether certain categories experience consistent return trends or if fluctuations occur due to external factors such as market changes or product quality. By analyzing these patterns, businesses can gain insights into customer behavior and make data-driven decisions to reduce returns and improve overall efficiency.

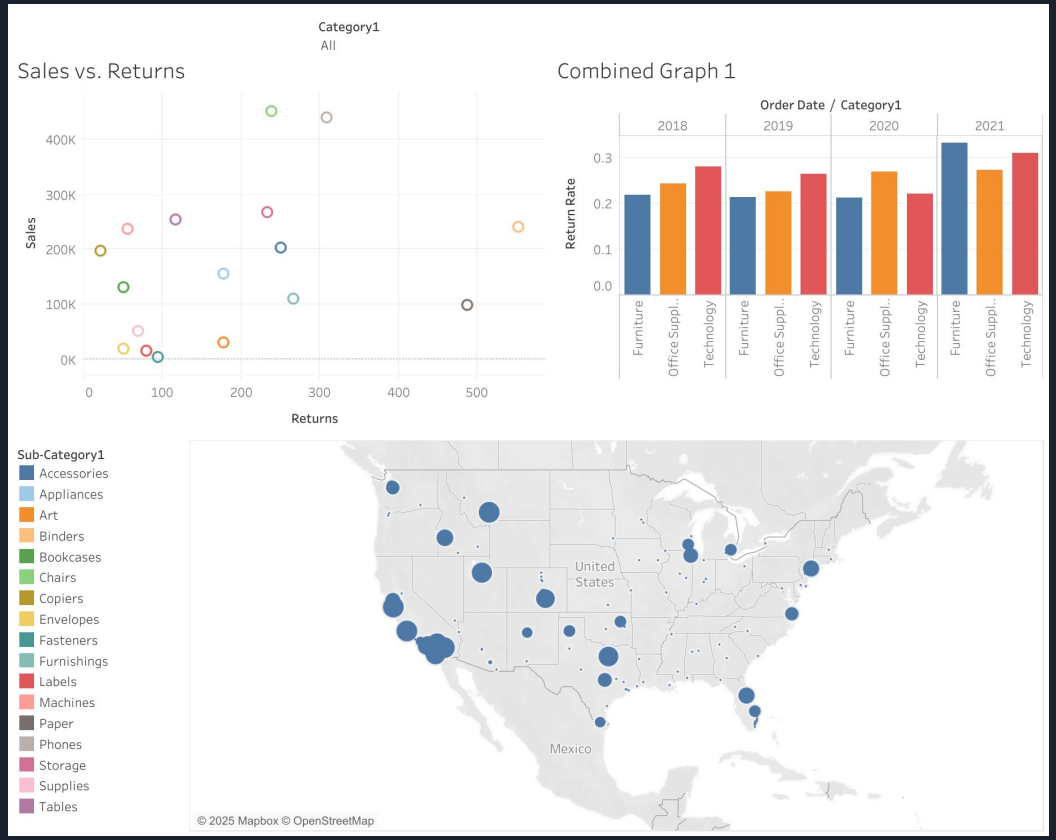


Sub-category by Return Rate and Quantity

This visualization helps identify trends, such as whether higher return rates correspond to higher quantities or if certain months exhibit unique return patterns across different subcategories.



Dashboard


Category1
All
Sales vs. Returns
Sales
400K
300K
200K
100K
0K
0
100
200
300
400
500
Returns
Combined Graph 1
Order Date / Category1
2018
2019
2020
2021
Return Rate
0.3
0.2
0.1
0.0
Furniture
Office Suppl..
Technology
Sub-Category1
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables
United States
Mexico
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Conclusion

Understanding the factors driving returns can help marketing, sales, and R&D teams make more informed decisions.

- Marketing can tailor promotions and messaging based on seasonal return trends, ensuring customers make more confident purchases.
- Sales can adjust strategies by focusing on regions with higher return rates, possibly offering better support, targeted discounts, or alternative product recommendations.
- R&D can use these insights to improve product design, quality, and features that align with customer preferences, ultimately reducing return rates.

By leveraging these findings, Super Store can enhance customer satisfaction, optimize sales strategies, and refine product offerings to reduce returns and increase long-term profitability.