# Draft Story 1



This analysis aimed to investigate major patterns and root causes of returns. In this analysis return rate is examined in correlation with product category, customer's behavior, geographical location and sesonality. Furthermore, we looked into the following two scenarios as:
- combined affect of the month/state on the return rate, and
-combined effect of the state/sub-category on the return rate

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In order to measure Return rate, we used return rate, total number of returns and total cost of the returns. This is the description for each measure used:

-Return rate is the average of return flag, it demonstrates how often is the product is returned relative to the total orders. It is applied to make comparison between the categories as product, customers, regions and sesonality.

-Total number of returns is the sum/count of the return flag, that demontrates total number of the product returns. It is used to measure total volume of returns.

-Total cost of the returns, shows sum of the sales for the returned orders. It is needed to determine categories highly impacted by the returns.

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Among the  major root of the returns were determined on each level:
Product category level. The greatest number of returns were determined at Office Supplies and Technology.

Customer level. There are small number of customers with repeated returns.

Seasonal trends. The largest numberof returns takes place at the last quarter of the year, that could be related to holiday or year-end purchases.

Geographical activity. Certain states have higher above average return rate, as California, Washington and New York.

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The relation between the average return vs total sales for each product sub-category. The highest red flag value is at Papers and Binders.
Return rate by category. It is used to determine product group with highest return.
Return rate by state. It indicates visually the states the most affected by returns.
Return rate by month, shows the time trend for the returns.
Return rate by customer. Reprsents customer with return rate>1.
Combined chart 1. Return rate by state and sub-category. It shows the most frequently returned items among the states.
Combined chart 2. Return rate by month and category. It shows the the time trend takes place among all product categories

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Scatterplot-sales vs returns by sub-category. It shows the trend higher sales sub-categories tend to have high return.
Bar-Chart- return ratio by category. Technology and Office supplies categories of high return.
Map-return rate by state. Shows the states with high tendency of product return.
Line Chart- return rate by month, it demonstrates that returns have seasonal effect.
Customer name vs return. Allows to estimate overall customers that tend to show return behavior.
Matrix view- the return rate by month and sub-category. It allows which sub-categories are most impacted among the states.
Line-Chart-return rate by month and category. Demostrates seasonal trendamong all product categories.

Filter usage for dashboard.
- Created filter for customer-return rate chart, that is >1
-Filter applied for line chart return rate by month and category, where you can shift between 3 product categories. ..

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1. Prioritize quality improvement for high return-subcategories.
2. Take further look for the customers' accounts with high returns. Receive a feedback from customers and provide sufficient customer support or report to escalation team.
3. Forthe last quarter of the year supply additional staff for customer return services and customer support.
4.Optimize inventory and develop return policies for the states impacted by return.

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1. Present dashboard to customer support team and other stakeholders.
2. Continue observe monthly trends.
3. Develop special problem-solving  approach to high return states and products.
4. Measure KPI after the proposed actions applied.