

Mid Course Summative Assessment - Data Visualization Tools

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Guidelines for Data Visualization and Analysis Project

About the Project:

In this project, you will be working with a dataset from the Superstore, aiming to answer 30 scenario-based questions through data visualisation and analysis. Your objective is to select the best chart for each question, explain your choice. This project will showcase your proficiency in data visualisation, critical thinking, and effective communication.

Skills Required:

- Proficiency in data visualisation concepts and techniques.
- Familiarity with Tableau or a similar data visualisation tool.
- Strong analytical and problem-solving skills.
- Ability to choose appropriate charts based on data characteristics and question requirements.
- Clear and concise communication skills.

Deliverables:

- A Google document containing solutions to the scenario based questions including the screenshot of relevant chart picked for each scenario, presented in a concise and well-structured format. Make sure to provide explanations that highlight your problem-solving skills.

Rubrics for Assessment:

Question Responses:

- Accuracy and completeness of answers for all 30 questions.
- Clear and concise explanations that address the question's context.

Chart Selection and Explanation:

- Thoughtful rationale for choosing specific chart types.
- Justification based on data characteristics, context, and communication goals.

Creative Enhancements:

- Effective use of creative elements to enhance visualisation quality.
- Enhancements that contribute to better understanding or engagement.

Note:

- Duplicate this document and proceed to write your solutions.
- For each scenario and question, provide a justification for the choice of chart type. Explain why it is the best option to visualise the data effectively.

- Attach screenshots of the charts you have created in Tableau for each scenario and question using the Superstore dataset. Label them clearly to match the corresponding questions in the Google Document.
- Submit the duplicated google doc file after completion.

Use these guidelines to structure your data visualisation and analysis project. Remember to maintain consistency in your responses, explanations, and visualisation styles. This project will not only demonstrate your skills but also your ability to effectively communicate complex information through visualisations. Good luck!

Problem Statement: Choose the Best chart for any 30 scenario based questions from Superstore Dataset.

Imagine you are a data enthusiast aiming to excel in data visualisation and analysis. In this task, you have been given any 30 scenario-based questions derived from the Superstore dataset, and your objective is to provide insightful answers using appropriate charts. For each question, you need to select a chart that best represents the data, explain why you chose that specific chart, and then proceed to build the chosen chart using Tableau.

Your responses should be succinct, organised, and illustrative of your problem-solving capabilities.

Dataset Link:

<https://community.tableau.com/s/question/0D54T00000CWeX8SAL/sample-superstore-sales-excelxls>

Please keep in mind:

1. **Answer Completion:** Ensure that you furnish answers for all any 30 questions and build charts for them.
2. **Encouraged Creativity:** Don't hesitate to employ visuals, creative elements, or any other innovative approaches to enhance the quality of your responses.

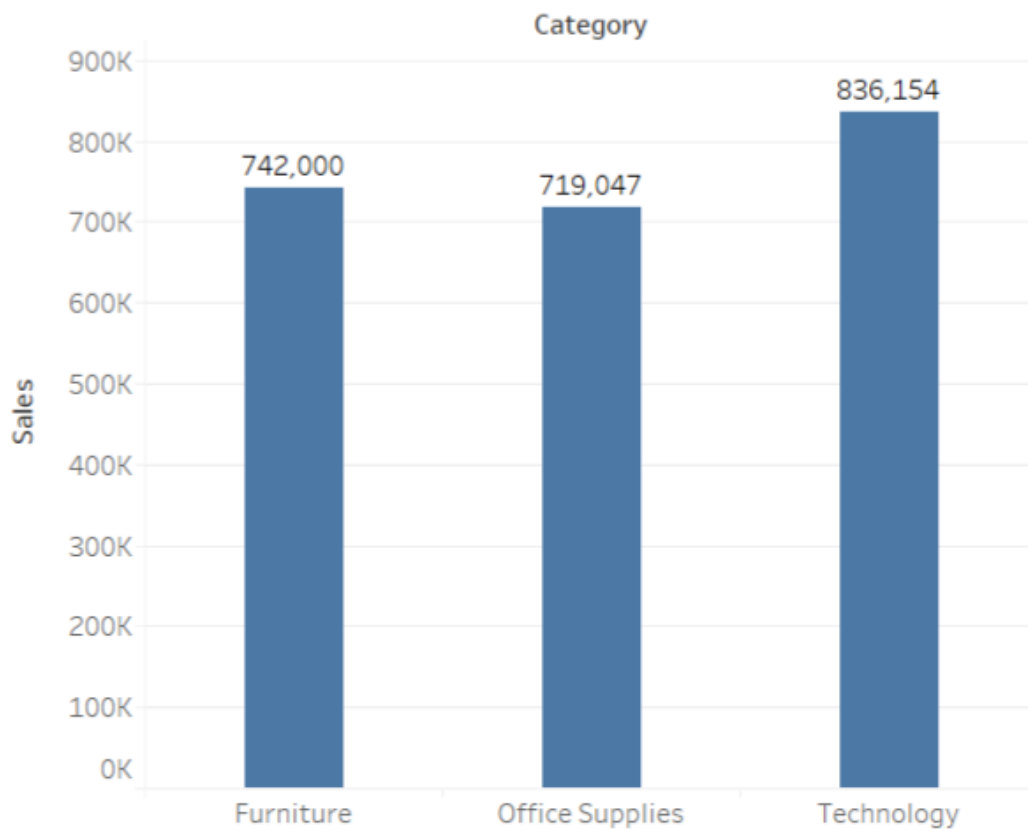
By completing this task effectively, you'll not only demonstrate your proficiency in data visualisation and analysis but also showcase your ability to effectively communicate complex concepts through both text and charts.

Good luck!

Questions:

1. Which product categories have the highest total sales in the "Superstore" dataset?

Sheet 1

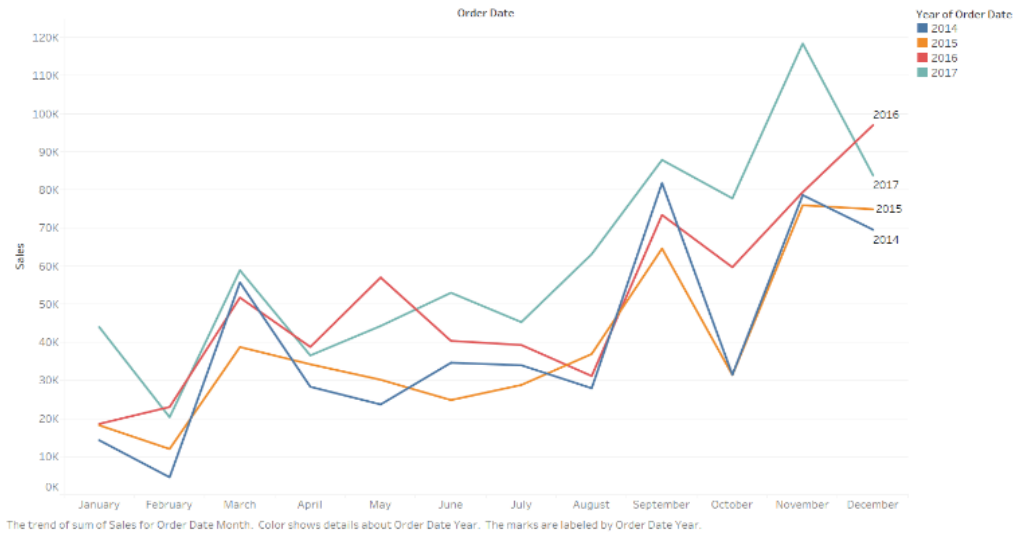


Sum of Sales for each Category.

Technology category have the highest total sales in all categories and bar graph show that clearly.

2. How do the monthly sales amounts change over the course of a year?

Sheet 2



Monthly sales show an increasing trend and the given line chart shows the trend clearly.

3. How is the total sales amount distributed among different product categories?

Sheet 3

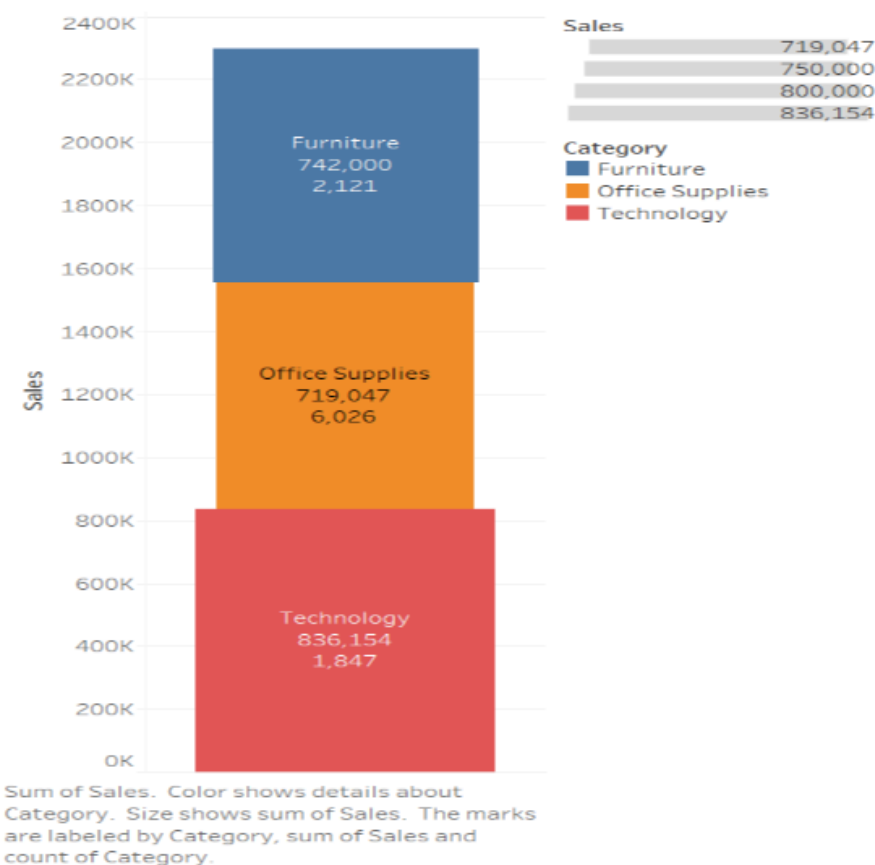
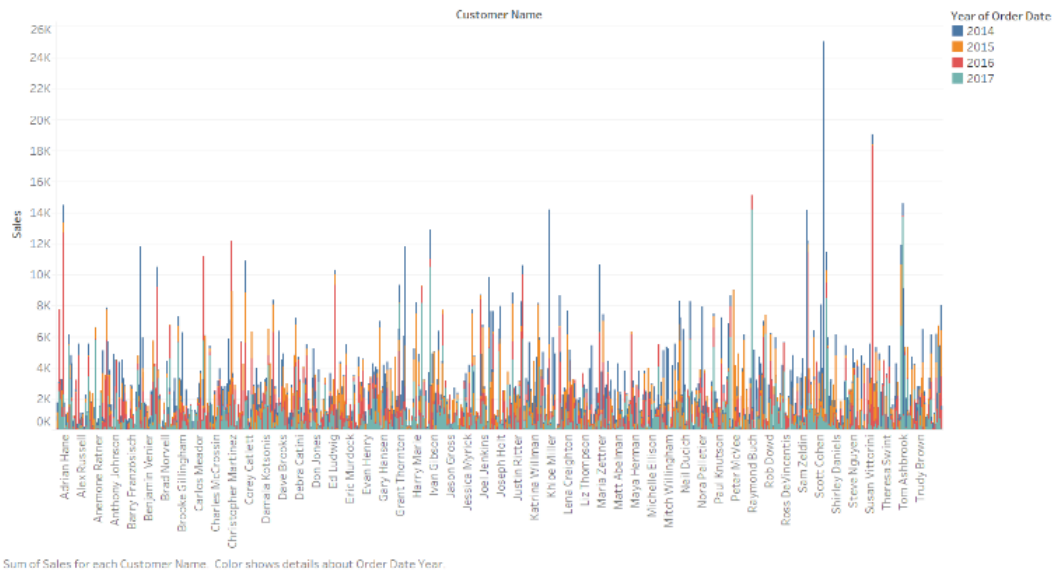


Chart show sales amount distribution and maximum sale is in technology which is shown in the chart

4. Can we analyze the sales performance of individual customers over time?

Sheet 4



There are too many customers to evaluate individual customer over time we can analyse that in this graph clearly

5. How do sales vary based on different days of the week and product categories?

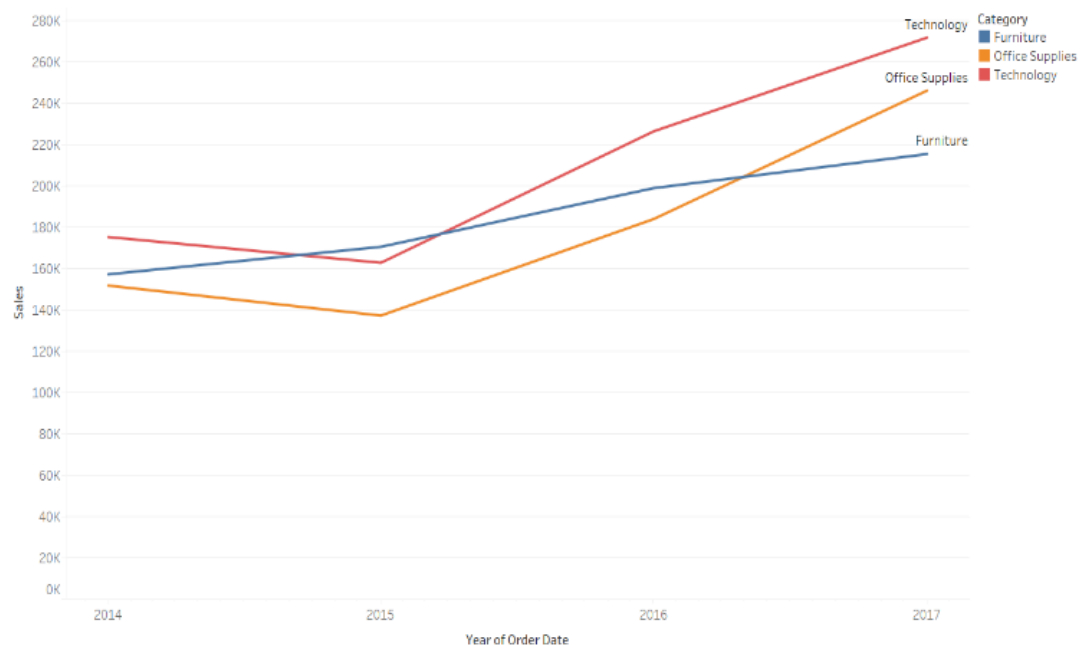
Sheet 5



We can analyse sales variation on different days of week and see when sales is high and low in this line graph

6. Can we visualise the sales growth of different product categories over time?

Sheet 6

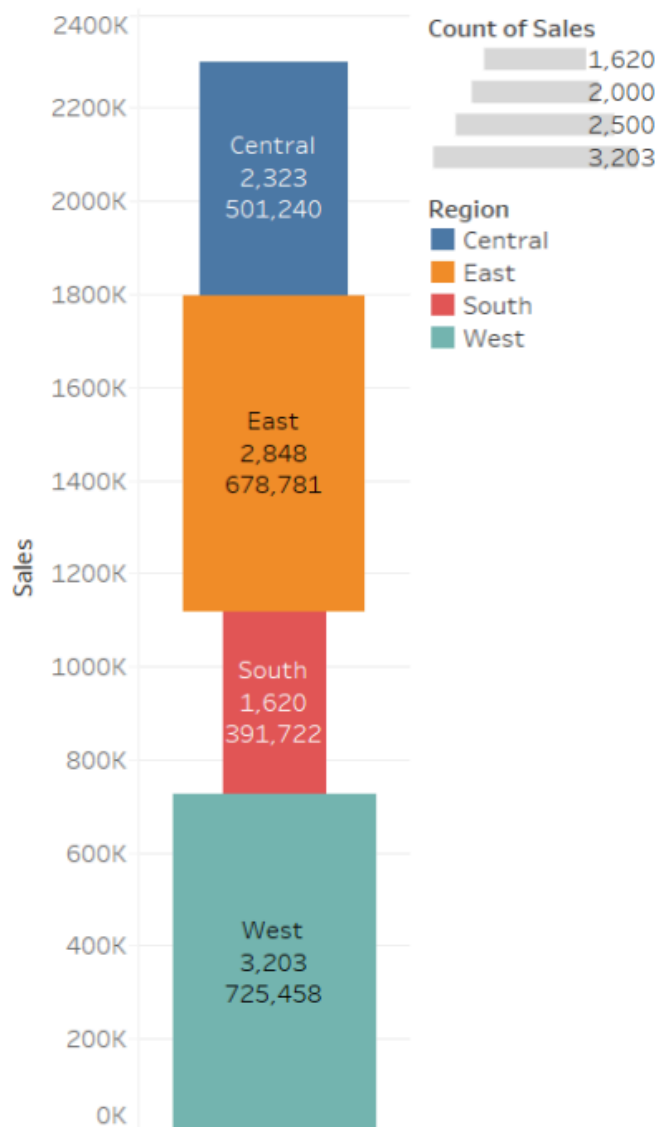


The trend of sum of Sales for Order Date Year. Color shows details about Category. The marks are labeled by Category.

Sales growth show increasing trend over time in this line graph

7. How does the sales distribution vary across different regions in the "Superstore" dataset?

Sheet 7

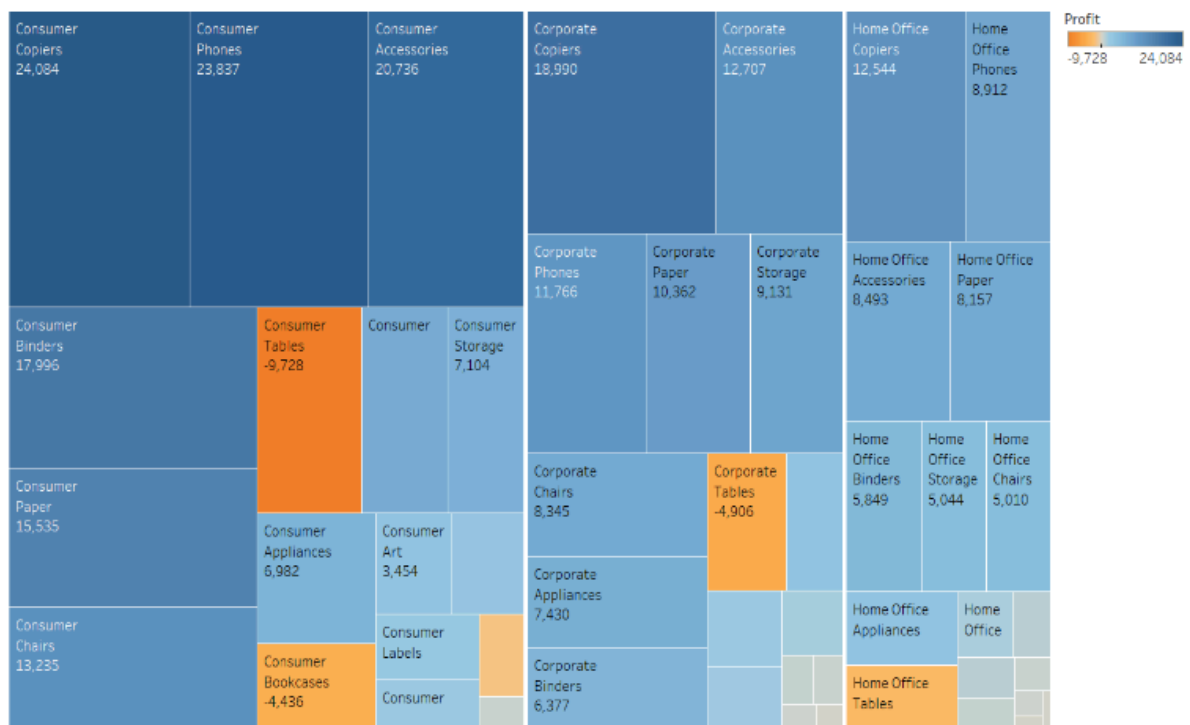


Sum of Sales. Color shows details about Region. Size shows count of Sales. The marks are labeled by Region, count of Sales and sum of Sales.

This stacked bar graph shows sales distribution in different regions and indicates that max sales are in the west region and min. sale in the south region.

- Can we visualise the composition of profits across various subcategories within different customer segments?

Sheet 8

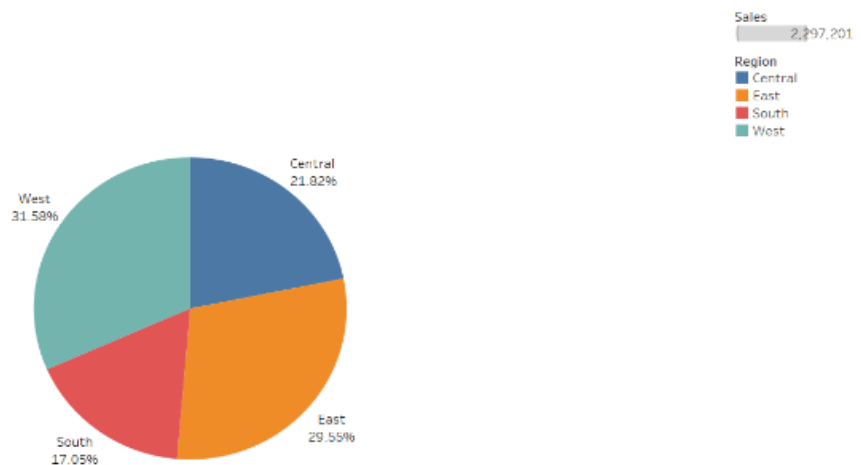


Segment, Sub-Category and sum of Profit. Color shows sum of Profit. Size shows sum of Profit. The marks are labeled by Segment, Sub-Category and sum of Profit.

This treemap shows that max. profit generated in consumer segment and least profit in home office segment various subcategories also show in different regions.

9. What is the percentage contribution of each region to the overall sales?

Sheet 9

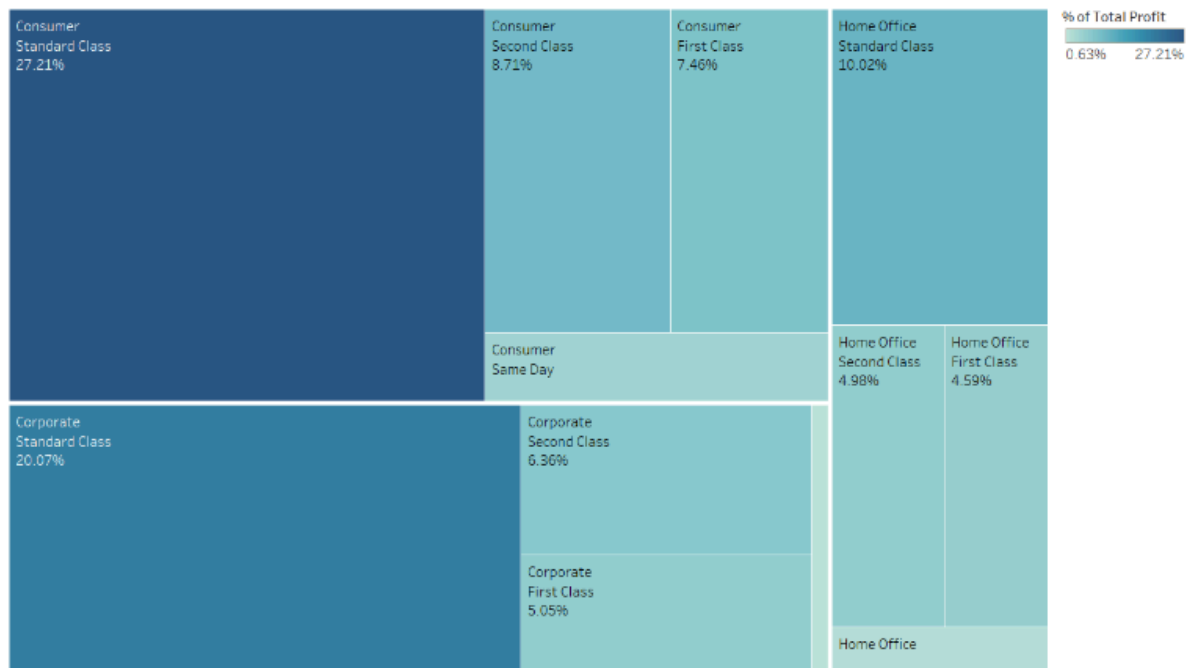


Region and % of Total Sales. Color shows details about Region. Size shows sum of Sales. The marks are labeled by Region and % of Total Sales.

This pie chart shows the percentage contribution of each region to the overall sales and shows that the west region gives max. sales and south give min. sales.

10. Can we visualise the profit margins associated with different shipping modes and customer segments?

Sheet 10

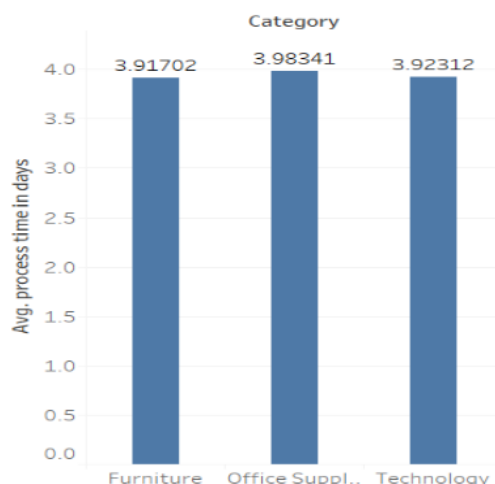


Segment, Ship Mode and % of Total Profit. Color shows % of Total Profit. Size shows % of Total Profit. The marks are labeled by Segment, Ship Mode and % of Total Profit.

This chart shows that the consumer segment gives a max. profit margin and in all segments standard class shipping gives max. profit margin.

11. How long does it take to process orders for different product categories?

Sheet 11

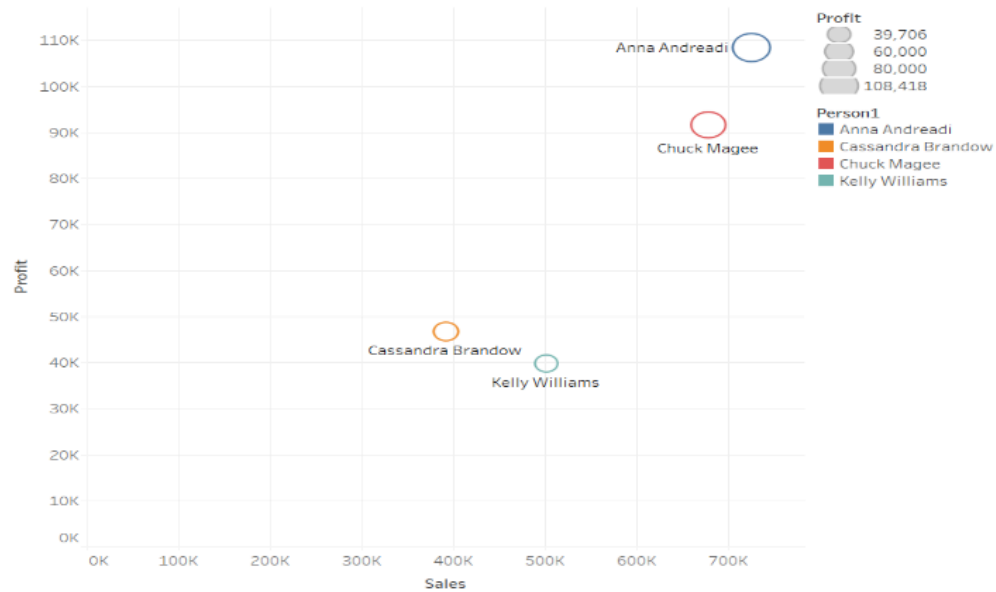


Average of process time in days for each Category. The marks are labeled by average of process time in days.

This bar chart shows process time for different product categories.

12. How do discounts affect overall profit?

Sheet 12

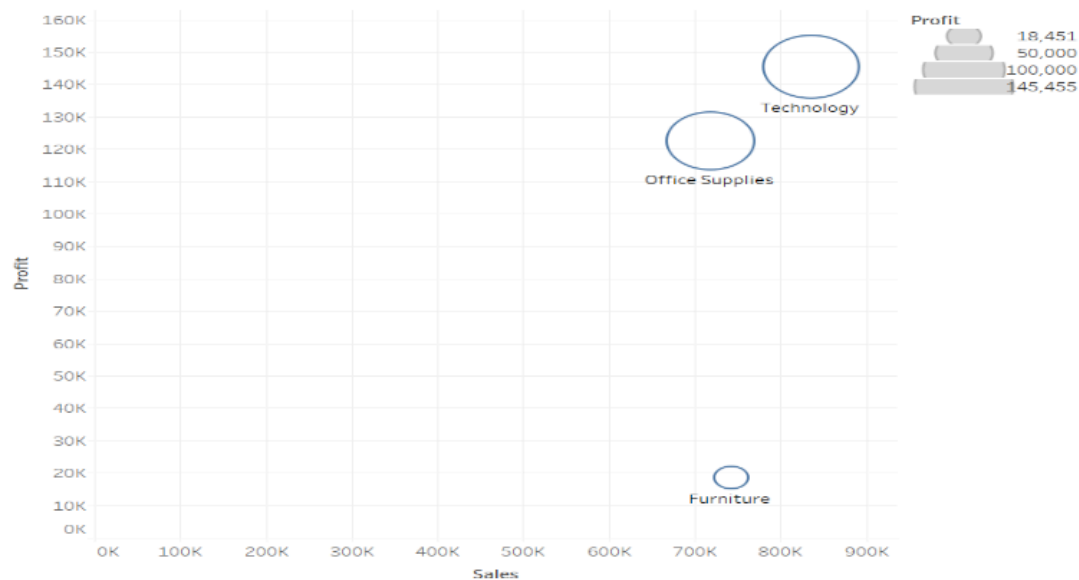


Sum of Sales vs. sum of Profit. Color shows details about Person1. Size shows sum of Profit. The marks are labeled by Person1.

This chart shows performance of different sales people and shows Anna is the best performer.

13. Can we visualise the relationship between product sales and profitability for different product categories?

Sheet 13

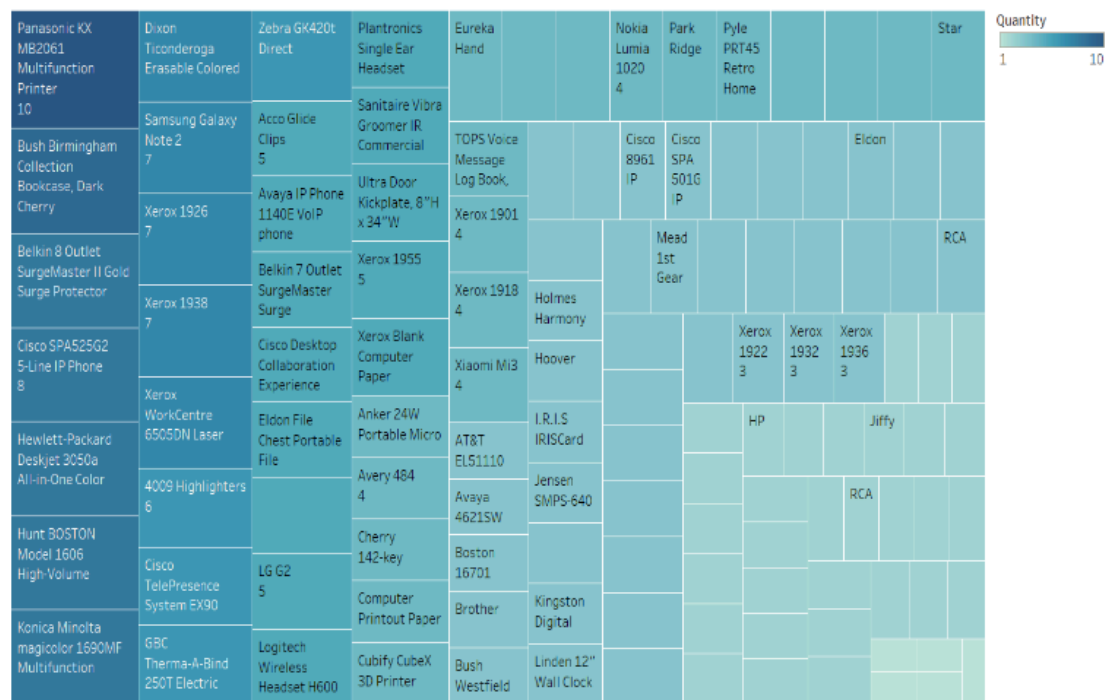


Sum of Sales vs. sum of Profit. Size shows sum of Profit. The marks are labeled by Category. Details are shown for Category.

This chart shows relationship between product sales and profitability for different product categories

14. What is the distribution of order quantities for products in the dataset?

Sheet 14

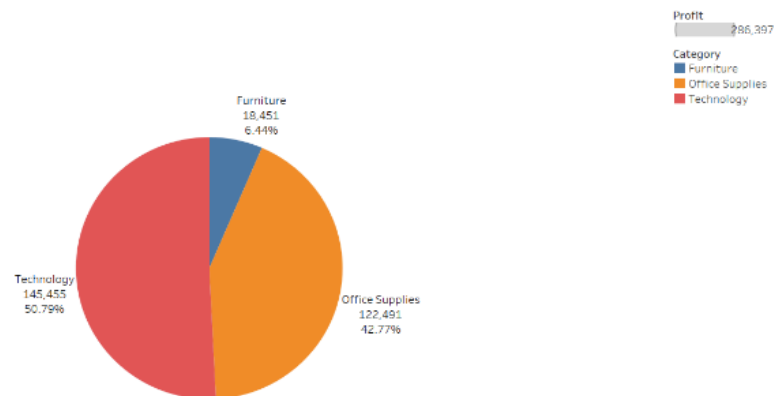


Product Name and Quantity as an attribute. Color shows Quantity as an attribute. Size shows Quantity as an attribute. The marks are labeled by Product Name and Quantity as an attribute.

Distribution of order quantities for different products varies from min. 1 to max. 10

15. How do the profit distributions vary across different product categories?

Sheet 15

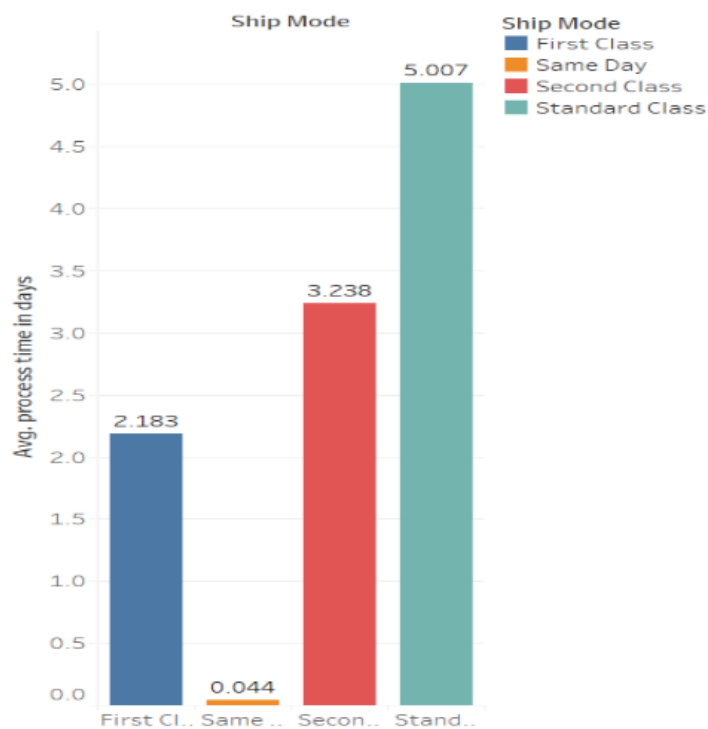


Category, sum of Profit and % of Total Profit. Color shows details about Category. Size shows sum of Profit. The marks are labeled by Category, sum of Profit and % of Total Profit.

This pie chart shows that technology and office supply give more than 90 % of profit and furniture categories generate only 6% profit.

16. Can we compare the shipping time distributions for different shipping modes?

Sheet 16

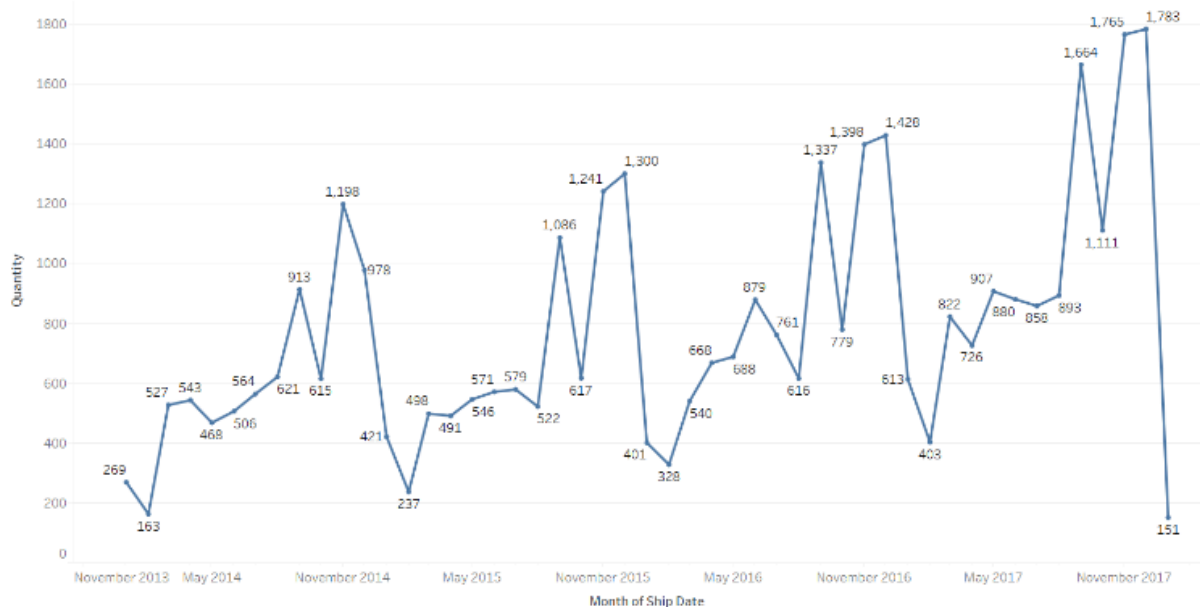


Average of process time in days for each Ship Mode. Color shows details about Ship Mode. The marks are labeled by average of process time in days.

Shipping time distributions for different shipping modes vary from same day to 5 days.

17. What is the monthly trend in the number of orders shipped?

Sheet 17

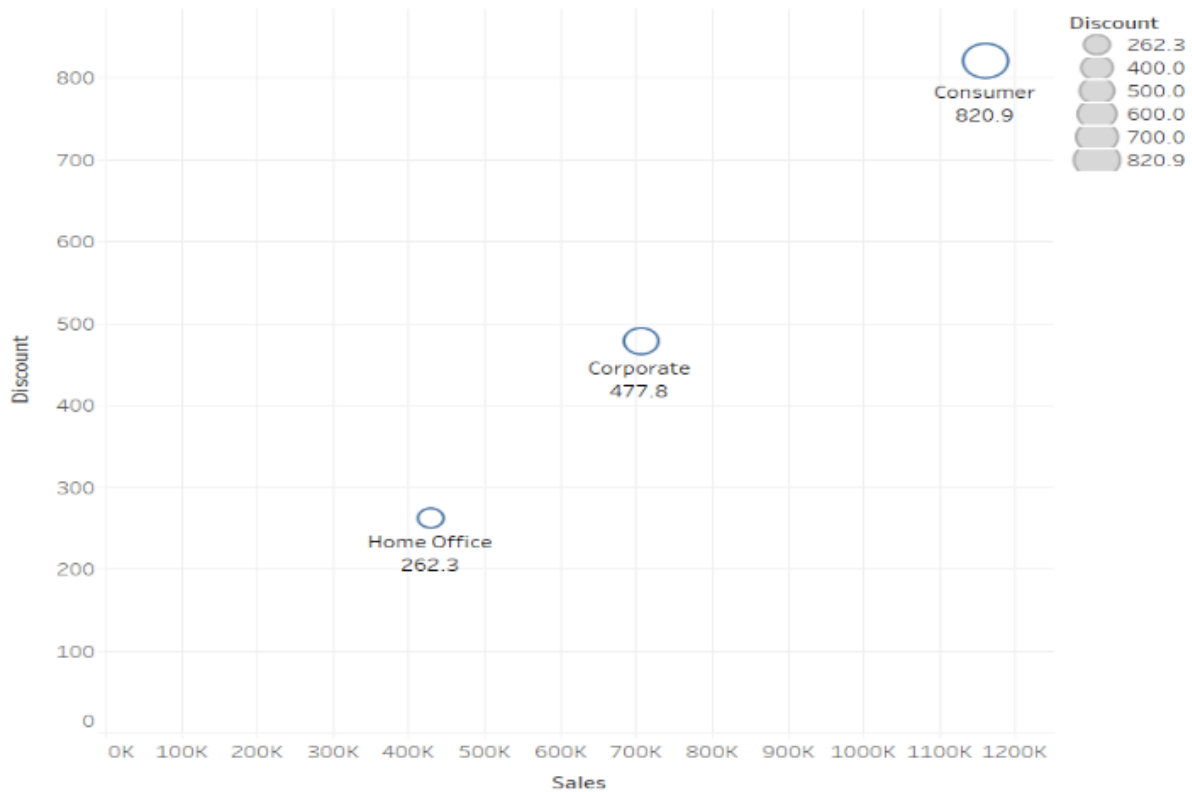


The trend of sum of Quantity for Ship Date Month. The marks are labeled by sum of Quantity.

This line chart shows that in the November and December month max. orders book every year.

18. How do different customer segments perform in terms of sales and discount rates?

Sheet 18

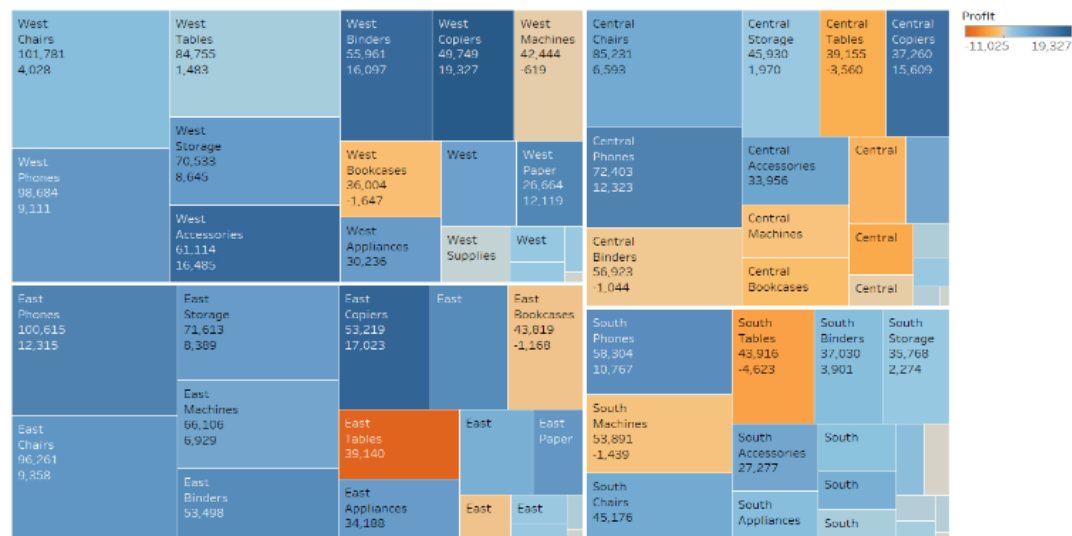


Sum of Sales vs. sum of Discount. Size shows sum of Discount. The marks are labeled by Segment and sum of Discount.

This chart shows that the consumer segment gave max. discount and home office give min. discount

19. What are the sales and profit trends across different product subcategories and regions in the Superstore dataset?

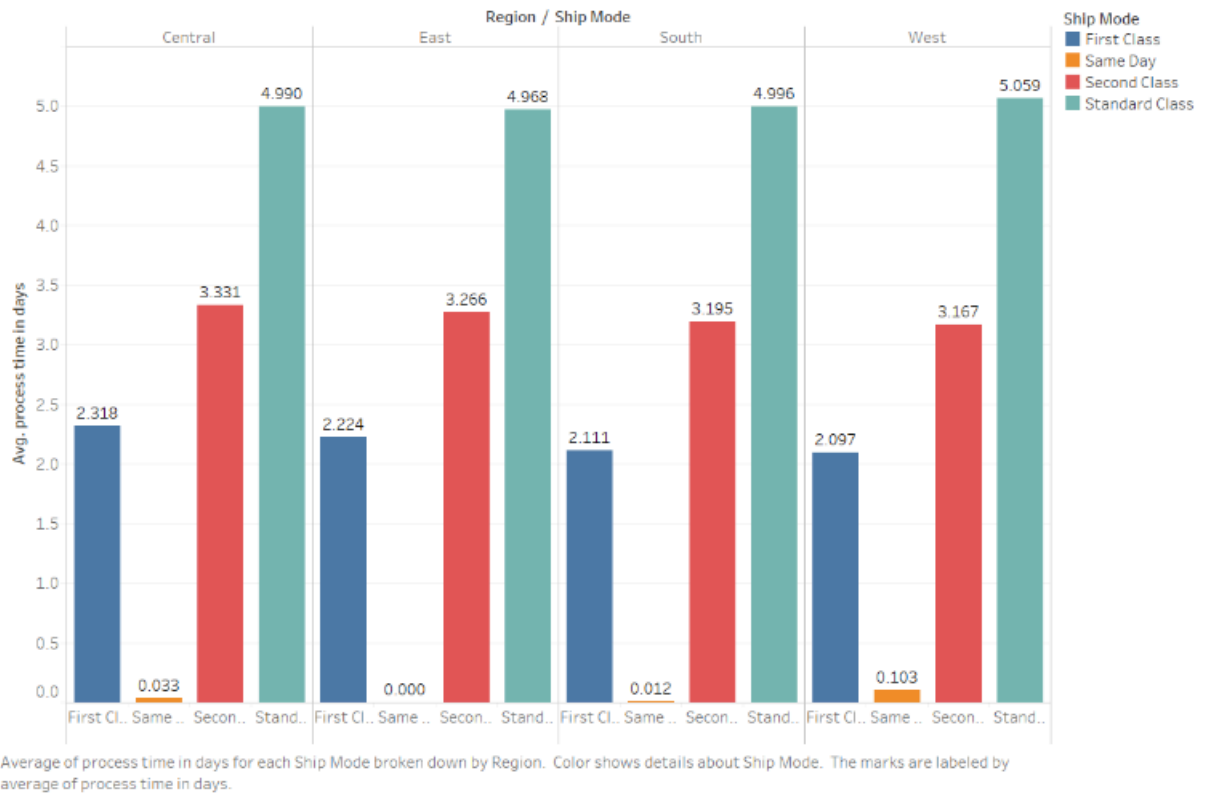
Sheet 19



Region, Sub-Category, sum of Sales and sum of Profit. Color shows sum of Profit. Size shows sum of Sales. The marks are labeled by Region, Sub-Category, sum of Sales and sum of Profit.

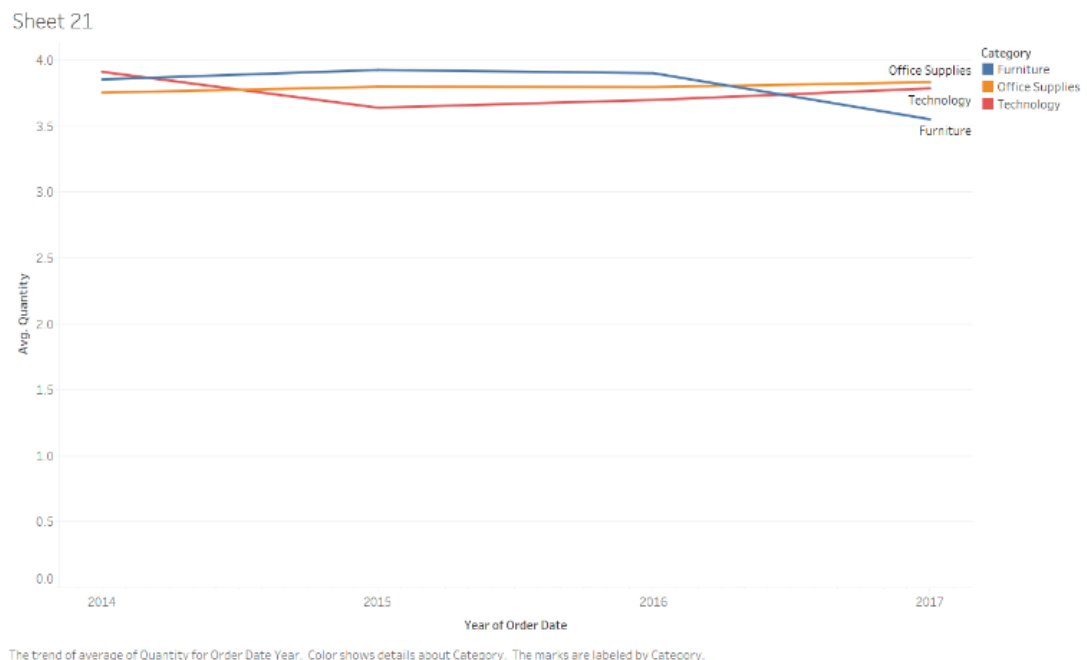
This chart show max sales and profit generate in west region and min in south region and various subcategories sales and profit also mention in it

20. What is the average delivery duration for different regions and ship modes?



Given chart show average delivery duration for different regions and ship modes

21. How has the average order quantity changed over the years for various product categories?



This chart shows the average order quantity changed over the years for various products.

22. Can we visualise the correlation between discount rates and order quantities for different customer segments?

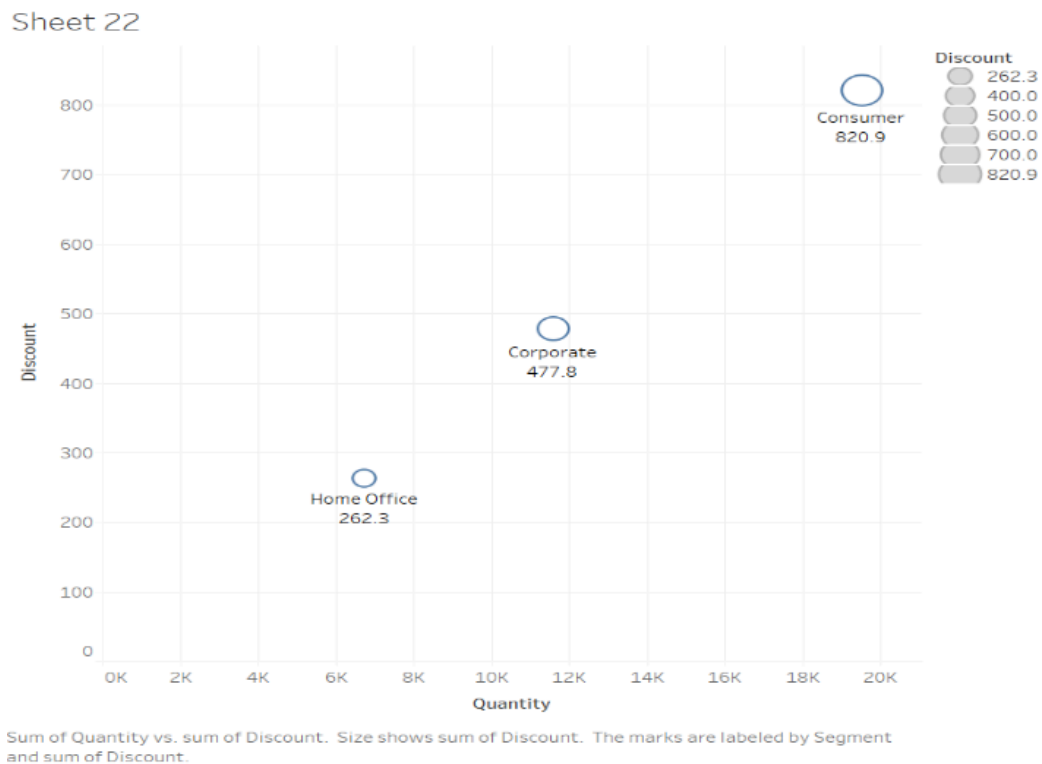


Chart show correlation between discount rates and order quantities for different customer segments

23. What is the proportion of orders returned in each region within the Superstore dataset?

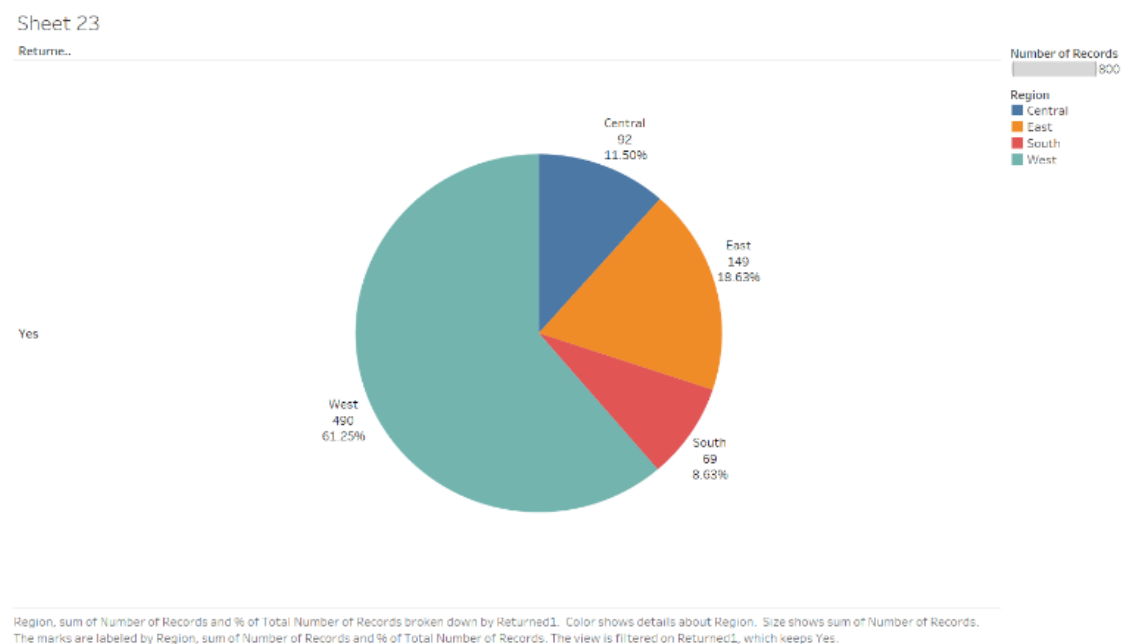
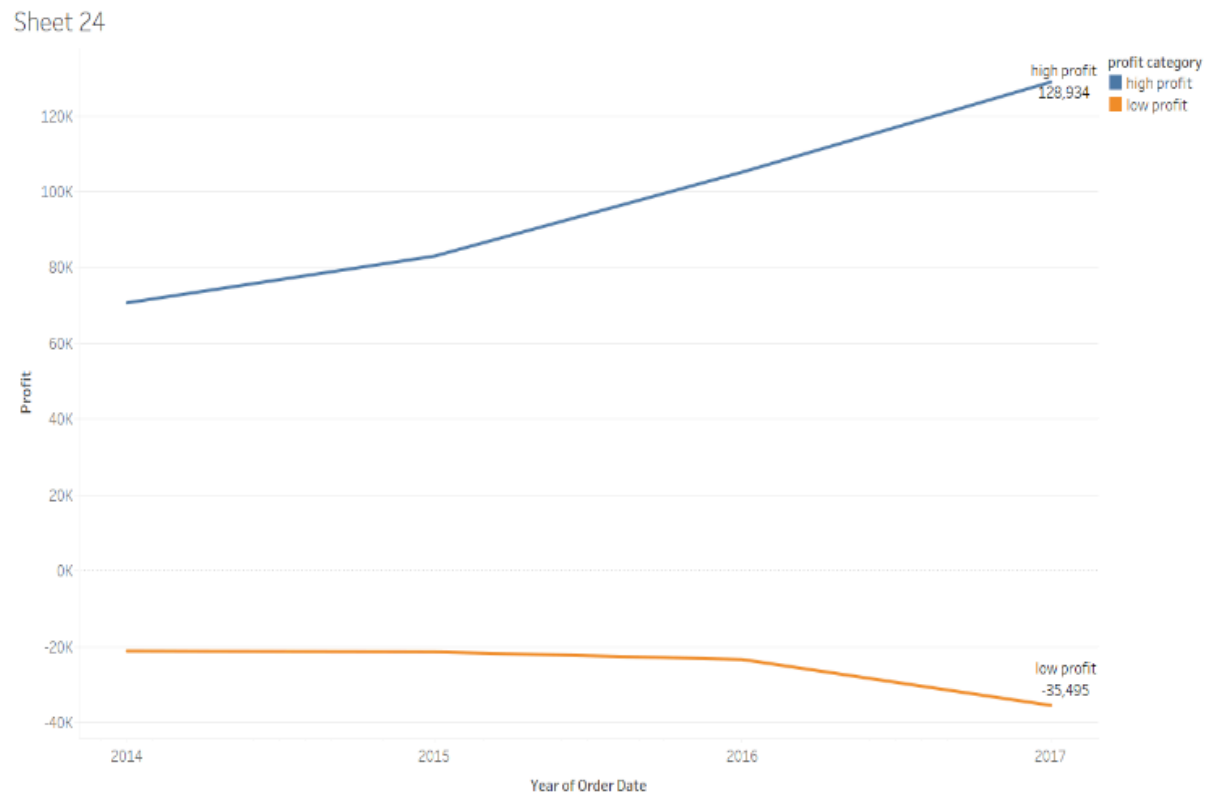


Chart shows return orders of different regions. It shows that in the west the return rate is max.

24. How do the sales of high-profit products compare with low-profit products over time?

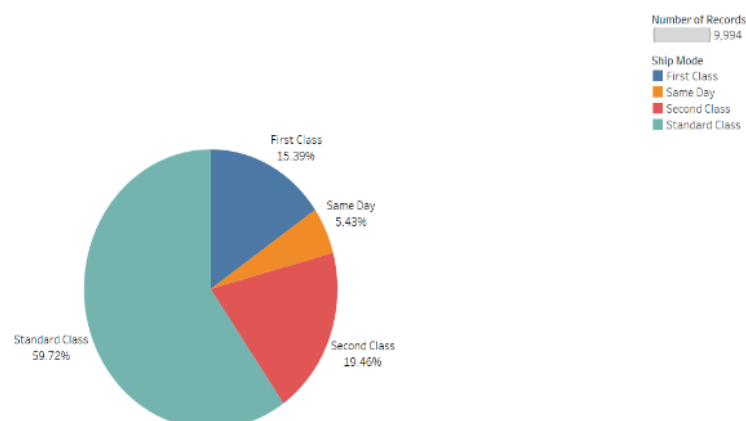


The trend of sum of Profit for Order Date Year. Color shows details about profit category. The marks are labeled by profit category and sum of Profit.

Chart show sales of high-profit products compare with low-profit products over time

25. Which shipping mode is the most commonly used in the Sample Superstore dataset?

Sheet 25



Ship Mode and % of Total Number of Records. Color shows details about Ship Mode. Size shows sum of Number of Records. The marks are labeled by Ship Mode and % of Total Number of Records.

Most common shipping mode is standard class with 59.7% .

26. How does the sales performance of different regions evolve throughout the quarters of a year?

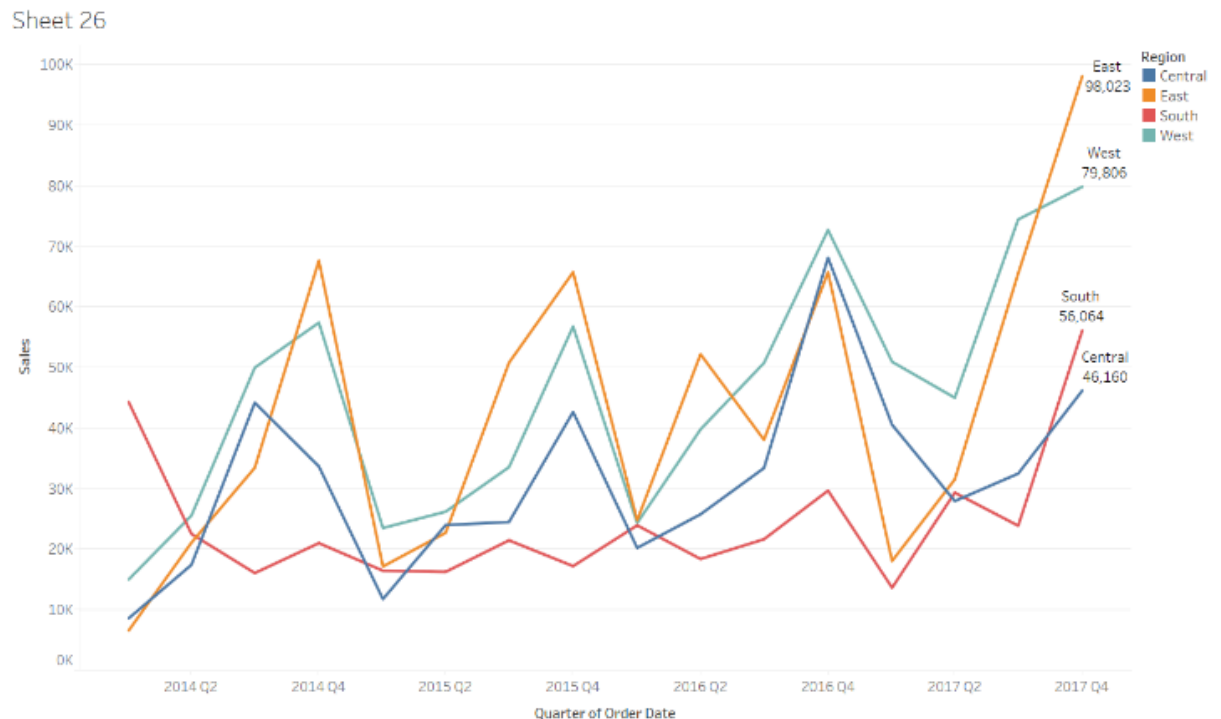


Chart show sales performance of different regions throughout the quarters of a year

27. What is the distribution of order priorities across different product categories?

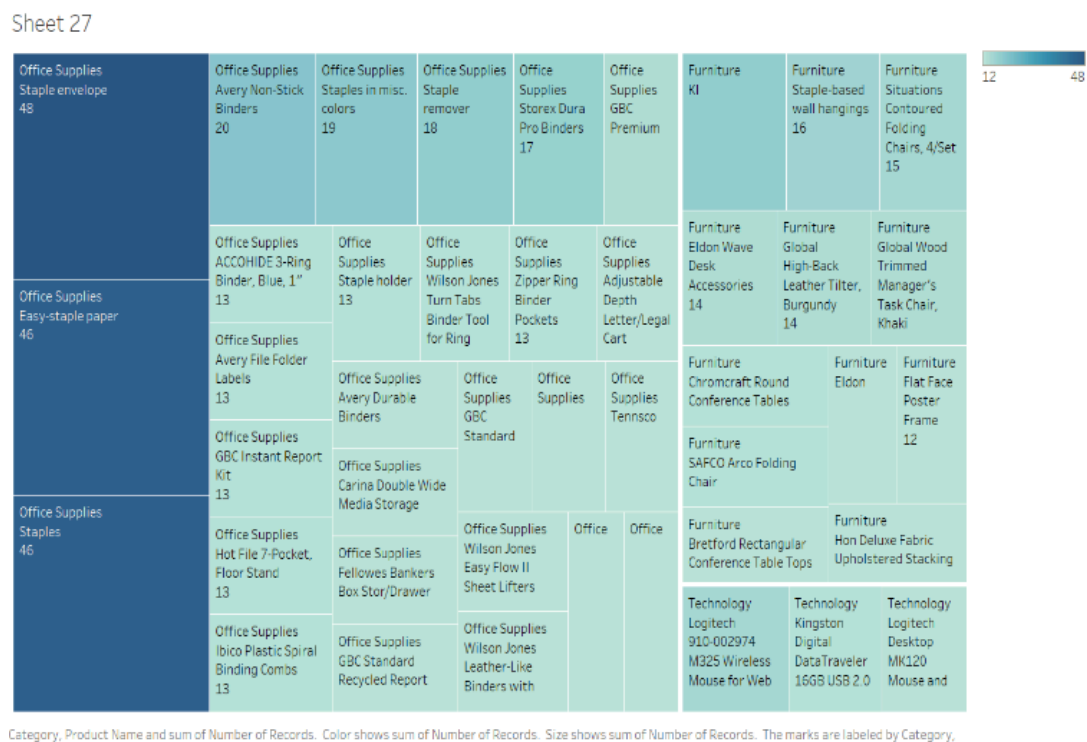


Chart show most sell products in different categories so we can set priority according to it.

28. What is the relationship between discounts and sales?

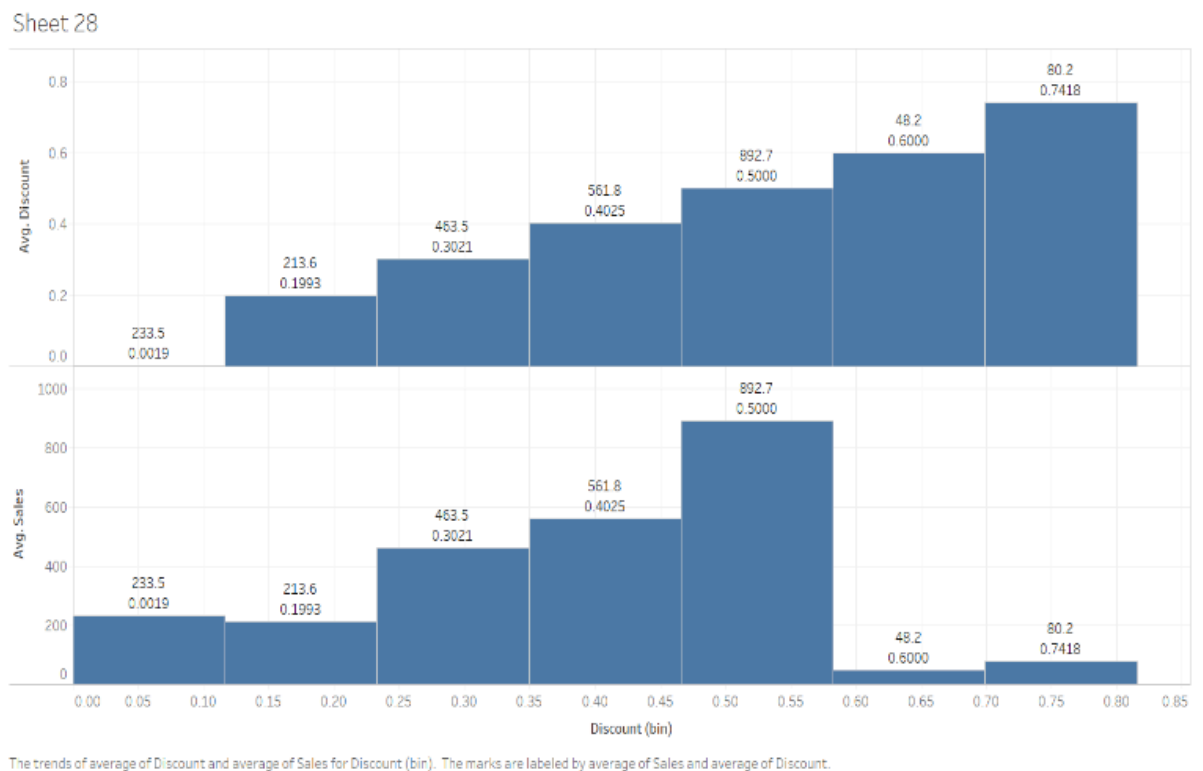


Chart show that discount increase with sale price and low sales products have highest discount.

29. How does the average order value differ between repeat customers and new customers?

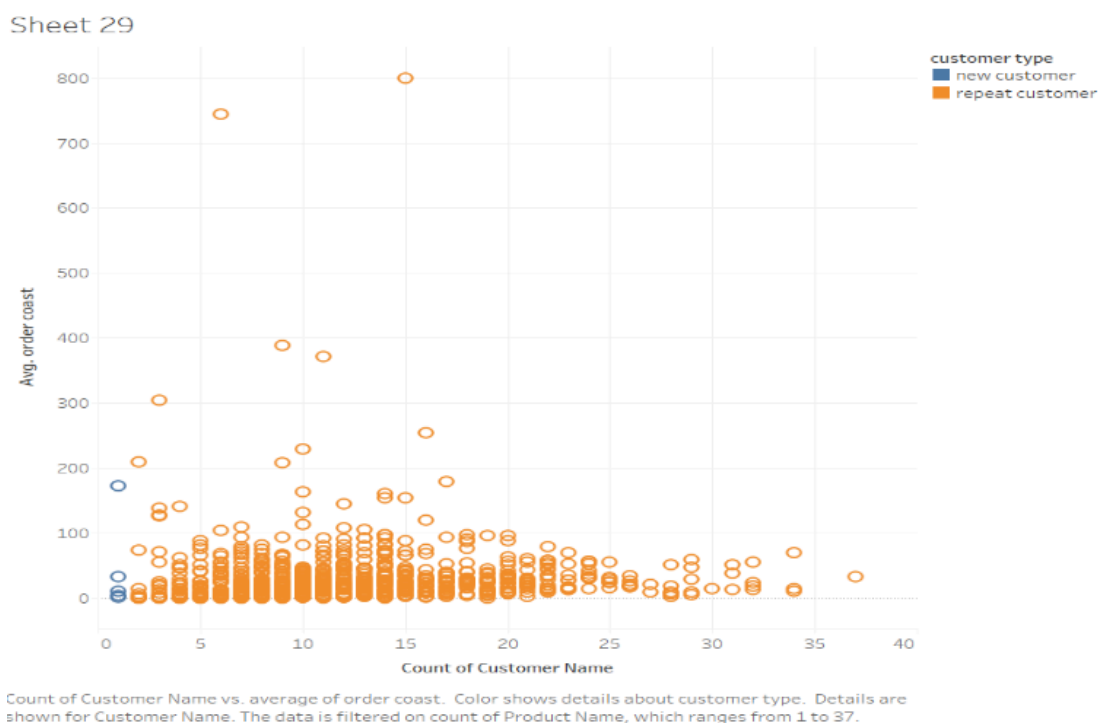


Chart show average order value differ between repeat customers and new customers

30. What is the geographical distribution of returns and its impact on overall profitability?

Sheet 30

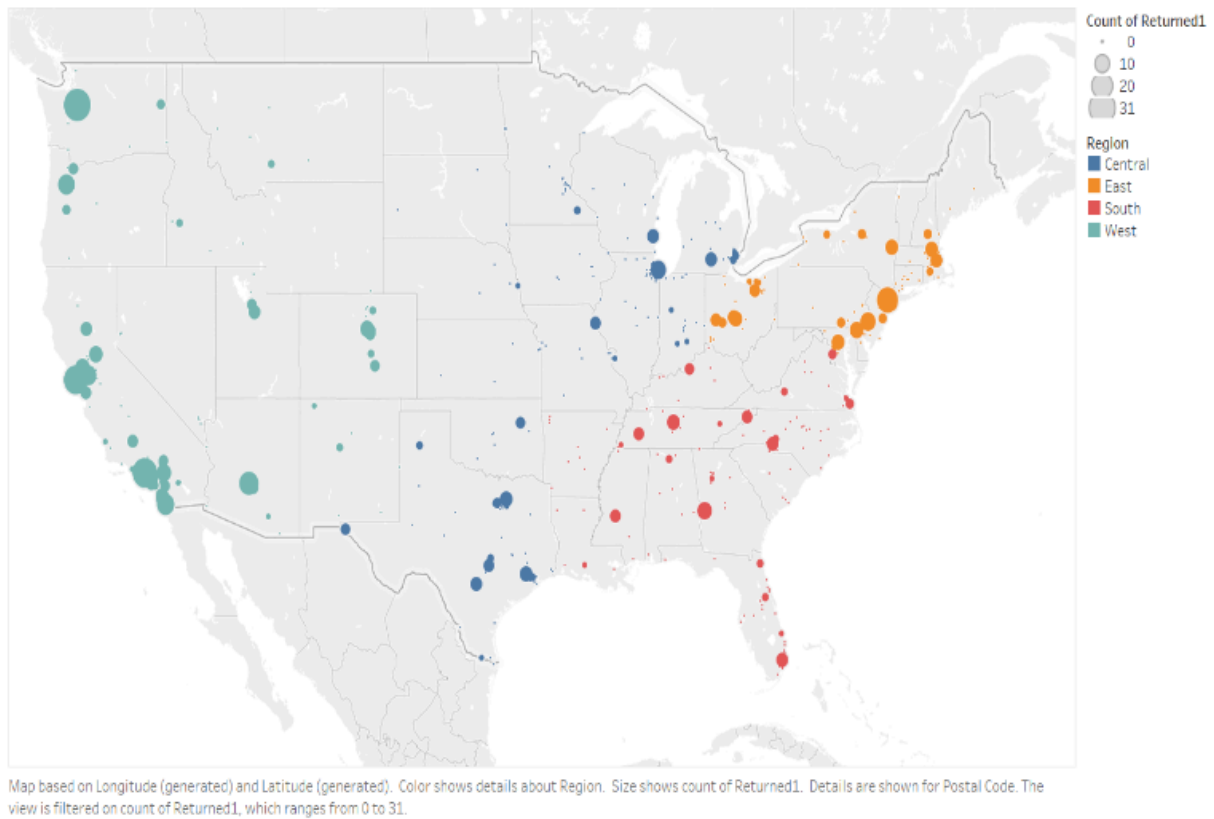


Chart shows max return rate in western regions.
These areas impact overall profitability.