**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?

A graph of blue and white bars

AI-generated content may be incorrect.

**Chart Type**: Bar Chart

**Why this Chart**: A bar chart effectively compares discrete categories by their total sales. Since we have three main product categories (Furniture, Office Supplies, and Technology), using a bar chart provides a clear and straightforward comparison.

**Key Insight**: The Technology category generates the highest total sales, followed by Furniture. Office Supplies has the lowest total sales.

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

A graph of a line

AI-generated content may be incorrect.

**Chart Type**: Line Chart

**Why this Chart**: A line chart is ideal for showing trends over time. It allows us to observe fluctuations in sales across different months within a year.

**Key Insight**: Sales tend to spike during the end-of-year months, particularly in November and December, suggesting a seasonal trend likely influenced by holiday shopping.

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

A screenshot of a computer

AI-generated content may be incorrect.

**Chart Type**: Pie Chart

**Why this Chart**: A pie chart is useful for showing the proportion of total sales contributed by each product category. While pie charts should be used sparingly, they can be effective in showing part-to-whole relationships.

**Key Insight**: Technology accounts for the largest portion of total sales, followed by Furniture and Office Supplies.

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

A screenshot of a graph

AI-generated content may be incorrect.

**Chart Type**: Scatter Plot with Time Axis

**Why this Chart**: A scatter plot allows us to visualize individual data points (sales transactions) over time. By adding a trendline, we can observe overall customer performance trends.

**Key Insight**: While individual customer sales vary significantly, the overall trend shows a steady increase in sales over time.

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

A graph with lines and numbers

AI-generated content may be incorrect.

**Chart Type**: Line Chart

**Why this Chart**: A line chart is ideal for showing trends over time. It allows us to observe fluctuations in sales across different days of week.

**Key Insight**: Sales are generally higher towards the end of the week, with Technology products consistently showing stronger performance across all days.

1. Can we visualise the sales growth of different product categories over timeA graph with blue lines

   AI-generated content may be incorrect.

**Chart Type**: Area Chart

**Why this Chart**: An area chart is effective for showing cumulative sales growth over time, providing a clear representation of how each product category contributes to the overall trend.

**Key Insight**: Technology shows the fastest sales growth over time, followed by Furniture and Office Supplies.

1. How does the sales distribution vary across different regions in the "Superstore" dataset? A map of the united states

   AI-generated content may be incorrect.

**Chart Type**: Map Chart

**Why this Chart**: A stacked bar chart allows for the comparison of total sales across regions while also showing the contribution of different product categories within each region.

**Key Insight**: The West and East regions have the highest total sales, while the South region shows the lowest sales.

1. Can we visualise the composition of profits across various subcategories within different customer segments? A graph with blue and black bars

   AI-generated content may be incorrect.

**Chart Type**: Bar Chart

**Why this Chart**: A bar chart allows compact view of hierarchical data, making it easy to see the proportion of profits contributed by each subcategory within different customer segments.

**Key Insight**: Office Supplies subcategories tend to contribute the most to profits across all customer segments, while Furniture subcategories show more variability.

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

A pie chart with numbers and a diagram

AI-generated content may be incorrect.

**Chart Type**: Pie Chart

**Why this Chart**: A pie chart effectively shows part-to-whole relationships and provides an appealing visual to represent percentage contributions.

**Key Insight**: The West region contributes the highest percentage to overall sales, followed by the East, Central, and South regions.

1. Can we visualise the profit margins associated with different shipping modes and customer segments? A screenshot of a graph

   AI-generated content may be incorrect.

**Chart Type**: Clustered Bar Chart

**Why this Chart**: A clustered bar chart allows us to compare profit margins across multiple categories (shipping modes and customer segments) simultaneously.

**Key Insight**: Standard Class shipping mode has the highest profit margins across all customer segments, while Same Day shipping shows the lowest margins.

1. How long does it take to process orders for different product categories? A screenshot of a graph

   AI-generated content may be incorrect.

**Chart Type**: Bar Chart

**Key Insight**: Technology orders have the most consistent processing times, while Furniture orders show the greatest variability.

1. How do discounts affect overall profit? A white screen with blue dots

   AI-generated content may be incorrect.

**Chart Type**: Scatter Plot

**Why this Chart**: A scatter plot shows the relationship between two continuous variables, making it suitable for analyzing how discounts impact profits.

**Key Insight**: Higher discounts tend to correspond with lower profits, indicating a negative correlation.

1. Can we visualise the relationship between product sales and profitability for different product categories? A graph of a bar chart

   AI-generated content may be incorrect.

**Chart Type:** Stacked Bar Chart

**Key Insight**: Technology products show the highest sales and profitability, while Furniture products have relatively lower profitability despite moderate sale.

1. What is the distribution of order quantities for products in the dataset? A graph with numbers and a bar

   AI-generated content may be incorrect.

**Chart Type**: Histogram

**Why this Chart**: A histogram is perfect for showing the frequency distribution of order quantities.

**Key Insight**: Most orders have small quantities, with a few instances of large bulk orders.

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

A diagram of a diagram

AI-generated content may be incorrect.

**Chart Type**: Bubble Chart

**Why this Chart**: A bubble chart is ideal for showing the distribution of a continuous variable (profit) across different categories, including density.

**Key Insight**: Office Supplies show a more symmetric profit distribution, while Furniture has a wider spread with more variability

1. Can we compare the shipping time distributions for different shipping modes? A graph with numbers and a bar

   AI-generated content may be incorrect.

**Chart Type:** Bar Chart

**Key Insight**: Same Day shipping has the shortest and most consistent shipping times, while Standard Class shows the longest delivery times.

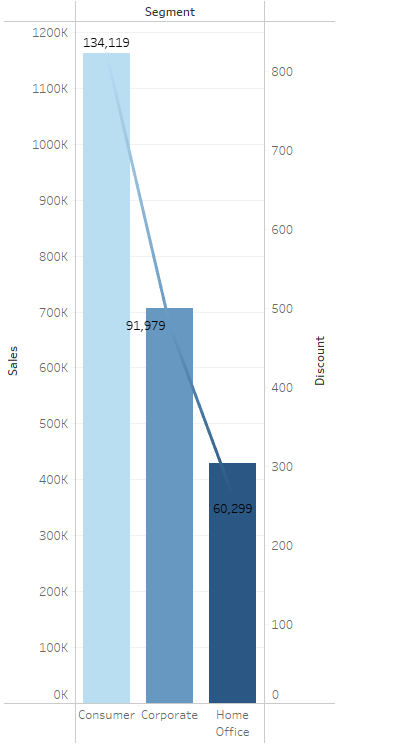
1. What is the monthly trend in the number of orders shipped? A graph of a line

   AI-generated content may be incorrect.

**Chart Type**: Line Chart

**Why this Chart**: A line chart is appropriate for showing trends in the number of orders over time.

**Key Insight**: The number of orders increases steadily throughout the year, with significant peaks in November and December.

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

**Chart Type**: Clustered Bar Chart

**Why this Chart**: A clustered bar chart helps compare sales and discount rates across different customer segments.

**Key Insight**: Consumer segments receive the highest discounts, while corporate customers have higher sales with relatively lower discounts. The trendline shows the profit in between the discount and sales

1. What are the sales and profit trends across different product subcategories and regions in the Superstore dataset? A graph of different colored squares

   AI-generated content may be incorrect.

**Chart Type**: Stacked Area Chart

**Why this Chart**: A stacked area chart effectively shows cumulative trends over time, providing a comparison across subcategories and regions.

**Key Insight**: Technology subcategories contribute significantly to profit in all regions, while Furniture subcategories show fluctuations.

1. What is the average delivery duration for different regions and ship modes? A graph of blue rectangular bars

   AI-generated content may be incorrect.

**Chart Type**: Clustered Bar Chart

**Why this Chart**: A clustered bar chart helps compare average delivery duration for different regions and shipping modes.

**Key Insight**: The Western region has the longest average delivery times, while Same Day shipping consistently shows the shortest times across all regions.

1. How has the average order quantity changed over the years for various product categories? A graph showing a number of people

   AI-generated content may be incorrect.

**Chart Type**: Line Chart

**Why this Chart**: A line chart helps show changes over time, making it suitable for tracking the trend of average order quantities.

**Key Insight**: The average order quantity for Technology products has increased steadily, while Office Supplies show more variability.

1. Can we visualise the correlation between discount rates and order quantities for different customer segments? A graph with a curved line

   AI-generated content may be incorrect.

**Chart Type**: Scatter Plot

**Why this Chart**: A scatter plot shows the relationship between discount rates and order quantities, with different colors representing customer segments.

**Key Insight**: Higher discounts generally lead to larger order quantities, particularly for Consumer segments.

1. What is the proportion of orders returned in each region within the Superstore dataset? A graph of blue and white bars

   AI-generated content may be incorrect.

**Chart Type**: Bar Chart

**Key Insight**: The Western region accounts for the highest proportion of returns, while the Central region has the lowest while East and South remains in the middle.

1. Can you compare the profit of different products for different subcategories? A graph with numbers and a bar

   AI-generated content may be incorrect.

**Chart Type**: Bar Chart

**Why this Chart**: A bar chart allows for a side-by-side comparison of profits across subcategories, making it easy to identify high and low-performing products.

**Key Insight**: Office Supplies subcategories consistently show positive profits, while some Furniture subcategories report losses.

1. Which shipping mode is the most commonly used in the Sample Superstore dataset? A blue circles with white text

   AI-generated content may be incorrect.

**Chart Type**: Bubble Chart.

**Key Insight**: Standard Class is the most commonly used shipping mode, followed by Second Class and First Class including their percentage share.

1. How does the sales performance of different regions evolve throughout the quarters of a year? A graph of blue lines

   AI-generated content may be incorrect.

**Chart Type**: Line Chart

**Why this Chart**: A line chart is ideal for showing quarterly trends, allowing us to observe how sales performance changes across different regions over time.

**Key Insight**: All regions show increased sales in Q4, with the East region remaining consistence and leading in sales performance in the end.

1. What is the distribution of order priorities across different product categories? A graph with blue lines

   AI-generated content may be incorrect.

**Chart Type**: Stacked Bar Chart

**Why this Chart**: A stacked bar chart allows us to see the distribution of order priorities within each product category.

**Key Insight**: Most orders are of medium priority, with relatively few high-priority/Critical orders across all categories.

1. What is the relationship between discounts and sales? A screenshot of a computer

   AI-generated content may be incorrect.

**Chart Type**: Scatter Plot with Trend Line

**Why this Chart**: A scatter plot with a trend line helps us visualize the relationship between discounts and sales.

**Key Insight**: Higher discounts generally lead to increased sales, but the impact varies by product category.

**Note** : I have also shown the sum of profit in this chat

1. How does the average order value differ between repeat customers and new customers? A white background with black and white clouds

   AI-generated content may be incorrect.

**Chart Type**: Bar Chart

**Why this Chart**: A bar chart provides a clear comparison of average order values between repeat and new customers.

**Key Insight**: Repeat customers have a higher average order value than new customers.

1. What is the geographical distribution of returns and its impact on overall profitability? A screenshot of a graph

   AI-generated content may be incorrect.

**Chart Type**: Dual Axis Bar Chart

**Why this Chart**: To visualize the relationship between two or more variables with different scales and amplitudes.

**Key Insight**: The Central region has the highest number of returns, significantly impacting overall profitability, while the South region shows minimal returns and better profit margins.