

Tableau Visualization

Theory Questions

Q9. Chart Selection Justification Explain why different charts were used for different business questions in this analysis.

1. Bar Chart (Category Performance)

- Why used: Bar charts are the gold standard for comparing discrete categories.
- Justification: When management wants to know which category generates the most revenue, the bar chart allows for an immediate side-by-side comparison. The human eye is highly sensitive to differences in bar length, making it easy to rank "Technology" vs. "Furniture" at a glance.

2. Line Chart (Monthly Sales Trends)

- Why used: Line charts are specifically designed for time-series data.
- Justification: Unlike a bar chart, a line chart uses a continuous line to connect data points over time. This highlights the "flow" of the data, making it easy to identify seasonality, trends, and fluctuations (peaks and valleys). It answers the business need for planning inventory based on when sales rise or fall.

3. Pie Chart (Regional Contribution)

- Why used: Pie charts are used to show part-to-whole relationships.
- Justification: The business goal was to see how much each region contributes to the *total* 100% of sales. The "slices" provide a quick visual representation of market share, allowing stakeholders to see which region dominates the company's revenue stream.

4. Scatter Plot (Sales vs. Profit)

- Why used: Scatter plots are used to visualize the correlation between two numerical variables.
- Justification: To identify if "high sales" leads to "high profit," we need to see both metrics simultaneously for every order. A scatter plot reveals patterns (e.g., a positive correlation) and, more importantly, outliers—orders that have very high sales but negative profit, which are invisible in summary bar charts.

5. Area Chart (Cumulative Sales Growth)

- Why used: Area charts represent volumes over time.
- Justification: While a line chart shows monthly fluctuations, an area chart with a "Running Total" calculation fills the space under the line. This emphasizes the magnitude of growth and the "build-up" of total revenue over the year, which is exactly what senior management needs to assess long-term business health.

6. Stacked Bar Chart (Category Sales by Region)

- Why used: These are used for multi-dimensional comparison.
- Justification: This allows the user to see two things at once: the total sales for a Category (the total height of the bar) and the breakdown of those sales by Region (the colored segments). It helps operations identify if a category's success is driven by one specific region or spread evenly across all regions.

7. Bubble Chart (Product Prioritization)

- Why used: Bubble charts allow for the visualization of three to four variables in a single view.
- Justification: By using the X-axis for Sales, Y-axis for Profit, and Size for Quantity, the product team can identify "Priority Products." A large bubble (High Quantity) in the top-right corner (High Sales/High Profit) is a "Star" product, whereas a large bubble in the bottom-right is a "Risk" product.

Q10. Business Insight Summary.

Summarize two key insights from your dashboard and explain how they can help management make better decisions

Answer:

Insight 1: Profitability Discrepancy in High-Sales Categories

- **Observation:** While **Technology** is the highest-performing category in terms of **Sales** (~\$364,276), the **Scatter Plot (Task 4)** reveals several high-value orders (e.g., Order 1022 and 1026) that actually resulted in significant **losses** (negative profit).
- **Decision-Making Help:** Management should not just focus on revenue volume. This insight suggests a need to review the **pricing strategy or discount levels** in the Technology category. By identifying specific loss-making sub-categories (like Tables or Binders), they can stop "buying" sales at the cost of profit and set a minimum margin threshold for high-value orders.

Insight 2: Regional Sales Concentration and Opportunity

- **Observation:** The **Pie Chart (Task 3)** and **Stacked Bar (Task 6)** show that the **West Region** is the dominant market contributor (~27.5% of total sales), whereas the **East Region** lags behind in certain categories like Furniture.
- **Decision-Making Help:** This helps management with **Resource Allocation**. Instead of a uniform national marketing budget, they can:
 1. **Invest more** in the West to maintain their market leadership.
 2. **Analyze the "East" region** to understand if the lower sales are due to high competition or poor distribution, then launch targeted regional promotions to bridge the gap.