

# Intermediate Tableau Assignment: Advanced Sales Analysis Dashboard

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## Objective:

The goal of this assignment is to build a more advanced Tableau dashboard that provides deep insights into a company's sales performance. Students should use advanced features such as calculated fields, parameters, and forecasting to uncover trends and patterns in the data.

## Dataset:

Use the Sample Superstore dataset or a similar sales dataset. It contains data on sales, profit, customers, and product information across various regions and categories.

## Task Overview:

### Step 1: Data Preparation

1. Import the dataset into Tableau.
2. Review the data and clean any inconsistencies (e.g., missing values, duplicates).
3. Use calculated fields to create new metrics, such as Profit Margin and Sales per Customer:
  - Profit Margin =  $(\text{Profit} / \text{Sales}) * 100$
  - Sales per Customer =  $\text{Total Sales} / \text{Number of Customers}$

### Step 2: Create the Following Visualizations:

1. Sales vs. Profit Scatter Plot:
  - Create a scatter plot to analyze the relationship between sales and profit across different product categories.
  - Add color coding based on profit margin.
  - Use size to represent the total sales volume.
  - Add a trend line to show if there is a general correlation between sales and profit.
2. Customer Segment Analysis:
  - Create a bar chart showing the average sales and profit for each customer segment (e.g., Consumer, Corporate, Home Office).
  - Use a parameter to switch between viewing Sales and Profit on the y-axis.
  - Implement dynamic titles that change depending on the metric selected by the parameter.
3. Sales Growth Over Time:
  - Create a line chart to analyze sales growth month over month.

- Add a reference line to highlight the average monthly sales.
- Include a forecast for sales for the next 6 months using Tableau's forecasting feature.
- Add a parameter that allows users to switch between different time intervals (monthly, quarterly, yearly).

#### 4. Region-wise Profit Analysis:

- Create a heat map that shows the profit for each region and product category.
- Use color intensity to indicate profitability.
- Add a filter to allow users to drill down into different sub-categories and regions.

#### 5. Top 5 Products by Sales and Profit:

- Create a combined bar and line chart that shows the top 5 products based on sales, with a line overlay for the corresponding profit.
- Add an action filter to allow users to click on a product category and see the breakdown of top products in that category.

### Step 3: Build a Dashboard

Combine the visualizations into a single dashboard that provides a comprehensive view of the company's performance. Include the following features:

- Global filters for Region, Product Category, and Order Date.
- Interactive parameters for switching between metrics such as Sales and Profit.
- Action filters to allow drilling into specific regions, categories, or products.
- Tooltips with additional insights like profit margins, customer information, and order details.

### Step 4: Advanced Features

Use calculated fields to create new insights, such as identifying the top 10% of customers by sales. Add reference lines and annotations to highlight key trends, like the best-performing region or the month with the highest profit. Use a set to create a 'High Profit Customers' view, showing customers who contributed to the top 20% of profits.

### Step 5: Dashboard Customization

Ensure the dashboard is well-organized and visually appealing. Add dynamic titles, annotations, and explanations to make it easy for users to interpret the data. Customize the color schemes and formatting to enhance clarity.

### Submission Guidelines:

Submit the Tableau workbook (.twbx) or Tableau Public link.

Ensure all the calculated fields, parameters, and filters are working correctly.

Write a 300-word summary discussing the insights you gained from the dashboard (Which regions and products performed the best? What sales trends can you observe?).

**Bonus Task (Optional):**

Use Tableau's clustering feature to segment customers based on their purchasing behavior and explain the clusters (e.g., high-spenders vs. low-spenders).

**Learning Outcomes:**

Creating advanced visualizations and combining them into a functional dashboard.

Utilizing parameters, calculated fields, and actions for deeper insights.

Understanding how to make data-driven decisions through analysis of sales performance.