**Comparison of Region Based on Sales**

**Tableau Training Course-end Project**

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# Introduction

In the realm of data visualization and business intelligence, the ability to effectively organize, analyze, and present data is paramount. This report is derived from an in-depth analysis conducted using the Sample Superstore dataset, a comprehensive collection of sales data that encompasses a wide range of variables, including order details, customer information, product categories, and geographical locations. The primary aim of this analysis is to unlock actionable insights through the creation of a dynamic and interactive dashboard in Tableau, focusing on comparing sales performance across different regions.

The Sample Superstore dataset provides fertile ground for exploration, offering a glimpse into the purchasing patterns, regional sales performance, and customer behavior. By leveraging Tableau’s robust analytical capabilities, this report delves into the dataset to group and organize data effectively, create meaningful hierarchies, and implement parameters for nuanced analysis. The ultimate goal is to craft a dashboard that not only encapsulates the essence of the data but also allows for an intuitive comparison of sales across primary and secondary regions, revealing trends and patterns that are critical for strategic decision-making.

## 1.1 Objectives:

The primary objective of this project is to create a dynamic and interactive dashboard using Tableau that visualizes the sales comparison between two selected regions. This visualization will enable stakeholders to:

1. **Compare Sales Performance**: Assess and compare the total sales, average sales per order, number of customers, number of orders, and number of products sold in two different regions.
2. **Identify Trends and Patterns**: Spot significant trends, seasonal patterns, and anomalies in sales data across the selected regions.
3. **Support Strategic Decision-Making**: Provide actionable insights that can inform strategic decisions aimed at improving sales performance, optimizing operations, and enhancing customer satisfaction.

## 1.2 Prerequisites:

1. Hierarchy: To represent level-wise geographical configuration.
2. Parameters: Variables that allow dynamic changes in data analysis.
3. Calculated Fields: For creating new dimensions or measures from existing data.
4. Dashboard: To display and compare multiple data views simultaneously.

## 1.3 Industry Relevance:

1. **Hierarchy:**

Hierarchical data analysis is crucial in various industries as it enables structured, multi-level examination of data, reflecting real-world organizational structures. For instance:

* **Retail**: Hierarchies allow retailers to analyze sales data from a national level down to individual stores, facilitating targeted strategies for different regions and store locations.
* **Logistics**: Companies can use hierarchical data to track and optimize shipment performance from global distribution centers to local delivery points, enhancing supply chain efficiency.
* **Finance**: Financial institutions can drill down from overall portfolio performance to individual account metrics, improving risk management and customer insights.

1. **Parameters:**

Parameters introduce flexibility and interactivity into data analysis, allowing users to dynamically adjust inputs and instantly see the effects. This capability is vital for:

* **Marketing**: Marketers can compare campaign effectiveness by altering parameters such as time frames, target demographics, and regions, thereby refining strategies based on real-time data.
* **Manufacturing**: Production managers can simulate various scenarios by adjusting parameters like input costs and production volumes, optimizing manufacturing processes.
* **Healthcare**: Health administrators can compare patient outcomes across different treatments or hospitals by adjusting relevant parameters, leading to better-informed healthcare decisions.

1. **Calculated Fields:**

Calculated fields enable the creation of new metrics and dimensions from existing data, fostering deeper insights and advanced analytics. This functionality is essential in:

* **Customer Segmentation**: Businesses can segment customers based on calculated metrics such as lifetime value or purchase frequency, enabling personalized marketing efforts.
* **Financial Analysis**: Analysts can derive key performance indicators like ROI, profit margins, and growth rates, providing a detailed view of financial health.
* **Operational Efficiency**: Organizations can compute metrics like efficiency ratios and turnaround times, driving improvements in operational performance.

1. **Dashboard**

Dashboards provide a comprehensive, consolidated view of various data metrics, facilitating simultaneous comparison and analysis. This feature is invaluable for:

* **Executive Decision-Making**: Executives can monitor KPIs across departments in real-time, enabling strategic, data-driven decisions.
* **Sales Management**: Sales teams can track performance metrics, pipeline status, and regional sales figures, allowing for proactive management and goal setting.
* **Project Management**: Project managers can oversee project progress, resource allocation, and timelines within a single interface, ensuring projects remain on track and within scope.

## 1.4 Problem Statement:

The director of a prominent organization seeks to compare sales performance across two different regions. Regional operators have been tasked with recording sales data to facilitate this comparison. Upper management requires a comprehensive dashboard to visualize this data, enabling them to assess regional performance effectively and identify areas for improvement. By analyzing this data, the organization aims to gain insights into regional disparities and implement strategic actions to enhance overall sales performance.

# 2.Performed Task in Tableau: Top of Form

We did the following tasks to create the Tableau dashboard and analysis the outcome of our assignment.

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## Task1 : Data Loading and Preparation:

First of all, we have connected the data in tableau by the following ways. First of all, we opened **Tableau Desktop** and selected **“Connect to Data”**. Then, selected **“Microsoft Excel”** and navigated to the location of the **“Sample - Superstore.xls”** file to load it. Once loaded, we reviewed the sheets available in the dataset and dragged the Order Sheet first.

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First Data View of the Sample Superstore

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Then based on customer ID, we have created a connection of the People and Return table with the order table onto the Tableau canvas to start analysis.

## Task 2: Organizing Data with Folder Creation:

Right clicked on any field in the Data pane and select **“Create Folder”** to organize fields. For example, created a folder named **“Customer Details”** and dragged the **“Customer Name”** and **“Order ID”** fields into this folder.

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Instead of Tables now my Data is in Folder.

Then

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Customer Folder is created and inside this folder have customer ID and Customer name.

## Task 3. Create a hierarchy called Location:

We created a "Location" hierarchy to streamline geographical data. Starting with the "Country" field, we initiated the hierarchy and named it "Location". Then, we enhanced it by adding “Region”, "State", “City" and Postal Code fields, which will enable us for detailed regional analysis.

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Now our hierarchy is formed as “Location”.

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This structure allows for an intuitive exploration of data from a broad country level down to specific cities, enriching our dashboard with deeper geographical insights.

## Task 4. Primary Region and Secondary Region:

#### 4.1 Creating Parameters for Primary Region and Secondary Region

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Clicked OK to create the Primary Region parameter.

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Repeated the steps to create another parameter named “Secondary Region.”

Two pivotal parameters, Primary Region, and Secondary Region were created to partition the stage for a comparative analysis of sales across different regions. This comparative framework is instrumental in identifying regional sales performance disparities and opportunities for growth.

#### 4.2 : Calculated Fields for Regions:

Create a Calculated Field for both Primary Region and Secondary Region

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## Task 5: First Order Date Calculation:

To determine the earliest order date for each customer, we followed these steps in Tableau:

1. **Create a New Calculated Field:**

We right clicked in the Data pane and selected “Create Calculated Field”.We named the new field “First Order Date” to clearly indicate its purpose.

1. **Enter the Calculation:**

In the calculation editor, we used the MIN function to find the earliest order date across the dataset. The specific calculation entered was **MIN([Order Date])**.

1. **Save the Calculated Field:**

After entering the calculation, we clicked OK to save the calculated field.

Once the “First Order Date” calculated field was created, we were able to drag it onto any sheet in Tableau to analyze and visualize the first order dates of customers within our data. This process ensured that we could accurately track the earliest interactions customers had with our business, providing valuable insights into customer acquisition patterns.

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## Task 6: Prepare Sheets to Create a dashboard:

### Primary and Secondary Regions’ Measures Creation:

We created this sheet to display key metrics for the Primary Region, specifically filtered for the Central region. The metrics shown include:

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**Adding Metrics to the Marks Card:**

1. First Order Date: Added the calculated field for the earliest order date.
2. Total Sales: Used the SUM function to aggregate total sales.
3. Average Sales per Order: Used the AVG function to find the average sales per order.
4. Number of Customers: Used the COUNTD function to count distinct customers.
5. Number of Orders: Used the COUNTD function to count distinct order IDs.
6. Number of Products in Sale: Used the COUNTD function to count distinct product IDs.

For the dashboard, we selected the Central region to display its specific metrics and found the following result:

* First Order Date: 1/3/2014
* Total Sales: $501,240
* Average Sales per Order: $216
* Number of Customers: 629
* Number of Orders: 1,175
* Number of Products in Sale: 1,310

Then, the same way we created the Secondary Regions key metrics.

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We can see the different values in the Secondary Region (East).

### Creating Map for both the Region:

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We can filter by using the Region.

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We created map to visualize total sales across different regions in the United States. The maps display the distribution of sales, with each state color-coded according to the sales volume. The first map includes all regions (Central, East, West, South), while for the Primary region we filtered the Central region. These visualizations help identify areas with higher sales and provide a clear comparison between different regions.

A map of the united states

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### Subcategory wise Sales in Primary and Secondary Region:

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We created this sheet to display sales data by sub-category for the Primary Region. The table includes the following metrics for each sub-category:

* **Total Sales**
* **Maximum Sales**
* **Minimum Sales**

The sub-categories are listed in the first column, and the respective sales figures are shown in the subsequent columns. This visualization helps in analyzing the performance of each sub-category within the Primary Region, providing insights into the sales distribution and identifying sub-categories with the highest and lowest sales values.

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These findings provide insights into which sub-categories generate the most revenue and have the highest individual transaction values. For instance, "Phones" and "Chairs" are the top-performing sub-categories in terms of total sales, while "Fasteners" and "Labels" have the lowest total sales. Additionally, "Machines" and "Copiers" have the highest sales per transaction, indicating higher value items in these sub-categories.

### Line chart of weekly sales of Primary Region

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Fig: Line Chart of Secondary Region

### Subcategory Wise Sales Bar Chart:

We created this bar chart to visualize the sales data for different sub-categories within the Central region. The chart displays the total sales for each sub-category, using color intensity to represent the sales volume, with darker shades indicating higher sales.

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Fig: Bar Chart of Primary Region

Same way we made for the Secondary region also.

## Task 7: Dashboard Partitioning for Comparing Two Regions:

First of all for the ribbon we clicked on Dashboard, then selected the new Dashboard. For the size we fixed in automatic to get the

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First of all, we have created the structure or layout of the dashboard. Such as, first we took two horizontal boxes to create the title box and then next one we make another two horizonal box for Primary and Secondary region. The rest to the portions we make two part again and then in very part we made 4 boxes for our visualization.

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### Visualizations Creation

To start the process, we navigated to the Dashboard pane and created individual visualizations (sheets) for each metric we wished to compare, including Total Sales, Average Sales per Order, and other key metrics for both the primary and secondary regions. We utilized the parameters and calculated fields we previously created to filter and display the data appropriately in each visualization.

### Combining Sheets into a Dashboard

Next, we combined all the individual sheets into a single cohesive dashboard. We used layout containers to partition the dashboard effectively, ensuring that each visualization was clearly labeled and easy to understand. This structure helped in organizing the information in a logical and accessible manner.

### Adding Interactivity and Finishing Touches

To enhance user experience, we incorporated interactive elements such as filters, parameter controls, and action triggers. These features allowed users to interact with the data dynamically. We also applied consistent formatting across the dashboard, maintaining uniformity in fonts, colors, and alignment for a professional look. Tooltips were added where necessary to provide additional information without cluttering the visualizations.

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### Complete Dashboard:

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### Summary of Dashboard Analysis:

1. **First Order Date**:

* **Primary Region**: 1/3/2014
* **Secondary Region**: 1/5/2014

1. **Total Sales**:

* **Primary Region**: $501,240
* **Secondary Region**: $678,781

1. **Average Sales per Order**:

* **Primary Region**: $216
* **Secondary Region**: $238

1. **Number of Customers**:

* **Primary Region**: 629
* **Secondary Region**: 674

1. **Number of Orders**:

* **Primary Region**: 1,175
* **Secondary Region**: 1,401

1. **Number of Products in Sale**:

* **Primary Region**: 1,310
* **Secondary Region**: 1,422

**Sub-Category Highlights**

**Primary Region**: Highest sales in "Chairs" ($56,923), lowest in "Fasteners" ($778).

**Secondary Region**: Highest sales in "Phones" ($71,613), lowest in "Fasteners" ($970).

**Key Insights**

* **Total Sales**: The Secondary Region leads with $678,781, significantly higher than the Primary Region's $501,240.
* **Sales Efficiency**: Higher average sales per order in the Secondary Region ($238 vs. $216).
* **Customer and Order Volume**: The Secondary Region has more customers (674) and orders (1,401) compared to the Primary Region.
* **Product Range**: The Secondary Region offers a greater variety of products (1,422) than the Primary Region (1,310).

The analysis indicates that the Secondary Region outperforms the Primary Region in total sales, average sales per order, and customer and order volume, providing valuable insights for strategic planning.

Task 8: Final Review and Sharing

Conducted a final review of our dashboard to ensure accuracy and clarity.

Shared our dashboard with stakeholders by publishing it to **Tableau Public.**

**Link:** <https://public.tableau.com/app/profile/zesmin/viz/visualization25_05_24/Dashboard1?publish=yes>

Besides, we created a PDF report for more records of the analysis for future.

# Conclusion:

This Tableau project successfully created an interactive and comprehensive dashboard that compares key sales metrics between the Primary and Secondary Regions. The analysis reveals that the Secondary Region outperforms the Primary Region in total sales, average sales per order, and customer and order volume. These insights highlight the Secondary Region's stronger market presence and sales efficiency, providing a valuable foundation for strategic decision-making and resource allocation. The use of visualizations such as maps, bar charts, and line graphs effectively conveys complex data in an accessible format, enhancing the overall understanding and usability of the dashboard.

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