

## Task 2: Data Visualization & Storytelling Report

### 1. Objective

The objective of this task is to demonstrate data visualization and storytelling skills using Apache Superset and Microsoft Excel by transforming raw sales data into meaningful business insights.

### 2. Tools Used

**Apache Superset:** Used for building interactive dashboards and charts.

**Microsoft Excel:** Used for initial data cleaning and quick exploratory visualizations.

### 3. Dataset Description

The dataset used for this task is the Superstore Sales dataset, containing transactional information including Sales, Profit, Category, Sub-Category, Customer, Region, Shipment Mode, and Order Date.

### 4. Visual Storytelling Approach

#### a) Sales Trend Over Time (Line Chart)

A line chart was created to visualize monthly sales trends. This helps identify seasonal patterns, growth, decline, and demand cycles.

#### b) Sales by Region (Bar Chart)

A bar chart highlights performance differences across regions. This allows the business to identify high-performing and low-performing markets.

#### c) Profit by Product Sub-Category (Horizontal Bar Chart)

This visualization helps identify which products are most profitable and which incur losses.

#### d) Customer Segment Analysis (Pie / Donut Chart)

A distribution chart shows how sales are divided among Consumer, Corporate, and Home Office segments.

#### e) Ship Mode Efficiency (Heatmap)

A heatmap was used in Superset to identify which shipping modes correlate with higher sales and faster delivery.

### 5. Key Insights

Sales show a consistent upward trend toward the end of the year.

The West region contributes the highest revenue, while the South region underperforms.

Technology category provides the highest profit margin.

Furniture category has high sales but low overall profitability.

Consumer segment contributes nearly half of all total sales.

Standard Class is the most frequently used shipping method but not the fastest.

## 6. Interview Questions & Answers

### 1. Importance of Data Visualization

Data visualization helps simplify complex datasets, identify hidden patterns, and support decision-making through intuitive visual clarity.

### 2. Pie Chart vs Bar Chart

Pie charts show proportions of a whole. Bar charts compare quantities across categories.

### 3. How to Make Visualizations Engaging

Use clear labels, highlight insights, maintain color consistency, and avoid clutter.

### 4. What is Data Storytelling?

It is the meaningful combination of visuals, insights, and narrative to communicate a clear message from data.

### 5. Avoiding Misleading Visuals

Keep scales consistent, do not manipulate axes, avoid unnecessary 3D effects, and use appropriate chart types.

### 6. Best Practices for Dashboard Design

Use minimal colors, highlight key KPIs, maintain layout consistency, and group related charts.

### 7. Tools Used for Visualization

Apache Superset, Microsoft Excel, Tableau (optional), Power BI (optional).

## 7. Summary

The Superstore dataset was analyzed using Superset and Excel, and insights were extracted through clean, well-chosen visualizations. The storytelling approach ensures each chart provides clear business value, helping stakeholders understand performance across regions, categories, customer segments, and time.