TASK 4

The **Superstore dataset** is a sample business dataset that simulates a regional retail operation across the United States. It contains transactional sales data, customer segments, and product information, allowing for detailed analysis of sales performance, trends, and operational insights.

Dataset Overview

- **Total Rows**: ~10,000+ (based on common versions)
- **Time Range**: Multiple years (depending on `Order Date`)
- **Geographic Scope**: U.S. (States, Regions, Cities)

Column Name	Description
Order ID	Unique identifier for each purchase transaction
Order Date	Date when the order was placed
Ship Date	Date when the order was shipped
Customer Name	Name of the customer
Segment	Type of customer (Consumer, Corporate, Home Office)
Region	Geographic region (e.g., West, East)
State / City	Geographic location of delivery
Category	High-level product category (Furniture, Tech, etc.)
Sub-Category	More detailed product classification
Product Name	Specific product ordered
Sales	Revenue from the sale
Quantity	Number of units sold
ShippingMode	Method used to ship the product

This dataset represents sales transactions from a fictional retail company operating across the United States. It includes detailed information on orders, products, customers, shipping methods, and sales performance. The data spans multiple years and provides valuable insights into regional trends, customer segments, product categories, and sales behaviors — ideal for building interactive dashboards and conducting time-series or category-based analysis.

Primary KPIs to Use

1. **Sales**

- **Total Sales**: SUM([Sales])
- **Sales by Category/Sub-Category**: SUM([Sales]) split by Category, Sub-Category
- **Sales Trend**: Time series of sales (Order Date on x-axis, SUM(Sales) on y-axis)

2. **Profit**

- **Total Profit**: SUM([Profit])
- **Profit Margin**: SUM([Profit]) / SUM([Sales])
- **Profit by Region/Segment**: Good for identifying strong or weak areas

3. Growth

- **Month-over-Month or Year-over-Year Growth in Sales**:
  - Use Table Calculations in Tableau: % Difference from previous month/year
- **Customer Growth**: Count of distinct Customer ID over time

Total Sales

Type: KPI Card or Time Trend

Steps:

1. Drag Sales to Rows.
2. Convert to SUM(Sales).
3. Format as currency.
4. Optional: Put Order Date on Columns for a time series view

Profit Margin

Type: KPI Card or Bar Chart by Category/Region

Calculated Field: Go to Analysis > Create Calculated Field, name it Profit Margin, and paste this:

SUM([Profit]) / SUM([Sales])

Steps:

1. Use this field in a bar chart with Category, Region, or Sub-Category on Rows.
2. Drag Profit Margin to Columns.
3. Format as percentage.

Month-over-Month Sales Growth

Type: Line Chart with Table Calculation

Steps:

1. Drag Order Date to Columns and set it to Month.
2. Drag Sales to Rows.
3. Right-click Sales, choose Quick Table Calculation > Percent Difference.
4. Set Relative to: Previous.

Top 10 Products by Profit

Steps:

1. Drag Product Name to Rows.
2. Drag Profit to Columns.
3. Sort descending.
4. Right-click on Product Name in the Filters pane → Top tab → Show Top 10 by Sum of Profit.

1. Profit Heat Map by Region and Category

Goal: Quickly see which areas make or lose money.

☐ **Setup**:

- Rows: Region
- Columns: Category
- Marks: Set to Square.
- Color: Drag SUM(Profit) to Color.
- Label: Drag SUM(Profit) to Label.

Optional Calculated Field (for color logic):

IF SUM([Profit]) > 0 THEN "Profit" ELSE "Loss" END

Then color by this field!

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2.   Sales and Profit Dual-Axis Line Chart

Goal: Compare sales vs profit over time.

☐ **Setup**:

- Columns: Order Date (set to Month/Year).
- Rows:
    - Drag SUM(Sales).
    - Drag SUM(Profit) next to it until you see a dotted line (creates a second axis).
- Right-click one axis → Synchronize Axes.
- Marks:
    - First line: Color it Blue (Sales).
    - Second line: Color it Green (Profit).

3. Sales by Sub-Category Bar Chart with Profit Color

Goal: Sales volume + Profitability in 1 chart.

☐ **Setup**:

- **Rows**: Sub-Category
- **Columns**: SUM(Sales)
- **Color**: Drag SUM(Profit) to Color.
- **Sort**: Descending by SUM(Sales).

Optional Calculated Field (Profitability Category)

IF SUM([Profit]) > 0 THEN "Profitable" ELSE "Unprofitable" END

Then color bars by this.

4. Running Total of Sales

Goal: Show cumulative sales growth.

☐ **Setup**:

- Columns: Order Date (continuous Month/Year).
- Rows: SUM(Sales)
- Right-click SUM(Sales) → Quick Table Calculation → Running Total.

5. **Discount vs Profit Scatter Plot**

Goal: See if higher discounts = lower profit.

□ **Setup**:

- Rows: Discount
- Columns: Profit
- Detail: Drag Product Name onto Detail.
- Add Trend Line: Right-click the view → Trend Lines → Show Trend Lines.

Visualization	Main Fields	Extras
Heat Map	Region, Category	Color = Profit
Dual Axis Line	Sales & Profit	Sync Axes, Color Lines
Sales Bar + Profit Color	Sub-Category	Color by Profit
Running Total	Sales over Time	Running Total calc
Scatter Plot	Discount vs Profit	Trend Line

Add Filters (Slicers) to Your Dashboard

Common Filters to Add:

Filter Field	Use For
Region	Regional comparisons
Segment	Business vs. Consumer insights
Category	High-level product view
Sub-Category	Drill-down to product families
Order Date	Filter by month/year

To Add a Filter in Tableau:

1. In your worksheet:
    - Drag a field (e.g., Category) to the Filters shelf.
    - Right-click it → Show Filter → appears as a slicer on the side.
2. Go to your Dashboard, and your filter will show up.
    - You can reposition it, resize it, or format it (dropdown, slider, etc.).
3. To make it control multiple sheets:
    - Click the filter dropdown → Apply to Worksheets → All using this data source.

Add a Date Range Slicer (Order Date)

To add a dynamic date filter:

1. Drag Order Date to the Filters shelf.
2. Choose Range of Dates.
3. Right-click Order Date in the Filters shelf → Show Filter.
4. Tableau gives you a date slider or dropdown

Add a Parameter (for Dynamic Calculations)

Example: create a dynamic Top N filter (Top 5, Top 10, etc.)

Step-by-step:

1. Right-click in Data pane → Create Parameter
    - Name: Top N
    - Data type: Integer
    - Current Value: 10
    - Allowable Values: Range (Min 1, Max 20)
2. Create a calculated field

RANK(SUM([Sales])) <= [Top N]

3. Drag this calculated field to Filters → set to True
4. Right-click Top N → Show Parameter Control

Example Interactive Filter Setup:

Component	Interaction Type
Region Filter	Multi-select Dropdown

Component	Interaction Type
Segment Filter	Single Value List
Category Filter	Dropdown
Date Filter	Range Slider
Top N Products	Parameter (Slider)

Time-Series Analysis in Tableau

1. Sales Trend Over Time

Goal: See how sales evolved monthly or yearly.

Steps:

1. Drag Order Date to Columns.
   - Right-click it → Choose Month or Continuous Month for smoother lines.
2. Drag Sales to Rows → SUM(Sales)
3. Format as Line Chart (Marks → Line)
4. Add Category to Color
   - Drag Category or Region to Color for comparison.

2. Month-over-Month Sales Growth

Goal: Track % increase/decrease each month.

Steps:

1. Start with the Sales Trend chart.
2. Right-click SUM(Sales) → Quick Table Calculation → Percent Difference
3. Make sure it compares against Previous Month
4. Format Y-axis as Percentage

3. Running Total of Sales

Goal: See cumulative sales growth.

Steps:

1. Use Order Date (set to Month/Year) on Columns.
2. SUM(Sales) on Rows.
3. Right-click SUM(Sales) → Quick Table Calculation → Running Total

This shows how total revenue is growing over time.

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4. Seasonality: Year vs Year Sales

Goal: Compare the same months across different years.

Steps:

1. Drag Order Date to Columns → Right-click → Select Month.
2. Drag Order Date again to Color or Detail → Right-click → Choose Year.
3. Now each line is a separate year, and X-axis is just months.

Useful Filters for Time Series Dashboards

Filter	Use
Order Date	Date Range or Year Selector
Region	Regional breakdown
Segment	Consumer vs Corporate
Category	Product-level drilldown

Final Touch — Add Interactivity:

- Add a date range filter (from previous messages)
- Add Category/Segment filters to slice trends

Step-by-Step: Create KPI Summary Cards

1. Total Sales Card

- Create a new sheet (name it "Total Sales")
- Drag Sales to Text
- Right-click on it → Quick Table Calc (if needed), or just:
    - Format → Currency
- Format the Text:
    - Go to Text on Marks card → click it → change to something like:

Total Sales
$<SUM(Sales)>

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2. Total Orders

Use this calculated field:

COUNTD([Order ID])

- Drag it to Text
- Format → Add title: Total Orders

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3. Average Discount

AVG([Discount])

- Create a new sheet: "Avg Discount"
- Use the field above → drag to Text
- Format as % and label it "Avg Discount"

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4. Total Quantity Sold

text
CopyEdit
SUM([Quantity])

- Drag to **Text**
- Format as a large number
- Label it "Units Sold"

☐ 5. Date Range Summary (Optional)

Create a sheet that displays the selected date range:

"Showing Data From " + STR(MIN([Order Date])) + " to " + STR(MAX([Order Date]))

<u>Assemble KPI Cards in Dashboard</u>

1. Go to your Dashboard tab
2. Drag each KPI sheet onto the top as a horizontal container
3. Format each one:
   - Large font size (20–40 pt)
   - Bold
   - Centered text
   - Optional icons (via Shape or Dashboard Images)

Bonus: Use Background Colors or Borders

- Click each card → Format → Add background color (light gray, blue, etc.)
- Use rounded corners, spacing to create a modern look

Suggested KPI Layout

Metric	Field / Calculation
Total Sales	SUM(Sales)
Total Orders	COUNTD(Order ID)
Units Sold	SUM(Quantity)
Avg Discount	AVG(Discount)

<u>Apply a Consistent Color Theme in Tableau</u>

1. Choose a Color Palette

Stick to a clean, minimal color scheme (3–5 key colors).
Here are a few safe & modern examples:

Theme Name	Primary	Accent 1	Accent 2	Neutral
Modern Blue	#2F80ED	#56CCF2	#BBE1FA	#F2F2F2
Corporate	#005B96	#6497B1	#B3CDE0	#F7F9FB
Minimal Gray	#333333	#888888	#CCCCCC	#FFFFFF

Theme Name	Primary	Accent 1	Accent 2	Neutral
Teal & Gold	#00796B	#F9A825	#FBE9E7	#FAFAFA

2. Apply Colors to Visuals

For each chart or card:

- Go to Marks → Color
- Click the Color Picker
- Use your selected color hex codes.
- Use Accent colors only to highlight key categories (e.g., top products, selected regions).

3. Set Default Color Palette

To make Tableau stick with your theme:

1. Go to Preferences.tps file (in Tableau Repository)
2. Add your custom color palette:

```
<preferences>
 <color-palette name="Modern Blue" type="regular">
  <color>#2F80ED</color>
  <color>#56CCF2</color>
  <color>#BBE1FA</color>
  <color>#F2F2F2</color>
 </color-palette>
</preferences>
```

4. Format Filters and Cards Consistently

- Right-click Filter → Format → Use matching font & background.
- Use a white/light neutral card background with bold metric text.
- Apply same font family (e.g., Segoe UI, Roboto, Lato) across sheets.

5. Add Cohesive Titles and Borders

- Use section titles (e.g., "Sales Trend", "Top Products") in the same font size & color.
- Apply soft gray lines or containers to separate sections if needed.