Tableau Basics

Q1. Explain what Tableau is and why it is preferred over traditional spreadsheet tools for data analysis. Also mention any two industries where Tableau is commonly used and explain one use case.

Definition: Tableau is a powerful data visualization and Business Intelligence (BI) tool.

It is preferred over Spreadsheets due to its Scalability. Tableau handles millions of rows of data much faster than traditional spreadsheets like Excel.

Automation: It allows for real-time data updates and interactive dashboards, whereas spreadsheets often require manual updates.

- **Visual Discovery:** It uses a "Drag and Drop" interface to find trends visually without complex formulas.

Industries and Use Case:

1. **Retail:** Used to track inventory levels and customer purchasing habits.
2. **Healthcare:** Used to monitor patient outcomes and hospital resource allocation.

- **Use Case:** A retail manager uses Tableau to identify which product categories have the highest return rates to adjust purchasing strategies.

Q2. After connecting to the Sample – Superstore dataset: a) List the main types of fields available (examples: time-based, geographical, numerical). b) Identify any four Dimensions and any four Measures from the dataset.

a) Main Types of Fields:

- **Time-based:** Order Date, Ship Date.
- **Geographical:** Country, State, City, Postal Code.
- **Numerical:** Sales, Profit, Quantity, Discount.

b) Dimensions vs. Measures:

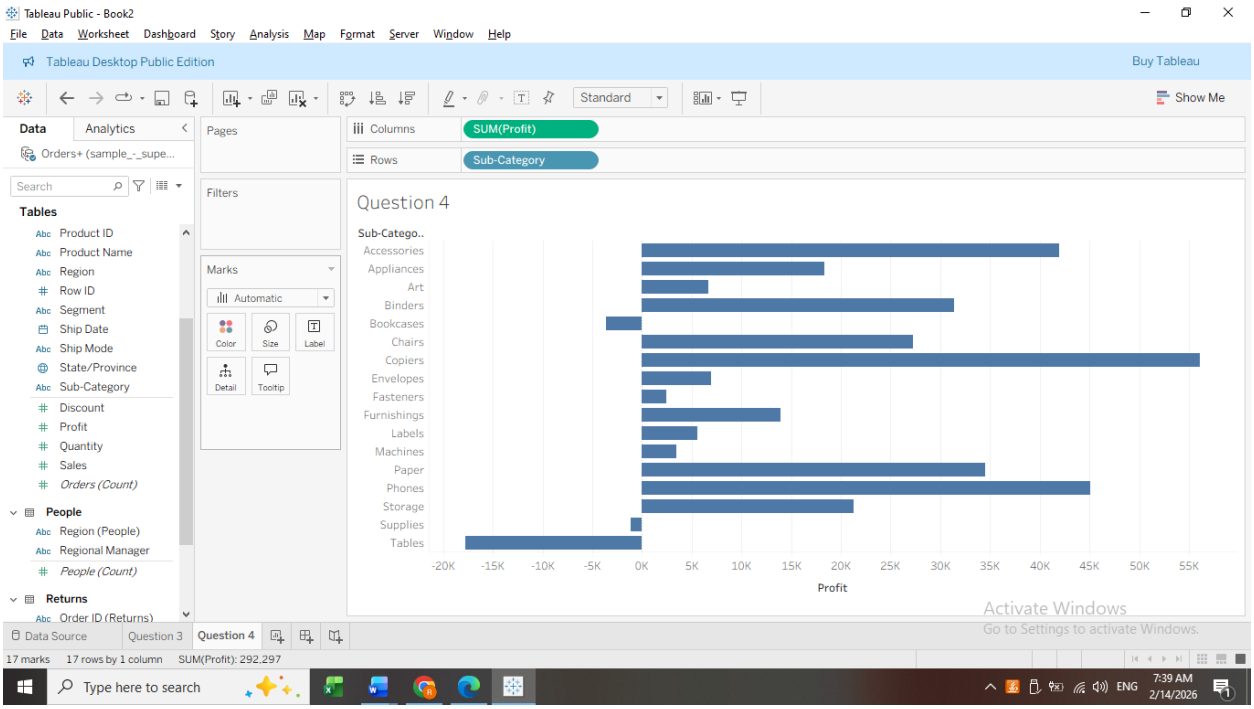
- **4 Dimensions:** Category, Sub-Category, Region, Segment.
- **4 Measures:** Sales, Profit, Discount, Quantity.

Q4. What insight can be gained by comparing Sales and Profit together? Then explain how you would create a chart to analyze Profit by Sub-Category.

Insight: Comparing Sales and Profit reveals **profitability efficiency**. High sales do not always mean high profit e.g., a product might have high sales but low profit due to high shipping costs or discounts.

Chart for Profit by Sub-Category:

1. Drag **Sub-Category** (Dimension) to the **Rows** shelf.
2. Drag **Profit** (Measure) to the **Columns** shelf.
3. This creates a horizontal bar chart where we can easily see which sub-categories are losing money (negative bars).

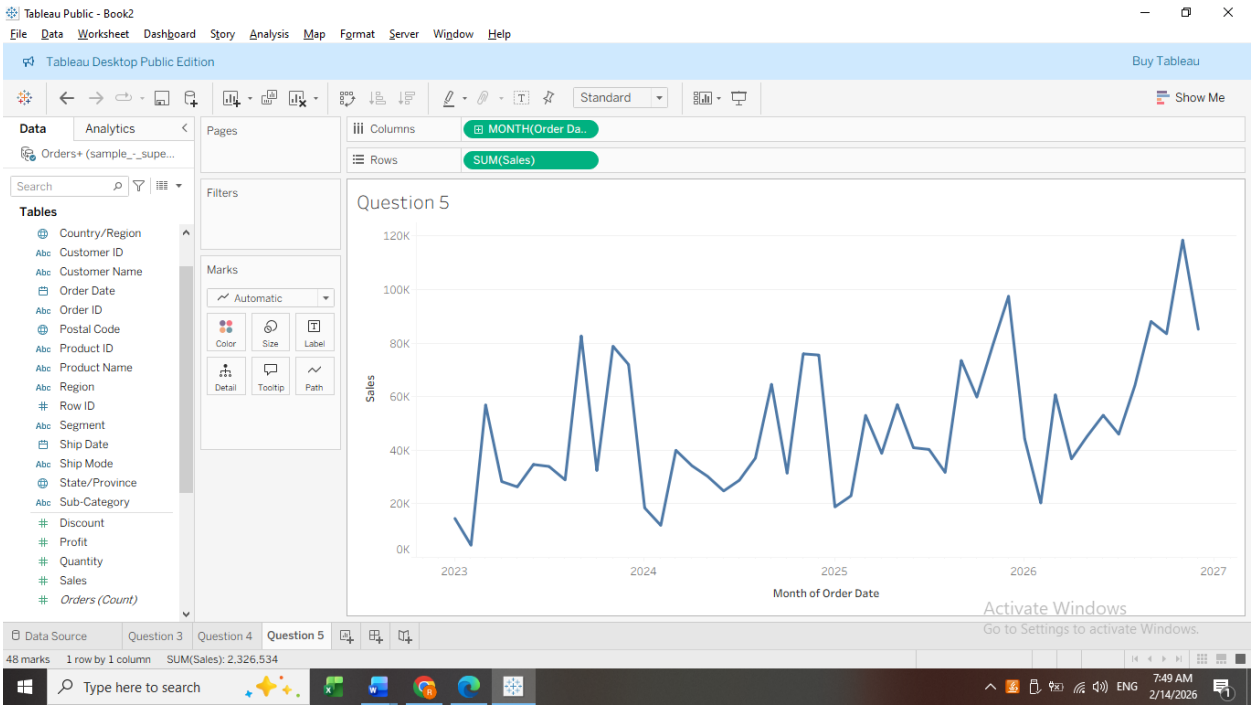


Q5 Q5. Create a Line Chart to show Sales Trend over Order Date. Which date level would you choose (Year / Quarter / Month)? Why are line charts suitable for time-based analysis?

Line Chart Suitability: Line charts are ideal for time-based analysis because they highlight the **continuity** and **direction** (upward/downward) of data over a sequence.

Steps:

1. Drag **Order Date** to Columns.
2. Drag **Sales** to Rows.
3. **Date Level Choice:** Choose **Month** (Continuous) to see seasonal trends throughout the year.
4.



Q6. Apply a Basic Filter to display data only for: Region = "West" Category = "Technology" Explain the steps and mention which shelf is used

The Chart Configuration

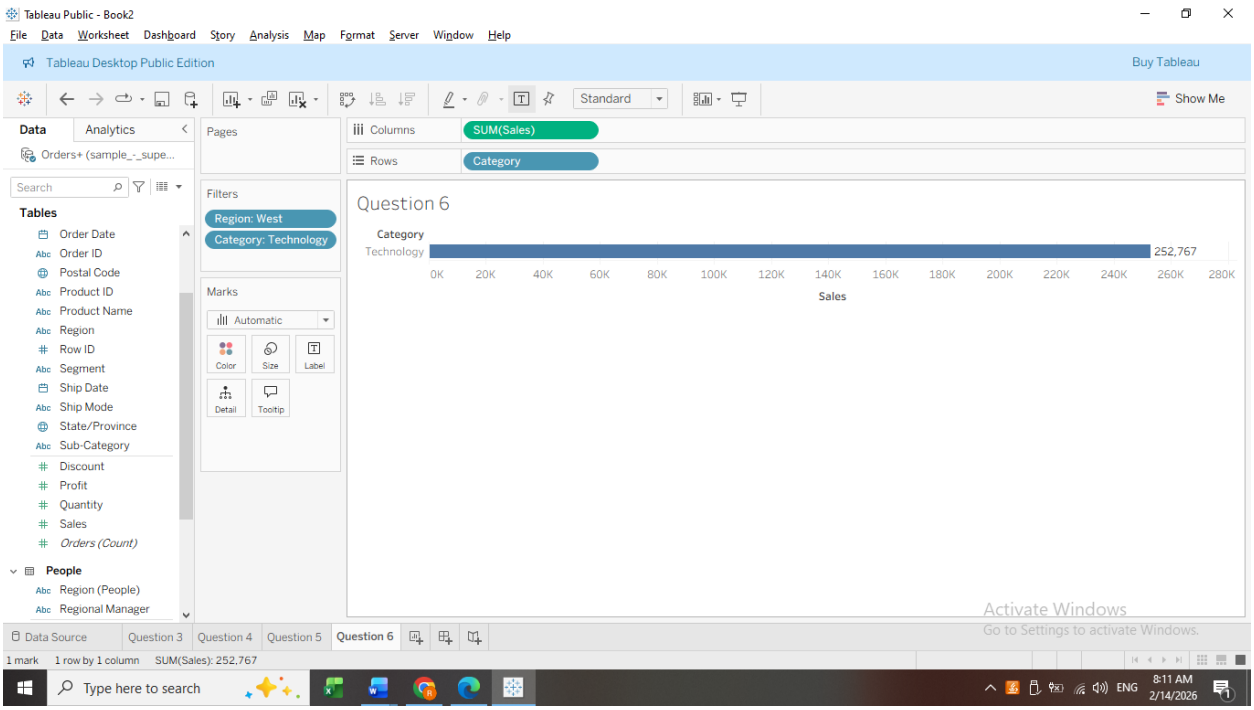
To see the results of filter clearly, in the worksheet we should be set up as follows:

- Columns Shelf: Category.
- Rows Shelf: Sales.

1. Drag **Region** to Filters: Select only "West" from the list.
2. Drag **Category** to Filters: Select only "Technology" from the list.
3. Result: A Bar Chart will update to show only a single bar representing the Sales for Technology in the West region.

Why use a Bar Chart here?

A Bar Chart is the best choice because it allows for a direct, easy-to-read comparison of the specific filtered values against the rest of the dataset if you choose to show the filter control to a user.

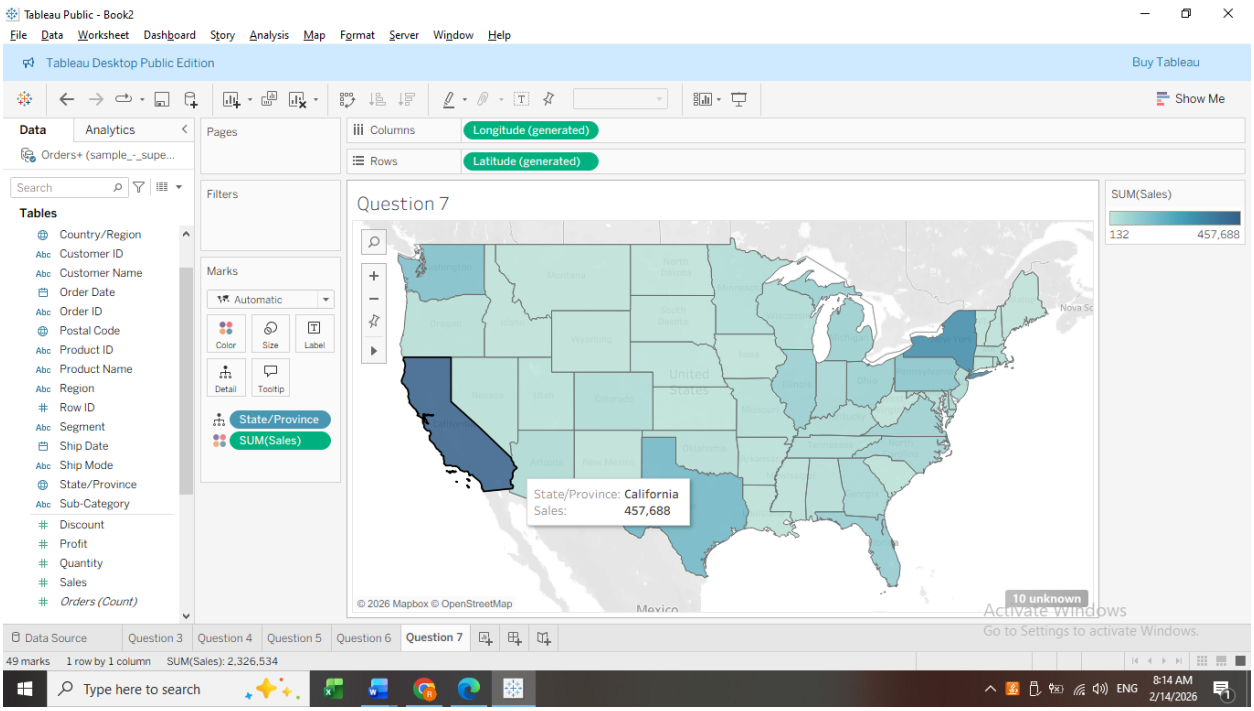


Q7. Explain the business importance of geographical analysis. Then describe how you would create a Map showing Sales by State using Sample – Superstore.

Business Importance: It helps businesses identify **underperforming regions**, optimize supply chains, and target marketing efforts based on location-specific demand.

Steps to Create a Map:

1. Double-click on the **State** field. Tableau will automatically generate a map with dots for each state.
2. Drag **Sales** onto the **Color** mark in the Marks card.
3. This creates a "Filled Map" (Choropleth) where states with higher sales are darker.
4.



Q8. What is the difference between a Worksheet and a Dashboard in Tableau? Why is a dashboard more useful for decision-makers?

- **Worksheet:** A single view or chart (e.g., just one bar chart).
- **Dashboard:** A collection of several worksheets arranged on one page.
- **Why for Decision-Makers?** Dashboards provide a **consolidated view**. Instead of looking at five different files, a manager can see Sales, Profit, and Regional trends all at once to make a quick, informed decision.

Q9. What is Tableau Prep, and why is it important in real-world data projects? Then explain how you would: Remove null values Remove duplicate records Change incorrect data types (Answer in steps, no tool access required.)

Importance: Tableau Prep is used for **Data Cleaning** and **Data Shaping**. In the real world, data is often "dirty" (missing values or wrong formats), and Prep automates the fixing process before visualization.

Steps for Cleaning:

1. **Remove Nulls:** In the Profile pane, click on the null value, right-click, and select **Filter -> Exclude**.
2. **Remove Duplicates:** Add a "Clean Step," click the three dots on a field, and select **"Group Values"** or use a specific "Aggregate" step to group by unique IDs.

3. **Change Data Types:** Click the data type icon (e.g., # or Abc) above the field column and select the correct type (e.g., change String to Date).

Q10. A retail manager wants answers to the following:

Which category generates the highest profit?

Which region performs poorly?

How does sales change over time?

Chart 1: Profit by Category

Goal: Identify which category generates the highest profit.

1. Open a New Worksheet: Click the "New Worksheet" tab at the bottom.
2. Add Dimensions: Drag Category from the Data Pane to the Columns shelf.
3. Add Measures: Drag Profit from the Data Pane to the Rows shelf.
4. Sort for Clarity: Click the Sort Descending icon on the toolbar so the highest profit bar appears first.
5. Insight: The management clearly understands that Technology leads in profit.
6.

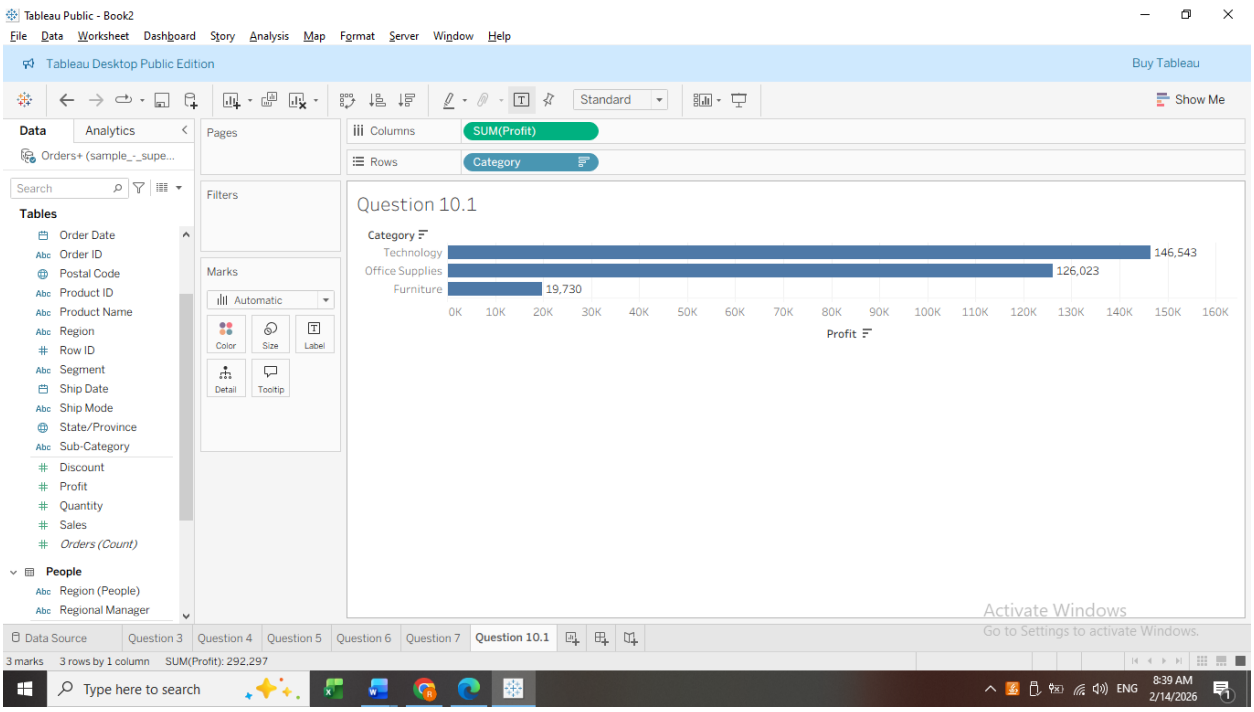


Chart 2: Profit by Region / State (Map)

Goal: Identify which region performs poorly.

1. Open a New Worksheet.
2. Create the Visual: Double-click the State field.
3. Drag Profit to the Color mark.
4. Identify the Weak Link: Look for the shortest bar or the state colored in red (negative profit).
5. Insight: Management can see if a specific state, is struggling with profitability.
6.

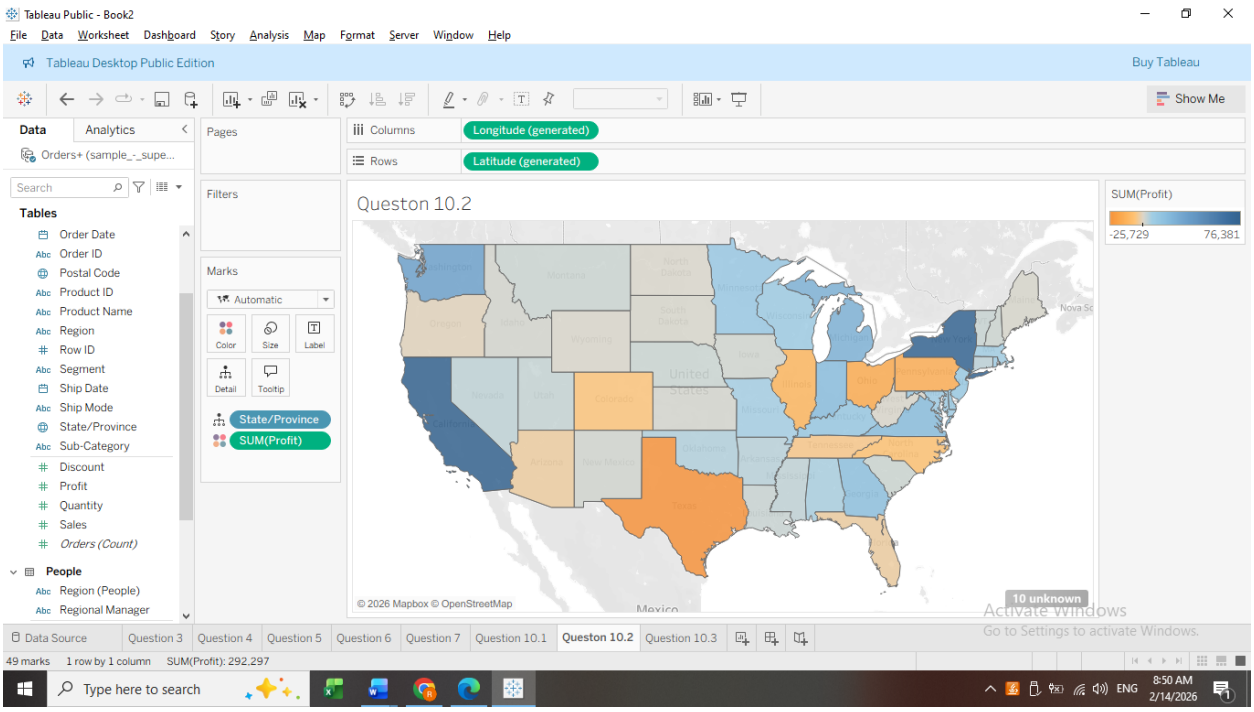


Chart 3: Sales Trend Over Time

Goal: Show how sales change over time.

1. Open a New Worksheet.
2. Add Time Dimension: Drag Order Date to the Columns shelf.
3. Set Date Level: Click the plus (+) sign on the Order Date pill to drill down from Year to Quarter or Month for more detail.

4. Add Measure: Drag Sales to the Rows shelf.
5. Insight: This line chart reveals seasonal peaks (like high sales in November/December) and helps in inventory planning.
6.