Question 1 : What is Tableau? Explain its importance in Business Intelligence and how it helps in data-driven decision-making.

Answer :

Tableau is a powerful data visualization and Business Intelligence (BI) tool used to analyze, explore, and present data in the form of interactive charts, graphs, dashboards, and reports. It allows users to connect to multiple data sources such as Excel files, databases, cloud services, and big data platforms, and transform raw data into meaningful visual insights without requiring advanced programming skills.

Importance of Tableau in Business Intelligence

Tableau plays a crucial role in Business Intelligence by enabling organizations to convert large volumes of complex data into easy-to-understand visual formats. Its drag-and drop interface helps business users, analysts, and decision-makers quickly identify trends, patterns, and outliers. Tableau supports real-time data analysis, which ensures that decisions are based on the most up-to-date information. It also improves collaboration by allowing dashboards and reports to be shared across teams.

Role of Tableau in Data-Driven Decision-Making

Tableau helps in data-driven decision-making by providing clear and interactive visualizations that make insights more accessible. Decision-makers can drill down into data, apply filters, and compare different scenarios instantly. This reduces dependency on assumptions and intuition, leading to more accurate and informed decisions. By identifying performance gaps, customer behavior, market trends, and operational inefficiencies, Tableau enables organizations to take timely and strategic actions based on data evidence.

Question 2 : Explain the role of the following Tableau components: a) Data Pane b) Worksheet c) Dashboard d) Story

Answer :

Tableau provides several core components that help users analyze data and present insights effectively. The roles of the following Tableau components are explained below:

a) Data Pane

The Data Pane is located on the left side of the Tableau interface and displays all the data fields from the connected data source. It contains Dimensions (categorical data such as names, regions, or dates) and Measures (numerical data such as sales, profit, or quantity). The Data Pane allows users to drag and drop fields into the workspace to create visualizations. It also helps in managing data fields, creating calculated fields, parameters, and groups.

b) Worksheet

A Worksheet is the basic working area in Tableau where individual visualizations are created. In a worksheet, users can build charts, graphs, and tables by placing fields from the Data Pane onto shelves such as Rows, Columns, Filters, and Marks. Worksheets allow detailed data analysis, filtering, sorting, and formatting. Each worksheet focuses on a single view or analysis.

c) Dashboard

A Dashboard is a collection of multiple worksheets combined into a single interactive view. Dashboards allow users to compare different visualizations at once and provide a comprehensive overview of data. They support interactivity features such as filters, actions, and highlights, enabling users to explore data dynamically. Dashboards are commonly used for executive reporting and performance monitoring.

d) Story

A Story in Tableau is a sequence of worksheets or dashboards arranged to present data insights in a logical and narrative manner. Stories help explain data step by step by guiding the audience through key findings, trends, or conclusions. They are especially useful for presentations and storytelling, as they combine visual analysis with descriptive text to communicate insights clearly.

Question 3 : What is the difference between Dimensions and Measures in Tableau? Provide examples of each.

Answer :

In Tableau, data fields are mainly categorized into Dimensions and Measures based on how they are used for analysis and visualization. The key differences between them are explained below:

Dimensions

Dimensions are qualitative or categorical fields that describe characteristics of data. They are generally used to segment, group, or categorize data and are displayed as discrete values (blue in color by default). Examples of Dimensions: • Customer Name • Region

• Product Category

• Order Date

- Country

Measures

Measures are quantitative, numerical fields that represent values which can be calculated and aggregated (such as sum, average, or count). Measures are usually

continuous (green in color by default) and are used to perform mathematical calculations. Examples of Measures:

- Sales
- Profit
- Quantity
- Discount
- Revenue

Question 4 : Define and explain the purpose of Filters, Parameters, and Sets in Tableau. Answer :

In Tableau, Filters, Parameters, and Sets are powerful features used to control data visibility, enhance interactivity, and perform advanced analysis. Their definitions and purposes are explained below:

Filters

Filters are used to restrict the data displayed in a worksheet, dashboard, or entire data source based on specific conditions. They help focus analysis on relevant data by including or excluding values. Purpose of Filters:

- Remove unnecessary data from visualizations
- Analyze specific categories, regions, dates, or ranges
- Improve performance by reducing data volume
- Allow users to interactively control views

Example: Filtering sales data to show only the year 2024 or a specific region like "North".

Parameters

Parameters are dynamic, user-defined input values that allow users to control calculations, filters, or reference lines. Unlike filters, parameters are not tied to a specific field and can be reused across worksheets. Purpose of Parameters:

- Enable what-if analysis
- Allow users to change values dynamically
- Control calculated fields and logic
- Improve interactivity in dashboards

Example: A parameter that lets users select a discount percentage to see how profit changes

. Sets

Sets are custom subsets of data created based on conditions or manual selection. They classify data into two groups: In or Out of the set and are mainly used for comparison and advanced analysis. Purpose of Sets:

- Compare specific groups within data
- Perform advanced calculations
- Highlight top or bottom performers
- Create dynamic groupings

Example: A set showing the top 10 customers by sales.

Question 5 : Create a bar chart showing Gross Sales by Country.

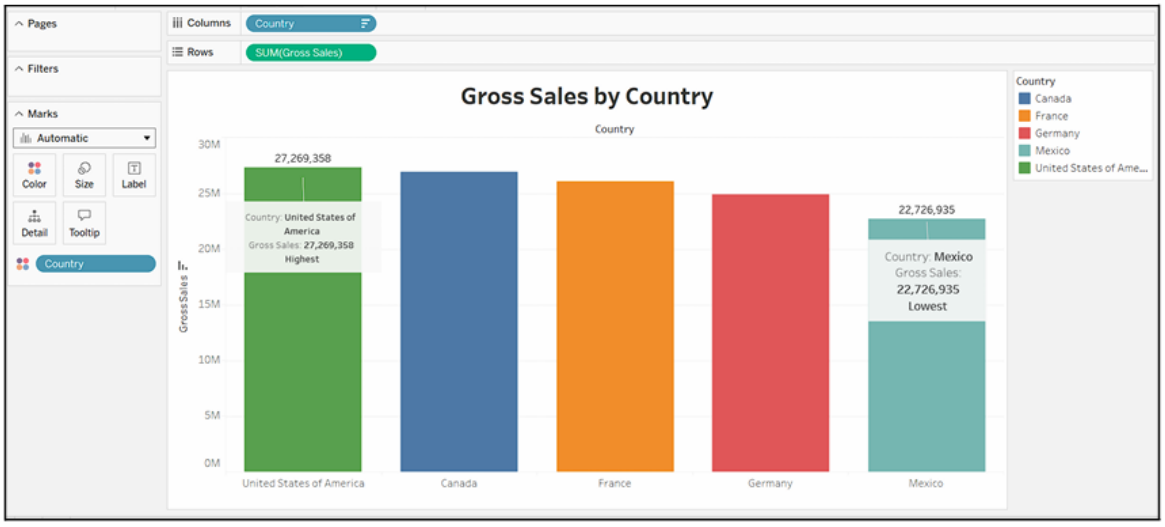
● **Dataset Link:Global_sales_dataset**

● **Sort the countries in descending order of sales**

. ● Highlight or annotate the bar that represents the maximum and minimum Gross Sales

● **Add data labels and format the chart for presentation**

Answer :



Question 6 : Using Tableau, create a dual-axis chart that displays:

● **Dataset Link:Global_sales_dataset**

● Monthly Sales as bars

● Monthly Profit as a line

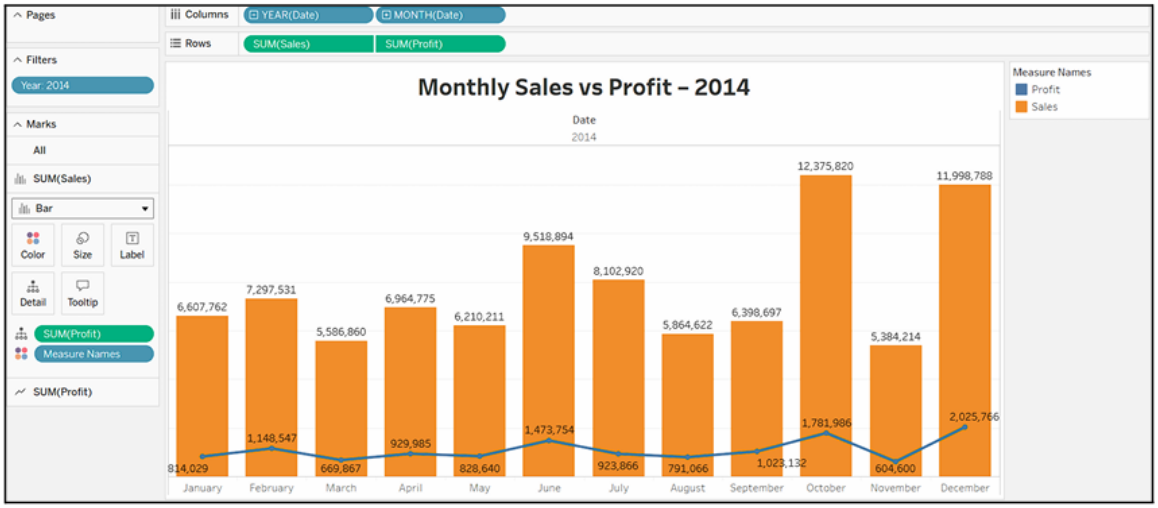
● Filter the data to include only records from the year 2014

● Ensure both axes are synchronized and properly labelled

● Add an appropriate chart title, and format the chart for clear visual presentation

● Paste a screenshot of the final chart in your submission

Answer :



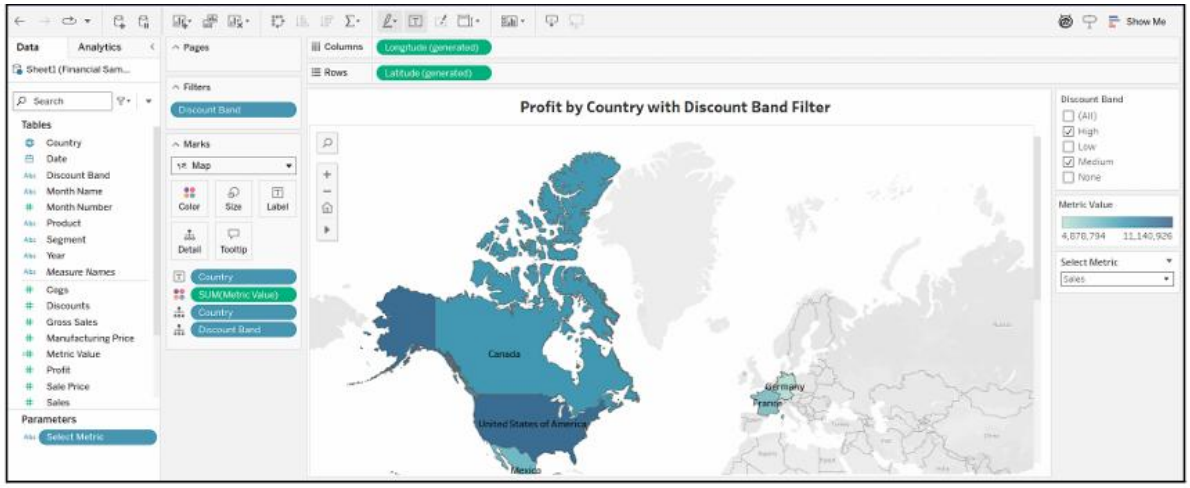
Question 7 : Create a filled map showing total Units Sold by Country.

● Dataset **Link:Global_sales_dataset**

● Add a parameter to allow users to switch between Units Sold and Profit

. ● Use the Discount Band as a filter in your visualization

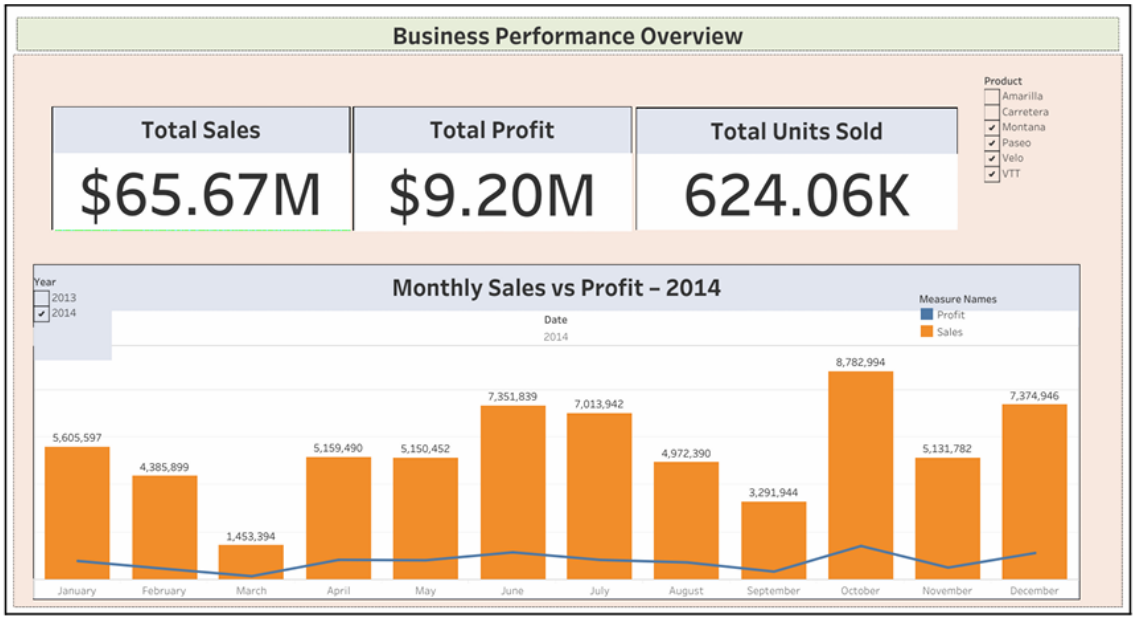
Answer :



Question 8 : Create a dashboard that includes:

- **Dataset Link:Global_sales_dataset**
- **KPI tiles for Total Sales, Total Profit, and Total Units Sold**
- **A line chart for Profit trend over time**
- **Filters for Product and Country Ensure your dashboard is interactive and visually appealing**

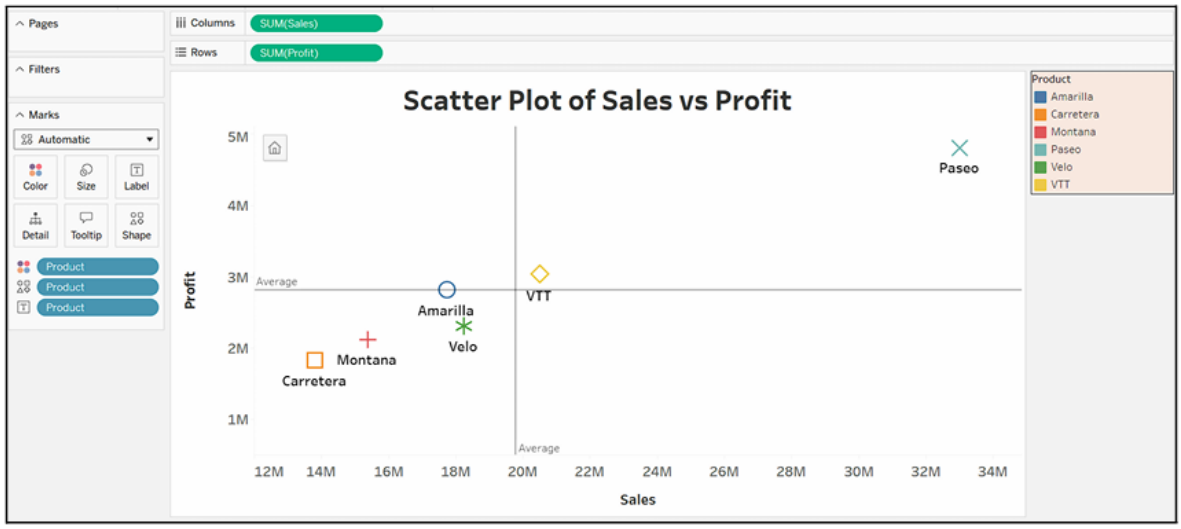
Answer :



Question 9 : Your goal is to identify products that generate low profit despite high sales volume.

- **Dataset Link:Global_sales_dataset**
- **Use scatter plot or highlight table to identify such products.**
- **Add filters for Country and Segment.**
- **Write two business insights based on your chart**

Answer :



Business Insights:

● The product Carretera shows low profit despite having moderately high sales, which places it in the bottom-right quadrant of concern. This indicates potential issues such as high discounting, high cost of goods, or inefficient pricing.

● In contrast, Paseo stands out with both high sales and high profit, making it a strong performer.

● It is recommended that management re-evaluate the pricing and cost structure of Carretera to improve profitability, while also exploring ways to replicate the success model of Paseo across other products.