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Sanjivani College of Engineering, Kopargaon-423603
(An Autonomous Institute Affiliated to Savitribai Phule Pune University, Pune)
NAAC 'A' Grade Accredited, ISO 9001:2015 Certified
Department of Information Technology
NBA Accredited-UG Program

Class: S.Y. B. Tech Semester: IV
Subject: Data Visualization and Story Telling (SEIT261)

Practical No.: 08

Title:

Implementing assignment based on basic data visualization in tableau.

Software Requirements:

- Tableau Public

Objectives:

- To understand the importance of data visualization in data analysis.
- To get hands-on experience using Tableau software for creating visualizations.
- To learn how to connect Tableau to different data sources (like Excel or CSV files).
- To create basic chart types such as bar charts, line graphs, and pie charts.

Theory:

How to Implement Basic Data Visualization in Tableau Workspace:

1. Understanding Tableau Workspace

The Tableau workspace is the environment where you create and manage your visualizations. It includes:

- **Data Pane**: Where all your connected data (dimensions and measures) are listed.
- **Shelves**: Place dimensions and measures on **Rows**, **Columns**, **Filters**, and **Pages**.
- **Marks Card**: Used to control visual elements like **Color**, **Size**, **Label**, and **Tooltip**.
- **View Area**: The central canvas where the visualization appears.
- **Sheets**: Tabs where each visualization is created.
- **Dashboard/Story Tabs**: Used to combine multiple sheets for presentation.

2. Steps to Implement Basic Visualization

Step 1: Connect to Data Source

- Open Tableau and select a data source (Excel, CSV, SQL, etc.).
- Once loaded, the data fields will appear in the **Data Pane**.

Step 2: Understand Dimensions and Measures

- **Dimensions** are qualitative (e.g., Region, Product, Date).
- **Measures** are quantitative (e.g., Sales, Profit, Quantity).
- Tableau automatically categorizes these in the Data Pane.

Step 3: Drag Fields to Shelves

- **Columns Shelf** and **Rows Shelf** determine the X and Y axes.
- Drag a **dimension** (like Category) to **Columns**.
- Drag a **measure** (like Sales) to **Rows**.
- Tableau automatically creates a **bar chart**.

Step 4: Use the Marks Card

The **Marks Card** allows you to customize the chart:

- **Color**: Add color to differentiate items (e.g., by Region).
- **Label**: Show values on the chart.
- **Size**: Adjust bar/point size.
- **Tooltip**: Customize the text shown when hovering over a point.
- **Detail**: Add more context (e.g., sub-category breakdown).

Step 5: Add Filters and Interactivity

- Drag fields to the **Filters Shelf** to allow dynamic filtering (e.g., Year, Region).
- Filters can be shown as drop-down menus on the view.

3. Types of Basic Visualizations

Chart Type	When to Use	How to Create
Bar Chart	Comparing categories	Dimension to Columns, Measure to Rows
Line Chart	Trends over time	Date to Columns, Measure to Rows
Pie Chart	Show proportions	Dimension to Color, Measure to Angle
Map	Geographic data	Location field to View
Scatter Plot	Relationship between two measures	One measure to Columns, one to Rows

4. Creating a Dashboard

- Click the **Dashboard** tab.
- Drag and drop individual worksheets (charts) onto the dashboard canvas.
- Add filters, legends, and text for explanation.
- Arrange charts for clear communication.

5. Save and Share

- Save the file as `.twb` or `.twbx`.
- Export as PDF or image.
- Publish to **Tableau Public** for online sharing.

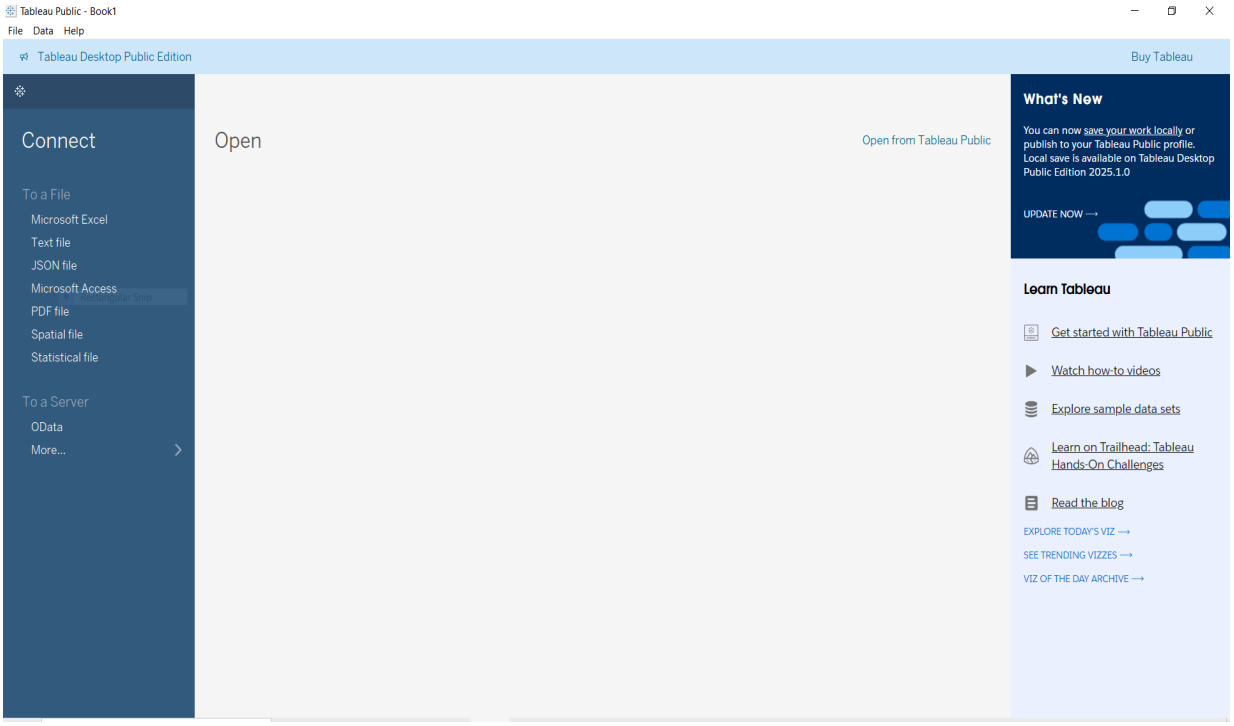


Fig 1. Tableau Public Workspace

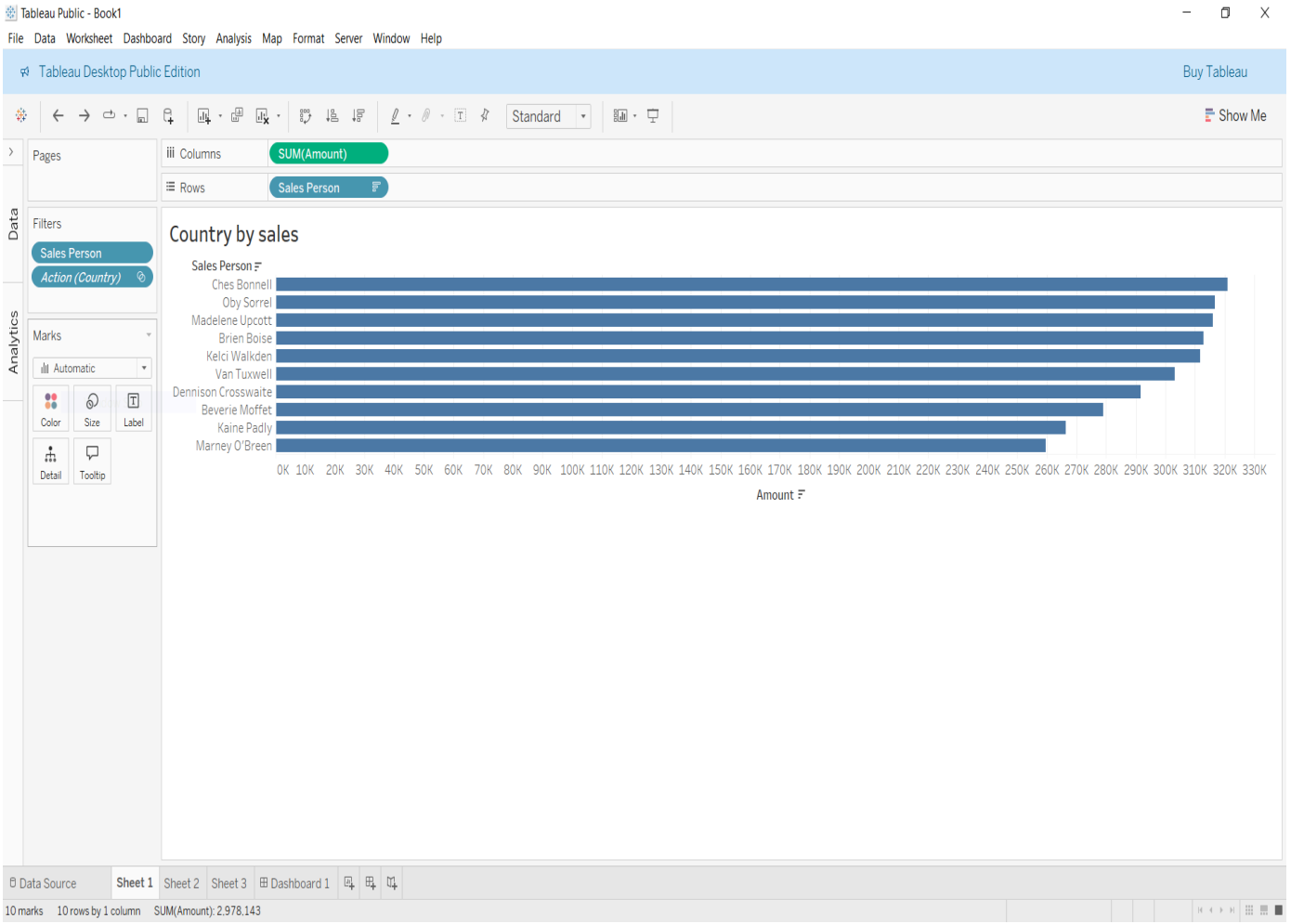


Fig 2. Sheet 1

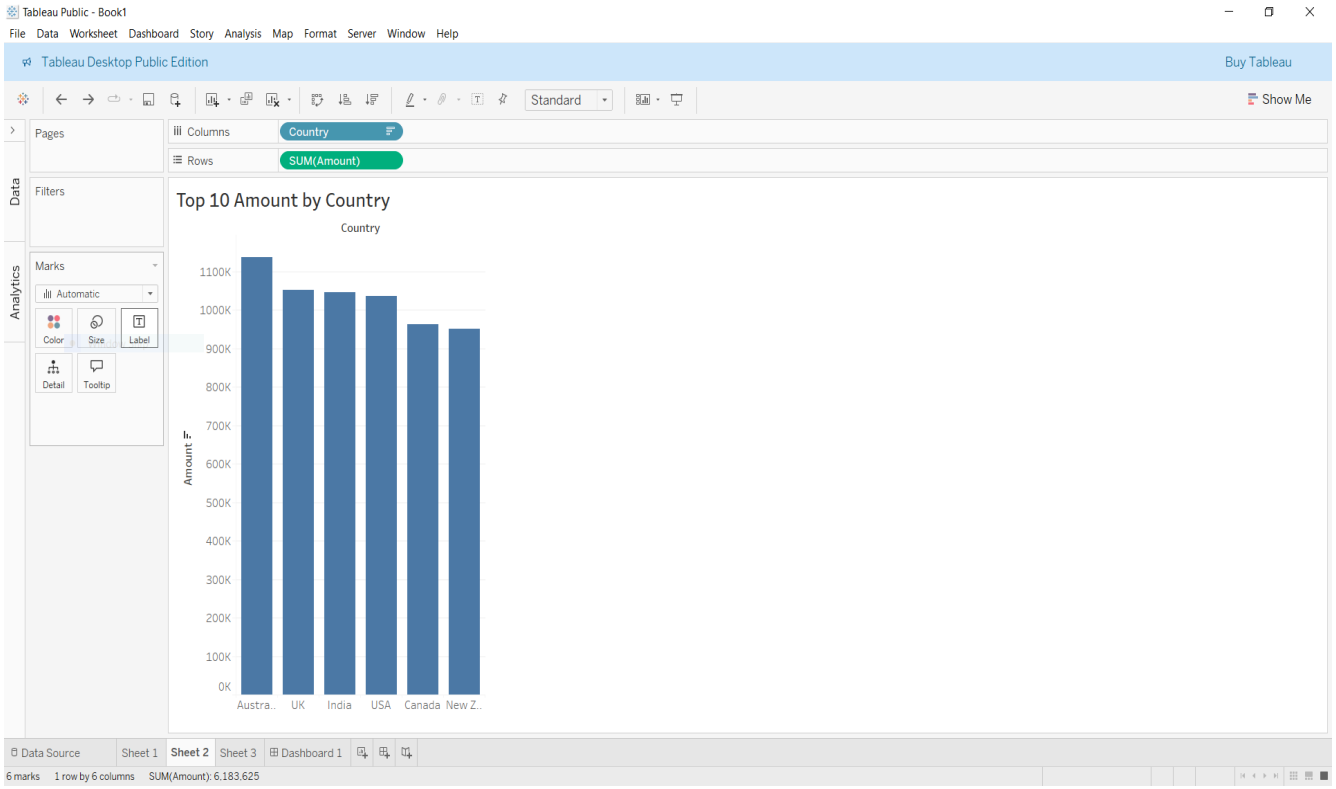


Fig 3. Sheet 2

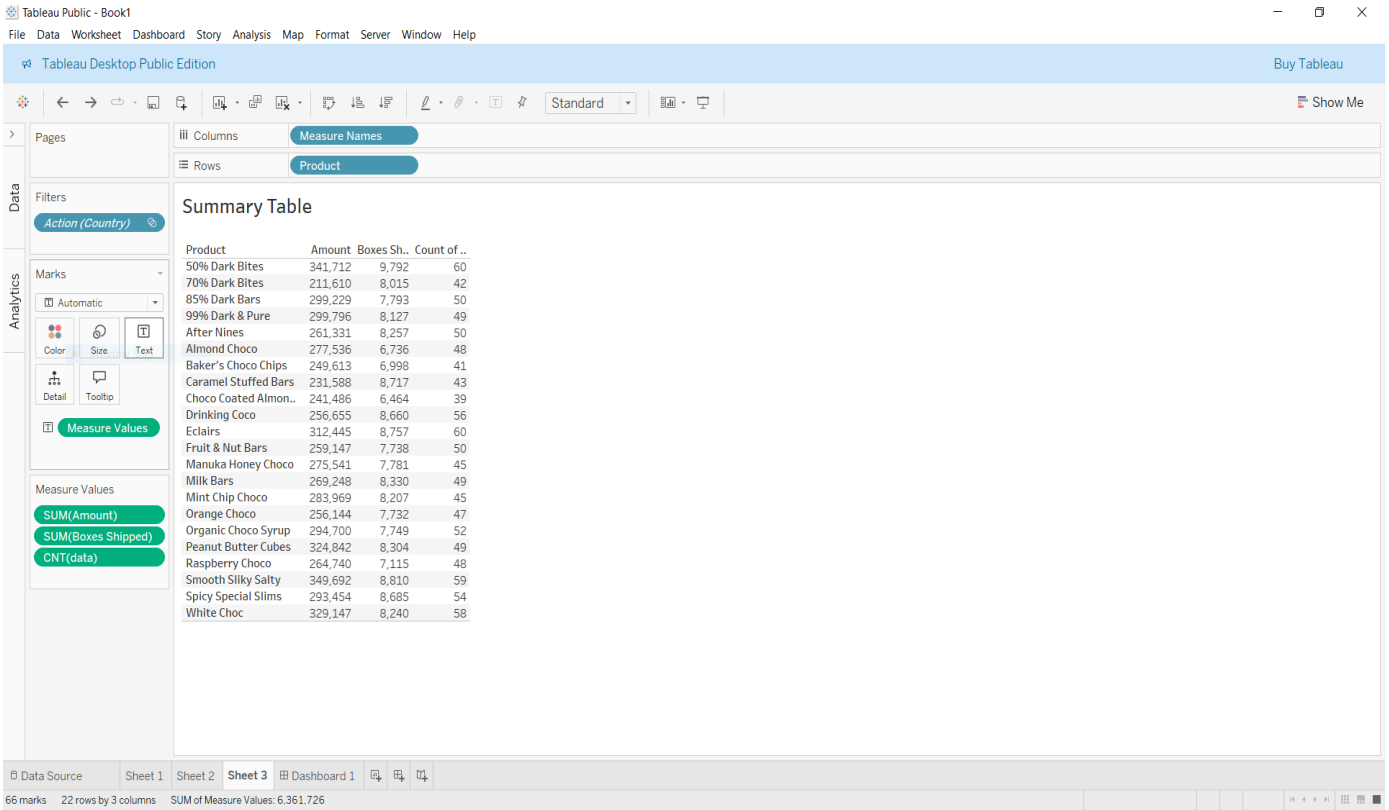
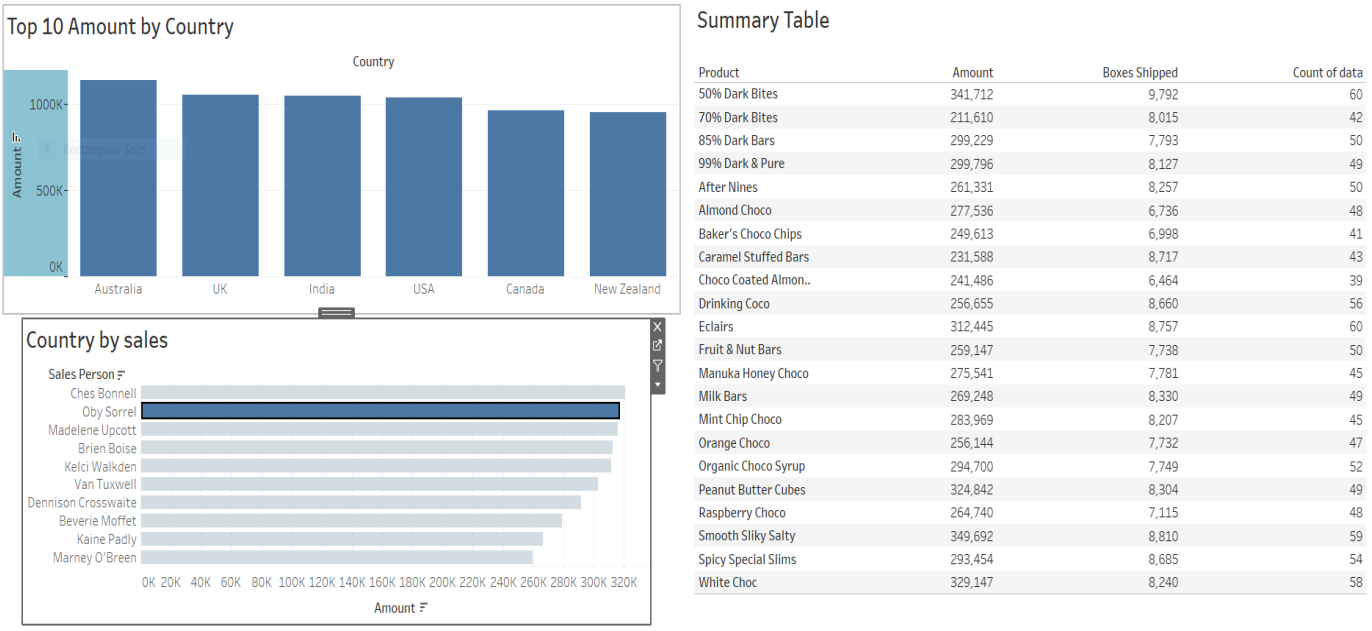


Fig 4. Sheet 3

Sales Analysis Data Visualization



Summary Table

Product	Amount	Boxes Shipped	Count of data
50% Dark Bites	341,712	9,792	60
70% Dark Bites	211,610	8,015	42
85% Dark Bars	299,229	7,793	50
99% Dark & Pure	299,796	8,127	49
After Nines	261,331	8,257	50
Almond Choco	277,536	6,736	48
Baker's Choco Chips	249,613	6,998	41
Caramel Stuffed Bars	231,588	8,717	43
Choco Coated Almon..	241,486	6,464	39
Drinking Coco	256,655	8,660	56
Eclairs	312,445	8,757	60
Fruit & Nut Bars	259,147	7,738	50
Manuka Honey Choco	275,541	7,781	45
Milk Bars	269,248	8,330	49
Mint Chip Choco	283,969	8,207	45
Orange Choco	256,144	7,732	47
Organic Choco Syrup	294,700	7,749	52
Peanut Butter Cubes	324,842	8,304	49
Raspberry Choco	264,740	7,115	48
Smooth Sliky Salty	349,692	8,810	59
Spicy Special Slims	293,454	8,685	54
White Choc	329,147	8,240	58

Fig 5. Sales Analysis Dashboard

Frequently Asked Questions:

1.What types of files can Tableau connect to?

2. What is the difference between dimensions and measures?

3. How do I filter data in Tableau?

4. Can I share my Tableau visualizations online?

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Conclusion:

Thus, Successfully Implement assignment based on basic data visualization in tableau to communicate insights clearly and effectively. Through this assignment, we explored the basics of Tableau, a user-friendly yet advanced data visualization tool. By connecting datasets, creating visualizations, and building interactive dashboards, users can transform raw data into meaningful insights that support data-driven decision-making.

References:

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- Data Visualization with R: 111 Examples by Thomas Rahlf, Springer, 2020.
- Learning Microsoft Power BI - Jeremey Arnold, 2022
- Learn Power BI: A Comprehensive, Step-by-step Guide for Beginners to Learn Real-worldBusiness Intelligence - Greg Deckler, 2022.
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