

## SOURCE CODE

Data visualisation: It is a graphical representation of information, to help of individuals and organisations understand complex data sets and identify patterns make informal decisions it involves translating raw data into visual form such as charts, maps

### Tools and Technologies:

- 1] Graphical Tools: Software insights vcca tableau, powerBI and google data studio.
- 2] Programming Libraries: Python libraries (matplotlib and seabornlib) and java script (D3.js)

### Process of Data Visualisation:

- 1] Data collection: Collecting data from various sources like API (Application Programme Interface) and other relevant source ensuring data collected is accurate complete and aligned with the visualization tools.
- 2] Data cleaning & Pre-Processing: Handling missing values, outliers and ensuring data quality, converting raw-data into a format suitable for visualization task.
- 3] Choosing Visualising tools: Tools like barcharts, pie-charts, etc., based on the data attributes using geographic tools for special data visualisation.
- 4] Designing and creating Visualisation: choosing tools like tableau, power BI (or) custom coding with libraries like matplotlib, V3-JS. Designing colors themes labels and other visual elements.

5) Interpretation & Analysis: Identifying the trends, outliers and patterns in the visualised data using statistical methods to validate findings and draw meaningful insights.

6) Communication: Communicating findings effectively to stakeholders.

Creating of first visualisation:

- 1) Select your data: choose a dataset that aligns with your goals and interest ensure that data is well cleaned and well structured.
- 2) Define your objective: clearly defined what you want to communicate (or) explore with your visualisation are you looking to show trends, comparisons & distributions.
- 3) choose the right visualisation type: select a visualisation that suits for data & objective, common types include bar charts, pie charts, histograms, line charts.
- 4) Prepare and transform Data: Pre-process your data is needed this may involve aggregating filtering (or) transforming the data to fit the chosen visualisation.
- 5) Create the visualisation: use a suitable tool (or) library to create a visualisation customize it with labels, colors and other designed elements.
- 6) Test and Iterate: Review your visualisation for accuracy and clarity, seek feedback from others and make improvements as necessary.

Publish (or) share: Once you are satisfied with your visualisation, publish it on a platform, embed it in a report, (or) share it with your in-built audience.

Intended audience:

Document and explanation: Provide context & explain for your visualisation clearly communicate what the user should take away from it.

Maintain & update: If the data changes or new insights emerge, update your visualisation accordingly and maintain it.

After my initial visualisation, I provided a detailed document explaining the data, its source, and the methodology used. This document was shared with my supervisor and peer reviewers. It included a brief introduction to the data, a description of the variables, and a summary of the findings. I also included a section on potential limitations and areas for future research. This document was well-received and provided valuable feedback for improving the final visualization. I made several updates to the visualization based on this feedback, including changes to the layout, color scheme, and data representation. I also added a legend and axis labels to make the visualization more accessible to a wider audience. Overall, the process of publishing and sharing my visualization was a valuable learning experience that helped me refine my skills as a data analyst.

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To do calculations: sum, avg, aggregate, create custom calculation & fields

There are 3-types of calculation.

- 1] Basic Calculation
- 2] Tabular Calculation
- 3] Lot of detail expressions

### 1] Formulas:

Cost:

$\text{sum}([\text{sales}]) - \text{sum}([\text{profit}])$

minsales:

$\text{MIN}([\text{sales}])$

~~Floor sales~~

~~maxsales:~~

$\text{MAX}([\text{sales}])$

Floor Sales:

$\text{FLOOR}([\text{sales}])$

Upper Sales:

$\text{UPPER}(\text{sub-category})$

Lower Sales:

$\text{LOWER}(\text{sub-category})$

tabular calculation:

{  
 IF sum([Sales]) > 30000 THEN "GOOD"  
 ELSEIF sum([Sales]) > 15000 AND sum([Sales]) < 20000  
 THEN "AVG"  
 ELSE "POOR"

NP

L0P:

fixed:

{ FIXED [Sub-category] : sum ([Profit]) }

] Include:

{ INCLUDE [Customer Name] : Avg ([Sales]) }

] Exclude:

{ EXCLUDE [Sub-category] : sum ([Sales]) }

## B) Formatting Visualizations, Formatting Tools and Menus

Step-1: Display a worksheet or dashboard.

Step-2: From the Format menu, choose the part of the view that you want to format, such as Font, Borders, or Filters.

Step-3: To format interactive controls go to **Format > Worksheet > Interactive Controls**.

Step-4: To control the background color of the worksheet, pane, and headers.

to go **Format > Worksheet > Shading**.

Step-5: To format Filters and Sets, formatting by either going into **Format > Filters and Sets**

Step-6: To access highlighter formatting by either going into **Format > Highlighters**

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Level of detailed expression

there are three types:

fixed (this type allows a fixed level of group)

this type of calculation allows due to fixed level of granularity independent of views in detail.

include: This type of calculation in the addition dimensions are considered by performing two calculations based on view current granularities

Exclude: This calculation removes certain dimension from the calculation even if they are present in the view

## Experiment-8

Date: 31/10/2022

### AIM

Editing, formatting axes, manipulating data in tableau data and pivoting tableau data.

### PROCEDURE

#### I. Editing and Formatting Axes

Step-1: Double-click an axis to open the Edit Axis dialog box and change the axis configuration  
And formatting

Step-2: To select the marks associated with the axis, right-click the axis and select Marks

Step-3: To hide an axis Right-click (control-click on windows) the axis in the view, and clear the check mark next to the Show Header option.

Step-4: Try remaining options of axis

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Editing and formatting axes in tableau

Editing axes titles:

Step① Right click on Axis

Step② Click on edit axis

Step③ Change the title of the text

## Format Axes

Step ① Right click on Axes

Step ② Click on Format, you can change number format, font, size, column.

## Synchronize Axes

If you have dual axis charts right click on one axes and click on Synchronized axes.

\* Fixing, resizing axes range

Right click on axes click on edit axes and set fixed and start and end value

## II. Manipulating Data in Tableau Data, Pivoting Tableau Data

### PROCEDURE

**Step-1:** The data type can be changed by clicking on the data type symbol in the column header

**Step-2:** Right-click on the column header and select hide to hide an unwanted column from the data view

**Step-3:** To create a group for a column, right click on its header and choose create group.

Next, a create group window pops up in which you can select multiple values.

Then click on Group

**Step-4:** Columns consisting of string values can be easily split into multiple columns using the split or custom split options

**Step-5:** Pivoting data with Tableau Desktop

- a. Once you have connected your data, on the data source page.
- b. Select the data fields you would like to pivot.
- c. On the drop-down menu of one of the fields select pivot.
- d. Executing this, we've a view with products packed on one column and values on another column

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manipulating data in tableau:

- i] Filter: Drag fields to filter shelf to restrict the data
- ii] Sorting - Click on access labels o are sorting option
- iii] Grouping: Select multiple dimensions number and right click on group

## Creating calculated field

Analysts click on create calculated field

### 3) Pivoting data in tableau

Pivoting helps convert columns into rows

#### steps

- 1] Go to data source tab
- 2] Select multiple columns you want to pivot
- 3] Right click & click on pivot
- 4] Tableau creates 2) Now fields

#### 1) Pivot field name

'It holds the original column names.'

#### 2) Pivot field value → It holds corresponding data

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structuring the data.

In datasource table any name right click select rename option.

Select any field name you can hide the unnecessary data by right clicking

### Sorting

after drag and dropping the fields in the rows columns right click on the axis we can see.

Options sorting in ascending order and sorting in descending order.

### Filtering the data:

To create a filter drag a fields directly from the data panel to the filters shelf pivoting the data.

In data source select 2 or more fields & right click then you can see the pivot option the data will be pivoted columns to rows and rows to columns will be converted & represented.