**Batch: H2-4 Roll No.:16010122257**

**Experiment 07**

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| **Title: To create an effective Dashboard.** |

# Objective:

# *Search/locate and download any Data of Your Choice (Use same dataset if it contains location information)*

# *To learn how to create Dashboard*

# *Apply best practices to* create *Dashboard.*

# Course Outcome:

# CO1: Learn how to locate and download datasets, extract insights from that data and present their findings in a variety of different formats.

# CO3: Apply data visualization best practices

# CO4: Design static charts, interactive Dashboards and data stories

# Books/ Journals/ Websites referred:

<https://www.kaggle.com/uciml/adult-census-income>

<https://archive.ics.uci.edu/ml/datasets/adult>

[**https://help.tableau.com/current/pro/desktop/en-us/dashboards\_create.htm**](https://help.tableau.com/current/pro/desktop/en-us/dashboards_create.htm)

# Resources used:

<https://data.world/mandalravi/sample-superstore>

# Theory:

# Our experiment was based on essential ideas from data visualization, how people interact with computers, and how information is designed for easy understanding. We learned about Gestalt principles, which explain how humans see and understand visual information. We also studied cognitive load theory to create dashboards that are easy to look at and understand. Additionally, we explored concepts related to colors and accessibility, ensuring our dashboards were not just good-looking but also usable for everyone, including those with disabilities.

# Note: Detail observation (with interpretation) needed along screenshots wherever required

# Following points should be written by students

# Best practices of effective Dashboard.

# A thoughtfully designed dashboard can align the efforts of your organization, reveal crucial insights, and expedite decision-making processes.

# Understanding your purpose and target audience is paramount. Effective visualizations have a specific purpose and cater to their intended viewership. It's essential not only to grasp the message you want to convey but also to identify the audience you're addressing.

# Consider real-world scenarios during design. Create your visualization at the size it will be displayed. Tableau dashboards are typically fixed in size, so it's crucial to construct your visualization with the final display size in mind.

# Simplicity is key. It's advisable to limit the number of views on your dashboard to maintain visual clarity and the overall context. Having too many views can overwhelm users with details. If your story requires additional views, you can always create separate dashboards to accommodate them.

# Promote exploration through interactivity. Utilize filters to allow users to specify the displayed data. Filters can be customized for different data types, and their titles can offer clear instructions to users. Additionally, enabling highlighting between views enhances the user experience. Highlighting ensures that selecting data in one view automatically emphasizes related data in other views, providing a more comprehensive understanding of the data presented.

# Create Dashboard.

# myok.png

# I have created a dashboard to analyze the profit by state and category in the United States. Used three graphs and a map to show the data. The first graph shows the profit by category, such as furniture, office supplies, and technology. The second graph shows the profit by state, with different colors indicating the profit level. The third graph shows the profit by manufacturer, such as HP, Dell, and Lenovo.The dashboard is very informative and interactive. It can help understand the trends and patterns of profit in different regions and segments.

# Create Accessible Dashboard.

# 

# I have made some changes to your dashboard to make it more accessible. I have added some filters on the left side of the dashboard that allows users to select the state, category, and manufacturer of interest. I have also added some labels and legends to the graphs and charts that explain the data more clearly. I have used contrasting colors and fonts to make the dashboard easier to read. The dashboard is now more user-friendly and accessible.

# Create Dashboard Layouts for Different Device Types.

# 

# 

# As we can see in the screenshots above, we have tried different layouts of the dashboard such that it can be comfortably viewed. When you publish these layouts to Tableau Server or Tableau Online, people viewing your dashboard experience a design optimized for their different devices.

# Conclusion (Students should write in their own words, comparative conclusion needed):Thus,from this experiment,we learnt how to create effective dashboards in Tableau.We also studied cognitive load theory to create dashboards that are easy to look at and understand. Additionally, we explored concepts related to colors and accessibility, ensuring our dashboards were not just good-looking but also usable for everyone, including those with disabilities.

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Signature of faculty in-charge**

# Post Lab Question:

# Explain the Advantages and Disadvantages of Dashboard.

# Advantages of Dashboards in Tableau:

# Ease of Use:

# Advantage: Tableau provides a user-friendly interface, making it easy for users to drag and drop elements to create dashboards without extensive programming knowledge.

# Benefit: Users can quickly create intuitive and visually appealing dashboards without a steep learning curve.

# Interactive Visualizations:

# Advantage: Dashboards in Tableau support various interactive elements like filters, highlighters, and parameters, enabling users to explore data dynamically.

# Benefit: Users can gain deeper insights by interacting with the data directly, allowing for better analysis and decision-making.

# Real-time Data Integration:

# Advantage: Tableau can connect to various data sources in real-time, allowing users to create dashboards that reflect the most up-to-date information.

# Benefit: Decision-makers can access real-time insights, enabling timely responses to changing business conditions.

# Scalability and Performance:

# Advantage: Tableau is designed to handle large datasets efficiently, ensuring that dashboards perform well even with substantial amounts of data.

# Benefit: Users can work with extensive datasets without compromising the dashboard's responsiveness, ensuring a smooth user experience.

# Collaboration and Sharing:

# Advantage: Tableau dashboards can be easily shared and collaborated on through Tableau Server or Tableau Online, facilitating teamwork and knowledge sharing.

# Benefit: Teams can collaborate, provide feedback, and make data-driven decisions collectively, enhancing overall productivity.

# Disadvantages of Dashboards in Tableau:

# Steep Learning Curve for Advanced Features:

# Disadvantage: While basic dashboard creation is user-friendly, mastering advanced features and complex visualizations may require a significant amount of time and training.

# Challenge: Users might find it challenging to utilize Tableau's full potential without adequate training and expertise.

# Cost of Licenses:

# Disadvantage: Tableau licenses can be costly, especially for larger organizations or businesses that require multiple user access.

# Challenge: Small businesses or individuals might find it difficult to afford Tableau licenses, limiting their access to its advanced features.

# Limited Customization without Technical Expertise:

# Disadvantage: Customizing dashboards extensively, especially beyond Tableau's built-in features, often requires knowledge of scripting languages like JavaScript.

# Challenge: Users without coding skills might face limitations in achieving highly customized and intricate dashboard designs.

# Performance Issues with Extremely Large Datasets:

# Disadvantage: While Tableau is designed for scalability, extremely large datasets can still pose performance challenges, leading to slower dashboard rendering times.

# Challenge: Users dealing with massive datasets might experience delays in data processing and visualization, affecting the overall user experience.

# Dependency on Data Quality:

# Disadvantage: Tableau's effectiveness relies heavily on the quality and structure of the underlying data. Poor data quality can lead to inaccurate or misleading visualizations.

# Challenge: Ensuring data accuracy and consistency is crucial; otherwise, dashboards may provide unreliable insights, leading to misguided decisions.

# In summary, Tableau dashboards offer powerful tools for data visualization and analysis, but users should be aware of the learning curve, costs, customization challenges, performance considerations, and data quality dependencies when creating and interpreting dashboards in Tableau.