

Smartinternz Externship



DATE	05 November 2023
Externship Title	Data Analytics with IBM cognos Analytics
PROJECT NAME	Depression: A Common Mental Disorder

Team Members

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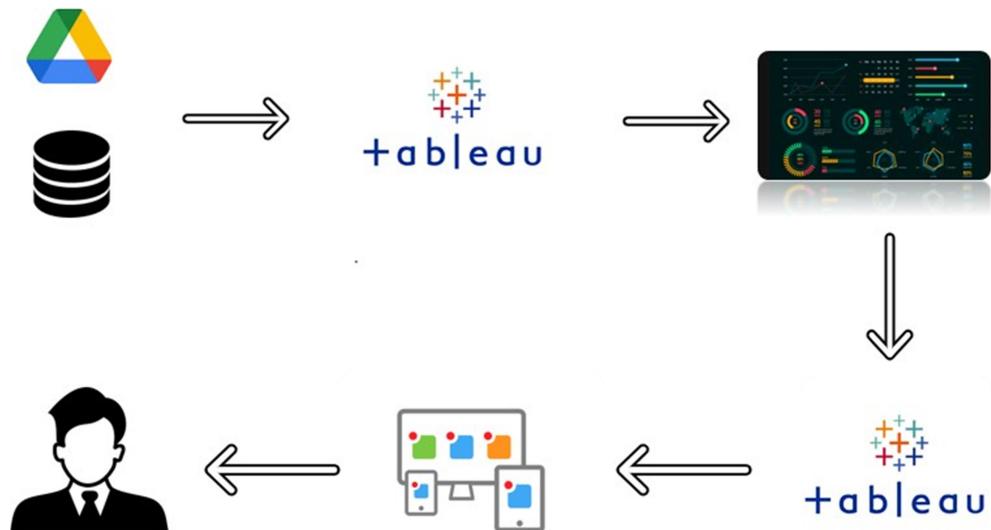
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Depression: A Common Mental Disorder

Depression is a prevalent mental health issue affecting millions worldwide. While everyone encounters sadness, clinical depression is more intense and enduring, disrupting daily activities. Symptoms include loss of interest, appetite changes, sleep disturbances, fatigue, feelings of worthlessness, and suicidal thoughts. Depression rates vary globally. To analyze depression data across countries, we utilize Business Intelligence tools, specifically Tableau.

Our goal is to extract insights, presenting the data through visualizations, dashboards, and a cohesive narrative. By leveraging the power of Tableau, we aim to shed light on patterns, regional differences, and potential interventions. Addressing depression requires awareness, improved access to care, and ongoing research efforts. Through this project, we contribute to a better understanding of depression and its impact on a global scale.

Technical Architecture:



Project Flow

To accomplish this, we have to complete all the activities listed below,

- Define Problem / Problem
Understandingo Specify
the business problem
 - Business requirements
 - Literature Survey
 - Social or Business Impact.
- Data Collection & Extraction from Database
 - Collect the dataset,
 - Storing Data in DB
 - Perform SQL Operations
 - Connect DB with Tableau
- Data Preparation
 - Prepare the Data for Visualization
- Data Visualizations
 - No of Unique Visualizations
- Dashboard
 - Responsive and Design of Dashboard
- Story
 - No of Scenes of Story
- Performance Testing
 - Amount of Data Rendered to DB ‘
 - No of Calculation Fields
 - No of Visualizations/ Graphs
- Web Integration
 - Dashboard and Story embed with UI With Flask

Milestone 1: Define Problem / Problem Understanding

Activity 1: Specify the business problem

Reference Project Description

Activity 2: Business Requirements

This project aims to provide valuable insights for countries grappling with a high prevalence of depression. By identifying the underlying causes, these countries can enhance their understanding of the issue. The primary objective is to leverage data visualization techniques for gaining insights and subsequently improving overall performance in addressing depression.

Activity 3: Literature Survey

Conducting a literature survey on depression analysis involves a comprehensive review of prior studies, articles, and reports related to the subject. This includes exploring methodologies and techniques employed in understanding and addressing depression, along with examining the outcomes and conclusions of these studies. Key areas of focus for the literature survey may encompass:

- ✓ Risk management, involving the identification, assessment, and mitigation of various risks faced by countries.
- ✓ Exploring the diverse factors contributing to or supporting depression.

Activity 4: Social or Business Impact

Social Impact: This project sheds light on the multifaceted reasons causing depression and their global impact. Whether stemming from lifestyle habits or mental disorders, controlling these factors has the potential to significantly reduce the percentage of people affected by depression.

Business Impact: The project's business impact is particularly significant for countries grappling with high rates of depression. By addressing various factors outlined in the project, there is an opportunity to mitigate the substantial economic and societal consequences associated with depression.

Milestone 2: Data Collection & Extraction from Database

Data collection is the systematic process of acquiring and measuring information related to specific variables of interest. This structured approach enables researchers to address defined research questions, test hypotheses, assess outcomes, and derive insights from the gathered data.

Activity 1: Downloading the Dataset

Please utilize the provided link to download the dataset: [Link](#)

Activity 1.1: Understanding the Data

The dataset encompasses comprehensive metadata detailing the columns outlined in the CSV files. It serves as a repository of information that will be instrumental in conducting a thorough analysis. Understanding the intricacies of the data is crucial for extracting meaningful insights, answering research questions, and testing hypotheses effectively.

Column Description of the Dataset:

- ✓ Index: Numerical identifier for the entry.
- ✓ Entity: Name of the country.
- ✓ Code: Country code associated with the country name.
- ✓ Year: The year corresponding to the entry.
- ✓ Schizophrenia (%): Percentage of the population affected by Schizophrenia.
- ✓ Bipolar Disorder (%): Percentage of the population affected by Bipolar Disorder.
- ✓ Eating Disorders (%): Percentage of the population affected by Eating Disorders.
- ✓ Anxiety Disorder (%): Percentage of the population affected by Anxiety Disorder.
- ✓ Drug Use Disorder (%): Percentage of the population affected by Drug Use Disorder.
- ✓ Depression (%): Percentage of the population affected by Depression.
- ✓ Alcohol Use Disorder (%): Percentage of the population affected by Alcohol Use Disorder.

Activity 2: Storing Data in DB & Perform SQL Operations

Explanation video link:

<https://drive.google.com/file/d/115Kk82j0uQnJh-Sf8QmcYm7bdm6-WZlb/view?usp=sharing>

Activity 3: Connect DB with Tableau

Explanation video link:

<https://drive.google.com/file/d/1WzQ3CTHkqyR6vyJhuNeRelbdYyCTet1P/view?usp=sharing>

Milestone 3: Data Preparation

Activity 1: Prepare the Data for Visualization

Effective data preparation is a critical precursor to insightful visualizations. The process involves a series of steps aimed at refining the dataset for clarity and accuracy.

Cleaning the Data: Eliminate irrelevant or missing data to uphold accuracy and reliability.

Transformation: Convert the data into a format conducive to visualization, enhancing its interpretability.

Exploration: Delve into the dataset to uncover patterns and trends that form the basis of meaningful visual representations.

Filtering: Focus on specific subsets of data, allowing for targeted analysis and addressing specific research questions.

Preparing for Visualization Tools: Format the data to seamlessly integrate with visualization tools, optimizing the efficiency of the visualization process.

Ensuring Accuracy and Completeness: Rigorously validate the data to guarantee its precision and comprehensiveness.

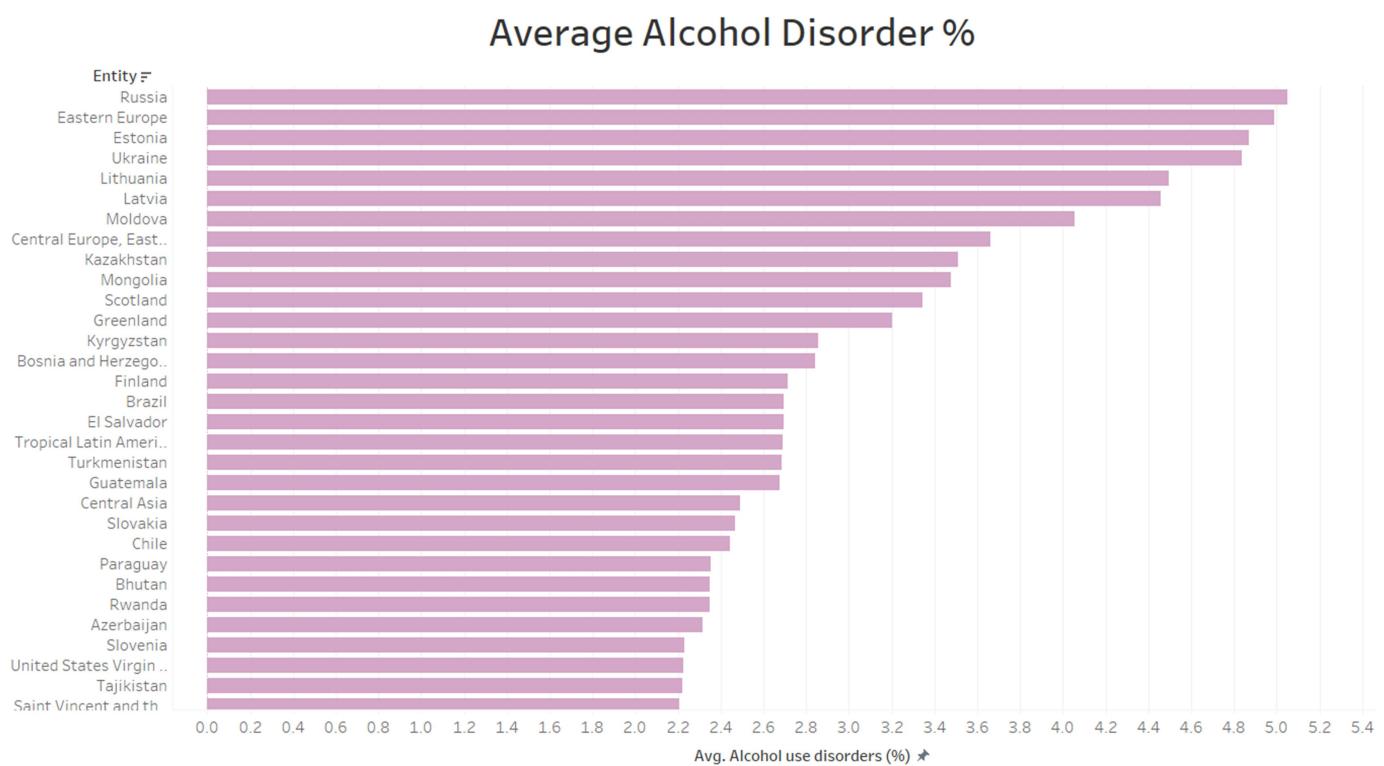
Milestone 4: Data Visualization

Data visualization is the art of translating complex information into graphical representations, fostering a better understanding and exploration of data. The primary goal is to enhance accessibility and interpretation through visual elements like charts, graphs, and maps.

Activity 1: No of Unique Visualizations

This activity focuses on determining the diversity of visualizations that can be derived from a given dataset. Various visualization types, including bar charts, line charts, heat maps, scatter plots, pie charts, and maps, can be employed to analyze the performance and efficiency of banks. Additionally, these visualizations can shed light on complementary disorders and lifestyle habits influencing depression across different countries. The richness of visualizations allows for a comprehensive exploration of depression metrics on a global scale.

Activity 1.1 : Average Alcohol Use Disorder %

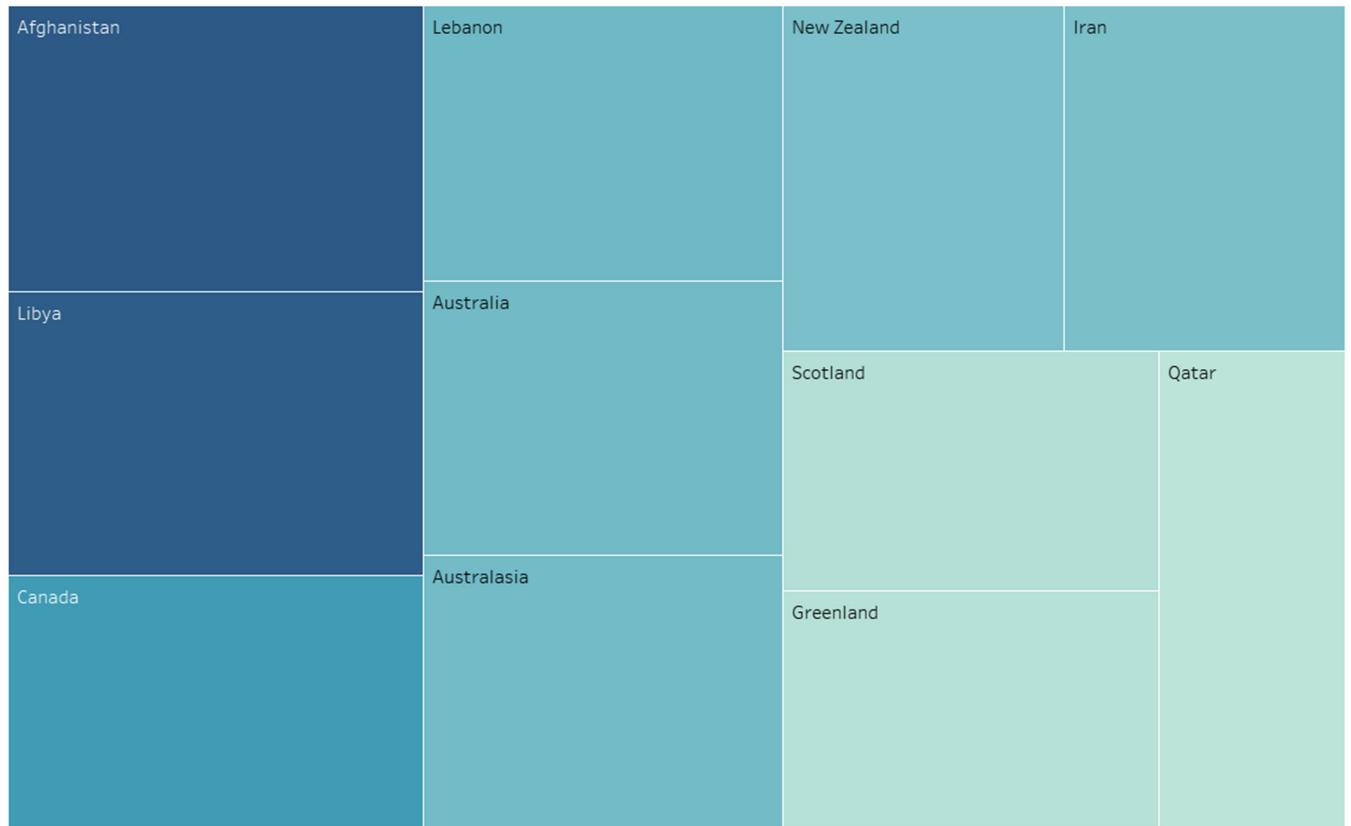


Explanation video link:

https://drive.google.com/file/d/1hiY_m-YzoMIGKC0cTSU4z86aDuKFmyQu/view?usp=sharing

Activity 1.2: Average Drug Use Disorder %

Average Drug User Disorder %



Explanation video link:

<https://drive.google.com/file/d/1yfD0JEZcBTFaSx9BG0pWqVILuJYd9tVb/view?usp=sharing>

Activity 1.3: Average Eating Disorder %

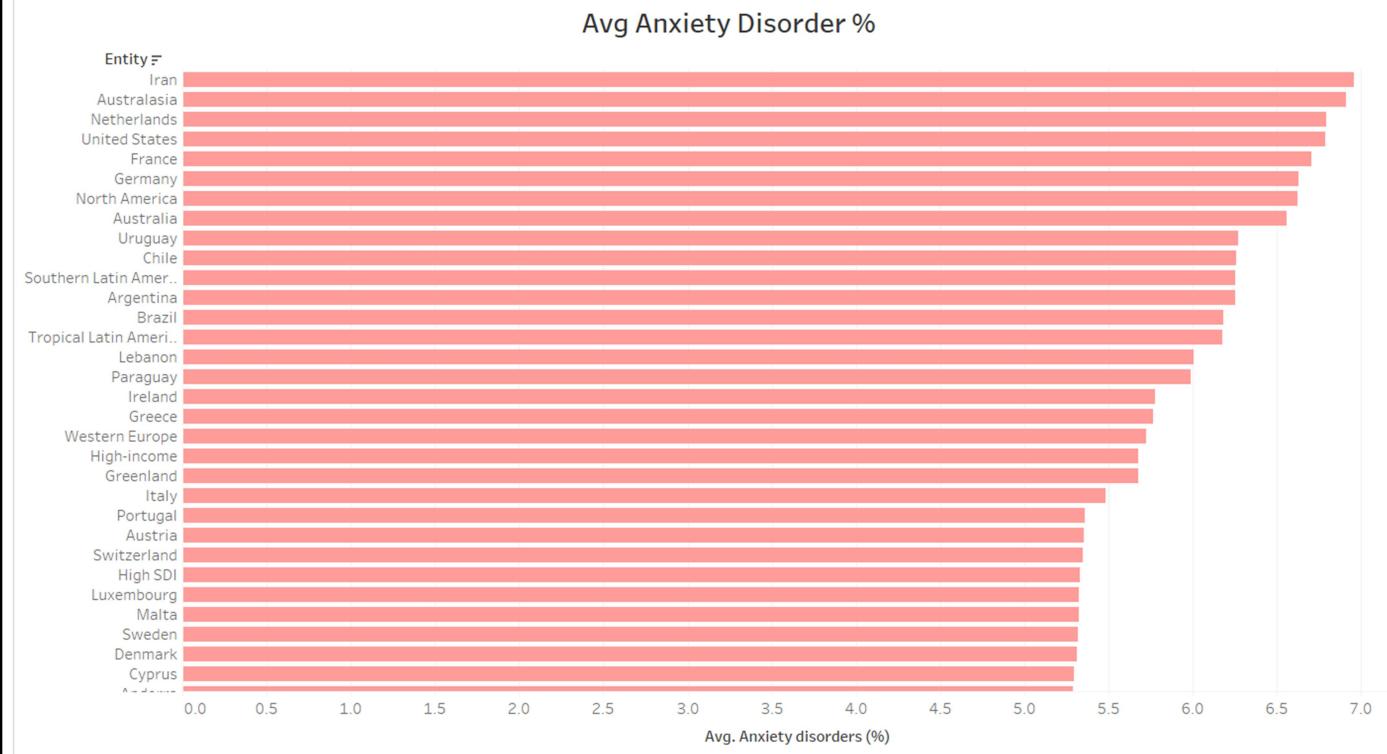
Average Eating Disorder %



Explanation video link:

<https://drive.google.com/file/d/1VqzfCCns0jyOX-sckFWne9UEaT5l20z8/view?usp=sharing>

Activity 1.4: Average Anxiety Disorder %

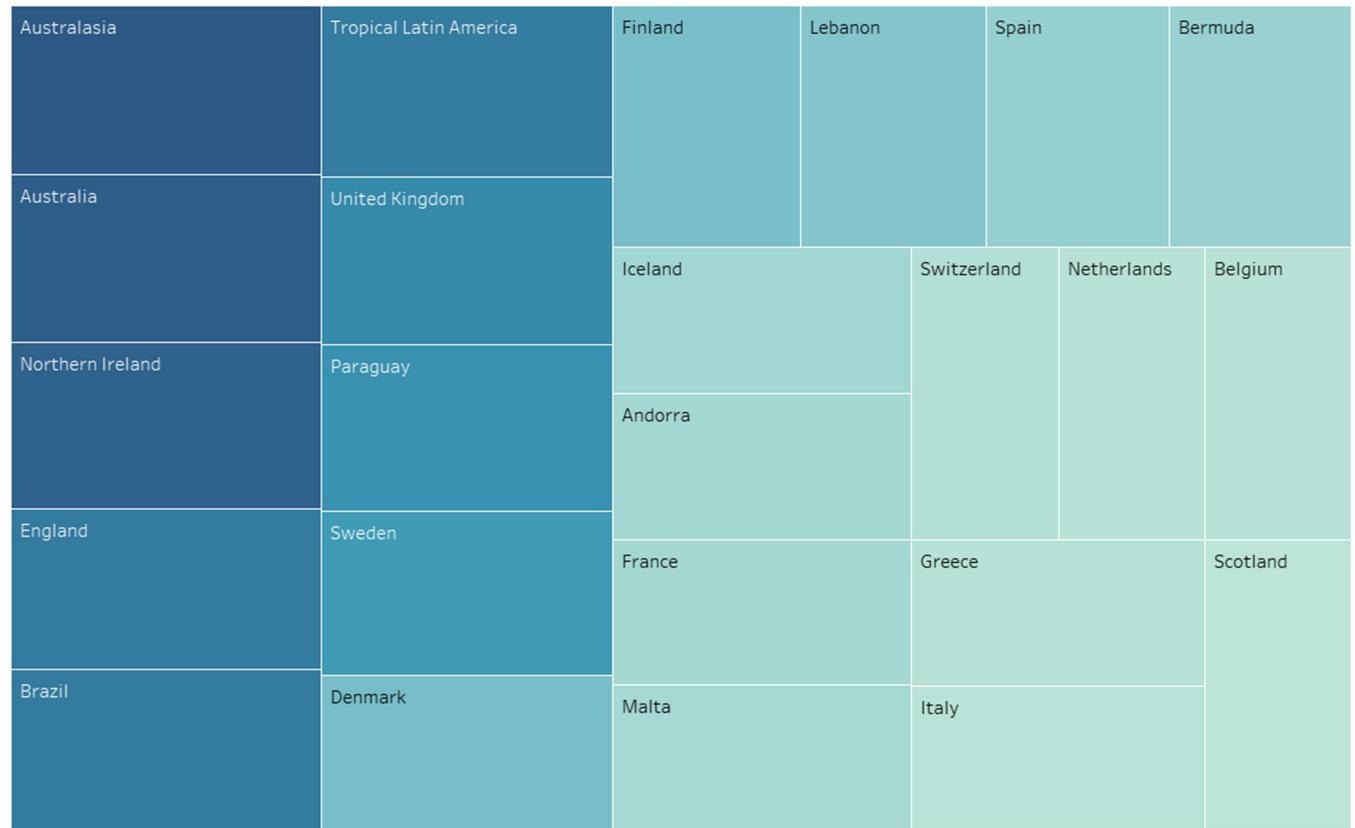


Explanation video link:

<https://drive.google.com/file/d/1fLvi22MH6gw-r7Dhby7gIisJyi1FtgaM/view?usp=sharing>

Activity 1.5: Average Bipolar Disorder %

Avg Bipolar Disorder %

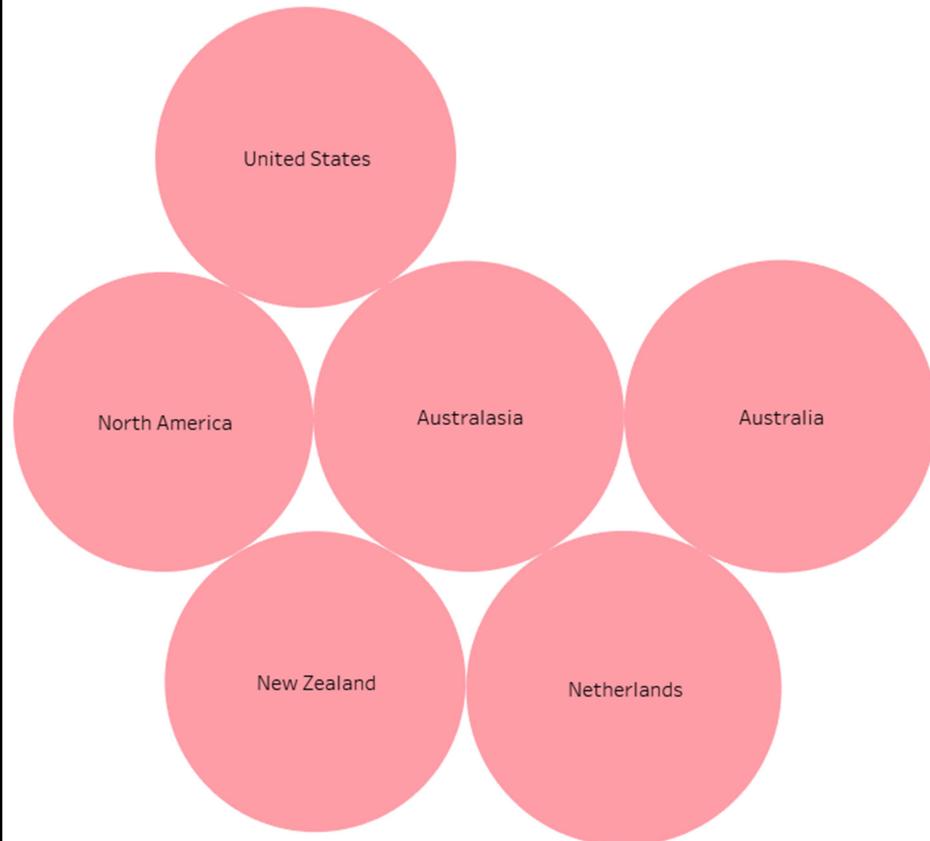


Explanation video link:

https://drive.google.com/file/d/1_eQ0heNnWGPnzbwJmGkDlImD6wlc78sD/view?usp=sharing

Activity 1.6: Average Schizophrenia Disorder %

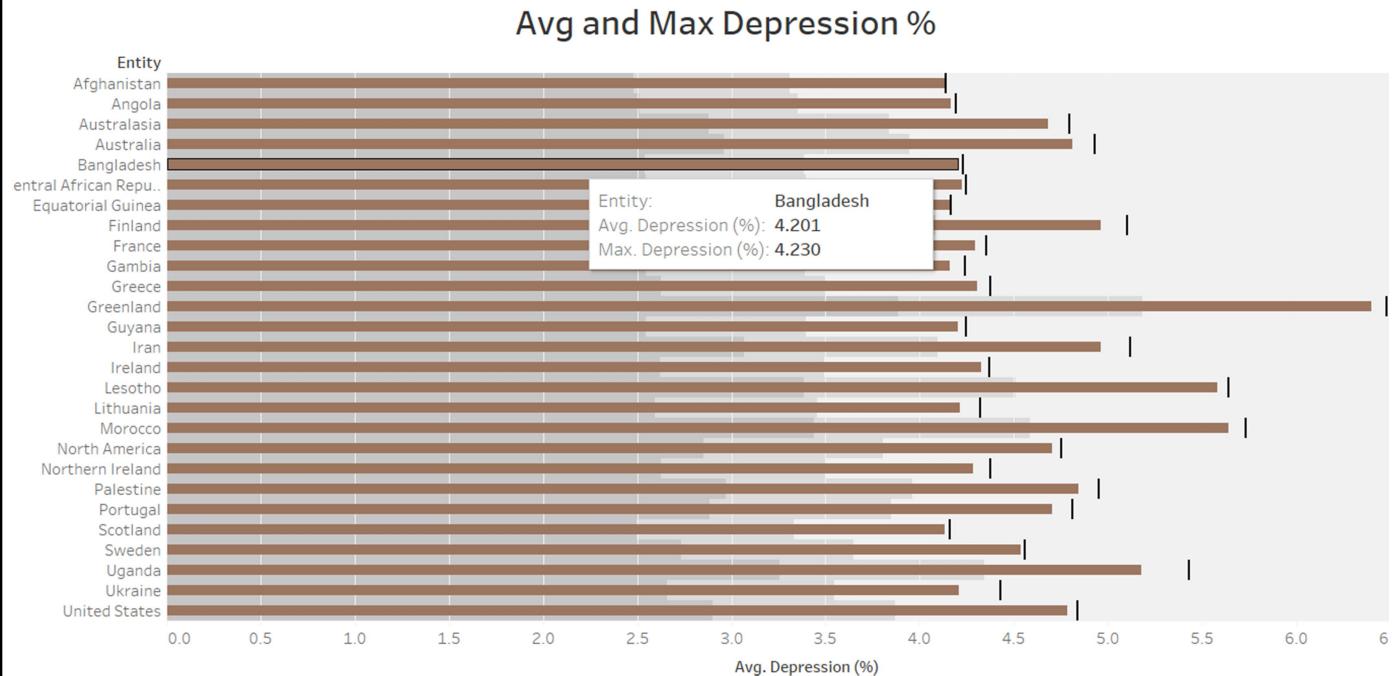
Avg Schizophrenia Disorder %



Explanation video link:

[https://drive.google.com/file/d/1bcWa2gQjSITHu8CS980EWwBCXQR083SS/v
iew?usp=sharing](https://drive.google.com/file/d/1bcWa2gQjSITHu8CS980EWwBCXQR083SS/view?usp=sharing)

Activity 1.7: Average and Maximum Depression %

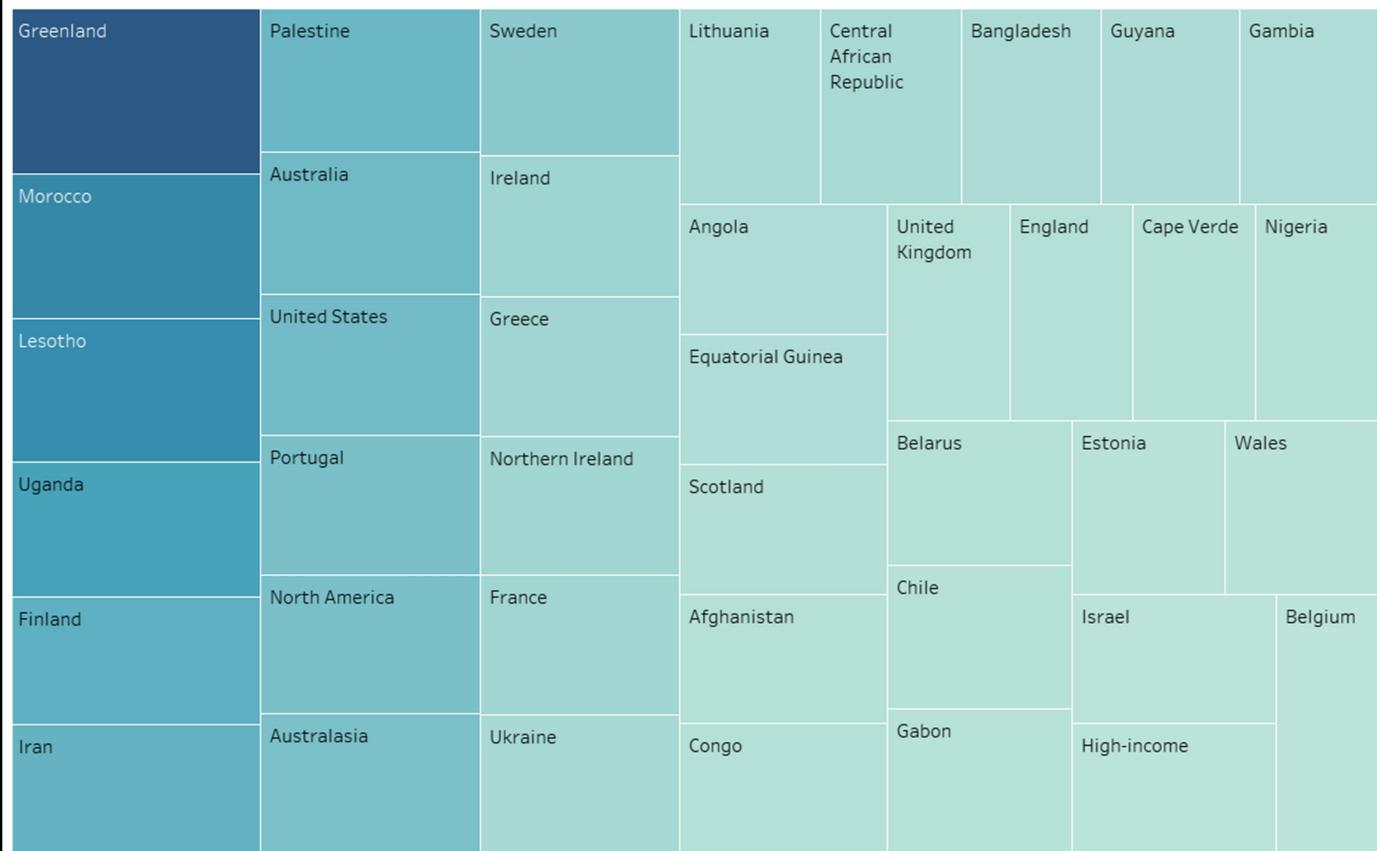


Explanation video link:

<https://drive.google.com/file/d/1ZBpvxwov8RfMalY2j7NUWvoBVDuVUdEj/view?usp=ssharing>

Activity 1.8: Sum of Depression %

Sum of Depression %



Explanation video link:

https://drive.google.com/file/d/1jKMCL3JSR2gdoo3lxMB-Zh_xDQtHCcjC/view?usp=sharing

Milestone 5: Dashboard

A dashboard serves as a visually intuitive graphical user interface (GUI) designed to present information and data in a structured and easily comprehensible format. Tailored for specific purposes or use cases, dashboards offer organized displays for real-time monitoring and analysis.

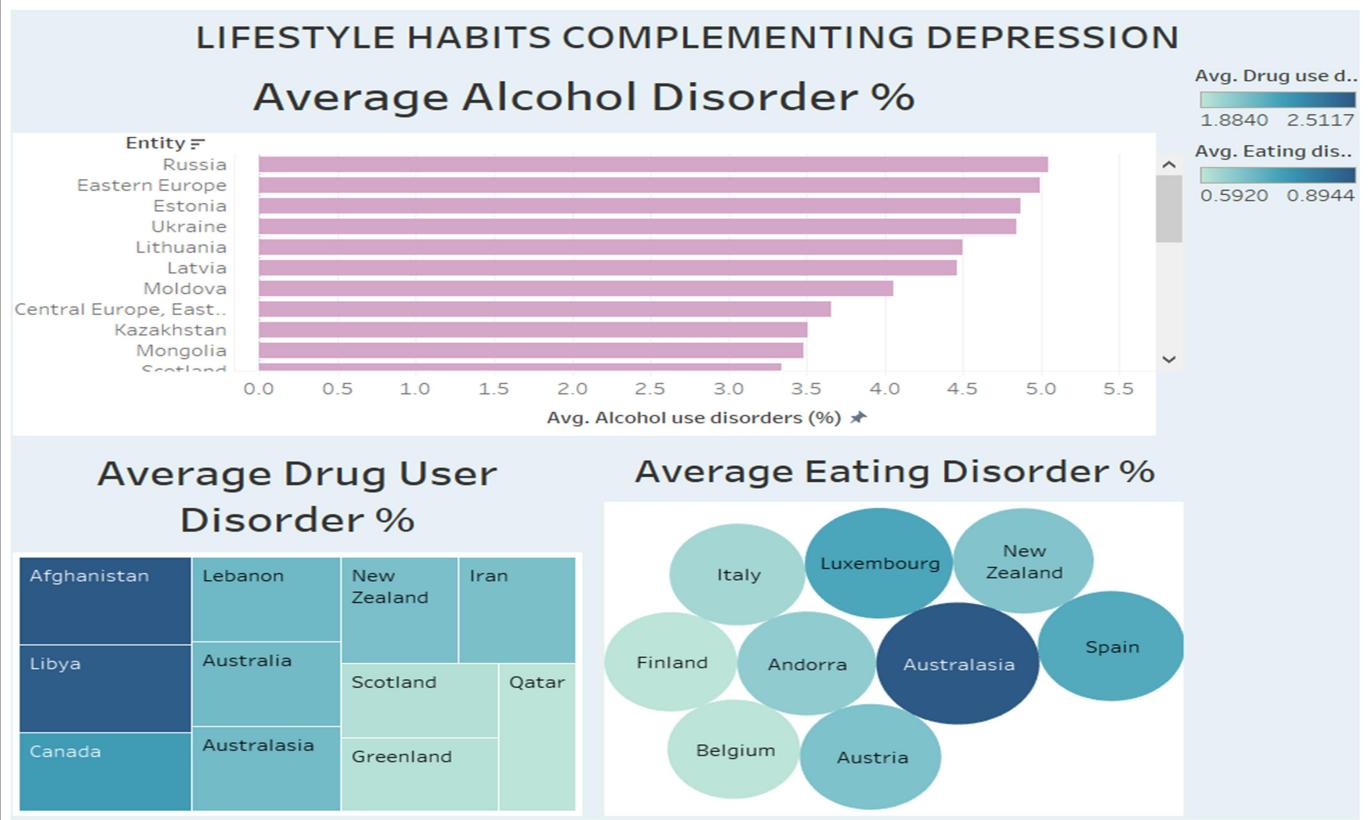
Widely applicable across diverse industries, including business, finance, manufacturing, and healthcare, dashboards play a crucial role in tracking key performance indicators (KPIs) and monitoring various performance metrics. Through the use of charts, graphs, and tables, dashboards provide a dynamic and interactive means of presenting complex data, facilitating efficient decision-making and enhancing overall data understanding.

Activity 1- Responsive Design of Dashboard 1

After crafting distinct views on various sheets within Tableau, the next step is to consolidate them into a comprehensive dashboard.

For detailed guidance on this process, you can refer to the explanation video through the following link:

https://drive.google.com/file/d/1U_MsnJR5C90T4hG8kYh5SPt6tVCiRGqw/view?usp=sharing

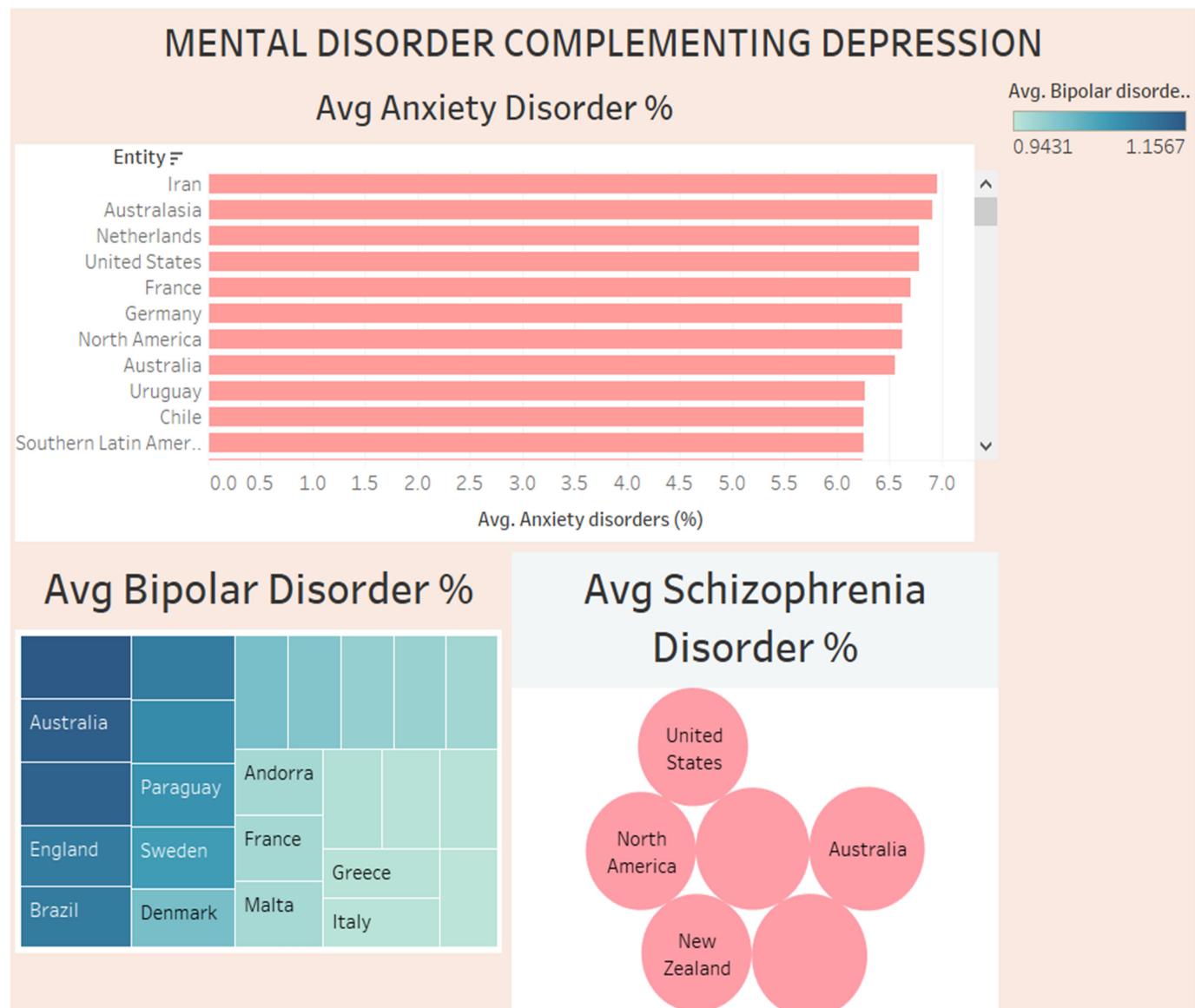


Activity 2- Responsive Design of Dashboard 2

After crafting distinct views on various sheets within Tableau, the next step is to consolidate them into a comprehensive dashboard.

For detailed guidance on this process, you can refer to the explanation video through the following link:

[https://drive.google.com/file/d/1Rz3hSjN7M_1VtDyr0uCdOVLt5HZrHkmK/view?
usp=sharing](https://drive.google.com/file/d/1Rz3hSjN7M_1VtDyr0uCdOVLt5HZrHkmK/view?usp=sharing)

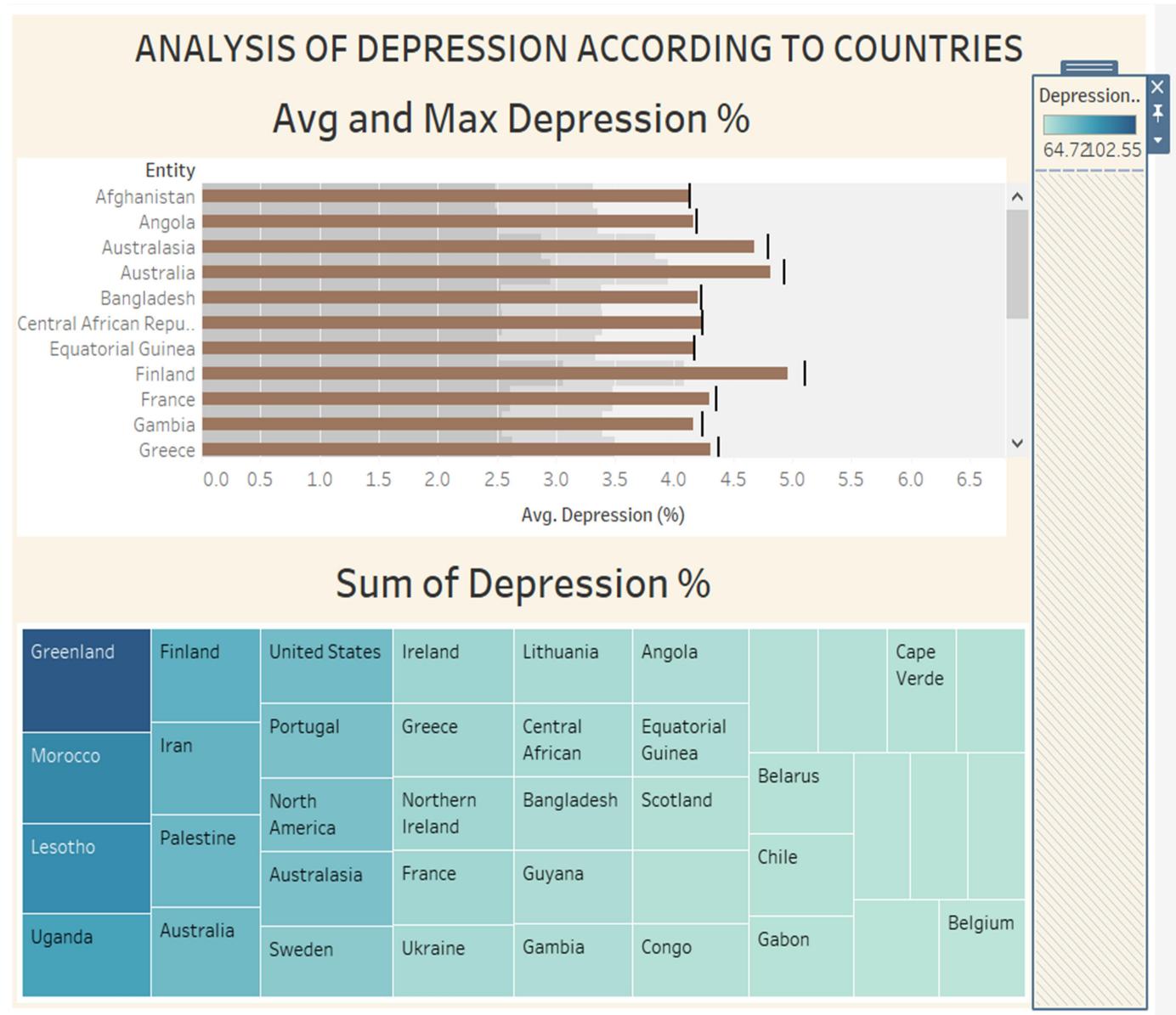


Activity 3- Responsive Design of Dashboard 3

After crafting distinct views on various sheets within Tableau, the next step is to consolidate them into a comprehensive dashboard.

For detailed guidance on this process, you can refer to the explanation video through the following link:

https://drive.google.com/file/d/1MHVuexOvY814PeePBXGpM_AQIAZdH-B/view?usp=sharing



Milestone 6: Story

A data story is a method of presenting data and analysis in a narrative structure, aiming to enhance engagement and ease of understanding. Typically, a data story comprises a concise introduction to provide context, a structured body presenting data and analysis logically, and a conclusion summarizing key findings and their implications.

These stories can be conveyed through diverse mediums, including reports, presentations, interactive visualizations, and videos. By adopting a narrative approach, data stories effectively communicate complex information, fostering a deeper understanding and engagement with the presented insights.

Activity 1- No of Scenes of Story

The quantity of scenes within a storyboard dedicated to the analysis of banks' performance hinges on the intricacy of the analysis and the specific insights targeted for communication. A storyboard functions as a visual roadmap, deconstructing the data analysis into a sequential series of steps or scenes.

For a detailed walkthrough of this storyboard creation process, you can refer to the explanation video accessible through the following link:

<https://drive.google.com/file/d/1yxUeacFoTylCgc2GFJYwBUaucw7RBCM8/view?usp=sharing>

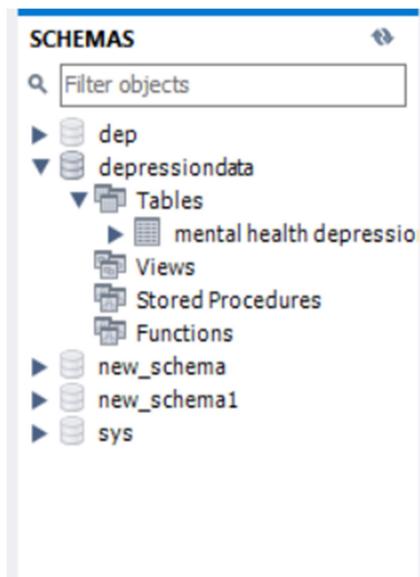
ANALYSIS OF DEPRESSION AMONG THE COUNTRIES



Milestone 7: Performance Testing

Activity 1: Amount of Data Rendered to DB

- The volume of data rendered to a database is contingent on both the size of the dataset and the database's capacity for storing and retrieving information.
- Open the MySQL Workbench and navigate to the database. Expand the tables, select the desired table, and click on the information icon (i). This action provides essential details about the table, including column count, table rows, and other relevant information. This step aids in understanding the structure and scope of the data stored within the database.



Activity 2: No of Calculation Fields

The screenshot shows a software interface for data analysis. At the top, there are tabs for 'Data' and 'Analytics'. Below the tabs, a search bar contains the text 'Mental health Depression ...'. A sidebar on the right has sections labeled 'P', 'F', 'M', and 'V'. The main area is titled 'Tables' and lists several items under 'Measure Names':

- # Alcohol use disorders (%)
- # Anxiety disorders (%)
- # Bipolar disorder (%)
- # Depression (%)
- # Drug use disorders (%)
- # Eating disorders (%)
- # Index
- # Schizophrenia (%)
- # Mental health Depression di...
- # Measure Values

Activity 3: No of Visualizations/ Graphs

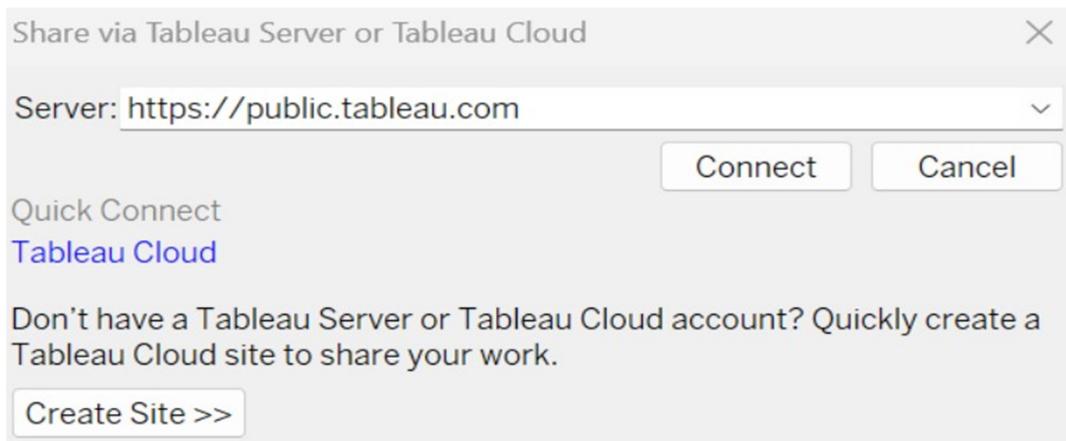
1. Average Alcohol Disorder %
2. Average Drug use Disorder %
3. Average Eating Disorder %
4. Average Anxiety Disorder %
5. Average Bipolar Disorder %
6. Average Schizophrenia Disorder %
7. Average and maximum Depression %
8. Sum of Depression %

Milestone 8: Web integration

Publishing dashboards and reports is instrumental in tracking performance metrics and conveying results effectively. It enables informed decision-making and facilitates communication of performance to various stakeholders.

Publishing dashboard and reports to tableau public

Step 1: Navigate to the Dashboard/Story and click on the share button in the top ribbon.



Provide the server address of your Tableau Public account and click on connect.

Explanation Video:-

https://drive.google.com/file/d/1DktD1ujzFd2DmywE79DAmZYUIPI6zf_o/view?usp=sharing

Step 2 : After clicking connect, enter your Tableau Public username and password to proceed.



Note: While publishing the visualization to the public, the respective sheet will get published when you click on the share option.

Activity 1: Embed Dashboard & Story with Web Bootstrap

Check out the video :

https://drive.google.com/file/d/1t47uBoZx1YT6ZcPQOV9egPI_3aI4fokh/view?usp=sharing

The screenshot shows a dashboard with a dark background. At the top, the title "DEPRESSION "A COMMON MENTAL DISORDER"" is displayed. Below the title, there is a large image of two women sitting on a couch, looking at a laptop together. To the left of the image, there is an article titled "In-depth Examination Of Depression". The article text reads: "Exploring the nuances of depression reveals a multifaceted mental health challenge. Beyond its standalone impact, depression often coexists with various mental disorders, forming a complex interplay. Additionally, lifestyle habits significantly intertwine with depressive experiences, influencing their onset and severity." Below the article is a red "Dive Into" button. At the top right of the dashboard, there is a navigation bar with links: Home, About, Dashboard, Story, Contact, and a red "Dive Into" button.

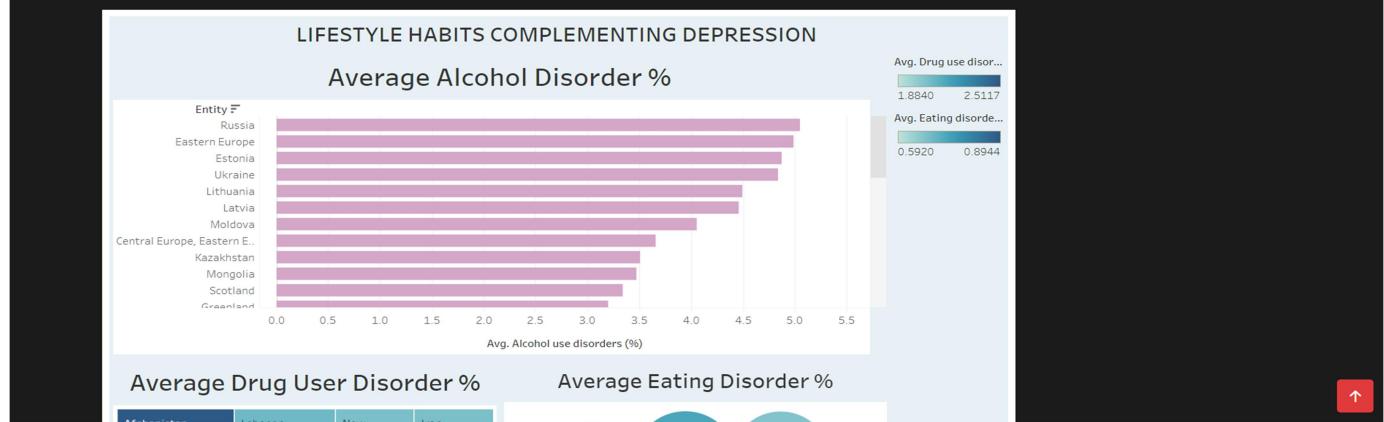
The screenshot shows a dashboard with a dark background, titled "DEPRESSION". Below the title, it says: "Utilizing Tableau and MySQL Server, this project offers concise insights in four key areas". There is a "ABOUT US >" button. The dashboard is divided into four main sections, each with an icon and a title:

- Lifestyle Habits and Depression** (Icon: red square with white lines): "Unveiling the interplay between lifestyle habits and depression, this analysis delves into the intricate connections that shape and complement depressive experiences."
- Complementary Mental Health Disorders** (Icon: red hexagon with white lines): "Exploring the project's dataset reveals not only the complexities of depression but also sheds light on the spectrum of mental health disorders that often accompany and interact with depressive states."
- Global Insights on Depression** (Icon: red square with white lines): "Through data visualization, this project offers concise perspectives on depression's prevalence, patterns, and impacts worldwide, providing a comprehensive snapshot of its global significance."
- Treatment Efficacy and Trends** (Icon: red shield with white lines): "Leveraging both Tableau and MySQL Server, this area of the project could analyze data related to the effectiveness of different treatments for depression. It may explore trends in therapeutic interventions, medication adherence rates, and the correlation between specific treatments and positive outcomes."

At the bottom right of the dashboard, there is a small upward-pointing arrow icon.

DASHBOARD

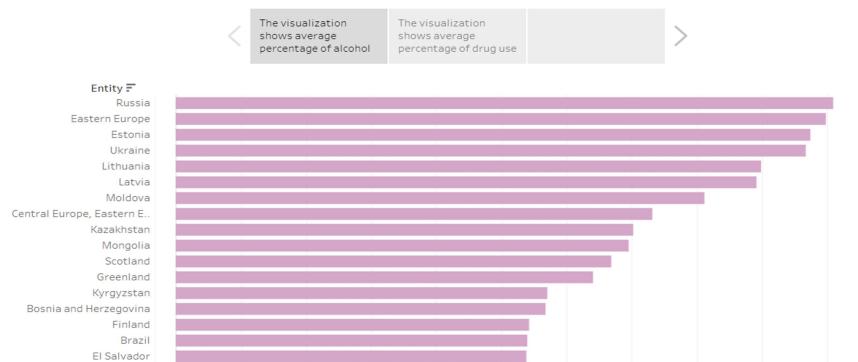
It's important to note that depression is a complex and multifaceted condition, and a dashboard may not replace professional medical advice or diagnosis. However, a dashboard could be designed to provide insights into potential factors affecting an individual's mental health and serve as a tool for self-awareness.



STORY

Let's create a story highlighting some aspects of depression, a common mental disorder. Please keep in mind that depression is a serious and complex condition, and this story is meant for educational purposes to foster understanding and empathy.

ANALYSIS OF DEPRESSION AMONG THE COUNTRIES



CONTACT

If you or someone you know is struggling with depression, it's important to reach out for support. Please be free to contact us.

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Your Name _____ Your Email _____
Subject _____
Message _____

Send Message

