

PLOT-A-THON

MENTAL STABILITY AND SUICIDE

Submission link: <https://forms.gle/2Nkty2STt2na6Mzz7>

Instructions:

- Merge the files and pre-process the database.
- Create visuals based on the following questions.
- The Visualization output should be in pdf format.
 - There should be creativity in the visuals.
 - The logical questions should be solved.
 - There should be an explanation for each visual.

Preprocessing Task:

The candidate will be required to:

1. **Merge Datasets:** Combine all four datasets based on the Country column as the primary key, and Year for time-based datasets.
2. **Handle Missing Values:**
 - Fill missing values for healthcare resources (e.g., Psychiatrists, Nurses) using the median of each column per region (if applicable).
 - Drop rows where Country or Year is missing.
3. **Standardize Column Names:** Ensure column names follow a consistent naming convention (e.g., lowercase, underscores).
4. **Create Derived Metrics:**
 - Calculate total healthcare personnel (Total Resources = Psychiatrists + Nurses + Social Workers + Psychologists).
 - Compute the suicide rate difference between sexes for crude suicide rates across all age groups (Sex Difference = Male - Female).
 - Generate a ratio of facilities to population (if population data is available or assumed).

Visualization Questions (5 Questions):

1. **Age-standardized suicide rates by gender in 2016:**
 - Visualize the global distribution of suicide rates for males and females using a **bar chart**, sorted by the highest rates.
2. **Top 10 countries with the highest mental health resources in a specific year:**

- Show a **horizontal bar chart** of the top 10 countries with the highest total mental health resources (Total Resources).

4. **Geographical distribution of suicide rates by age group:**

- Create a **map visualization** to show the crude suicide rate for a specific age group (e.g., 70-79). Colour regions by the severity of the rate.

5. **Correlation between the number of psychiatrists and suicide rates in 2016:**

- Use a **scatter plot** with Number of Psychiatrists on the x-axis and Suicide Rates on the y-axis. Add Country as a label.

6. **Analyse the relationship between facilities and healthcare personnel availability:**

- Create a **bubble chart** where the x-axis represents Facilities (e.g., Mental Hospitals), the y-axis represents Total Resources, and the bubble size represents the population (if available) or the total suicide rate for the country.