**PROJECT – 2:**

**Project Requirements:**

1. Your visualization must include a Python Flask–powered RESTful API, HTML/CSS,

JavaScript, and at least one database (SQL, MongoDB, SQLite, etc.).

2. Your project should fall into one of the below four tracks:

○ A custom “creative” D3.js project (i.e., a nonstandard graph or chart)

○ A combination of web scraping and Leaflet or Plotly

○ A dashboard page with multiple charts that update from the same data

○ A “thick” server that performs multiple manipulations on data in a database prior

to visualization (**must be approved**)

3. Your project should include at least one JS library that we did not cover.

4. Your project must be powered by a data set with at least 100 records.

5. Your project must include some level of user-driven interaction (e.g., menus,

dropdowns, textboxes).

6. Your final visualization should ideally include at least three views.

**Title:** Suicide Analysis

**Visualization method Chosen**: Dashboard

**MOTIVATION**:

* Suicide is a global phenomenon; in fact, 78% of suicides occurred in low- and middle-income countries in 2015.
* Death by suicide is an extremely complex issue that causes pain to hundreds of thousands of people every year around the world.
* According to estimates from the World Health Organization (WHO), Suicide is the second leading cause of death among 15-29 years old and over 800,000 people die because of it every year.
* Such large numbers and the recent COVID situation in relation to mental health motivated us to work on this topic

**Components Used:**

* **Data Sources**
  + Csv file: <https://www.kaggle.com/russellyates88/suicide-rates-overview-1985-to-2016>
  + API: <https://raw.githubusercontent.com/datasets/geo-countries/master/data/countries.geojson>
* **Database** – PostgreSQL – Generated by Python Script, Table created from csv file
* **Flask** – Python code, connects to PostgreSQL, retrieves the data from PostgreSQL, Serves data in JSON format via endpoints
* **Landing Page** – index.html - custom CSS files

**Data Visualization** (Libraries used) – java script, D3.js, Plotly, D3,geomap/JQuery with Ajax (new library)

**DATA EXTRACTION:**

* We used jupyter notebook and pandas to pull in the csv file and  perform data transformation -  dropped some columns and renamed some columns
* We then created a connection string to PostgreSQL and stored our data in the  database
* We used Flask and python to create different API routes
* We also used ----- API to get country coordinates
* We used javascript libraries – D3, plotly and Jquery(Ajax) to plot and analyze our data

**ANALYSIS – MAIN DASHBOARD:**

* Our Dashboard shows the analysis of the suicide rates from countries all over the world and visualizes the patterns in choropleth map and charts which allows users to navigate to specific charts by clicking on any of those graphs for an in-depth analysis
* Further, our graphs allow user to select specific year / countries that they wish to include in the comparison.
* And we created a choropleth map which visualizes the global suicide count among the countries.

**CONCLUSION:**

Suicide is indeed one of the most talked about issue in these crisis times and this research helped us to check the influence of multiple factors such as poverty, mental health, unemployment and many more.

We wish to continue our research and help people in knowing the exact leading causes of suicide so that it is much easier to prevent it and help those who are close to committing it. However, the reason behind suicide can’t be easily identified. Each country has different socio-economic and cultural backgrounds which also makes identifying underlying causes difficult

Our goal with this project was to give users a clean platform to view and interact with the data so further research becomes easier