

# **SMARTBRIDGE EXTERNSHIP PROJECT FINAL REPORT**

**COURSE: DATA ANALYTICS**

## **SUICIDES IN INDIA VISUALISATIONS USING TABLEAU**

### **TEAM MEMBERS:**

| NAME                               | REG.NO    | EMAIL ID                                    | CAMPUS  |
|------------------------------------|-----------|---|---------|
| Kovvuru Venkata<br>Mrunalini Reddy | 20MID0116 | venkata.mrunalinireddy2020@vitstudent.ac.in | Vellore |
| Valluru Mohammad<br>Rasheed        | 20BIT0216 | mohammad.rasheed2020@vitstudent.ac.in       | Vellore |
| Gadamsetty Rishitha                | 20BIT0200 | adamsetty.rishitha2020@vitstudent.ac.in     | Vellore |
| Kopparapu Greeshma<br>Lakshmi      | 20BEC1228 | Greeshma.lakshmi2020@vitstudent.ac.in       | Chennai |

Team no. - 121

## **Milestone 1: Define Problem / Problem Understanding**

The problem of suicides in India is a complex and multi-faceted issue that demands attention. With high suicide rates, particularly among young adults and farmers, it reflects the challenges individuals face in coping with social, economic, and mental health pressures. Factors such as gender disparities, regional variations, and limited access to mental health services contribute to the problem. It is essential to pay attention to this issue to prevent loss of life, reduce stigma surrounding mental health, and promote early intervention and support systems. By raising awareness, implementing effective suicide prevention strategies, and fostering a supportive environment, we can address this critical problem and work towards improving mental well-being for all in India.

### **Activity 1: Specify the business problem**

The business problem associated with analysing the dataset of suicides in India from 2001-2012 is to understand the underlying factors contributing to suicides and to identify potential interventions or strategies that can help reduce the incidence of suicide. By conducting a comprehensive analysis of the dataset and creating visualizations, dashboards, and stories using Tableau, the project aims to provide insights that can inform policy decisions, mental health initiatives, and targeted interventions to address the issue of suicide in India. The integration with web technologies using Bootstrap allows for wider dissemination of the findings and facilitates the accessibility of the information to stakeholders, policymakers, and the general public.

### **Activity 2: Business requirements**

- Obtain a comprehensive and reliable dataset of suicides in India from 2001-2012, including relevant variables such as demographic information, geographic location, causes, and circumstances.
- Utilize Tableau to create insightful and interactive visualizations, charts, and graphs that represent the key trends, patterns, and relationships within the suicide dataset.
- Design intuitive and user-friendly dashboards that consolidate multiple visualizations and provide an overview of the suicide data.
- Arrange visualizations, charts, and graphs in a logical sequence to tell a coherent and impactful story about the factors influencing suicides in India.
- Integrate the Tableau visualizations, dashboards, and stories into a web-based platform using Bootstrap.

### **Activity 3: Social or Business Impact**

Analysing the dataset can provide a deeper understanding of the factors contributing to suicides in India. The visualizations, dashboards, and stories created from the analysis can be shared with policymakers, healthcare professionals, mental health organizations, and the general public. This can contribute to increased awareness, advocacy, and public discourse around suicide prevention and mental health promotion. Informed decision making, Targeted Marketing and support and Corporate Social Responsibility can help in raising awareness.

## **Milestone 2: Data Collection**

Data collection refers to the systematic process of gathering and obtaining information or data from various sources, such as surveys, interviews, observations, or existing datasets. It involves carefully selecting, accessing, and documenting relevant data to support research, analysis, or decision-making.

### **Activity 1: Downloading the dataset**

Please use the link to download the dataset:

[Suicides in India | Kaggle](#)

<https://www.kaggle.com/datasets/rajanand/suicides-in-india>

### **Activity 2: Understand the data**

Data contains all the information regarding the suicides that took place in India from the year 2001-2012. There are 7 columns in total that gives an insight of total number of suicides, Age group, Gender, State, Type(cause), Type code (general cause) and year in which the suicide happened of a particular person. The dataset is compiled from multiple sources, including the National Crime Records Bureau (NCRB) and the Census of India. There are 237520 records in the downloaded dataset. The data is organized at the state level, allowing for analysis and comparisons across different states in India.

### **Activity 3: Loading the dataset in Tableau**

Explanation Video link:

[https://drive.google.com/file/d/1q\\_QLMMKg2-ViNomX-PFB-KGOM\\_L65tLV/view?usp=sharing](https://drive.google.com/file/d/1q_QLMMKg2-ViNomX-PFB-KGOM_L65tLV/view?usp=sharing)

## **Milestone 3: Data Preparation**

Data preparation is the process of transforming and organizing raw data into a clean, consistent, and analytically useful format. It involves tasks such as data cleaning, removing duplicates, handling missing values, standardizing variables, restructuring data, and ensuring data quality for further analysis and visualizations.

### **Activity 1: Prepare the Data for Visualization**

Data preparation for visualization involves transforming and structuring raw data to make it suitable for visual representation. This includes cleaning and filtering the data, aggregating or summarizing it as needed, formatting variables for visualization, and ensuring data integrity to create accurate and meaningful visualizations that effectively communicate insights and patterns.

## **Milestone 4: Data Visualization**

Data visualization is the graphical representation of data and information using visual elements such as charts, graphs, and maps. It aims to present complex datasets in a clear, concise, and visually appealing manner, enabling viewers to quickly grasp patterns, trends, and relationships within the data.

### **Activity 1: No. of Unique Visualizations:**

Tableau offers a wide range of unique visualizations that can effectively represent and analyse data. Some examples of unique visualizations that can be created using Tableau are Bar graphs, Circle views, Heat and Tree maps, Scatter plots, Symbol Maps, Highlight Tables, Pie charts and many more. We can further apply filters like context, measure and dimension filters that can help visualize data more easily.

#### **Activity 1.1: Line chart - Analysing Suicide Patterns Over Time 2001-2012**

It depicts the trend of suicide patterns over a specific timeframe

Explanation vedio link:

[https://drive.google.com/file/d/1-ESxfwS-XHhMs\\_P5HfEKgbPkNOdEUsuD/view?usp=drive\\_link](https://drive.google.com/file/d/1-ESxfwS-XHhMs_P5HfEKgbPkNOdEUsuD/view?usp=drive_link)

#### **Activity 1.2: Symbol map - Suicide Rates by States and Union Territories**

This map represents the suicide rates across the country i.e., the states and union territories in a geographical way of representation

Explanation vedio link:

<https://drive.google.com/file/d/1k6jqZqIlmaNRX0Em0l2Hhqbt0eqAHovW/view?usp=sharing>

#### **Activity 1.3: Tree map based on type code i.e., type of suicides**

This analysis provides an overview of the count of suicides for each type, allowing for an understanding of the prevalence of different suicide types within a given dataset or population

Explanation vedio link:

[https://drive.google.com/file/d/1Jnfei7mYHFtyZr\\_isEtLqLySrGSDDx9I/view?usp=drive\\_link](https://drive.google.com/file/d/1Jnfei7mYHFtyZr_isEtLqLySrGSDDx9I/view?usp=drive_link)

#### **Activity 1.4: Highlight table: Gender-specific Suicide Statistics**

This visualization provides insights into the prevalence of suicide among different genders. These statistics typically include data on suicide rates, completed suicides, suicide attempts, and other related factors, categorized by gender.

Explanation video link:

[https://drive.google.com/file/d/1x41JWFYwmp2FazaSaNzvlV\\_PBaGyLE4K/view?usp=drive\\_link](https://drive.google.com/file/d/1x41JWFYwmp2FazaSaNzvlV_PBaGyLE4K/view?usp=drive_link)

#### **Activity 1.5: Bar chart - Total Suicides by Age Groups**

This visualizes the number of suicides across different age groups. It presents a comparative view of the total suicides in each age group using vertical bars, allowing for easy identification of the age group with the highest or lowest suicide rates.

Explanation video link:

[https://drive.google.com/file/d/1OtlkneFJHVsHoY8Fx-f8fFh3xjMqnIf/view?usp=drive\\_link](https://drive.google.com/file/d/1OtlkneFJHVsHoY8Fx-f8fFh3xjMqnIf/view?usp=drive_link)

#### **Activity 1.6: Pie chart - Total Suicides in Indian Union Territories**

A pie chart representing the total suicides in Indian Union Territories provides a visual snapshot of the distribution of suicides across different territories. Each slice of the pie corresponds to a specific Union Territory, with the size of each slice indicating its proportionate contribution to the total number of suicides in India.

Explanation video link:

[https://drive.google.com/file/d/1FbXvZ8JFEj8Hs6N2lTqS6SFtunpLDvIX/view?usp=drive\\_link](https://drive.google.com/file/d/1FbXvZ8JFEj8Hs6N2lTqS6SFtunpLDvIX/view?usp=drive_link)

#### **Activity 1.7: Table - Suicide Rates by States and Union Territories in India**

This visualization displays the Suicide Rates by States and Union Territories in India from 2002 to 2012.

Explanation video link:

[https://drive.google.com/file/d/1Dz\\_3tQgkSoPKZwzldXCm9YldURVlh1F/view?usp=drivesdk](https://drive.google.com/file/d/1Dz_3tQgkSoPKZwzldXCm9YldURVlh1F/view?usp=drivesdk)

#### **Activity 1.8: Heat map - Suicide rates based on type code under different age groups**

This visualization involves examining the incidence of suicides categorized by both the type of suicide and the age group of individuals. This analysis provides insights into the specific

types of suicides that are more prevalent within certain age demographics, enabling a deeper understanding of the relationship between age, suicide types, and potential risk factors

Explanation video link:

[https://drive.google.com/file/d/13BV8UXgSckLMxFT8o7oN3jmsJAR9mazT/view?usp=drive\\_link](https://drive.google.com/file/d/13BV8UXgSckLMxFT8o7oN3jmsJAR9mazT/view?usp=drive_link)

### **Activity 1.9: Circle View - Gender and Type-based Circles View of Suicides**

A gender and type-based circles view of suicides visualizes the relationship between gender, suicide types, and their respective frequencies or proportions. This visualization typically represents the data using circles, where each circle represents a specific gender and type combination. The size of the circles may correspond to the frequency or proportion of suicides in each category, allowing for a quick visual comparison of the distribution of suicides across different gender and type combinations

Explanation video link:

[https://drive.google.com/file/d/1JSay8lsCsyAds3frus3m8fpH3mkdYmgW/view?usp=drive\\_link](https://drive.google.com/file/d/1JSay8lsCsyAds3frus3m8fpH3mkdYmgW/view?usp=drive_link)

### **Activity 1.10: Line chart - Analysing gender specific Suicide patterns over time: 2001-2012**

This visualization examines the changes in suicide patterns among different genders from 2001 to 2012. By analysing this data over time, it aims to identify any trends, fluctuations, or disparities in suicide rates between males and females, providing insights into the dynamics of suicide behaviour.

Explanation video link:

[https://drive.google.com/file/d/1z5FAMig0Xg-fXoJzpVcvW9To1rPgyKJN/view?usp=drive\\_link](https://drive.google.com/file/d/1z5FAMig0Xg-fXoJzpVcvW9To1rPgyKJN/view?usp=drive_link)

### **Activity 1.11: Horizontal bar chart - suicide rates of male and female under different age groups Packed bubble chart based on specific type of suicide with the causes**

This visualization illustrates the comparison of suicide rates between males and females across various age groups. It provides insights into the variations in suicide rates based on gender and age, enabling the identification of any significant disparities or trends.

Explanation video link:

[https://drive.google.com/file/d/1LY8NX5nlkW\\_tDSWGfoMehAPeJQPte23M/view?usp=drive\\_link](https://drive.google.com/file/d/1LY8NX5nlkW_tDSWGfoMehAPeJQPte23M/view?usp=drive_link)

### **Activity 1.12: Packed bubble chart -suicide rates based on specific type of suicide with the causes**

This is a bubble chart representing the reasons and total number of suicides caused by specific reasons showcases the relationship between different reasons and the corresponding total number of suicides attributed to each reason. In this chart, each reason is represented by a bubble, and the size of the bubble corresponds to the total number of suicides associated with that particular reason. This visualization allows for easy comparison and identification of the reasons that contribute to a higher number of suicides, providing insights into the prevalent factors influencing suicidal behaviour.

Explanation video link:

[https://drive.google.com/file/d/1kKWhbLfkda20xYay67m71UvqI5FXt9ya/view?usp=drive\\_link](https://drive.google.com/file/d/1kKWhbLfkda20xYay67m71UvqI5FXt9ya/view?usp=drive_link)

### **Activity 1.13: Tree map - total number of suicide based on education level**

This is a tree map representing the total number of suicides based on education level visually displays the distribution of suicide counts across different education levels. In this visualization, each education level is represented by a rectangular tile, where the size of the tile corresponds to the total number of suicides in that particular education category.

Explanation video link:

[https://drive.google.com/file/d/1HNXedOG-9X6ou5hL\\_rMnNScriQghSSU/view?usp=drive\\_link](https://drive.google.com/file/d/1HNXedOG-9X6ou5hL_rMnNScriQghSSU/view?usp=drive_link)

### **Activity 1.14: analysing suicide methods using packed bubble chart showcasing Specific Types**

The analysis of suicide methods using a packed bubble chart can showcase specific types of suicide methods and their respective frequencies or proportions. In this visualization, each specific method is represented by a bubble, and the size of the bubble corresponds to the frequency or proportion of suicides attributed to that method. The packed bubble chart allows for a visual comparison of the prevalence of different suicide methods, highlighting the relative significance of each method in terms of frequency or proportion within the dataset.

Explanation video link:

[https://drive.google.com/file/d/1aPrD6sYXdAMDU9x8C8RCRWgSLpn1wB-L/view?usp=drive\\_link](https://drive.google.com/file/d/1aPrD6sYXdAMDU9x8C8RCRWgSLpn1wB-L/view?usp=drive_link)

### **Activity 1.15: Packed bubble chart – suicide rates by specific type of suicide within the professional level**

This analysis of suicide rates by professional level using a bubble chart can provide insights into the relationship between professional levels and the number of suicides, with the size of each bubble representing the corresponding number of suicides. In this visualization, each professional level is represented by a bubble, and the size of the bubble reflects the magnitude of suicides within that professional category. This chart allows for a quick

comparison of suicide rates across different professional levels, highlighting any variations or disparities

Explanation video link:

[https://drive.google.com/file/d/1ClxfRRktXf75SK5iL95oMNIQikxn\\_uR4/view?usp=drive\\_link](https://drive.google.com/file/d/1ClxfRRktXf75SK5iL95oMNIQikxn_uR4/view?usp=drive_link)

### **Activity 1.16: Bubble Chart - Distribution of Suicide Types by Social Status**

This is A bubble chart representing the distribution of suicide types by social status which visualizes the relationship between different types of suicides and their prevalence within various social status categories. In this chart, each social status category is represented by a bubble, and the size of the bubble corresponds to the proportion or frequency of suicides within that particular social status group.

Explanation video link:

[https://drive.google.com/file/d/1F5Y3vwT7eNbvj\\_TjKdax5hlsluJq1x0N/view?usp=drive\\_link](https://drive.google.com/file/d/1F5Y3vwT7eNbvj_TjKdax5hlsluJq1x0N/view?usp=drive_link)

### **Activity 1.17: Line chart - Temporal Analysis of Suicide Rates Across Age Groups: 2001-2012**

This visualization examines the variations in suicide rates among different age groups over a specific period, from 2001 to 2012. This analysis aims to identify any temporal trends, fluctuations, or patterns in suicide rates within each age group, providing valuable insights into the dynamics of suicide behaviour across different age demographics during the specified timeframe.

Explanation video link:

[https://drive.google.com/file/d/13rDgBi3QoUUKzfUKGGuUIvvm2NU70Dv0/view?usp=drive\\_link](https://drive.google.com/file/d/13rDgBi3QoUUKzfUKGGuUIvvm2NU70Dv0/view?usp=drive_link)

### **Activity 1.18: Side-by-Side bar chart – suicide rates based on type of suicide in different union territories**

A side-by-side chart representing the number of suicides based on the type of suicide in different Union Territories provides a comparative view of suicide patterns across territories. The chart consists of bars grouped by Union Territories, and within each group, there are sub-bars representing different types of suicides.

Explanation video link:

[https://drive.google.com/file/d/1Poj9lnmNbUOJqNC006gkiBIIvwbESSo/view?usp=drive\\_link](https://drive.google.com/file/d/1Poj9lnmNbUOJqNC006gkiBIIvwbESSo/view?usp=drive_link)



### **Activity 1.19: Table - suicide rates across the country under different age groups**

This visualization displays total number of suicides across the country under different age groups in tabular format

Explanation video link:

[https://drive.google.com/file/d/1Pgeb2EL0nywLG4vZvYFfl56ZQ5Zi1h5o/view?usp=drive\\_link](https://drive.google.com/file/d/1Pgeb2EL0nywLG4vZvYFfl56ZQ5Zi1h5o/view?usp=drive_link)

### **Milestone 5: Dashboard**

A dashboard in Tableau is a consolidated and interactive display of multiple visualizations, charts, and data summaries on a single screen. It allows users to monitor, analyse, and explore data from different perspectives, providing a comprehensive overview of key insights and facilitating data-driven decision-making.

**Video Explanation link for creating dashboards:**

[https://drive.google.com/file/d/15tLglO7PyTCqbdNZoGCERrCazlw5UXOT/view?usp=drive\\_link](https://drive.google.com/file/d/15tLglO7PyTCqbdNZoGCERrCazlw5UXOT/view?usp=drive_link)

### **Milestone 6: Story**

A dashboard in Tableau is a consolidated and interactive display of multiple visualizations, charts, and data summaries on a single screen. It allows users to monitor, analyse, and explore data from different perspectives, providing a comprehensive overview of key insights and facilitating data-driven decision-making.

### **Activity 1: No. of Scenes of Story**

The number of scenes in a storyboard for a data visualisation analysis of suicides in India will depend on the complexity of the analysis and insights.

**Video Explanation link for creating stories:**

<https://drive.google.com/drive/folders/1yuSx5dTj08kQJ1ZgQGCoxCHBYQwbxFXG?usp=sharing>

## **Milestone 7: Performance Testing**

Performance testing in Tableau refers to the process of evaluating and measuring the system's performance, including its responsiveness, scalability, and resource usage, under different loads and user scenarios, to ensure optimal performance and user experience.

### **Activity 1: Amount of Data Rendered to DB**

The amount of data rendered to the database in Tableau depends on the specific query or visualization being executed. It can range from a subset of data to the entire dataset, depending on the filters, aggregations, and data source configurations applied within the Tableau workbook.

### **Activity 2: Utilization of Data Filters**

Data filters in Tableau allow users to selectively control which data points or dimensions are included or excluded from the visualizations, enabling focused analysis, comparison, and exploration of specific subsets of data based on defined criteria or conditions.

### **Activity 3: No. of Calculation Fields**

Calculation fields in Tableau are user-defined expressions or formulas that perform calculations on the existing data to generate new values or dimensions. They allow users to create custom calculations, aggregations, transformations, and derived measures based on the available data fields.

### **Activity 4: No. of Visualisations Graph**

Visualization graphs in Tableau refer to the graphical representations, such as bar charts, line graphs, scatter plots, or pie charts, used to visually represent and analyze data in a meaningful and intuitive way, allowing for easier interpretation and identification of patterns and trends.

## **Milestone 8: Web Integration**

Web integration refers to the process of incorporating and connecting various web-based technologies, services, or applications into a unified system or website, allowing seamless data exchange, functionality, and user experience across different platforms or online environments.

### **Activity 1: Embed Dashboard and Story with Web Bootstrap**

Video Explanation with Link:

[https://drive.google.com/file/d/1ndU0crti0qdVVmiWLedn223LD7wC5vMz/view?usp=drive\\_link](https://drive.google.com/file/d/1ndU0crti0qdVVmiWLedn223LD7wC5vMz/view?usp=drive_link)

## Screen shorts: -







