1. SELECTED TOPIC

SOCIAL MEDIA IMPACT – SUICIDE RATES

UT AUSTIN DATA ANALYTICS & VISUALIZATION BOOTCAMP – FINAL PROJECT BY :

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2. REASON FOR TOPIC SELECTION

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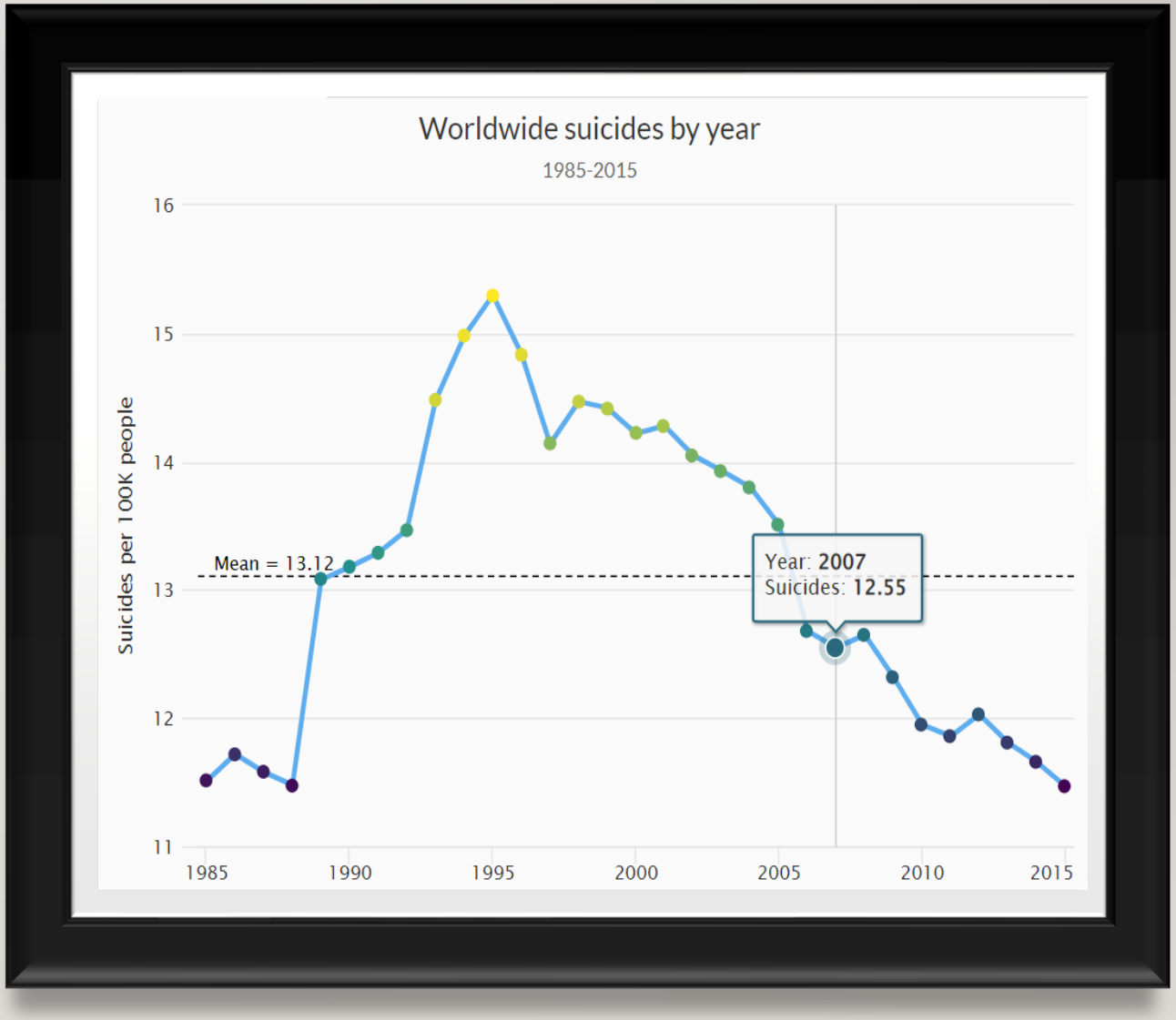
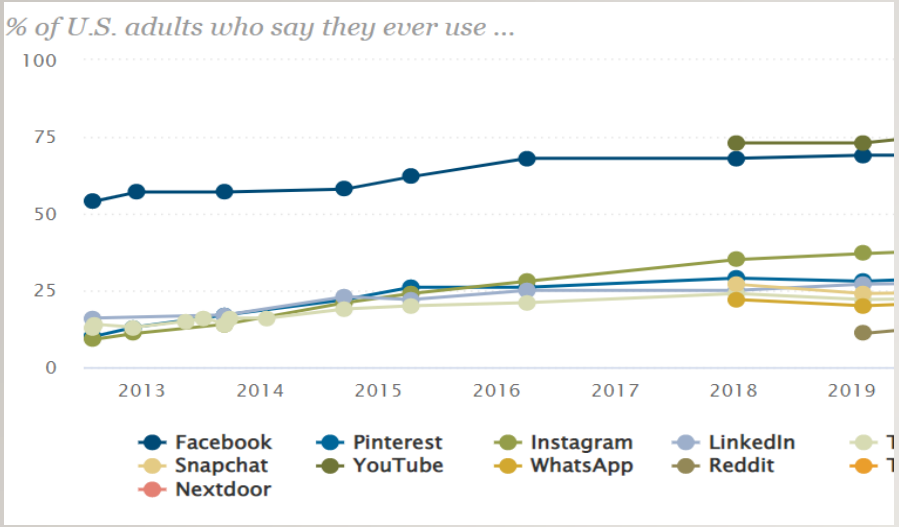
Suicide is a serious societal problem and the result of complex socioeconomic and cultural factors. Even if our analysis should show that social media use only has a minimal impact, we believe any measure to decrease risk and increase suicide prevention is worth pursuing.

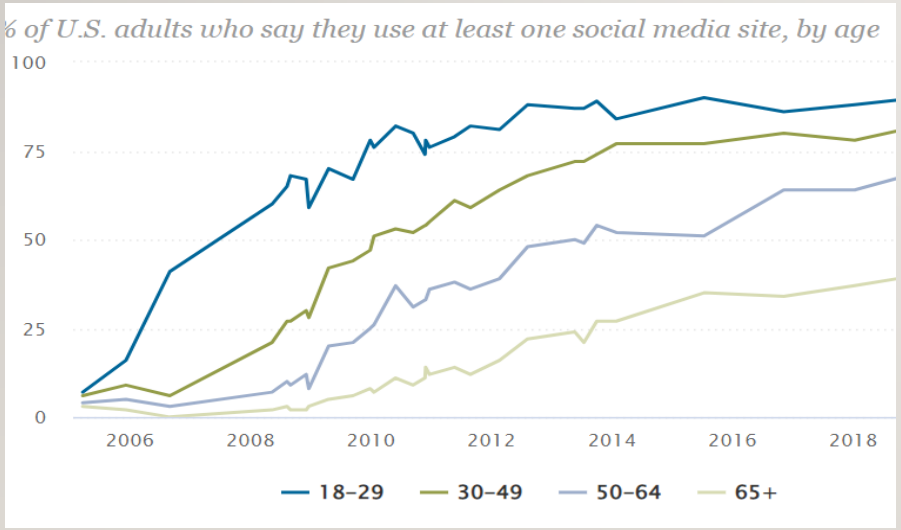
3. DATA SOURCE DESCRIPTION

SUICIDE RATES OVERVIEW 1985 TO 2015 – FROM KAGGLE

We are using a suicide data set from Kaggle, which lists suicides from around the world by country from 1985 until 2015. The data is split by gender, age and generation, and also lists the respective country's Human Development Index and GDP in a particular year.







SOCIAL MEDIA FACT SHEET – FROM PEW RESEARCH CENTER

For social media usage, we rely on a Pew Research dataset that collected the share of U.S. adults using different forms of social media from 2005 through 2021. The data is broken down by age groups.

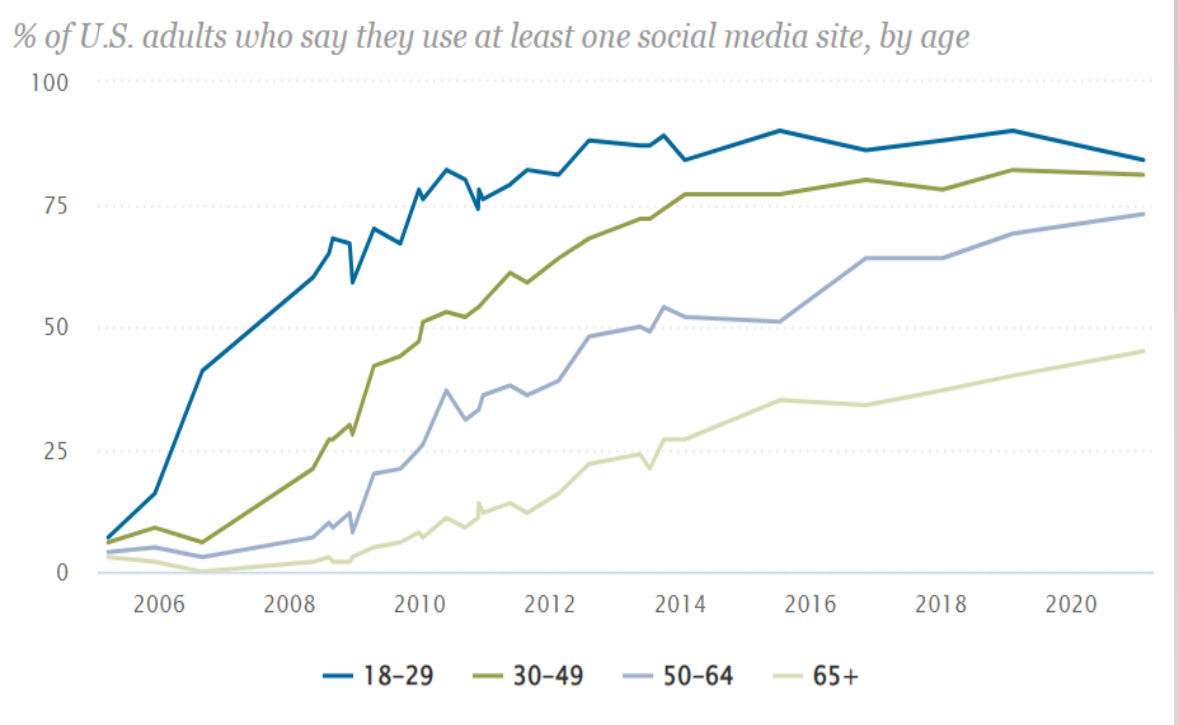
4. APPLIED TECHNOLOGIES

TECHNOLOGIES, LANGUAGES, TOOLS, AND ALGORITHMS USED THROUGHOUT THE PROJECT

5. ANALYTICAL OBJECTIVES

QUESTIONS WE HOPE TO ANSWER WITH DATA

We wanted to determine whether an uptick in social media use in recent years overlaps with an increase in suicide rates, particularly among younger cohorts who use social media in the greatest numbers. To determine correlation, we plan to visualize U.S. suicide rates and social media use over time.



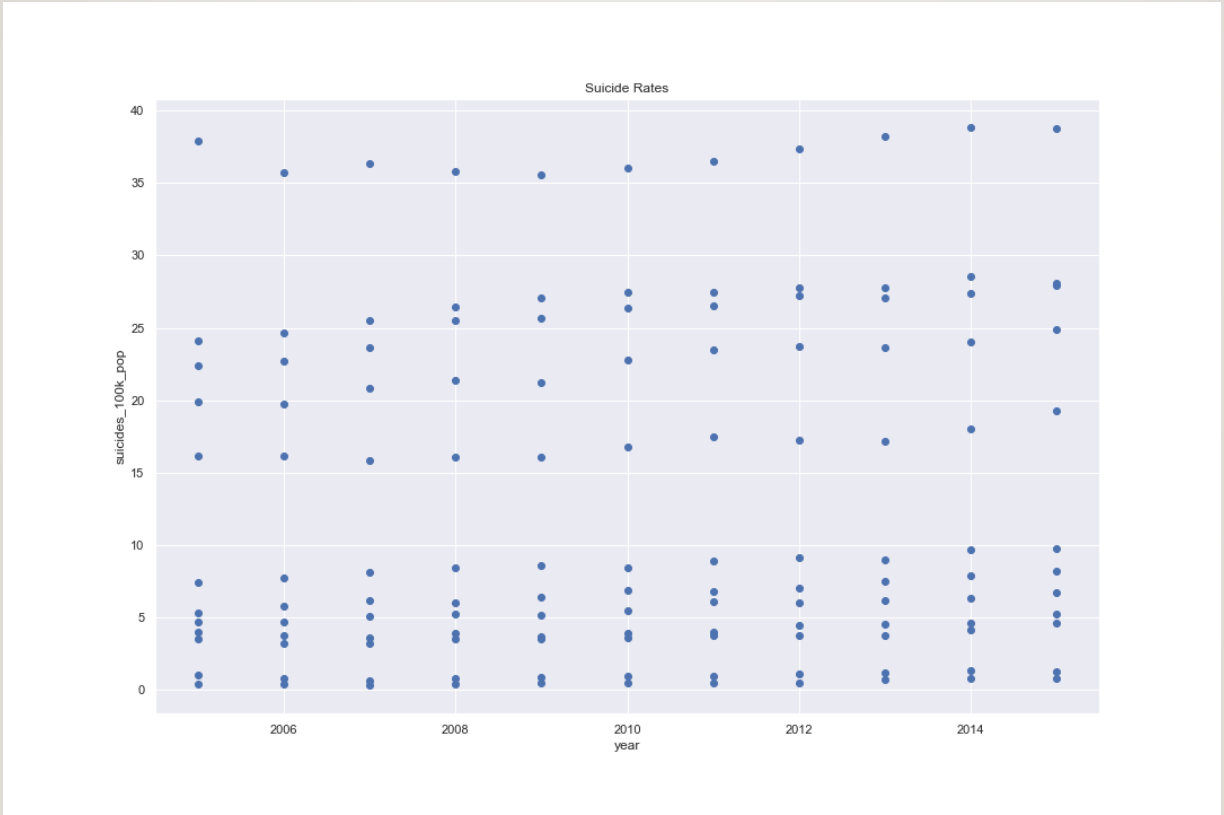
6. DATA EXPLORATION

PANDAS INFO AND DESCRIBE FUNCTIONS

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 27660 entries, 0 to 27659
Data columns (total 12 columns):
 #   Column              Non-Null Count  Dtype  
---  ------              --------------  -----  
 0   country             27660 non-null  object 
 1   year                27660 non-null  int64  
 2   sex                 27660 non-null  object 
 3   age_range           27660 non-null  object 
 4   suicides_no         27660 non-null  int64  
 5   population          27660 non-null  int64  
 6   suicides_100k_pop   27660 non-null  float64
 7   country_year        27660 non-null  object 
 8   HDI_for_year        8364 non-null   float64
 9   gdp_for_year        27660 non-null  int64  
 10  gdp_per_capita      27660 non-null  int64  
 11  generation          27660 non-null  object 
dtypes: float64(2), int64(5), object(5)
memory usage: 2.5+ MB
```

	suicide_year	suicides_no	population	suicides_100k_pop	HDI_for_year	gdp_for_year	gdp_per_capita
count	27820.000000	27820.000000	2.782000e+04	27820.000000	8364.000000	2.782000e+04	27820.000000
mean	2001.258375	242.574407	1.844794e+06	12.816097	0.776601	4.455810e+11	16866.464414
std	8.469055	902.047917	3.911779e+06	18.961511	0.093367	1.453610e+12	18887.576472
min	1985.000000	0.000000	2.780000e+02	0.000000	0.483000	4.691962e+07	251.000000
25%	1995.000000	3.000000	9.749850e+04	0.920000	0.713000	8.985353e+09	3447.000000
50%	2002.000000	25.000000	4.301500e+05	5.990000	0.779000	4.811469e+10	9372.000000
75%	2008.000000	131.000000	1.486143e+06	16.620000	0.855000	2.602024e+11	24874.000000
max	2016.000000	22338.000000	4.380521e+07	224.970000	0.944000	1.812071e+13	126352.000000

VISUAL EXPLORATORY DATA ANALYSIS



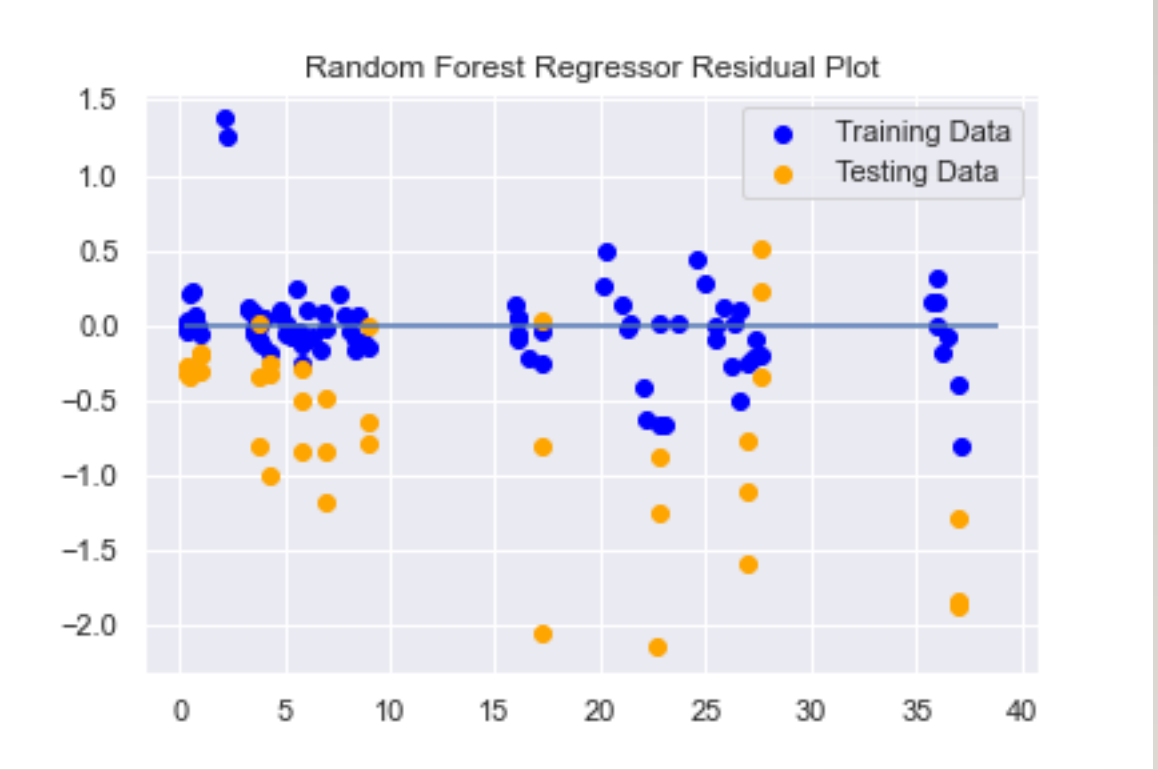
7. DATA ANALYSIS

MACHINE LEARNING - LINEAR REGRESSION MODEL

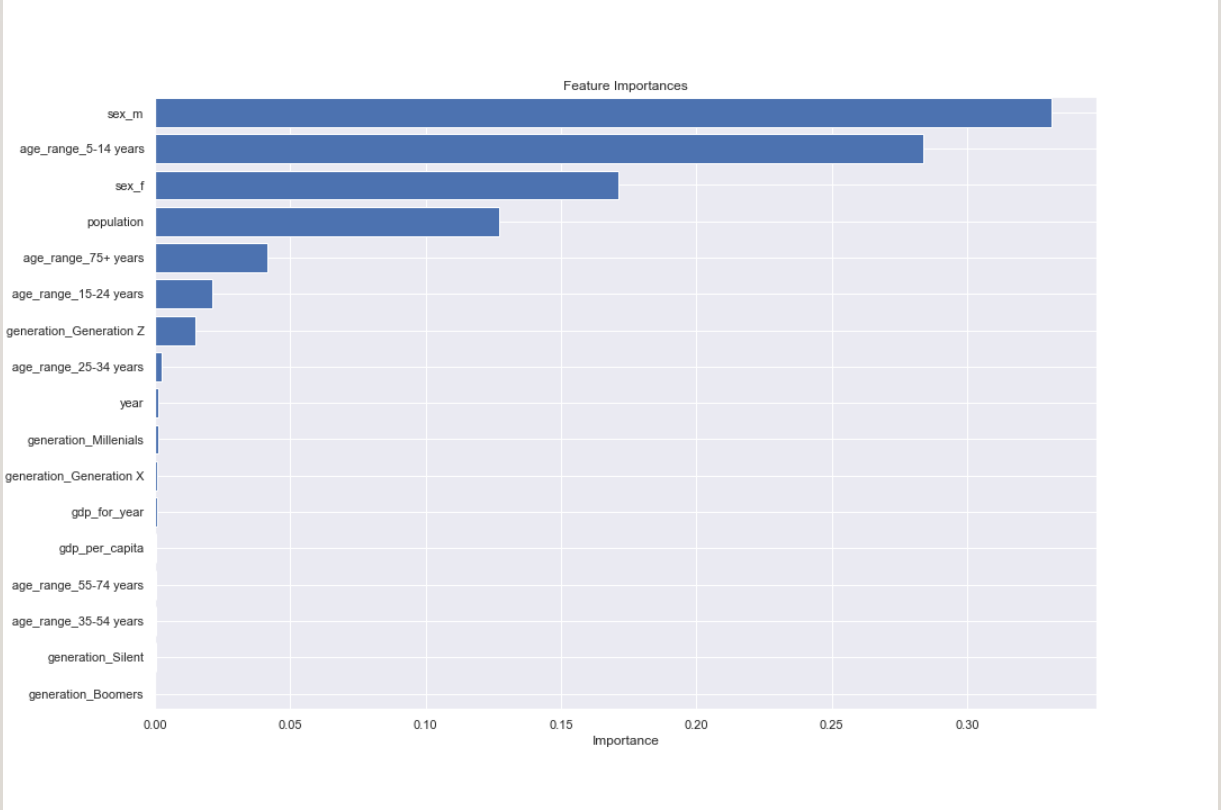
- “Best Fit” line through all data points
- MSE: 24.55
- R-squared: 0.8315
- Training Score: 0.9120
- Testing Score: 0.8315

MACHINE LEARNING - RANDOM FOREST REGRESSOR MODEL

- Averages of weaker Decision Trees
- MSE: 0.8826
- R-squared: 0.9939
- Training Score: 0.9994
- Testing Score: 0.9939



RANDOM FOREST REGRESSOR FEATURE IMPORTANCE

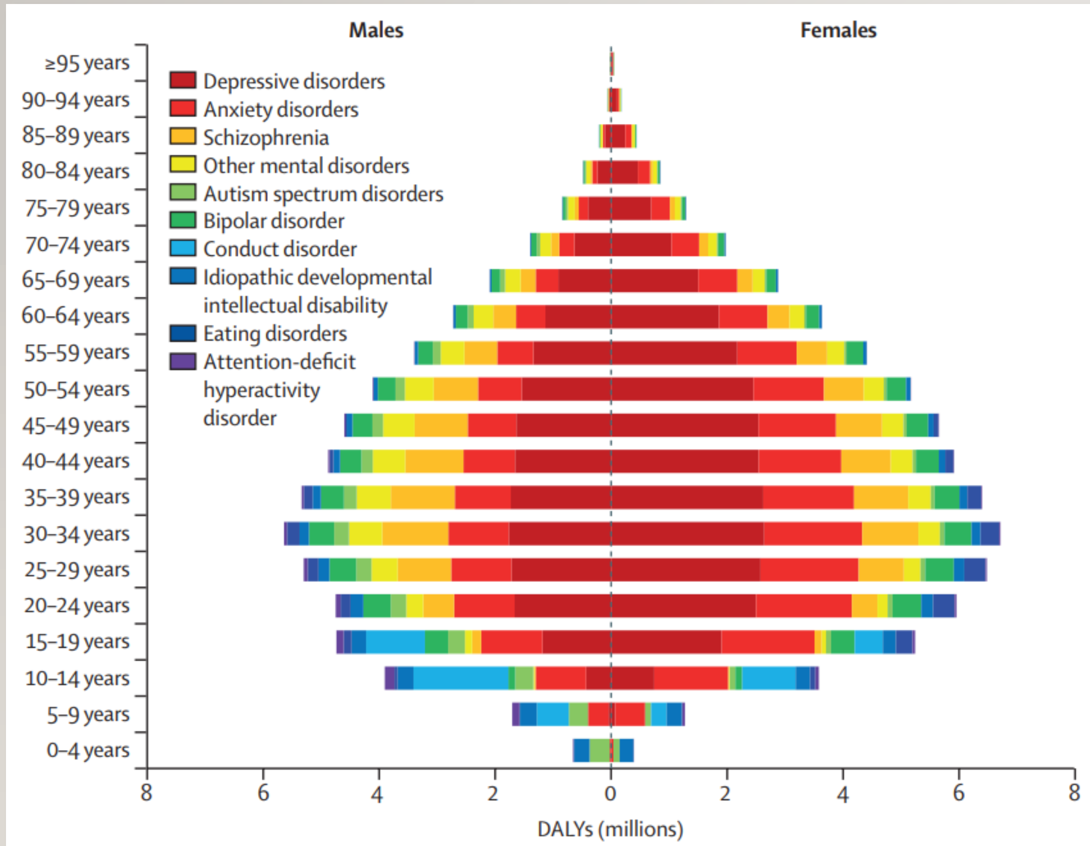


8. RESULTS OF ANALYSIS

LINK TO OUR VISUALIZATION

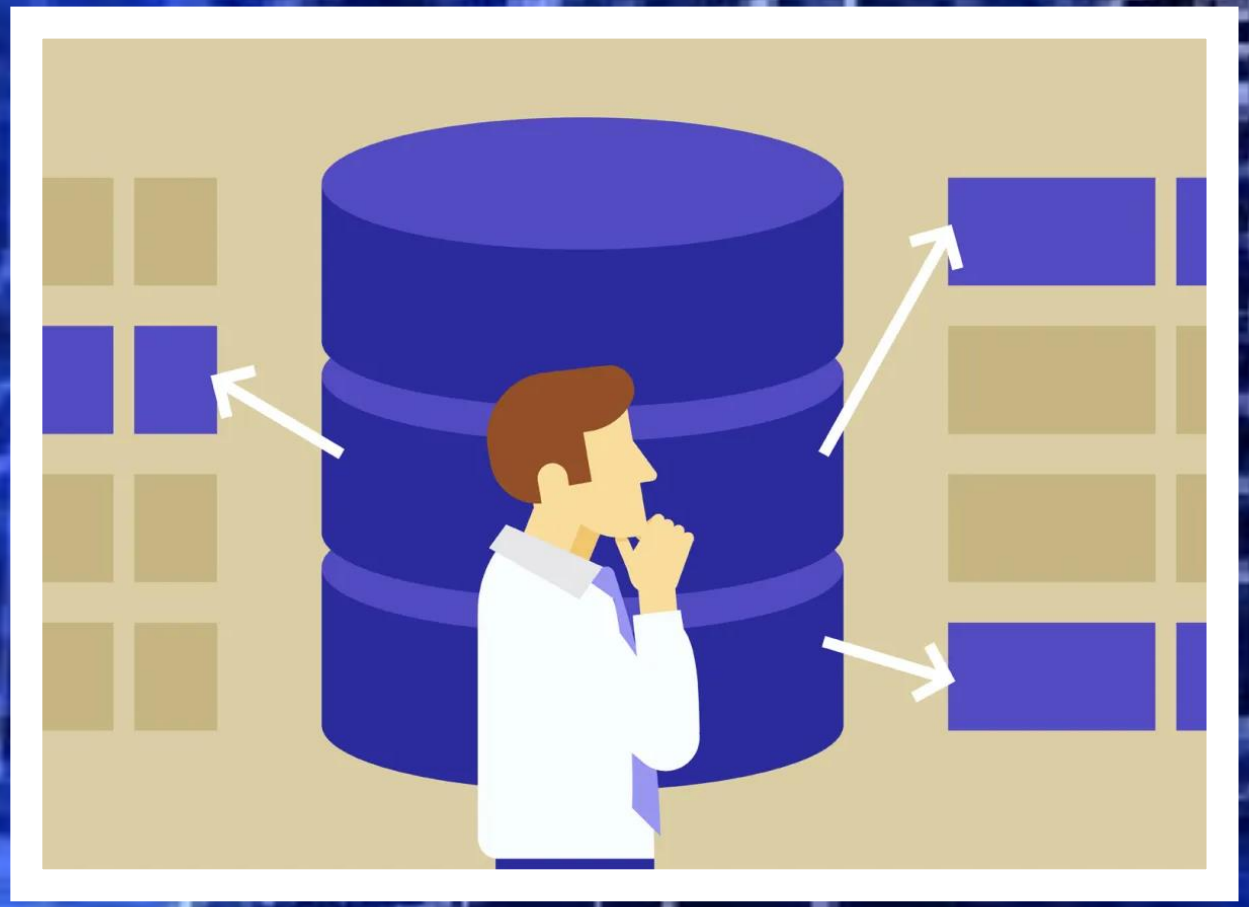
- Tableau Dashboard
- Final Project Website

9. RECOMMENDATIONS FOR FUTURE ANALYSIS


Males
Females
≥95 years
90–94 years
85–89 years
80–84 years
75–79 years
70–74 years
65–69 years
60–64 years
55–59 years
50–54 years
45–49 years
40–44 years
35–39 years
30–34 years
25–29 years
20–24 years
15–19 years
10–14 years
5–9 years
0–4 years
Depressive disorders
Anxiety disorders
Schizophrenia
Other mental disorders
Autism spectrum disorders
Bipolar disorder
Conduct disorder
Idiopathic developmental intellectual disability
Eating disorders
Attention-deficit hyperactivity disorder
8
6
4
2
0
2
4
6
8
DALYs (millions)


Illness
Mental
Stress
Disorder
Phobia
Dementia
Delusion
Psychotic
Trauma
Depression
Obsession
Diagnosis
Outburst
Hallucination

10. LIMITATIONS




THANK YOU FOR YOUR ATTENTION!