

Project 3

Visualizing Suicide Rates and Economic Factors

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Healthcare

Several of us are involved in the healthcare field.

World Health Organization says it is important, among other things, to identify early, assess, manage, and follow up with folks that are affected by suicidal behavior.

To that end, we wanted to build some visualizations to see if we could identify any patterns in the data to guide resource management.

Datasets

Started on Kaggle and let the search results essentially lead us back to the source.

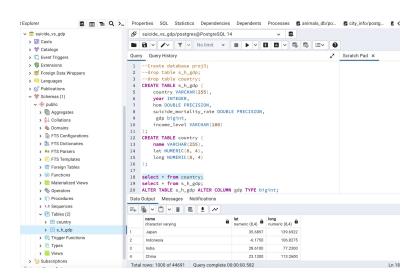
For our purposes, it ended up boiling down to a pair of csv files, one from the World Health Organization and one from World Bank Open Data (this was to add lat/lon to the countries of our initial dataset)

Bulgaria	2015	1.75006344	9.8	50781996713	Upper middle income
Bulgaria	2016	1.104594161	9.7	53953897624	Upper middle income
Burkina Faso	2015	0.646029931	8	11832159276	Low income
Burkina Faso	2016	1.120862796	7.8	12833363370	Low income
Burundi	2015	4.537386391	6.4	3104394858	Low income
Burundi	2016	6.054537366	6.4	2732808557	Low income
Cabo Verde	2015	8.766246141	14.4	1596800287	Lower middle income
Cabo Verde	2016	11.67300523	14.4	1662998678	Lower middle income
Cambodia	2015		5.1	18049954289	Lower middle income
Cambodia	2016		5.1	20016747754	Lower middle income
Cameroon	2015	1.154586912	9.5	32210232912	Lower middle income
Cameroon	2016	1.153530332	9.2	33814337900	Lower middle income
Canada	2015	1.693190167	13	1560000000000	High income
Canada	2016	1.682106961	11.9	1530000000000	High income
Caribbean small states	2015	31.5	9.649353096	73243299833	Aggregates
Caribbean small states	2016		9.535746439	69598702058	Aggregates
Cayman Islands	2015			4708336733	High income

Database

Used SQL

Imported relevant CSVs



Combined dataset

```
"features": [
    "geometry": {
      "coordinates": [
        "139.6922",
        "35.6897"
      "type": "Point"
    "properties": {
      "GDP": 5000000000000,
      "Year": 2016,
      "homicide_rate": 0.283336524,
      "income_level": "High income",
      "name": "Japan",
      "suicide rate": 17.5
    "type": "Feature"
    "geometry": {
      "coordinates": [
       "139.6922",
        "35.6897"
      "type": "Point"
    "properties": {
      "GDP": 44400000000000,
      "Year": 2015,
      "homicide_rate": 0.28362668,
      "income_level": "High income",
      "name": "Japan",
      "suicide_rate": 19.1
    "type": "Feature"
```

Flask

Visualizations

Now that we had a foundation to work off of, we started trying to build different visualizations.

Heatmap to see at a glance what countries/areas have the highest and lowest rates

Cluster map using ESRI mapping

Country color varying by rates (dropped)

Scatter plot/bar graph to map suicide rates vs homicide rates and also gdp.

Basket Weaving

Once we had 3 working visualizations, it was time to bring them together.

All the relevant js files were put in templates, and routes were added to app.py

```
@app.route('/ShelontaClusterMap')
def index1():
    return render_template('shelonta_cluster.html', API_KEY=API_KEY
@app.route('/BarGraph')
def index2():
    return render_template('BrettBarGraphs.html')
@app.route('/HeatMap')
def index3():
    return render_template('heatmap.html')
@app.route('/data')
def data():
    conn = connect_db()
    cur = conn.cursor()
    query = "SELECT s.country, s.year, s.hom, s.suicide mortality r
    cur.execute(query)
    geojson_data = {
        "features": []
    for row in cur.fetchall():
```

Finally on the index page we added a directory for the end user accessing these charts/maps.

```
@app.route('/')
      def welcome():
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          return (
              f"Thank you for visiting our API on world suicide data! Ple
              f"<br/>"
              f"<br/>"
              f"Available Routes:<br/>"
              f"<br/>"
             f"<br/>"
              f"Cluster Map comparing average suicide rates and GDP: <a h
              f"<br/>"
              f"Bar Chart comparing average suicide and homicide rate bas
              f"<br/>"
              f"Heatmap showing the suicide rate per country: <a href='/H
              f"<br/>"
              f"General data: <a href='/data'>data</a><br/>"
      @app.route('/ShelontaClusterMap')
      def index1():
          return render_template('shelonta_cluster.html', API_KEY=API_KEY
```

Limitations/Challenges

Dataset is truncated.

Even with truncated data, some countries did not provide data so the dataset is extra incomplete.

Our dataset does not perfectly gel with our intentions with the maps.

Dataset could use more detailed info for country boundaries

Check out our page!

And thanks for watching!

