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# ECS163 Final Project Milestone

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## 1 INTRODUCTION AND THE DATASET

The suicide issue is becoming more serious these years. To better understand how the suicide ratio is related with other factors, we decided to do a visualization system about it. The dataset we found is from Kaggle and covers the suicide number, suicide\_ratio, population and GDP of almost every country in the world during a long period(1985-2016). Here is an excerpt from the raw data.

country	year	suicide_no	population	GDP_year	GDP_percap	suicide_ratio	region	subregion
Albania	1985	NA	NA	NA	NA	NA	Europe	Southern Europe
Albania	1986	NA	NA	NA	NA	NA	Europe	Southern Europe
Albania	1987	73	2709600	2156624900	796	2.69412459403602	Europe	Southern Europe
Albania	1988	63	2764300	2.126E+09	769	2.2790579893644	Europe	Southern Europe
Albania	1989	68	2803100	2335124988	833	2.42588562662766	Europe	Southern Europe
Albania	1990	NA	NA	NA	NA	NA	Europe	Southern Europe
Albania	1991	NA	NA	NA	NA	NA	Europe	Southern Europe
Albania	1992	47	2822500	709452584	251	1.6651904340124	Europe	Southern Europe
Albania	1993	73	2807300	1228071038	437	2.60036333843907	Europe	Southern Europe
Albania	1994	50	2849300	1985673798	697	1.75481697258976	Europe	Southern Europe
Albania	1995	88	2903400	2424499009	835	3.03092925535579	Europe	Southern Europe
Albania	1996	89	2940200	3314898292	1127	3.0270049656486	Europe	Southern Europe
Albania	1997	170	2977300	2359903108	793	5.70987135995701	Europe	Southern Europe
Albania	1998	154	3012700	2707123772	899	5.11169382945531	Europe	Southern Europe
Albania	1999	139	3029700	3414760915	1127	4.58791299468594	Europe	Southern Europe

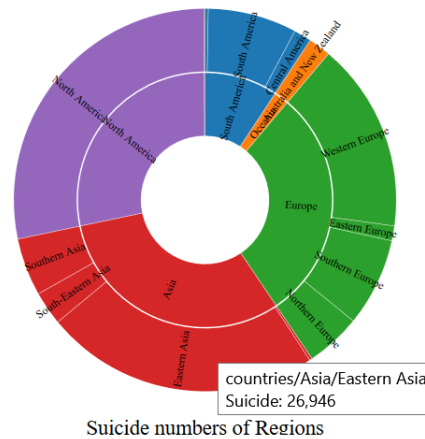


Figure 2.1: Caption

## 2 SUNBURST CHART

### 2.1 ABOUT THIS VISUALIZATION

Figure 2.1 shows the sunburst chart in this system. The sunburst chart shows the distribution of suicide numbers in a specific year. There are 3 levels in this sunburst: the first level is "region" (e.g. Asia); the second level is "subregion" (e.g. Eastern Asia); the third level is "country" (e.g. Japan). And each element shows a specific region, subregion, or country. Furthermore, as you can see in Figure 2.1 when a user mouse over in a specific element, a tooltip appears and it shows the number of suicide in that area.

### 2.2 INTERACTION1: SELECTING EACH REGION/SUB-REGION

As I mentioned in the previous section, the sunburst chart has 3 levels, however, there are only 2 levels in Figure 2.2. Users can explore the different levels by interacting with this chart. When a user clicks a specific region/subregion, the sunburst changes and it only shows the elements in that region/subregion. This interaction helps users to explore the data in various levels of granularity.

### 2.3 INTERACTION2: FILTERING OTHER VISUALIZATIONS'

DATA(UNIMPLEMENTED)

In addition to the interaction1, the sunburst can also interact with other visualizations. When a user clicks a specific region/subregion, the sunburst also sends the data in that area to other visualizations and the other visualizations only show those data. This helps users to filter the data based on the area, which enables users to explore the data from multiple perspectives.

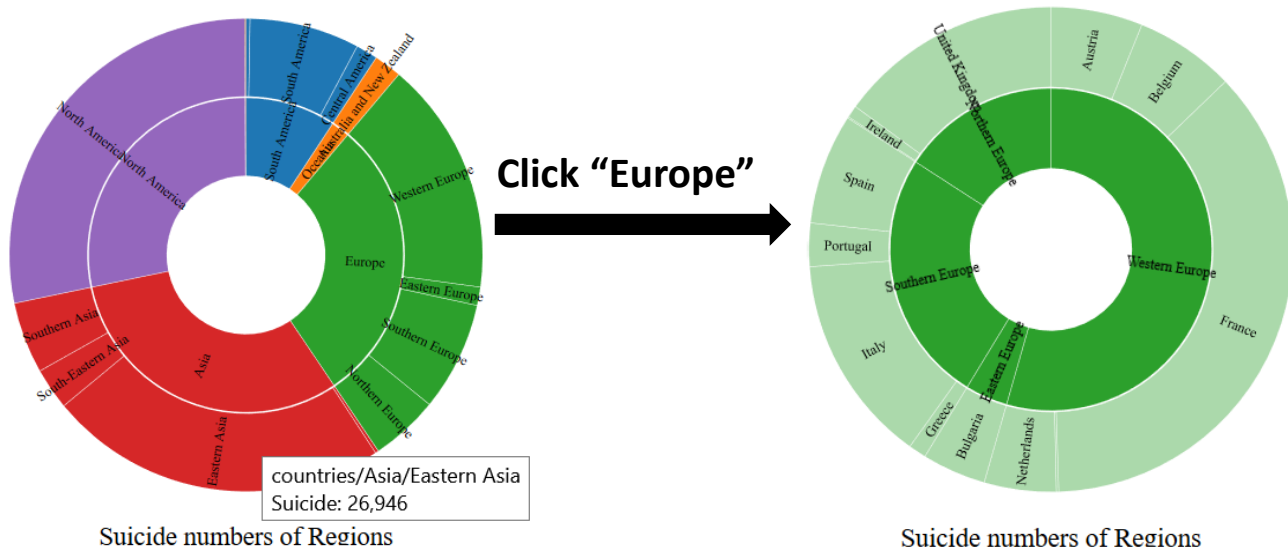


Figure 2.2: Sunburst interaction1

## 3 CURVE CHART

### 3.1 ABOUT THIS VISUALIZATION

Below 3.1 is a rough implementation of the overview of Curve Chart. We decided to place the Curve Chart on the top because we want it to catch the user's attention first. Each curve corresponds to one country and shows the suicide ratio, i.e. the number of people committing suicide over the total population during that year. A curve is better than a poly-line because it better shows the trend over time. For now the overview looks a little crowded; I would do some filtering and use more aesthetically pleasing color later.

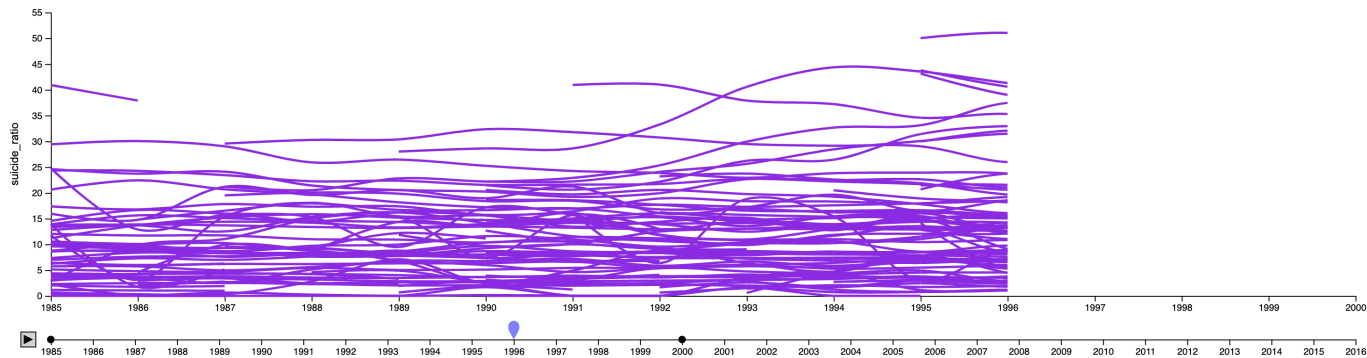


Figure 3.1: Curve Chart

### 3.2 INTERACTION:ANIMATION OVER TIME

Notice that there is another time axis below the chart, which covers a longer period than the upper time axis. Along this axis, there are three widgets - two black dots and one blue pointer (the color and shape may be changed later for better aesthetics). This axis gives a global view of the time series and enables the user to look into a detailed period he wants by dragging the black dots. Also, there is a button on the left. When the user clicks on the button, the pointer begins flowing to the right and the curves begin extending. Later, this animation would propagate to other charts as well.

## 4 SCATTER PLOT

### 4.1 ABOUT THIS VISUALIZATION

As for the scatter plot, the default data that will be loaded in will be GDP Percap versus population. As the user uses the visualization, they'll be able to select which data will be in the X and Y axis. As of yet, there is no color on the visualization as we have not decided whether or not it is necessary. Something that will be useful in this scatter plot would be a tool tip which would allow the user to hover over the dot and will be able to see the specific GDP percap as well as the population.

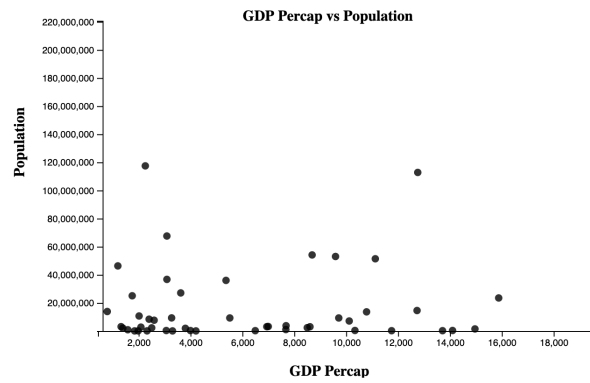


Figure 4.1: Scatter Plot

## 4.2 INTERACTION1: LASSO SELECTION TOOL (UNIMPLEMENTED)

For this interaction, we are utilizing the lasso selection tool to select the data within the scatter plot. This would allow the user to filter out the data for the other visualizations. We want the user to be in control of what they want to see which is why we are implementing this interaction.

# 5 HISTOGRAM

## 5.1 ABOUT THIS VISUALIZATION

For our visualization, we decided to include multiple histograms that shows the population, GDP percap, and suicide ratio distribution of our data. These histograms will be towards the bottom of our visualization system because these histograms serve a more important secondary function which will be explained in section 5.2. We opted to exclude tick marks on our axes to reduce the clutteredness of our system. Furthermore, these histograms will display the distribution of the three aforementioned attributes over a range of years. This range will be determined by our other visualizations. Figure 5.1 shows the current implementation of these histograms.

## 5.2 INTERACTION1: SCATTER PLOT MANIPULATION (UNIMPLEMENTED)

We want to provide our users with the ability to look at our data from a glance (viewing distributions across histograms), but we also want to provide users with the ability to view the relationship between these distributions. To achieve this, we decided to have our histograms work closely with our scatter plot. In essence, the scatter plot will display data based on some default attributes, but if the user would like to see the relationship between two histograms, they may select two of the three and have these attributes plotted in our scatter plot.

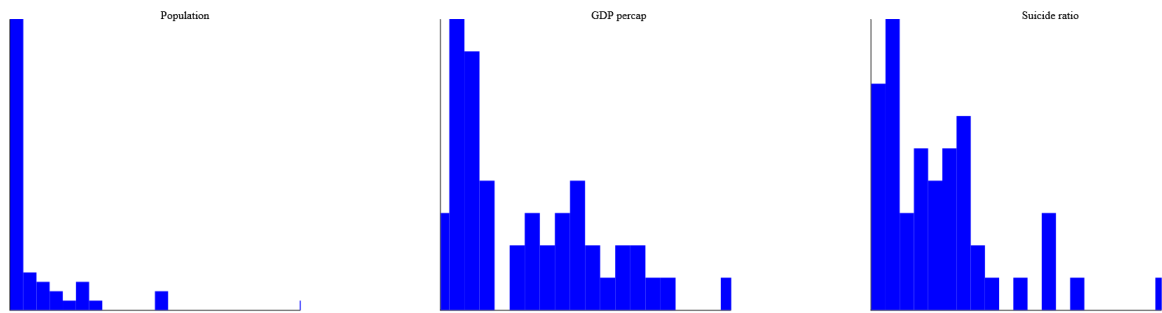


Figure 5.1: Histogram