

UN World Happiness Index Visualization User Guide

1. Getting Started

The application can be accessed through this link: <http://34.218.239.243/HappinessMatters/>

Alternatively, the user may access the application via localhost after downloading the zip file from the wiki under application section and running it through Netbeans.

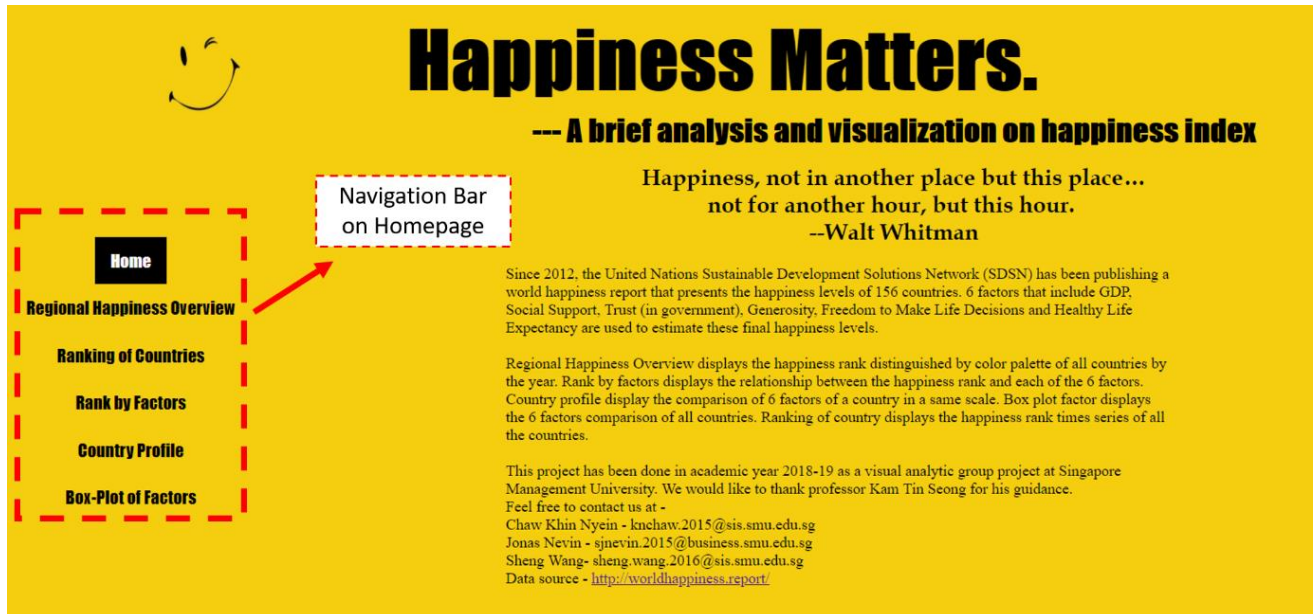


Figure 1: Homepage of web application

Our data visualization web application comprises of a home page and 5 other different sections that feature the different visualizations. The navigation bar of the application, as per figure 1, is as follows: Home, Regional Happiness Overview (choropleth map), Ranking of Countries (line-graph), Rank by Factors (bar chart), Country Profile (radar chart) and Box-Plot of Factors (boxplot).

2. Visualization Guide

2.1. "Home"

The homepage (fig.1) features a brief introduction of the project as well as particulars of all 3 members of the group.

2.2. “Regional Happiness Overview”

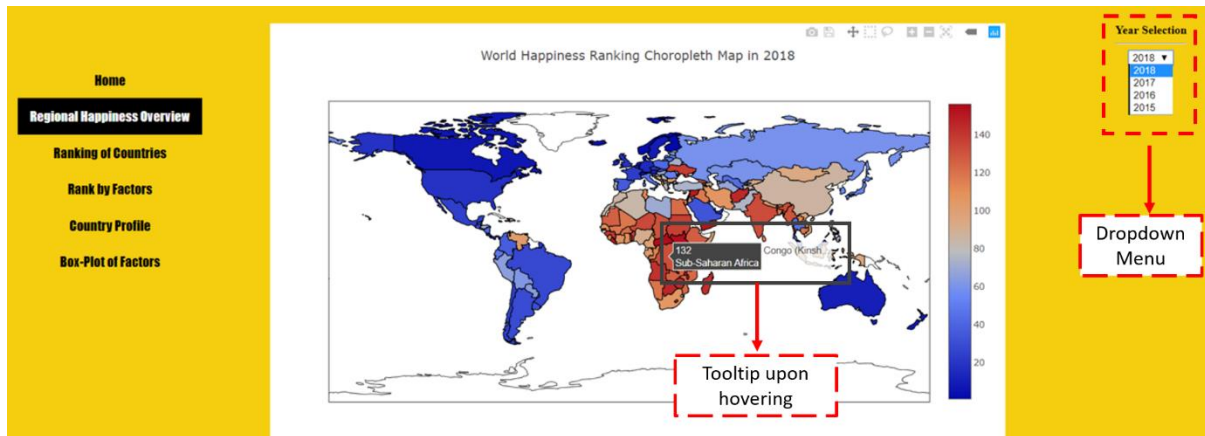


Figure 2: Choropleth Map in web application

To begin, the user can start by clicking on the “Regional Happiness Overview” tab where the user will be redirected to the choropleth map. The user can get a general overview of the happiness rankings where blue colours show countries that are most “happier” while red represents least “happier” countries as per UN’s standard. The user would be able to select the specific year of interest through the drop-down menu on the right and upon hovering over the different regions of the map, a tooltip would pop out displaying the happiness rank, the specific region the country that is belonged to and the name of the country.

2.3. Ranking of Countries



Figure 3: Line graph visualization

To provide more insights on the general happiness ranking overview, the ranking of countries tab would allow the user to compare the happiness ranking trends of different countries from 2015 to 2018. Select the countries of interest in the drop-down menu on the right and their change in overall rankings would appear in the line graph visualization.

Furthermore, the Y-axis has been flipped such that the higher ranks (the lower numbers) are towards the top and vice versa. This is because the higher ranks (the lower numbers) denote more happier countries and flipping the y-axis would coincide with usual interpretation of line charts where higher means more magnitude or better and the user can see the drop in ranking at first glance.

2.4. Rank by Factors

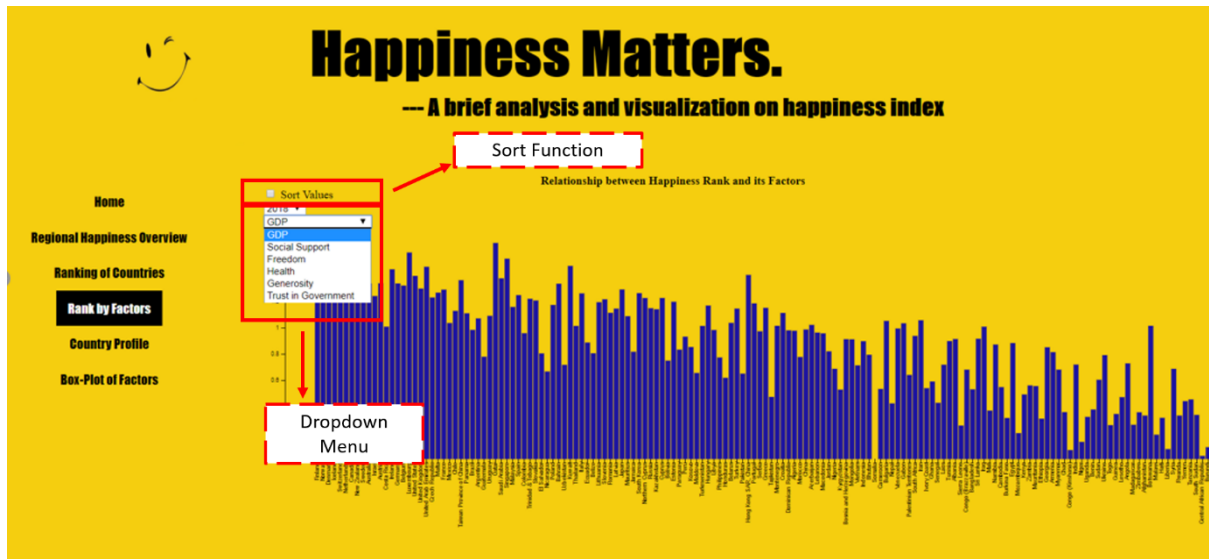


Figure 4: Bar Chart Visualization

Next, the “Rank by Factors” tab would present the bar chart where the user can identify how the values of the 6 factors vary in relation to the happiness scores. Initially, the countries in the x-axis of the bar-chart would be sorted by the overall happiness ranking. However, upon clicking the ‘sort values’ checkbox on the top left (fig.3), the bars would move and be sorted by the selected factor values that has been chosen. The user can toggle between different factors of interest through the drop-down menu and between different years through another drop-down menu.

Similar to the choropleth map, this visualization allow the user to toggle between countries and a tooltip which shows information of the bar (the country) that is being hovered over. Specifically, the country name, its' happiness rank for the year selected and the score for the selected factor will be displayed.

2.5. Country Profile

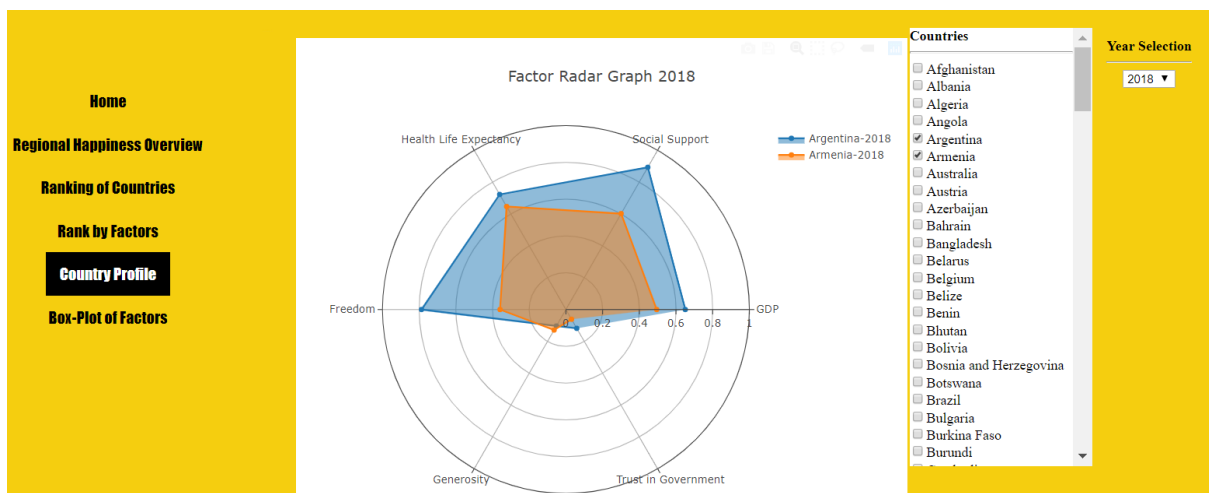


Figure 5: Radar Chart

In the fourth tab titled “Country profile”, the user can compare happiness factors between countries to observe, in which of the 6 factors does one country perform better over the other. Upon choosing countries, the polygons would appear on the chart and by comparing the sizes of them the user can see which country performs better than the other specific to the factors. As per the visualization (fig.4), the user can select the interested countries to compare through the drop-down menu on the left. The countries have been sorted in alphabetical order to make it convenient to find the different countries.

Also, the year selection filter to the right allows the user to not only compare countries within the same years but also between different years. For example, the user could click “Singapore” in 2018 and then, change the year to “2017” and click Singapore again to see exactly in which factors Singapore incur considerable changes.

2.6. Box-Plot of Factors

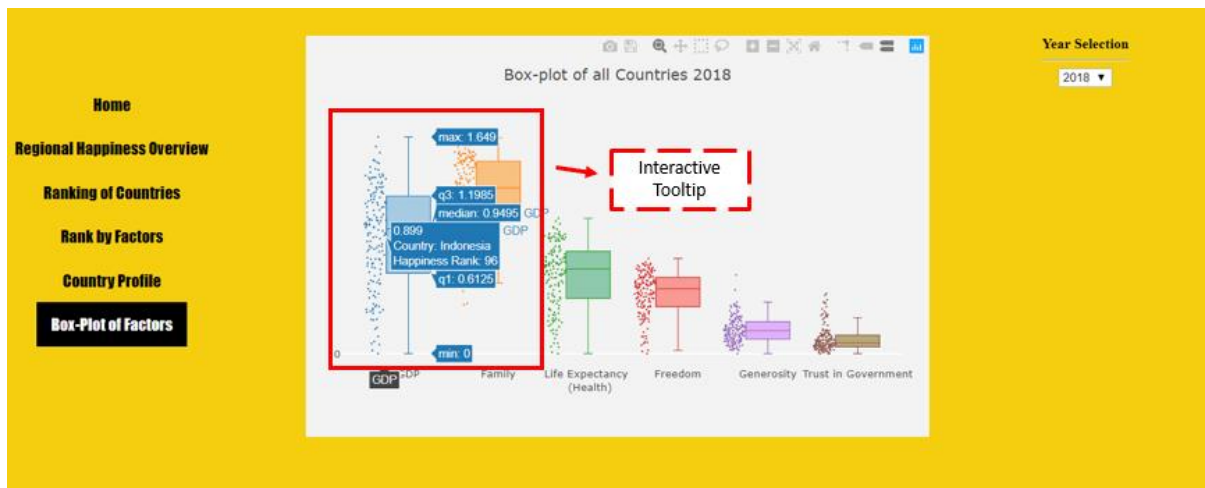


Figure 6: Boxplot visualization

Lastly, the boxplot visualization shows the distribution for the different factors that make up the overall happiness scores. The factors values of the countries are presented by the scatterplot beside respective individual boxplot. By hovering over each dot, the information of the country will appear. Moreover, as the user hover over the boxplot, specific five statistic summary would be featured in different tooltips which include the min, avg and max of the factor in the year.