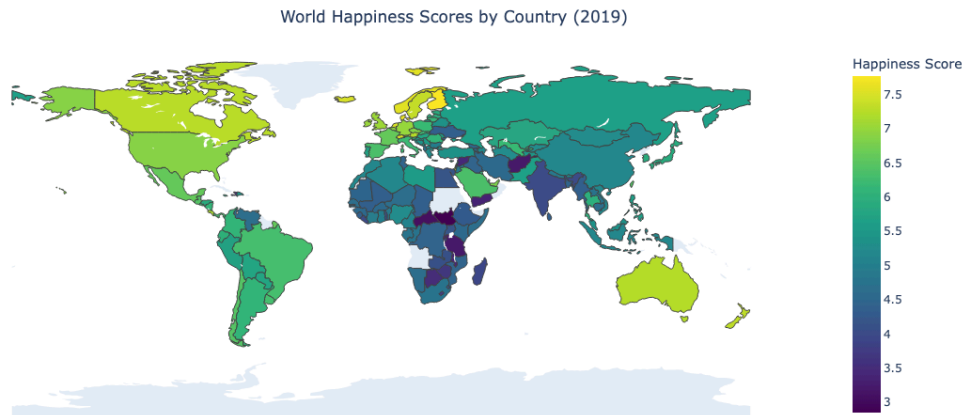


World Happiness Report (2019)

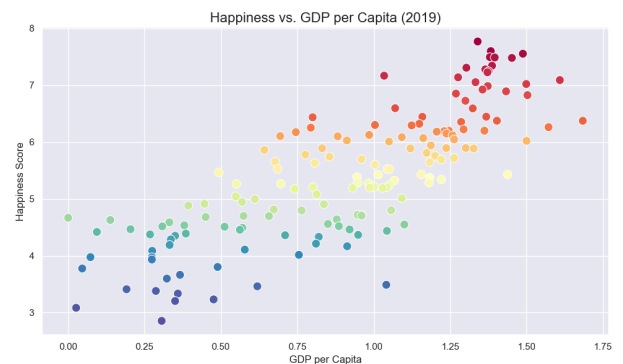
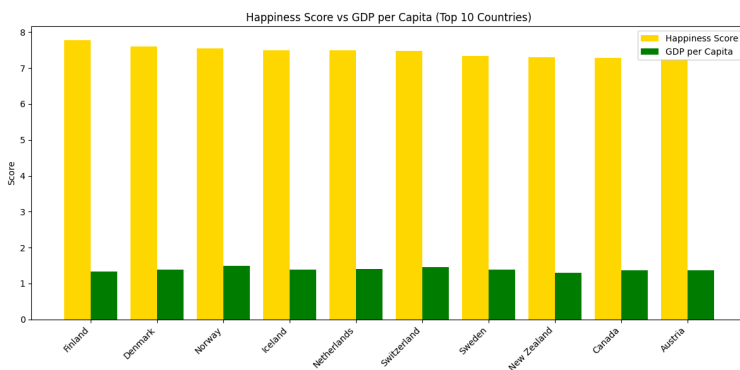
visualized by Rhea Parikh



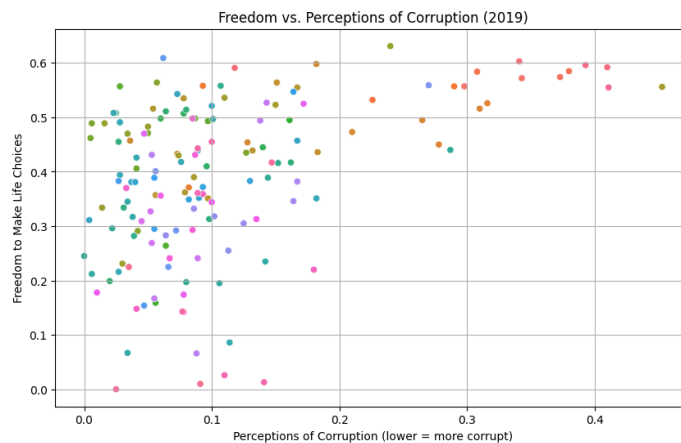
Introduction: The [World Happiness Report](#), first published in 2012, uses data from the Gallup World Poll to report findings on the state of global happiness. Happiness scores per country are assigned based on survey answers to main life evaluation questions. Following the happiness scores are six factors: economic production, social support, life expectancy, freedom, absence of corruption, and generosity. Each one of these factors is used to estimate correlation to happiness. A baseline country, known as Dystopia, uses the world's lowest average scores for each of the six factors, and countries are compared favorably to Dystopia, as no country can perform worse than Dystopia. This data analysis looks into the most recently available dataset (2019) and compares the six factors against each other to find correlation and identify trends.

The above figure uses a gradient color scheme to identify the countries with the highest happiness scores versus the countries with the lowest happiness scores. Countries not highlighted within the color scheme were not provided in the dataset. From this figure, we can see that countries in North America and western Europe, along with Australia and New Zealand, have the highest overall happiness scores.

Countries in Africa and Asia have lower happiness scores.



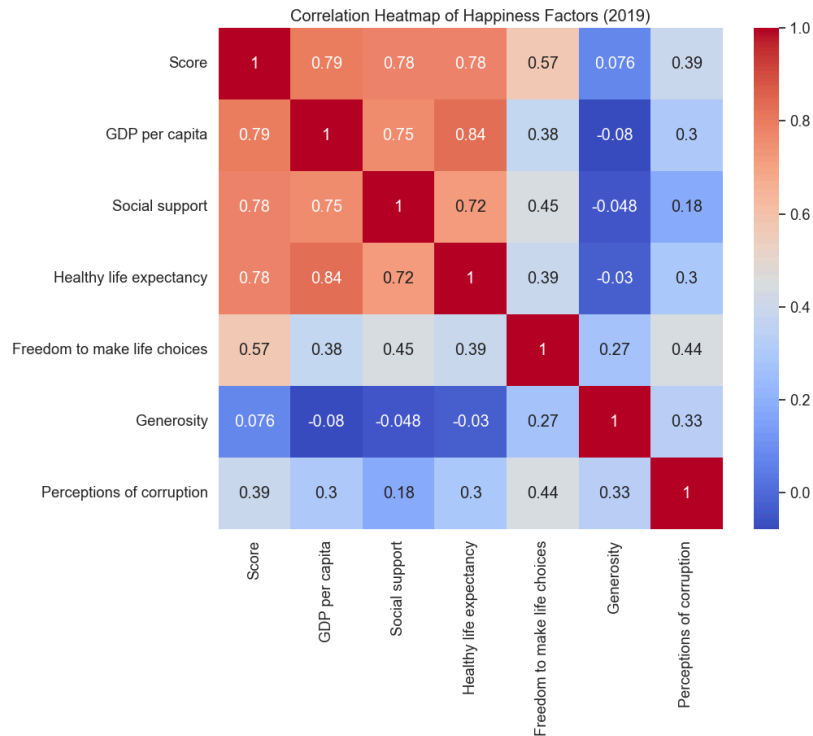
The above figures were both created to visualize countries' happiness scores versus their economic prosperity. The bar chart, submitted as my midterm report, looks at the top 10 countries versus their GDP to try and find a trend. This visualization was not super effective, and I had a hard time reading it to determine the trend. I decided to then create a scatter plot between the same two factors, this time including all countries within the report, and found that countries with lower GDPs tended to also have lower happiness scores, and countries with higher GDPs tended to also have higher happiness scores.



The above figure takes two of the factors of happiness, rather than the happiness score itself, and compares them against each other. There is less of a correlation here than in the previous figures, with more corrupt countries ranging greatly in terms of freedom to make life choices. Countries that were noticeably less corrupt, however, were only represented with a perception of high freedom.



The above figure plots a country's happiness score against its perceived social support. In addition, plot points are color coded based on perceived freedom and sized based on life expectancy. Besides some outliers, the majority of the happiest countries had higher life expectancy, more freedom to make life choices, and high social support. Countries with lower happiness scores tended to have lower life expectancy, less freedom to make life choices, and low social support. This figure is also hoverable, so country names and statistics are available when a plot point is hovered on.



The above figure culminates the data as a gradient heatmap of the six factors surrounding happiness. Scores with low correlation, such as generosity and GDP per capita, are shown in shades of blue, whereas scores with high correlation, such as healthy life expectancy and GDP per capita, are shown in shades of red.

Data and Method: I used the World Happiness Report dataset from Kaggle to make my visualizations. I used libraries such as Pandas to clean and transform the data, and libraries such as Seaborn, Matplotlib, and Plotly to create static and interactive charts, plots, and maps.

Significance: The data and figures are significant because these factors can be used to determine specific changes that need to be made in a country to better serve its constituents. While all countries have better happiness scores than Dystopia, only a few select western European countries have a very high happiness score. World leaders can use this data to make improvements in any of the needed six contributing factors. By creating visualizations for important correlations, this project can help inform important policy decisions.

GitHub Repository: <https://github.com/RParikh1/infsci1520.git>