# Happiness Determinants and Scores Across the World

Principle Investigators: Grant Salzsiedler, Caden EspindaBanick, Vincent Manuel
Corresponding Author: gsalzsiedler@wisc.edu

## Introduction

This project uses data about the happiness of countries around the world and different factors that impact a countries happiness score. The goal of this project is to show what countries and regions of the world are the happiest and unhappiest, explore how global happiness has been trending over time, and to discover what factors are most important to a country's happiness.

We discovered that Finland was the happiest country in the world in 2022. There are many factors not explored in this project that contribute to a country's happiness, but some factors that we deemed to be most significant in affecting a countries happiness score were the country's GDP per capita, life expectancy, and how much freedom citizens felt they had.

## The Data

Since 2012 The Gallup World Poll has been conducting surveys in each country around the world, asking residents how happy they are on a scale of 1-10 and having them give scores for several contributing factors professionals assume to play a big part in a country being happy. The contributing factors we focused on in this project were GDP per capita, Life Expectancy, Freedom, Generosity and Government Corruption. All of these factors were given a rating compiled by the Gallup surveyors. Our data contained observations for each country around the world for the years 2015 through 2022.

Getting the data to a point where analysis was possible was one of the biggest struggles of this project. Originally, each of the years that data was collected were in separate files and had much different variable names and formats. The data cleaning consisted of dropping unwanted columns, changing variables to consistent names and formats, and finally joining all the years into a complete collection.

## Analysis

### 1. Happiest and Unhappiest Countries in the World

First, we wanted to see what the happiest and unhappiest countries in the world are. To display this information, we created two separate bar graphs. Figure 1 shows the top ten happiest countries in the world and Figure two shows the top ten unhappiest countries in the world. Both Figure 1 and Figure 2 are using data from 2022 as this is the most recent data we have.

**Figure 1**

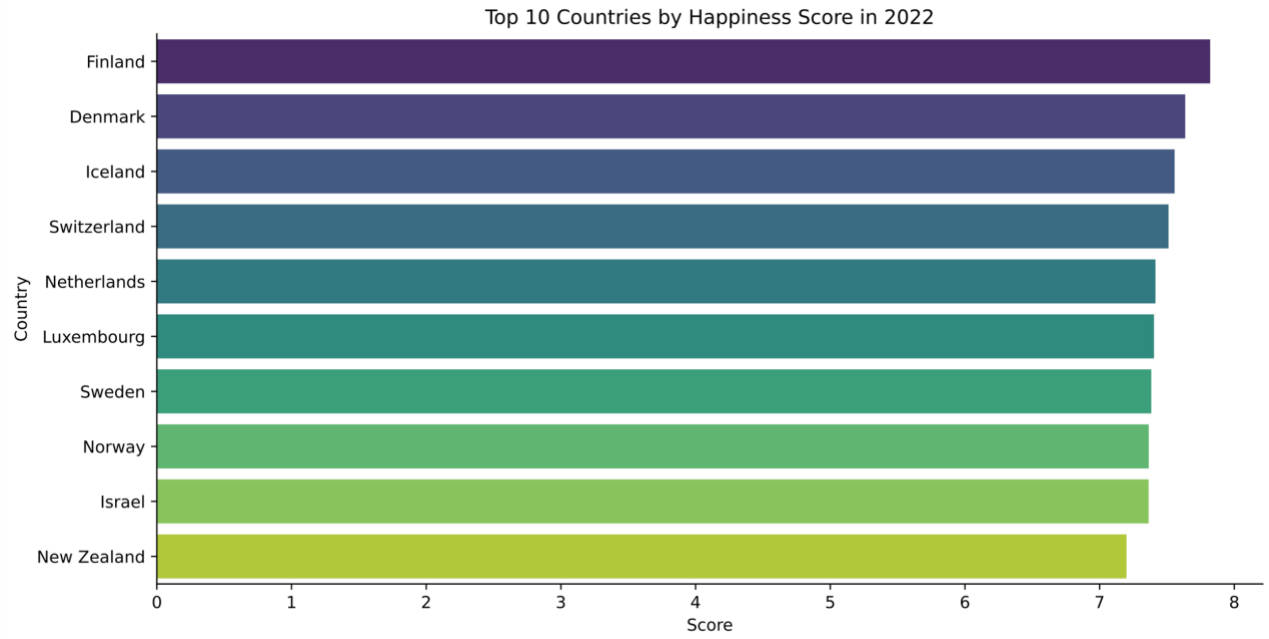
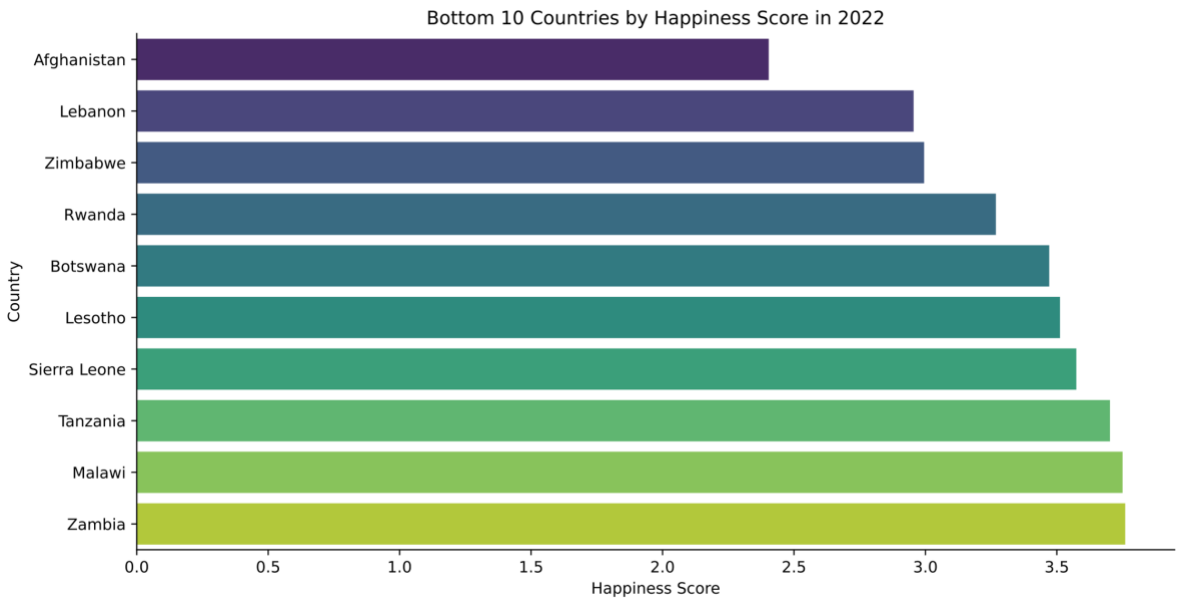


**Figure 2**




From these two figures we can see that there is a wide range in the overall happiness of a country. The happiest countries have a happiness score between a 7 and an 8 and the unhappiest countries have happiness scores that are much lower, ranging between a 2.5 and a 4. Figure 1 particularly surprised us in the fact that the United States is not one of the top 10 happiest countries in the world. In fact, eight of the top ten happiest countries in the world are in Europe.

## 2. Trend of happiness over time

Having identified some of the worlds happiest and unhappiest countries in 2022, we shifted our focus to understanding how happiness scores have changed over time.

**Figure 3**

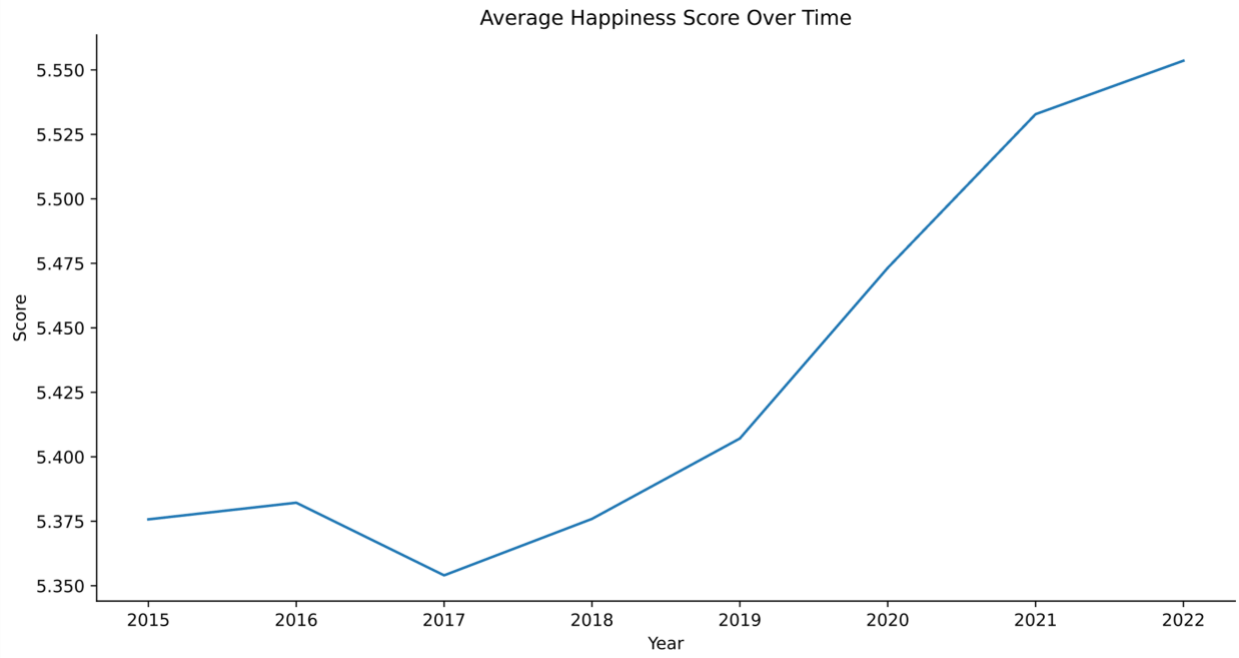
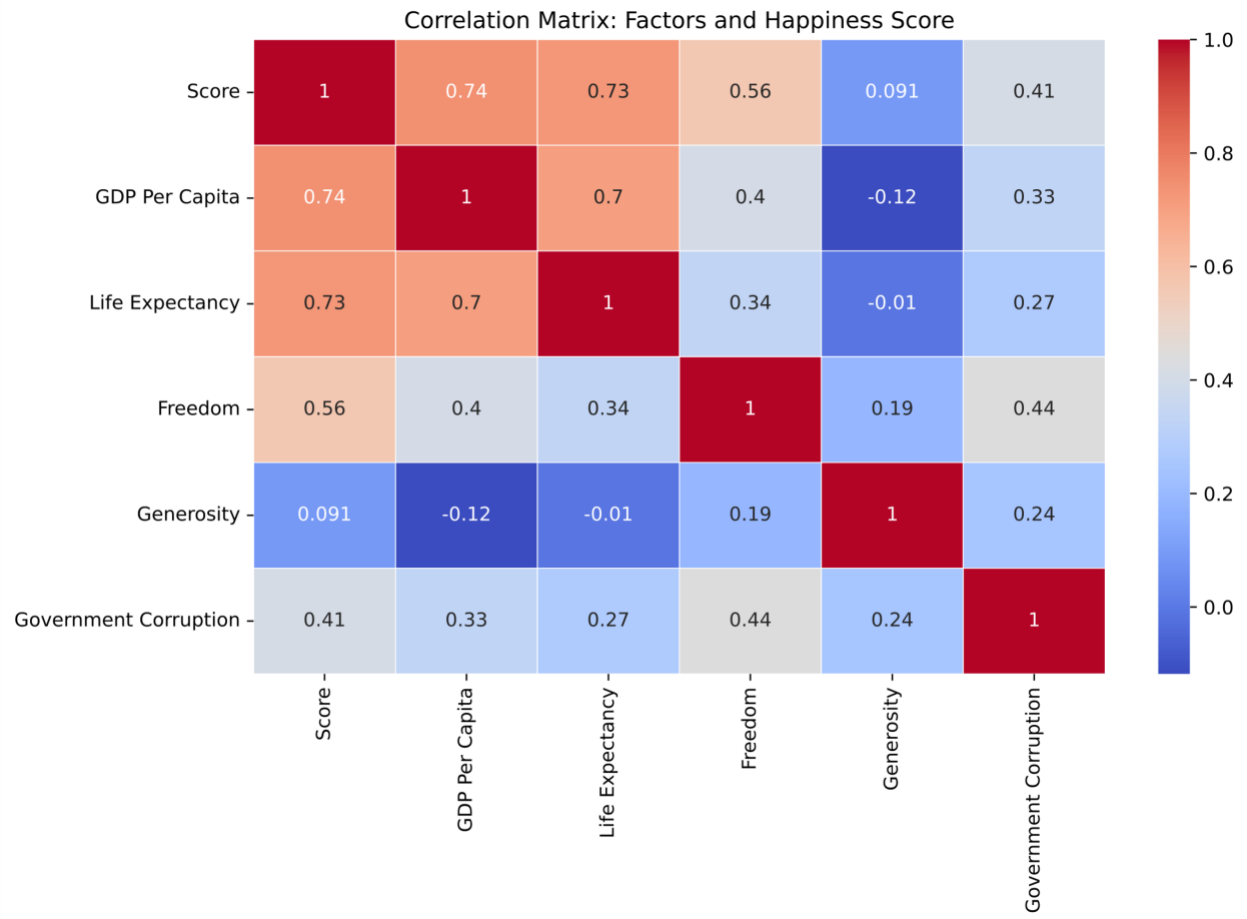



Figure 3 shows us the average happiness scores around the world from 2015-2022. What stood out to us in this figure was how average happiness scores have been increasing ever since 2017. It surprised us that even through tough times such as the Covid-19 pandemic, global happiness continued to rise. One possible explanation for this is just as time goes on, more nations have the resources to help struggling countries and developing countries continue to develop and move towards living a better life.

### 3. Most Important Factors Affecting Happiness Scores

**Figure 4**

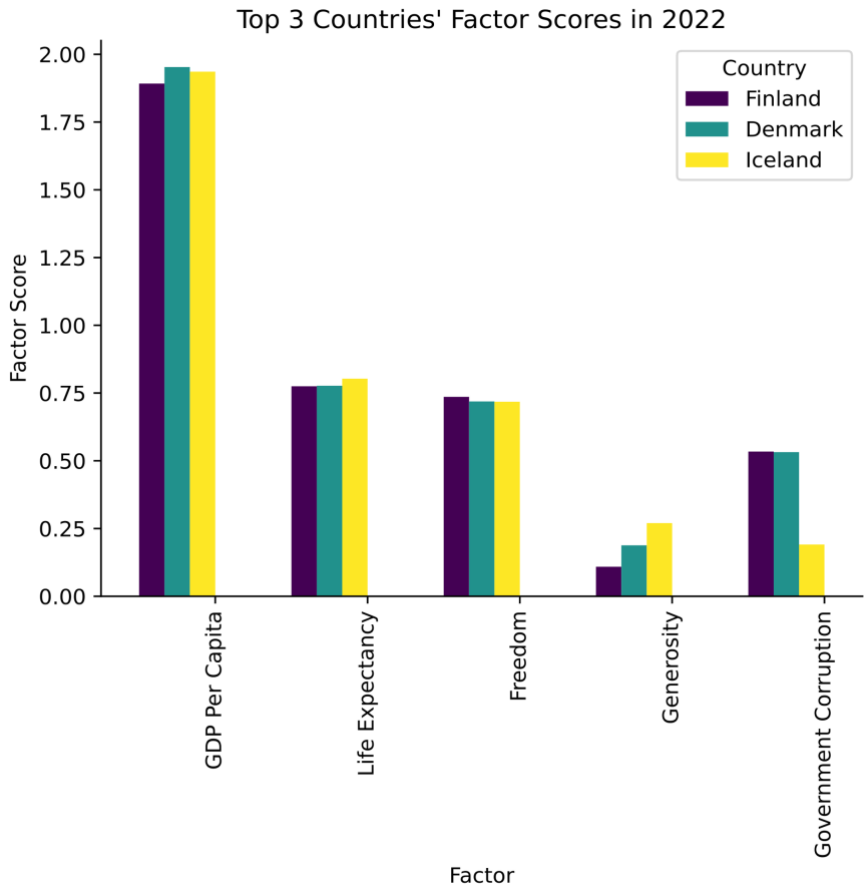



A big insight we were interested in visualizing is which contributing factors had the highest correlation with the happiness score, showcasing which of these factors were the most important. We decided to create a heatmap using our combined data showcasing the correlations between all our variables. Although Figure 4 displays the correlation between all the factors that influence happiness scores, the left most column was most valuable to us in answering the question of which factors may influence happiness scores the most. We concluded that the factors in order of highest correlation were GDP per capita, Life Expectancy, Freedom, Government Corruption and Generosity.

**4. How Do the Happiest and Unhappiest Countries Compare Factor-wise?**

Now that we understand how each of the factors correlate with happiness scores, we were interested in seeing how the happiest and unhappiest countries compared in factor values.

**Figure 5**

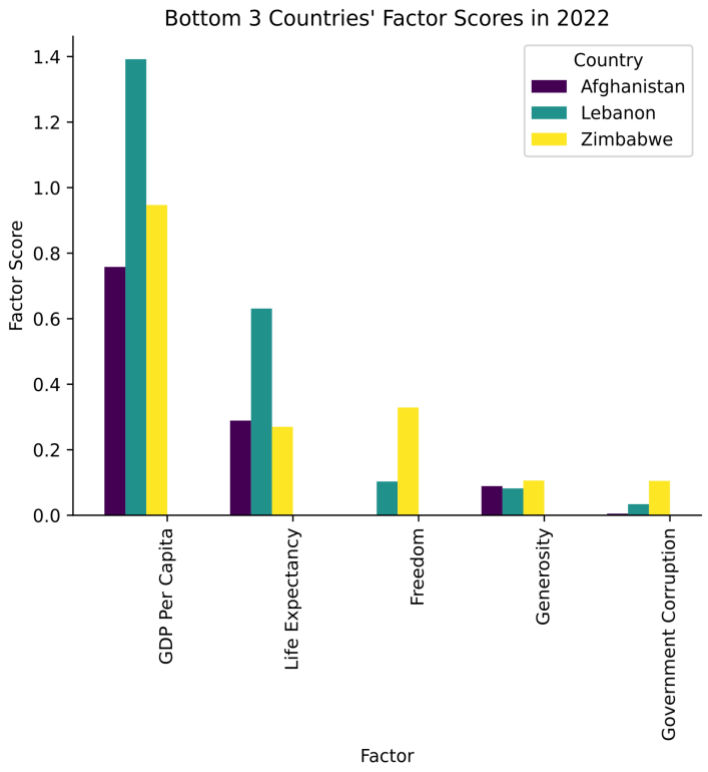



The factor scores were pretty similar for the most part between the happiest countries. This is kind of what we expected as it would make sense that the countries at the top are all doing similar things correctly. The two columns that did have some variety and were interesting to think about were generosity and government corruption. With government corruption we hypothesized that maybe the reason for Iceland being lower was because of their low population

and common ideals, it could be possible that this makes it easier for corruption to happen. It doesn't seem to effect their happiness very much at all.

Now to look at how the three unhappiest countries compare.

**Figure 6**

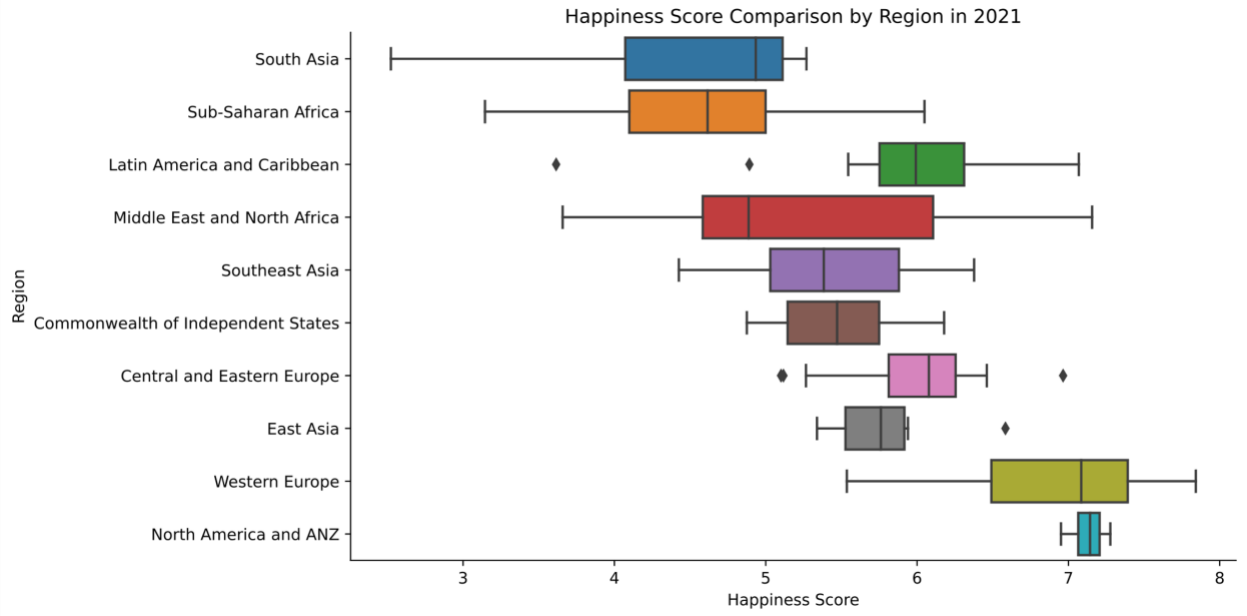



The first insight we found interesting was Lebanon's GDP score, we expected most of these countries at the bottom to have a similar GDP but it looks like Lebanon has the other two beat by a ways, Lebanon also leads the three in life expectancy. Afghanistan scored very low basically zero on Freedom and almost the same for Government Corruption so it was not very surprising to see them make the bottom three.

**5. What Do the Ranges of Happiness Look Like by Region of the World?**

The last idea we wanted to explore with our data was what do the ranges of happiness look like when we sort our countries by region of the world.

Figure 7

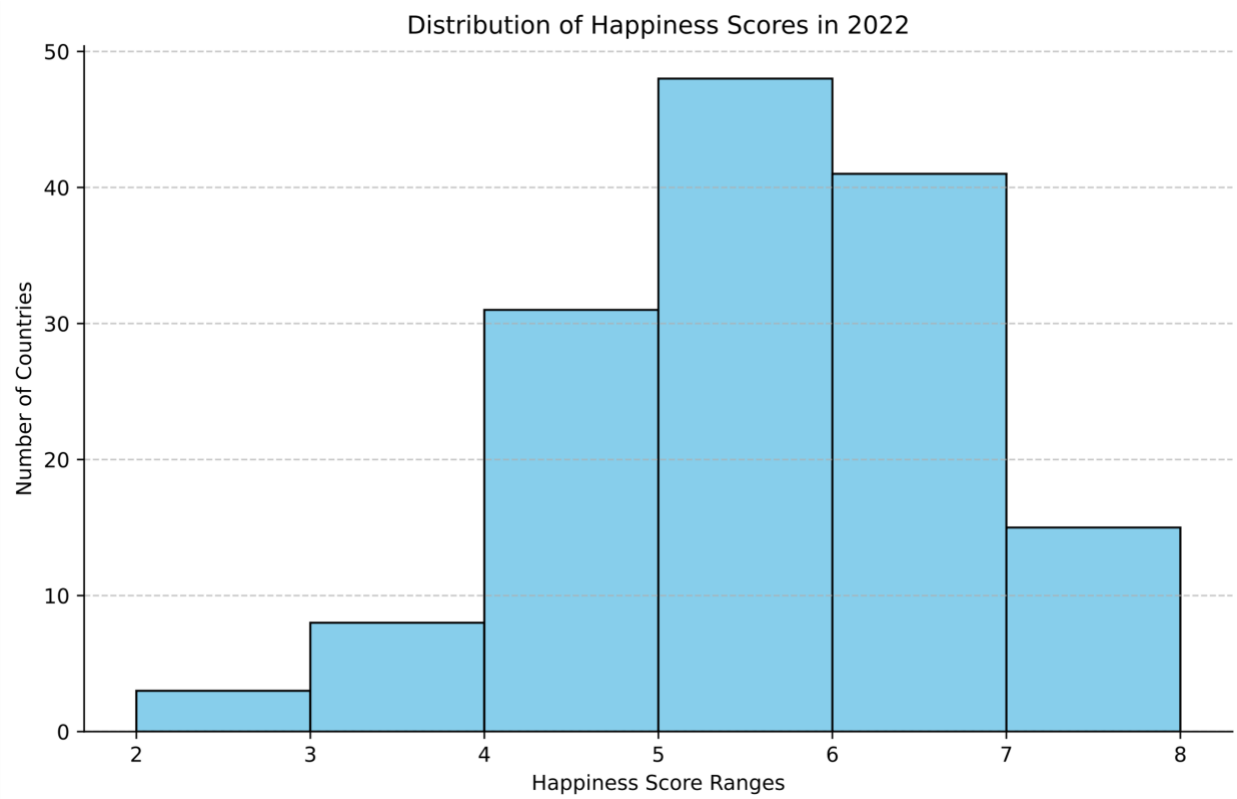



North America and Western Europe were the two regions that were the happiest on average, although Western Europe had a wider range than North America did. As we move into the Asian and African regions the average happiness begins to decline. Looking at these ranges was very interesting to see how the regions differ and gives us another insight into the bigger picture of how the world stands. The one box plot region that was very interesting to us was Latin American and the Caribbean, this was the only region who had several large outliers pulling their averages down. They must have more variability in quality of life than other regions of the world.

6. Distribution bar plot

When trying to get a grasp on how the general distribution looks of how many countries fall in what ranges of scores, we decided to make a histogram. We only wanted each country to show up once in this plot so we used the most recent year of data 2022.

Figure 8




All of the happiness scores fell in between the range of 2 and 8 so we made buckets for each 1 unit range between 2 and 8. As we can see the 4-5, 5-6 and 7-8 buckets hold most of the countries in the world. When trying to gain insight from this plot we think it is helpful to compare this distribution to where the U.S. sits. We can start to understand how much of the world is happier than us, and see how much of the world we are lucky enough to be ahead of. The US received a happiness score of 6.9 in 2022, we think it is important to look at how many countries out there are much worse off than us in terms of happiness, we have it pretty good.

## Conclusion

Overall we learned a lot about what goes into making a country happy and also gained a better grasp on how the rest of the world around us lives. We are very lucky to live in the nation that we do and it is important for people to realize that. We also learned that there might be a lot of countries out there doing it better than we are, which is an ideology that does not get brought up very often in our upbringing. While trying our best to create a captivating data analysis project, we learned a lot more about what goes into the finished product of a project. A lot of times the data you are given or select is not in the best form for you to work with, this is something we've learned about all year and were able to apply to this. It was also very rewarding to put our graphical excellence skills to the test and see how it helps grow the narrative of a project.