W200 Project 2 - Proposal

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Primary Dataset: World Happiness Report <https://www.kaggle.com/unsdsn/world-happiness>

Questions to Guide Analysis:

1. Analysis of Happiness Scores around the world and how they've changed/remained the same over the past three years
   a. **Visualization 1:** Heat Map of World Happiness Score (World Map) in 2015
   b. **Visualization 2:** Heat Map of World Happiness Score (World Map) in 2016
   c. **Visualization 3:** Heat Map of World Happiness Score (World Map) in 2017
   d. **Visualization 4:** GLOBAL Vertical Bar Graph - top 20 countries by happiness score in 2015 compared to Vertical Bar Graph - top 20 countries by Happiness Score in 2017 (side by side)
   e. **Visualization 5:** GLOBAL Vertical Bar Graph - difference in happiness scores among top 20 countries

2. Analysis of Happiness Scores by region and how they've changed/remained the same over the past three years
   a. **Visualization 6:** NORTH AMERICA & EUROPE Vertical Bar Graph - top 10 countries by happiness score in 2015 compared to Vertical Bar Graph - top 10 countries by Happiness Score in 2017 (side by side)
   b. **Visualization 7:** SOUTH AMERICA Vertical Bar Graph - top 10 countries by happiness score in 2015 compared to Vertical Bar Graph - top 10 countries by Happiness Score in 2017 (side by side)
   c. **Visualization 8:** AFRICA Vertical Bar Graph - top 10 countries by happiness score in 2015 compared to Vertical Bar Graph - top 10 countries by Happiness Score in 2017 (side by side)
   d. **Visualization 9:** MIDDLE EAST Vertical Bar Graph - top 10 countries by happiness score in 2015 compared to Vertical Bar Graph - top 10 countries by Happiness Score in 2017 (side by side)
   e. **Visualization 10:** SOUTH, CENTRAL, & EAST ASIA Vertical Bar Graph - top 10 countries by happiness score in 2015 compared to Vertical Bar Graph - top 10 countries by Happiness Score in 2017 (side by side)

3. What is the correlation between each factor and Happiness Score?
   a. **Visualization 11:** Correlation Co-efficient Heatmap for each Factor (Use all three years of data, all three years, sub in a column)
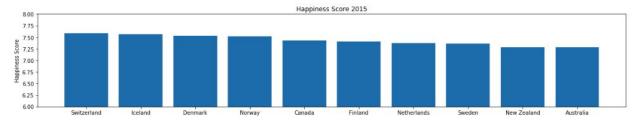
4. How does GDP per Capita contribute to Happiness for different countries around the world? (ALL YEARS)
    a. **Visualization 12:** Regression & Scatter Plot globally
    b. **Visualization 13:** Regression & Scatter Plot for RICH COUNTRIES, MIDDLE-INCOME COUNTRIES, & POOR COUNTRIES

5. How does Health (Life Expectancy) contribute to Happiness for different countries around the world?
    a. **Visualization 14:** Regression & Scatter Plot globally
    b. **Visualization 15:** Regression & Scatter Plot for RICH COUNTRIES, MIDDLE-INCOME COUNTRIES, & POOR COUNTRIES

6. How does Freedom contribute to Happiness for different countries around the world?
    a. **Visualization 16:** Regression & Scatter Plot globally
    b. **Visualization 17:** Regression & Scatter Plot for RICH COUNTRIES, MIDDLE-INCOME COUNTRIES, & POOR COUNTRIES

7. How does Trust in Government contribute to Happiness for different countries around the world?
    a. **Visualization 18:** Regression & Scatter Plot globally
    b. **Visualization 19:** Regression & Scatter Plot for RICH COUNTRIES, MIDDLE-INCOME COUNTRIES, & POOR COUNTRIES

8. How does Generosity contribute to Happiness for different countries around the world?
    a. **Visualization 20:** Regression & Scatter Plot globally
    b. **Visualization 21:** Regression & Scatter Plot for RICH COUNTRIES, MIDDLE-INCOME COUNTRIES, & POOR COUNTRIES

9. How does Dystopia Residual contribute to Happiness for different countries around the world?
    a. **Visualization 22:** Regression & Scatter Plot globally
    b. **Visualization 23:** Regression & Scatter Plot for RICH COUNTRIES, MIDDLE-INCOME COUNTRIES, & POOR COUNTRIES

10. Conclusion: Key Take-Aways

Initial Outputs/Figures:

1. Initial view of the dataset

Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	Trust (Government Corruption)	Generosity	Dystopia Residual
Switzerland	Western Europe	1	7.587	0.034	1.397	1.350	0.941	0.666	0.420	0.297	2.517
Iceland	Western Europe	2	7.561	0.049	1.302	1.402	0.948	0.629	0.141	0.436	2.702
Denmark	Western Europe	3	7.527	0.033	1.325	1.361	0.875	0.649	0.484	0.341	2.492
Norway	Western Europe	4	7.522	0.039	1.459	1.331	0.885	0.670	0.365	0.347	2.465
Canada	North America	5	7.427	0.036	1.326	1.323	0.906	0.633	0.330	0.458	2.452

2. Bar chart of top ten countries by happiness score in 2015

Supplemental Datasets:

1. .csv file that contains countries and their associated continents - this will allow us to perform the analysis on a continental basis by adding a new column that associates the appropriate continent for each country - https://drive.google.com/file/d/1py7r0cEMinQ8XMguNGbCxGrrz17WBICU/view?usp=sharing