HAPPINESS AND INCOME ANALYSIS

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Project Questions

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Taking a look at how the happiness of a country could affect the follow:

- Gross Domestic Product (GDP) Per Capita : Are happier countries more productive?
- Adjusted Net Income: Do happier countries have a higher net income?
- Gini Index: Is wealth more evenly distributed in happier countries?

Data Sources

Data Sources

- [World Happiness Report](#)
  - Created from the data received from the annual Gallup World Poll survey
  - Ranks the happiness of approximately 155 countries worldwide
  - The survey scores and ranks a country's happiness based on economic production, social support and other factors
  - Survey information is collected by the Sustainable Development Solutions Network
- [The World Bank DataBank - World Development Indicators](#)
  - Combination of data from household survey data obtained from government statistical agencies and World Bank country departments
  - Measures income inequality and other development indicators

Technologies Used

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- Python3
- Anaconda
- Jupyter Notebook
- Pandas

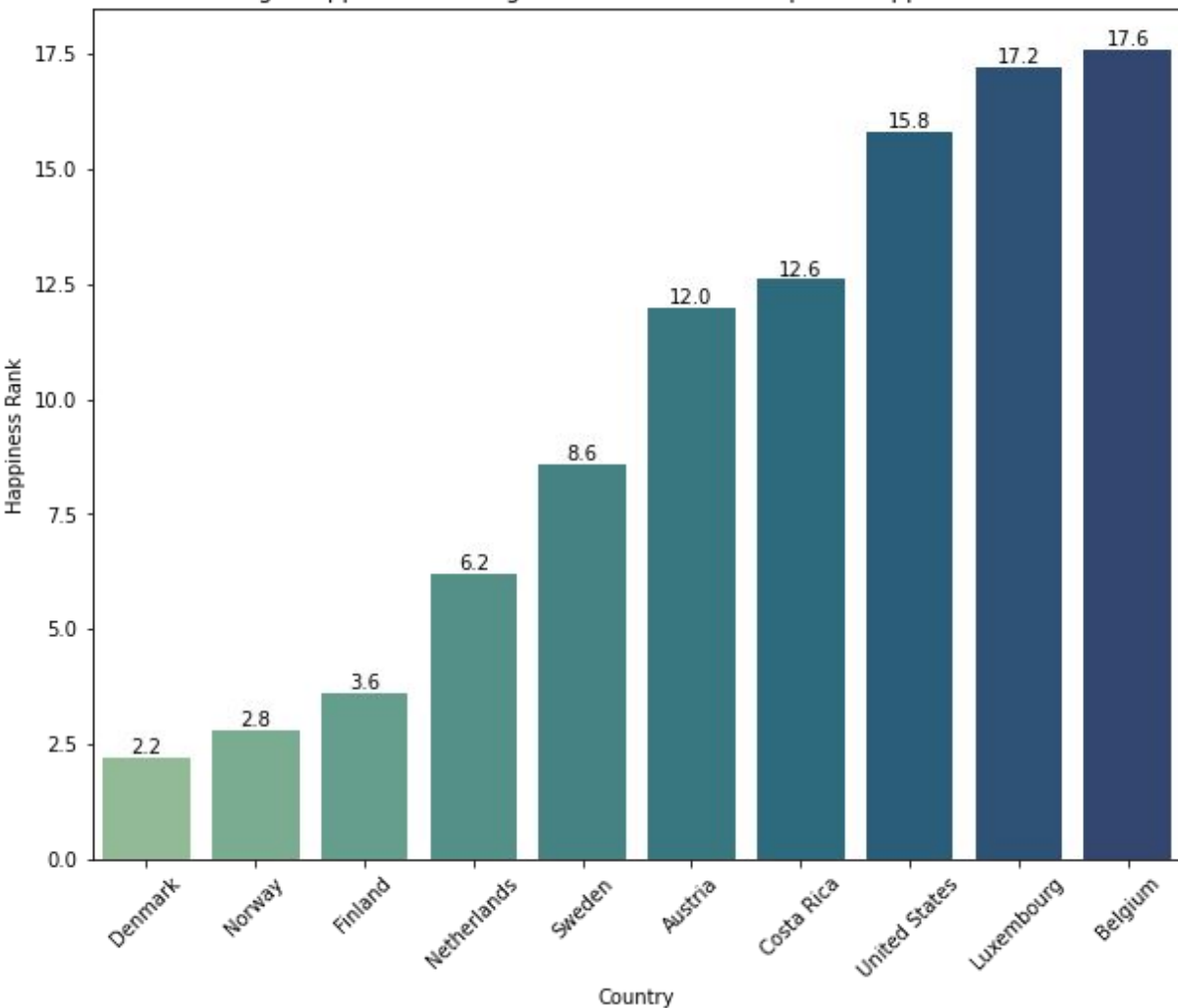- Numpy
- Seaborn
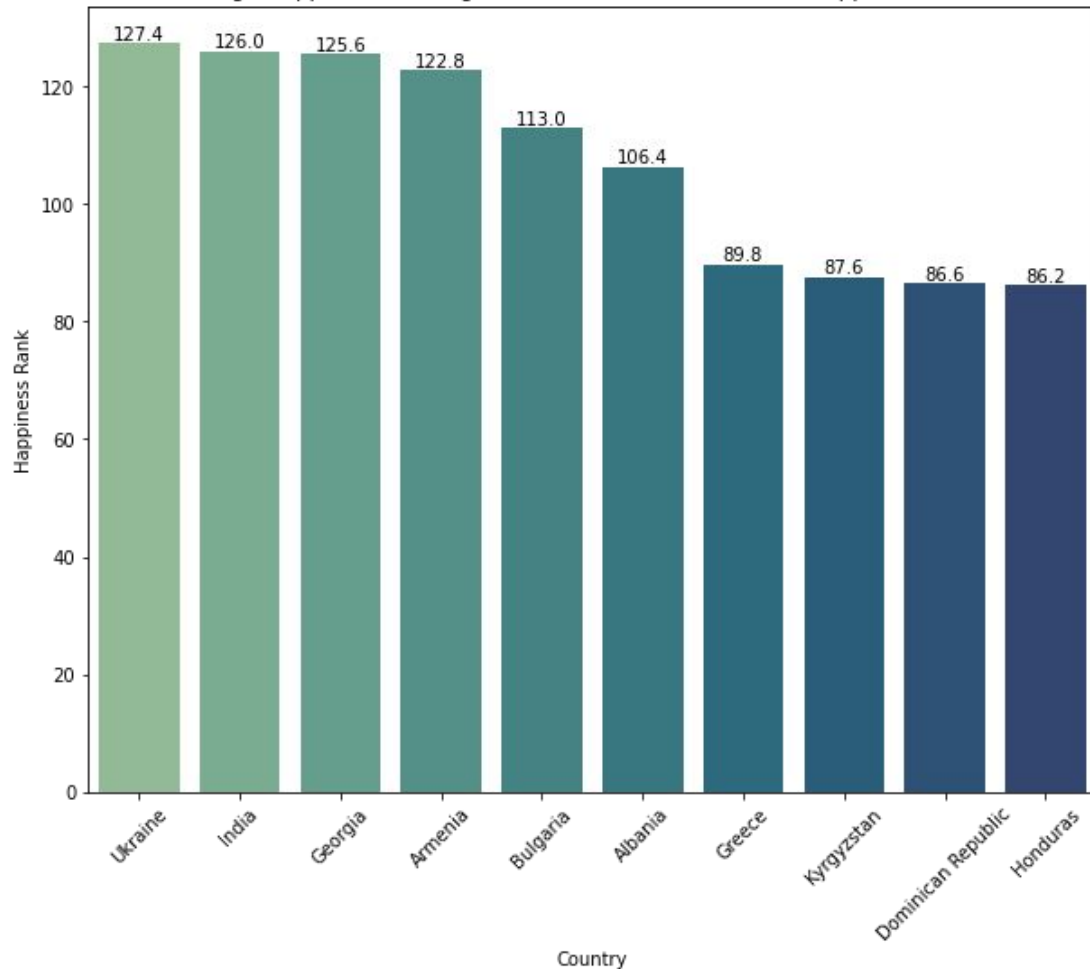- Matplotlib
- SciPy

Findings

Average Happiness Rankings From 2015 - 2019: Top Ten Happiest Countries

A ranking of 1 would make a country the happiest for the year.

Average Happiness Rankings From 2015 - 2019: Ten Least Happiest Countries

The larger a ranking for a country means the less happier that country is for the year.
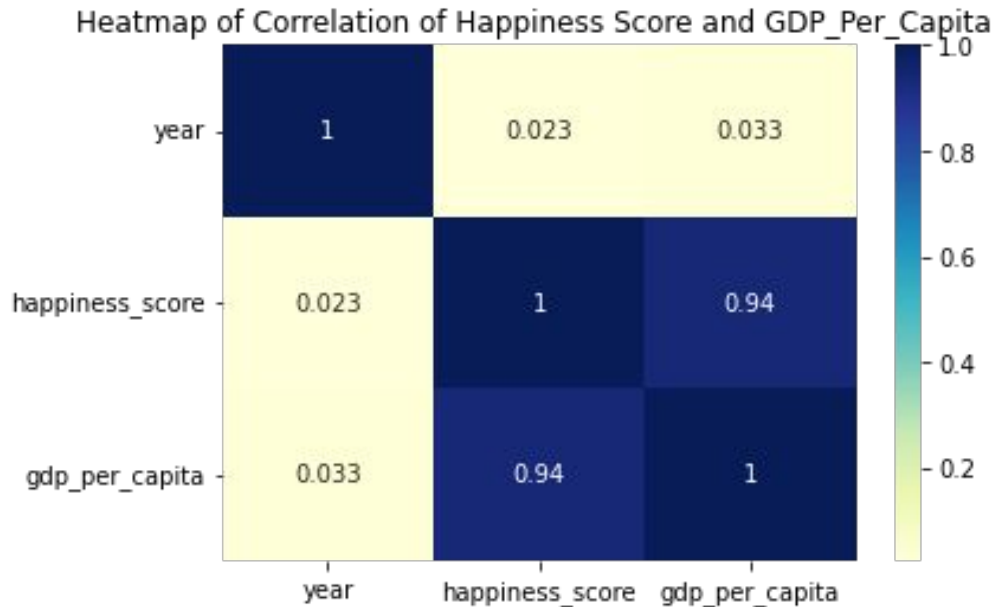
Analysis of Happiness Score and GDP

- The happiness rank of a country is derived from the happiness score
- A higher happiness score will get a country a higher happiness ranking
- Gross domestic product (GDP) per capita is a financial metric that breaks down a country's economic output per person and is calculated by dividing the GDP of a nation by its population
- Used top five happiest countries and the top five least happiest countries for analysis

Pairplot of Happiness Score and GDP Per Capita: Top Five Happiest Countries and Top Five Least Happiest Countries
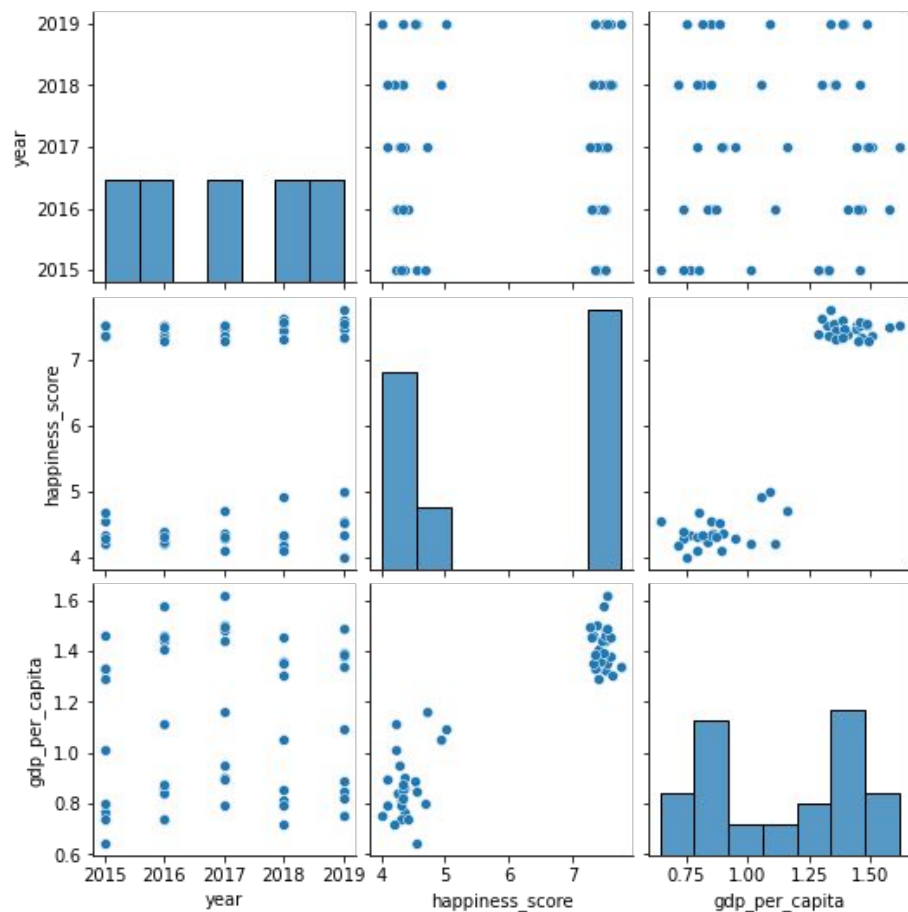
The plot for happiness score and GDP per capita does suggest that a positive correlation may exist.

Heatmap of Correlation of Happiness Score and GDP_Per_Capita

- The heatmap shows that is a strong positive correlation between happiness score and GDP per capita, which means as a country's score increases so does the GDP per capita
- To make sure this was statistically significant, the p-value was evaluated
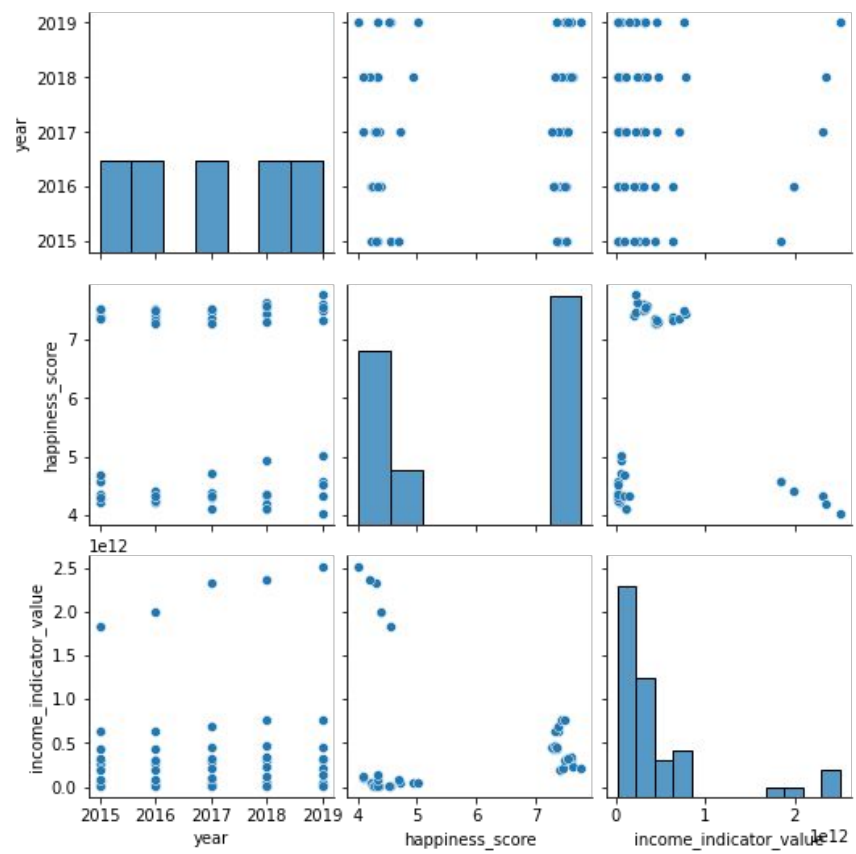- p-value under 0.05 threshold

p-value using just the sample countries	p-value of all countries in dataset
1.2891067746998141e-23	3.469234745118142e-144

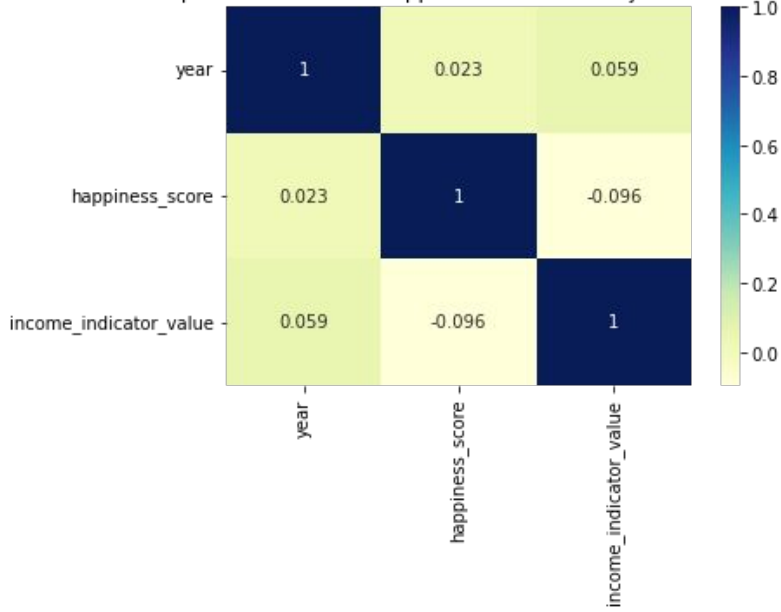# Analysis of Happiness Score and Adjusted Net National Income

- Adjusted net national income is Gross National Income minus consumption of fixed capital and natural resources depletion

Pairplot of Happiness Score and Adjusted Net National income: Top Five Happiest Countries and Top Five Least Happiest Countries

The plot for happiness score and adjusted net national income suggests that a correlation may not exist.

Heatmap of Correlation of Happiness Score and Adjusted Net Income

- The heatmap shows that is a weak correlation between happiness score and adjusted net income
- To make sure this was statistically significant, the p-value was evaluated
- p-value over 0.05 threshold

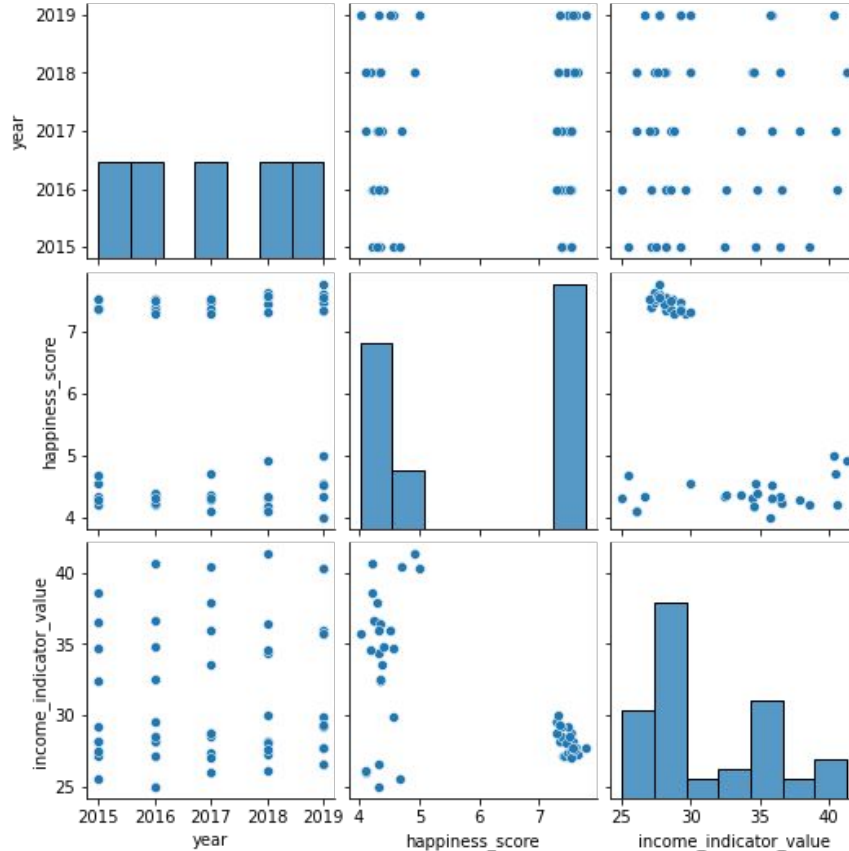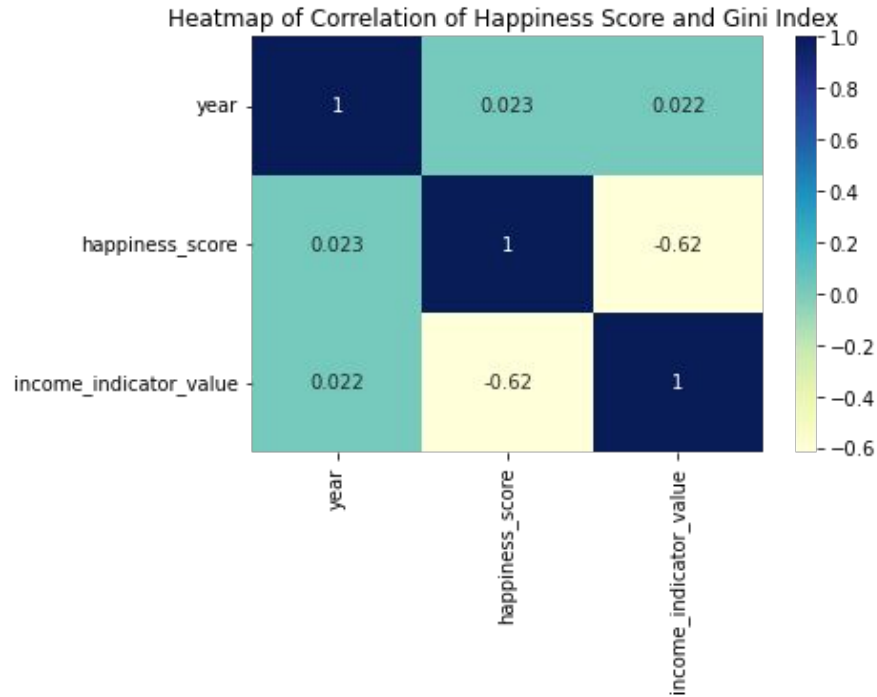| p-value using just the sample countries	p-value of all countries in dataset
0.5084252989231144	0.10673836919583546

Analysis of Happiness Score and Gini Index

- The Gini index measures the extent to which the distribution of income or consumption among individuals or households within an economy deviates from a perfectly equal distribution.
- A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Pairplot of Happiness Score and Gini Index: Top Five Happiest Countries and Top Five Least Happiest Countries

- The plot for happiness score and gini index suggests that a negative correlation may exist, but looking at the heatmap might help to make it clearer.
- A negative correlation would mean that as a countries' happiness score increased, the gini index would decrease (moving towards income equality)

Heatmap of Correlation of Happiness Score and Gini Index

- The heatmap shows that is a negative correlation between happiness score and gini index
- To make sure this was statistically significant, the p-value was evaluated
- p-value over 0.05 threshold

p-value using just the sample countries	p-value of all countries in dataset
0.5084252989231144	0.10673836919583546

Summary

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- Happier countries seem to have higher GDP per capita
- There does not seem to be a relationship between happiness and net income
- Even though there was a moderate inverse correlation between a countries' happiness and its Gini Index, statistical significance was not reached in this analysis
- Next Steps: It would be interesting to compare this data to data from 2020 and after to see if see if the Covid-19 pandemic would have any impact

Thank You For Viewing!