Title of the report: Analysis of the World Happiness Report: Exploring South Asia and Middle East Perspectives

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Overview of the World Happiness Report:

The world happiness report is a publication which contains articles and rankings of national happiness based on their lives and their quality-of-life factors. The quality of life varies from person to person and is influenced by many factors. Such as sufficient income, having a decent house, having access to education, having good balance between life and work, having good relationships. The report is used to understand the factors of happiness as well as making the lives of human beings improved.

The happiness report is done through different matrices such as log GDP per capita, freedom to make life choice, generosity, perceptions of corruption which provides understanding to happiness in the context of global challenges.

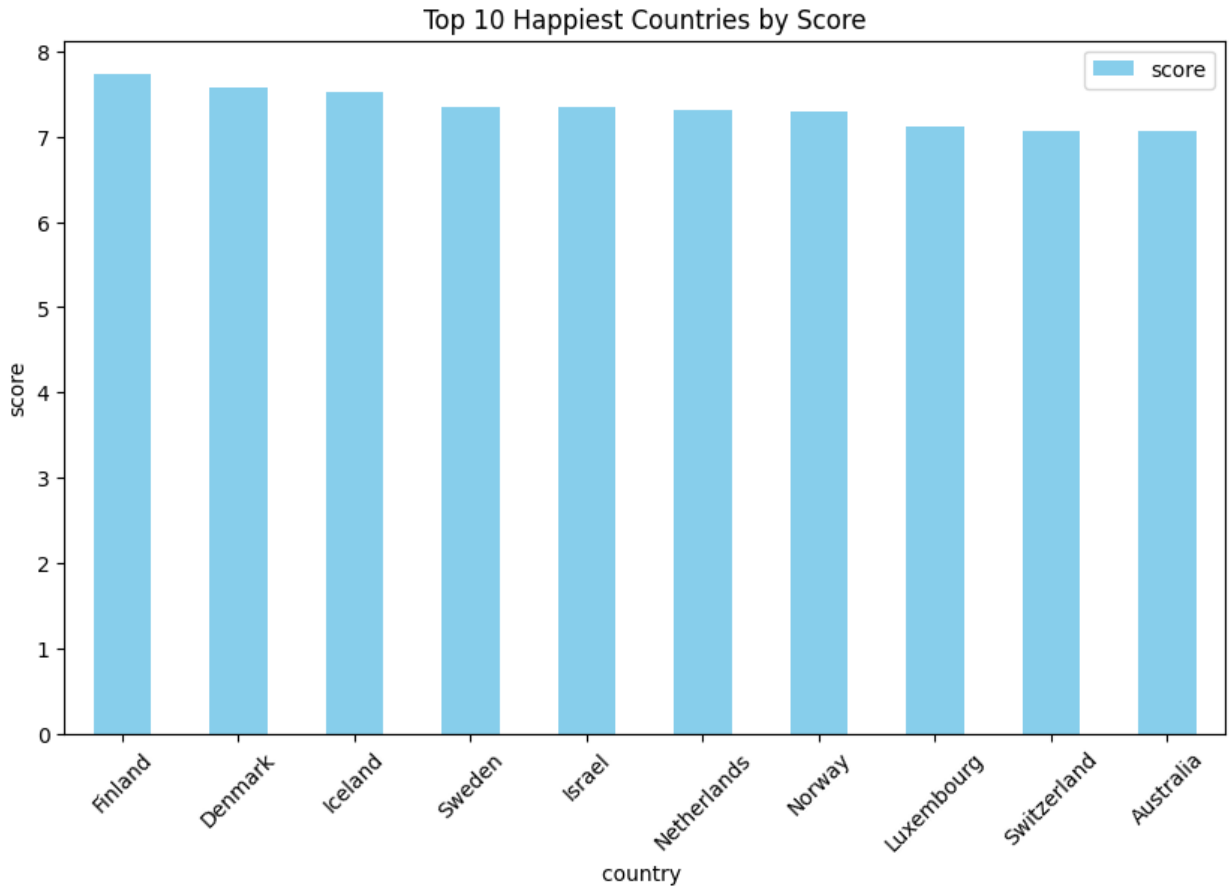
The objectives of the report are to review the state of happiness in the world as well as to explore the factors which contribute to human well-being and happiness, and to provide insights into the well-being of people around the world of 2024. We shall use various data from the world happiness report. The report finds the highest and lowest happiness regions/countries.by doing this data analysis we can find out how each country is doing and according to that we can find out what kind of improvements and ideas are needed in order to maintain happiness.

As this task had assigned us to create a report by doing the data analysis on south Asian countries and middle east countries and compare each other to it by using the various kinds of methods. Methods such as: bar charts scatter plots histograms.

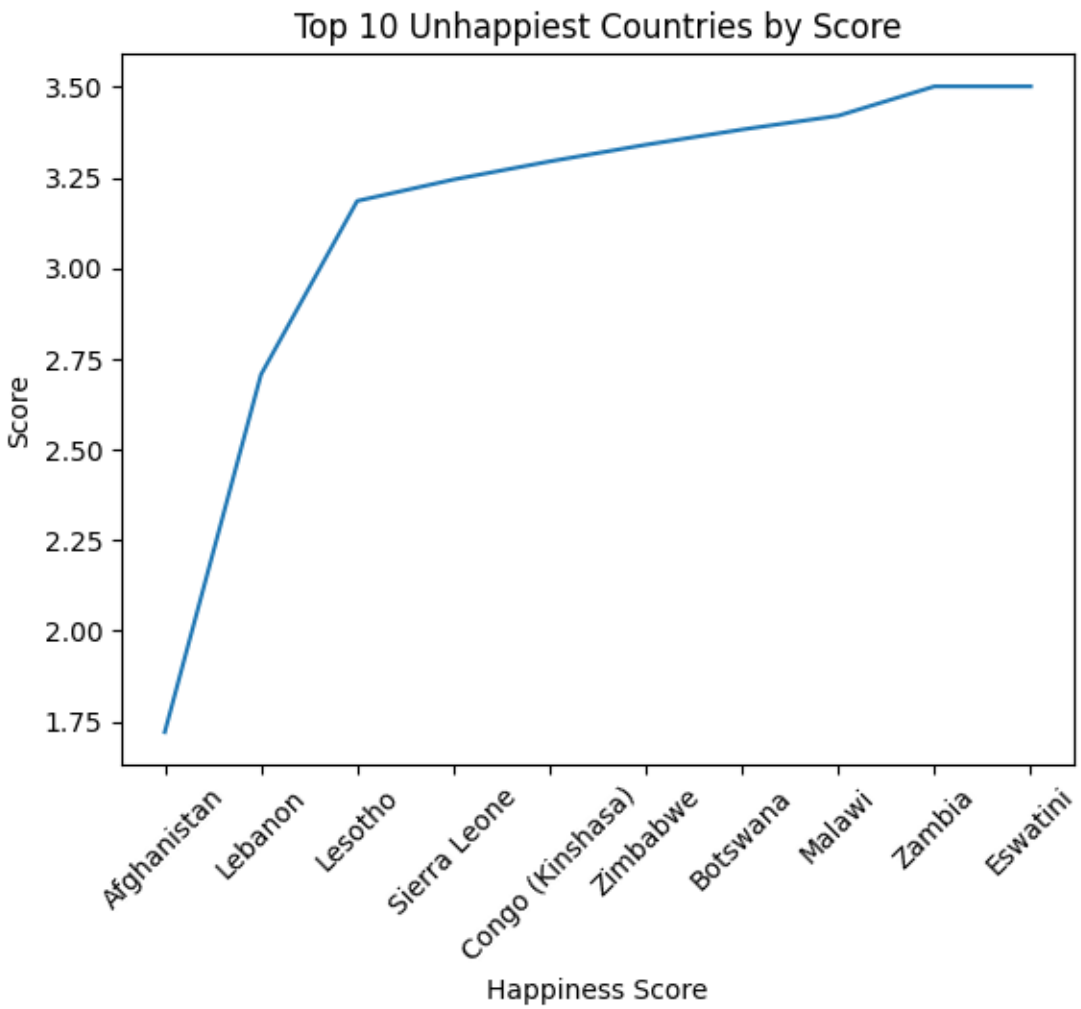
Report section-for each problem:

Problem 1:

In this problem we have simple data explorations and understandings. for example, loading the data sets, identifying rows and columns, and finding their data types. We have also calculated the mean, median, and looking for its missing values, filtering and sorting and adding some columns. For the data visualization we have plotted the happiness as well as unhappiness scores using bar plots and line plots respectively and to show its distribution using histogram, scatter plotting GDP per capita and Score to visualize their relationship. The data visualizations are explained in detail below:

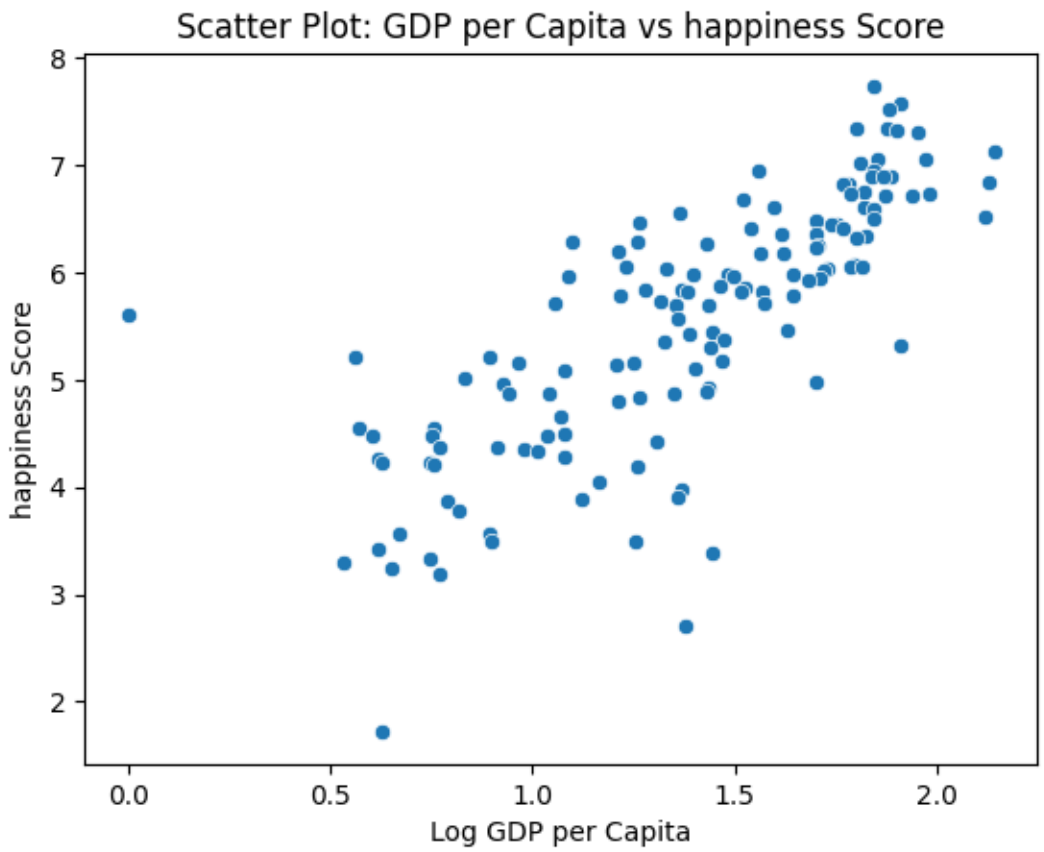


As we clearly see in the above diagram, it is a simple bar plot showing the happiest countries by the score. there are top 10 of the countries where first position lies to the country Finland and the 10^{th} place is Australia. There is less difference between first position and the last position.



This above diagram is a line plot where the lines are connected to individual data points.it shows the least happy countries by score where Afghanistan is the least happy country, and the 10^{th} position lies in the country Zambia. The difference between first position and last position is very drastic.

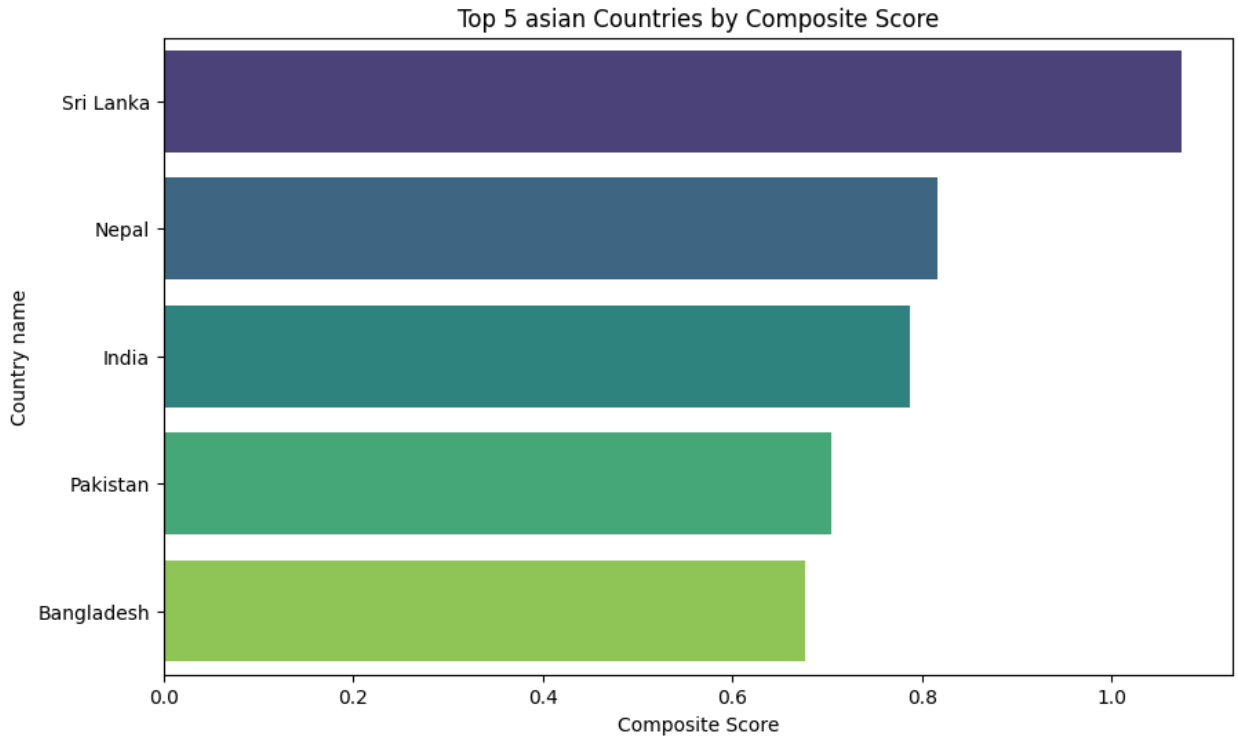
The above figure shows the histogram plotting of the score distribution of happiness. the bar heights represent the frequency of data points with a value within the opposite bin.it represent how many times a value is repeated. How many times a country is fallen and increased.



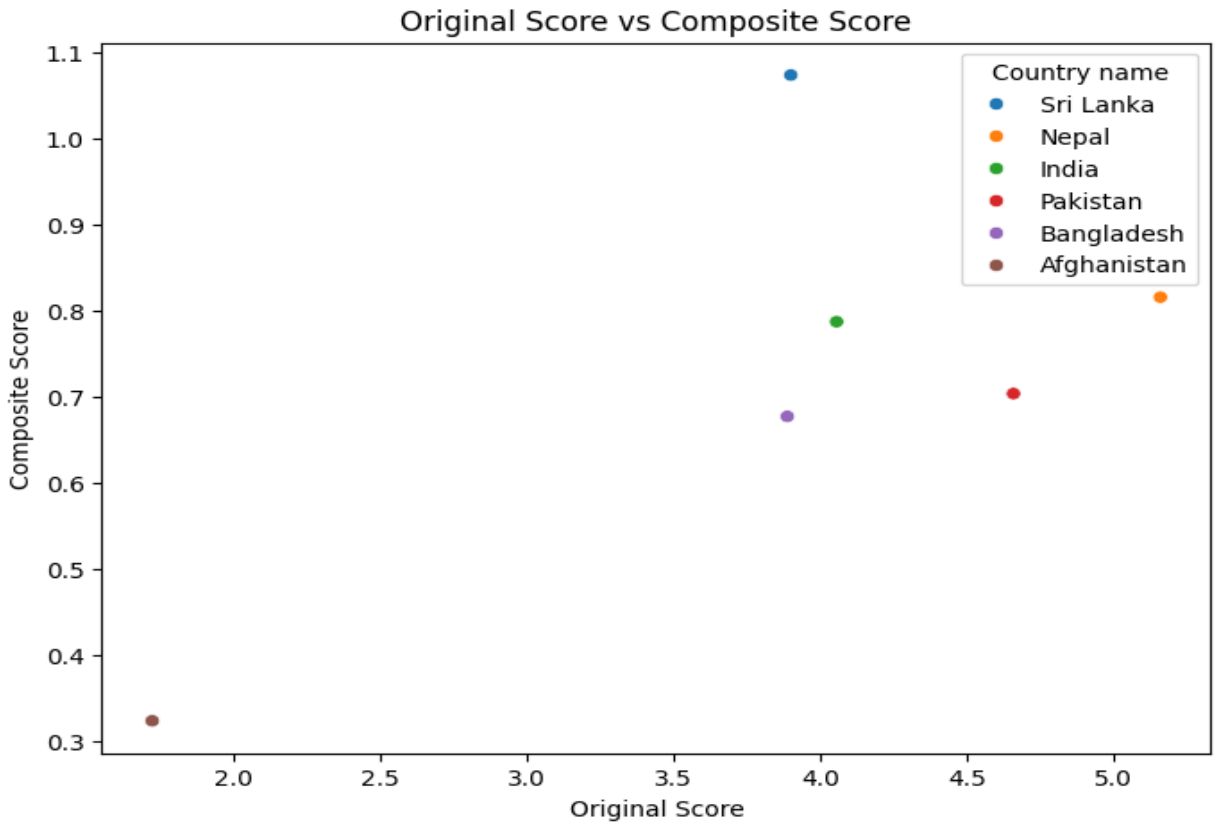
This figure shows the scatter plot comparing GDP per capita and happiness score. The x axis represents GDP per capita and y axis represent happiness score. We can visualize their relationship and how much each other can affect it.

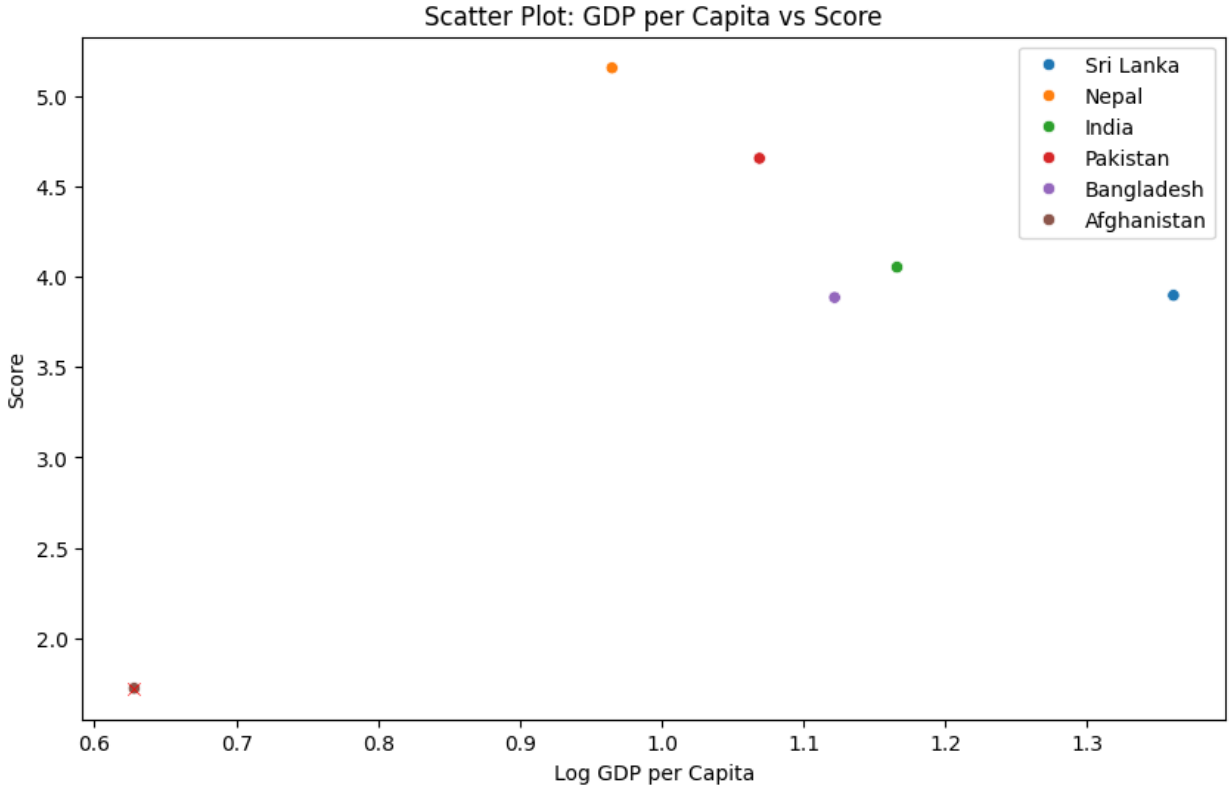
Problem 2:

In this problem we have been given different kinds of tasks such as setting up the south Asia data on our own and ranking them based on composite score in orders, identifying outliers' countries in south Asia based on their score and GDP per capita. In this task we also learn about IQR rules, and we also discuss the characteristics of outliers. We also use the scatter plots, bar charts for various dataset explanations are given below:

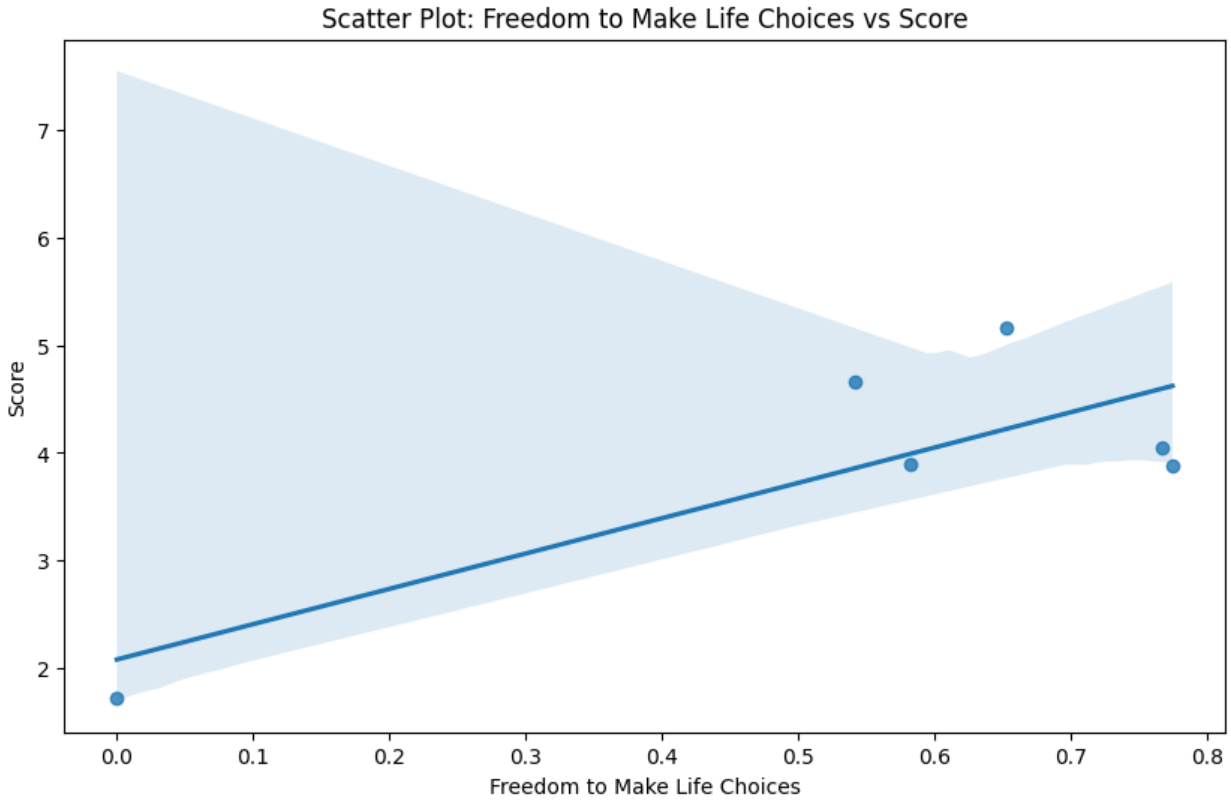


In this horizontal bar chart we can see the top 5 south Asian countries by composite score. The highest score is Sri Lanka and the fifth position is Bangladesh. We can see minimal changes between the first and last countries.

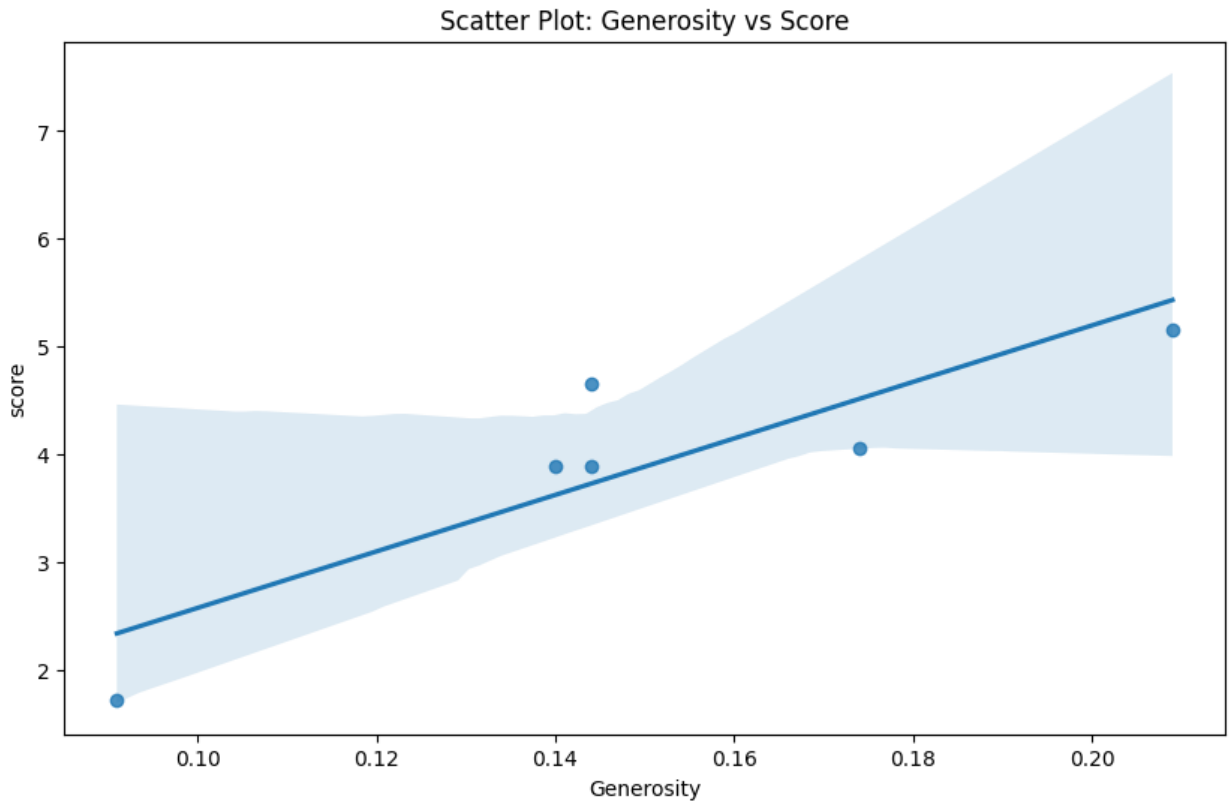

Original Score vs Composite Score
Country name
Sri Lanka
Nepal
India
Pakistan
Bangladesh
Afghanistan
Composite Score
Original Score
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
2.0
2.5
3.0
3.5
4.0
4.5
5.0


Scatter Plot: GDP per Capita vs Score
Sri Lanka
Nepal
India
Pakistan
Bangladesh
Afghanistan
Score
Log GDP per Capita
5.0
4.5
4.0
3.5
3.0
2.5
2.0
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3

In this above figure, we can see composite scores and original score. We have made a visualization plot to check whether they align together and not. The outlier have an effect on the mean but less effect on median and mode.



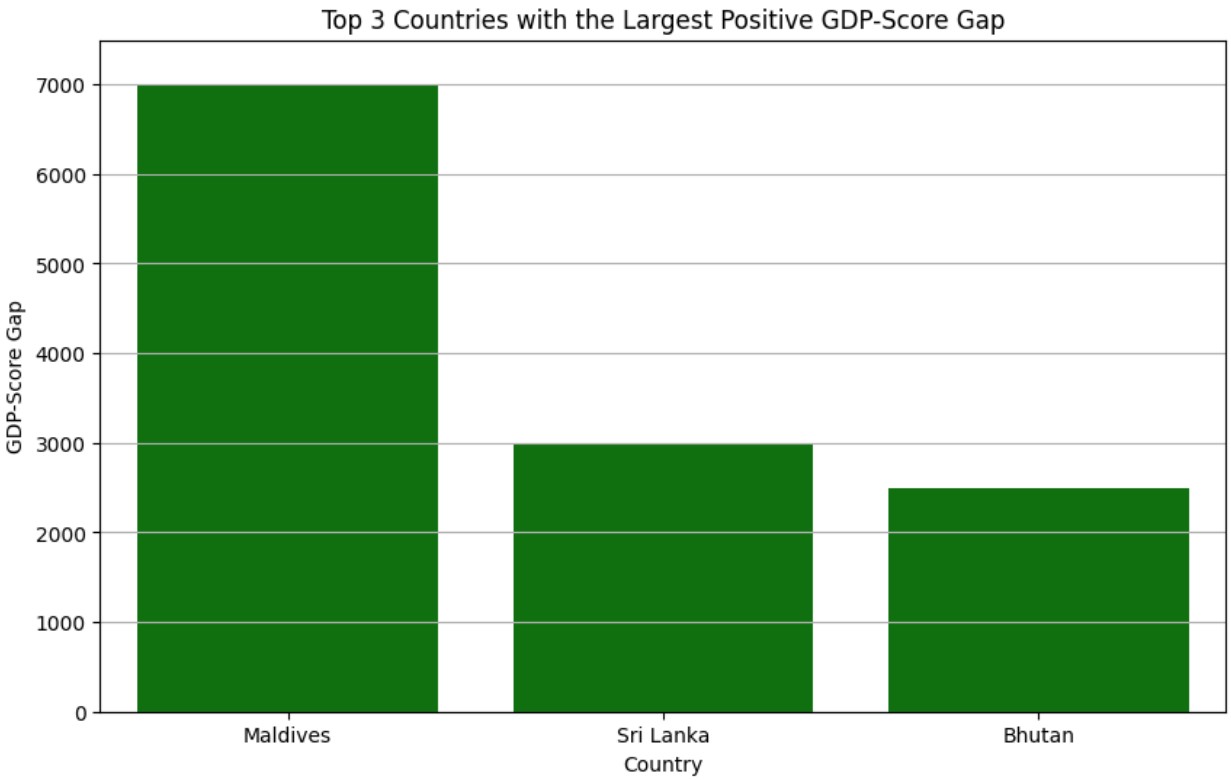
This is a figure of a scatter plot which compares freedom to make life choices with score for the south Asian countries.



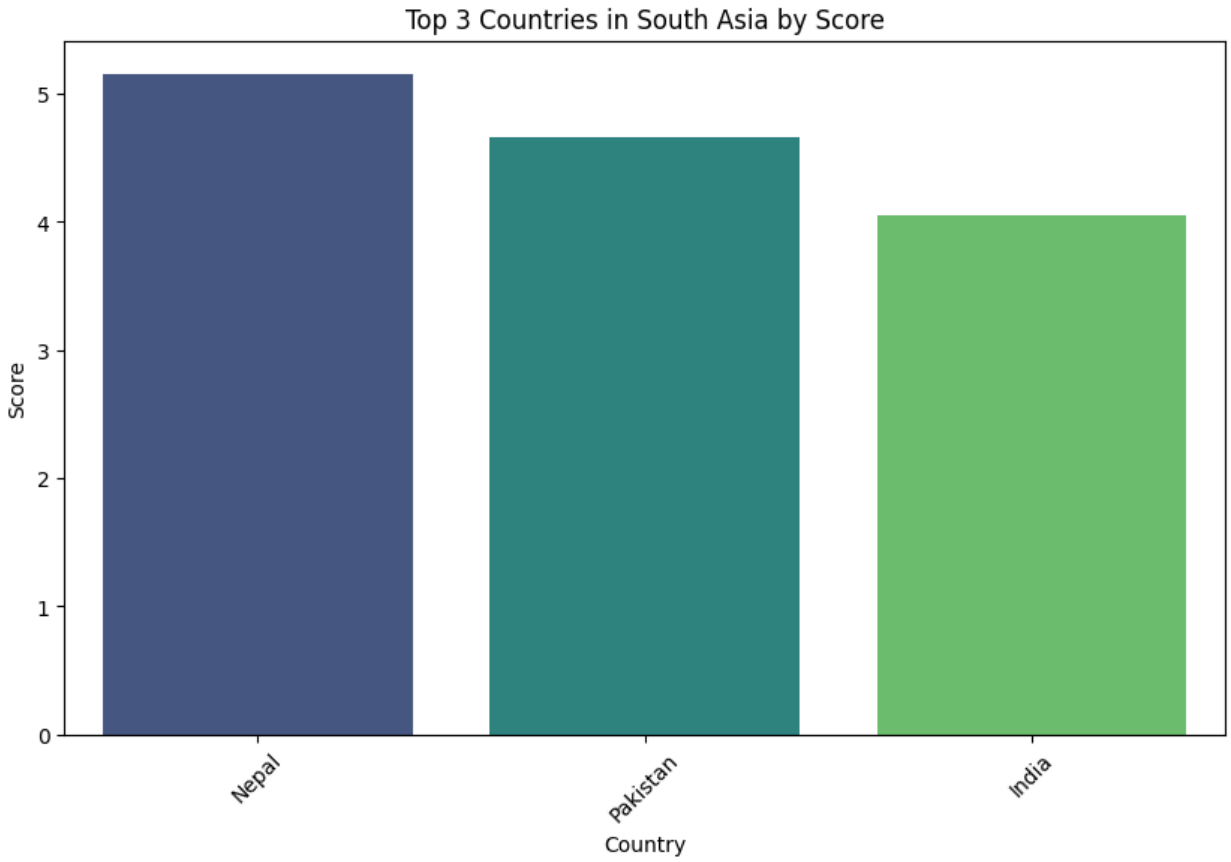
This is also a scatter plot which compares trendlines for these metrices against the score. They both affect each other in someway.it shows the relationships between two of them.

Problem 3:

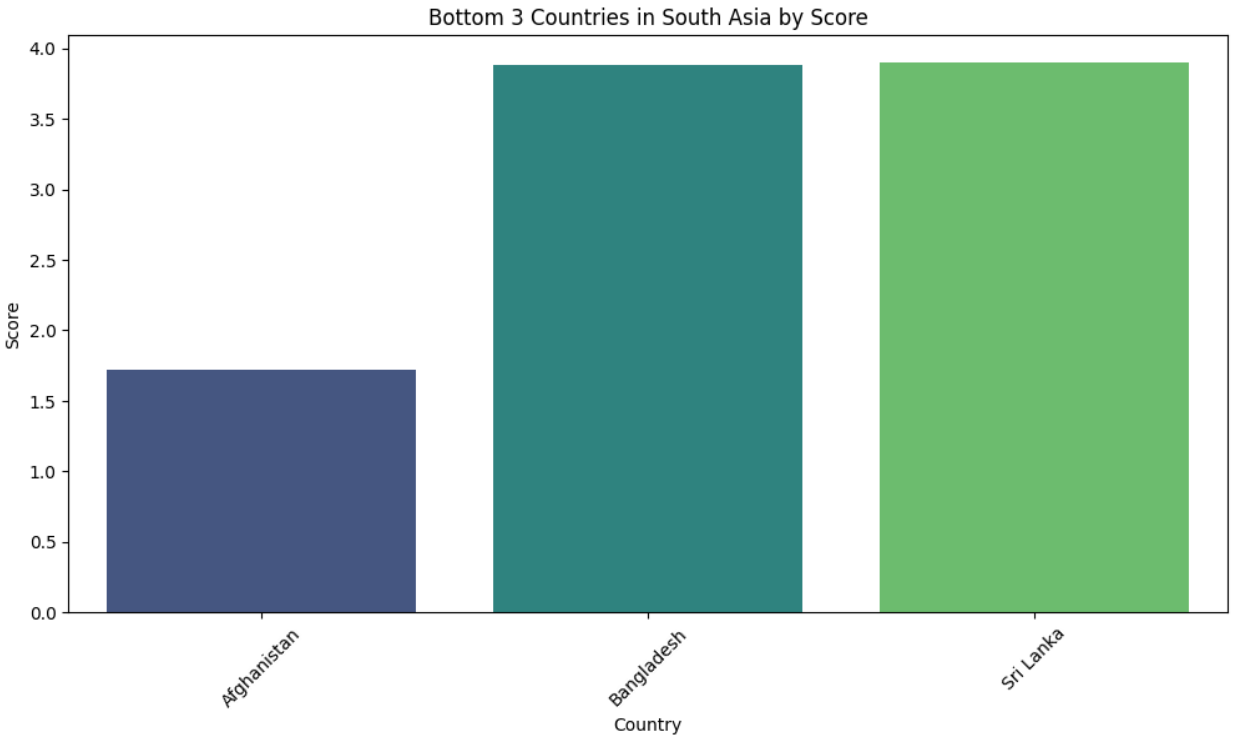
In this problem we do comparative analysis. We have different tasks such ask setting up the middle eastern data set same as problem 2 above, calculating mean, plot bars comparing other charts, metric comparison, happiness disparity, correlation analysis using scatter plots. For data visualizations we do boxplots to compare south Asia and middle east. These visualizations are given below.



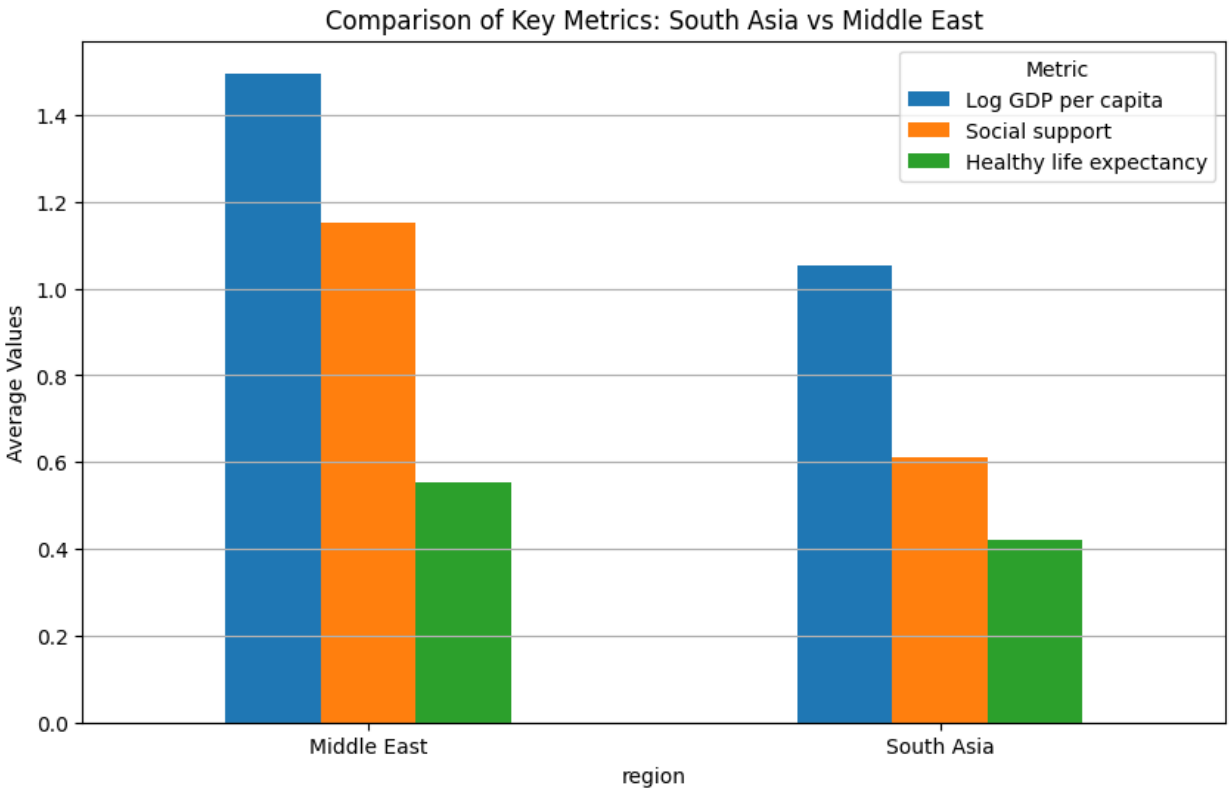
In this figure we identify the countries with the largest positive GDP score gap using a bar chart. The first place is Maldives and the least one of us Bhutan. there is a dramatic decrement between the first and last chart.



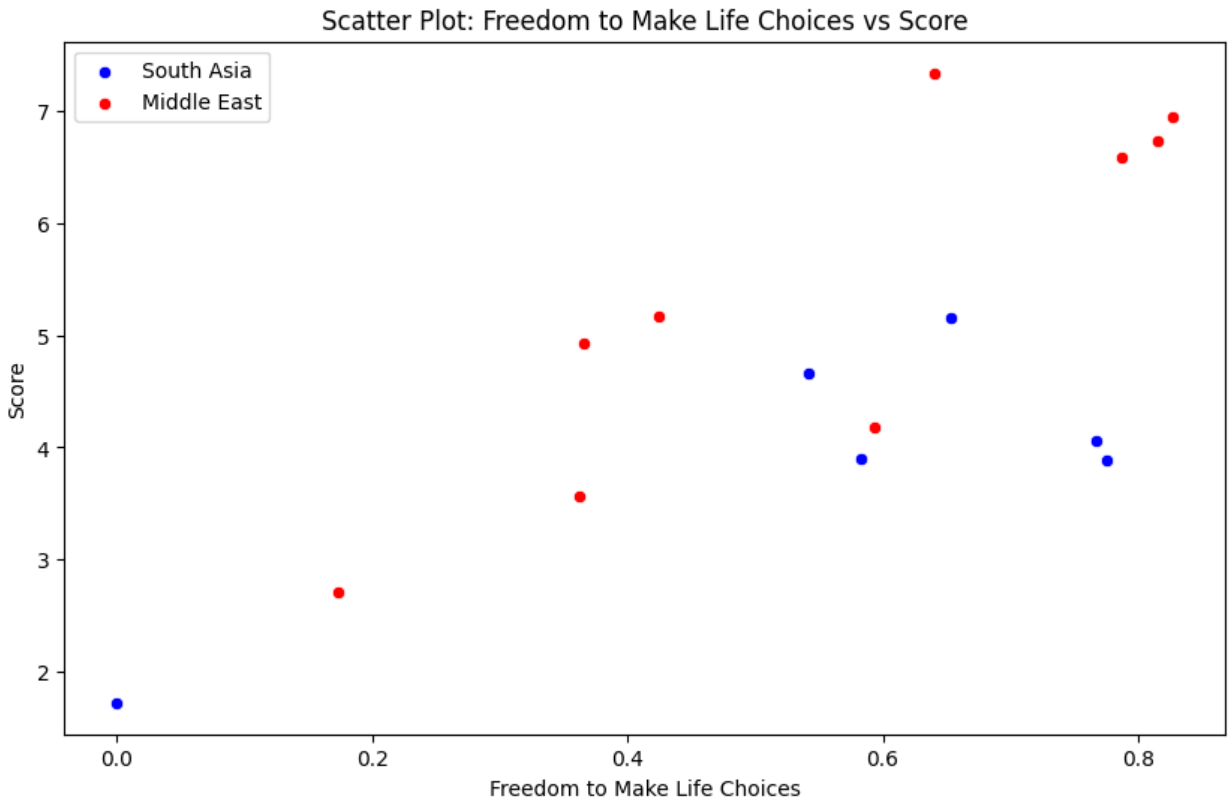
In this figure we have a bar chart showing top 3 Asian countries by score the first one is Nepal and third one is India. We do not really have drastic changes in these countries like previous chart.



In this chart we have bottom 3 countries in south Asia by scores where Afghanistan falls in last place Bangladesh and Sri Lanka respectively.



This chart shows the comparison between south Asia and middle east.it shows the comparison of metrices like GDP per Capita, social and health life expectancy between the regions using grouped bar charts. The blue bar shows the log GDP per capita the orange shows the social support and green shows healthy life expectancy.



In this scatter plot we have comparison of freedom to make life choices between south Asia and middle east Asia we can see that middle east is a bit higher than south Asia.

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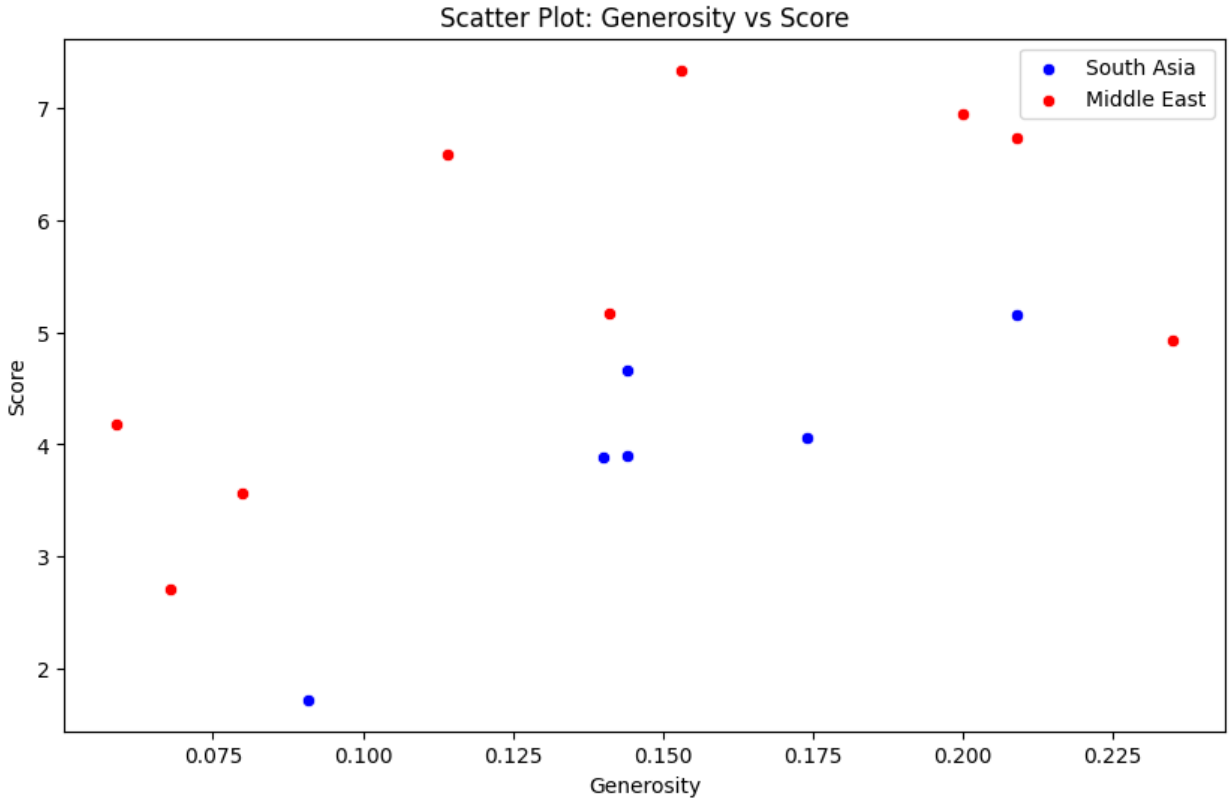
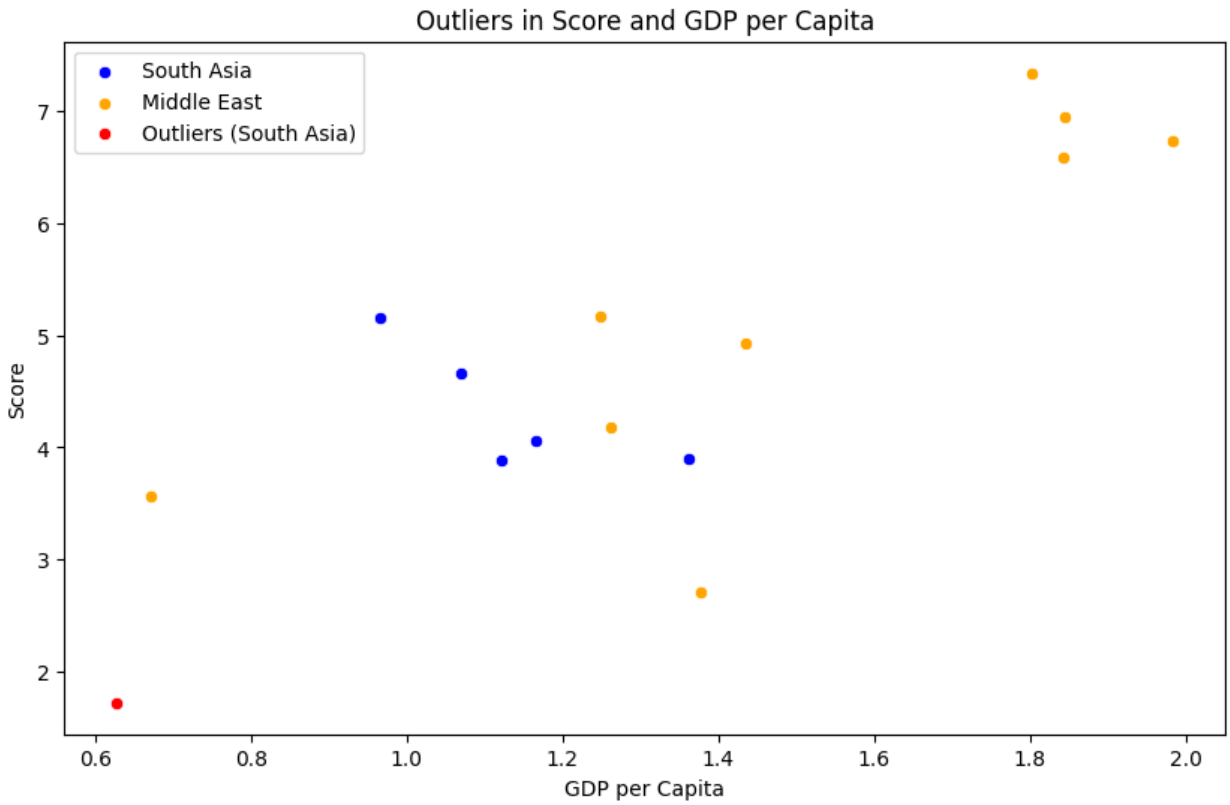
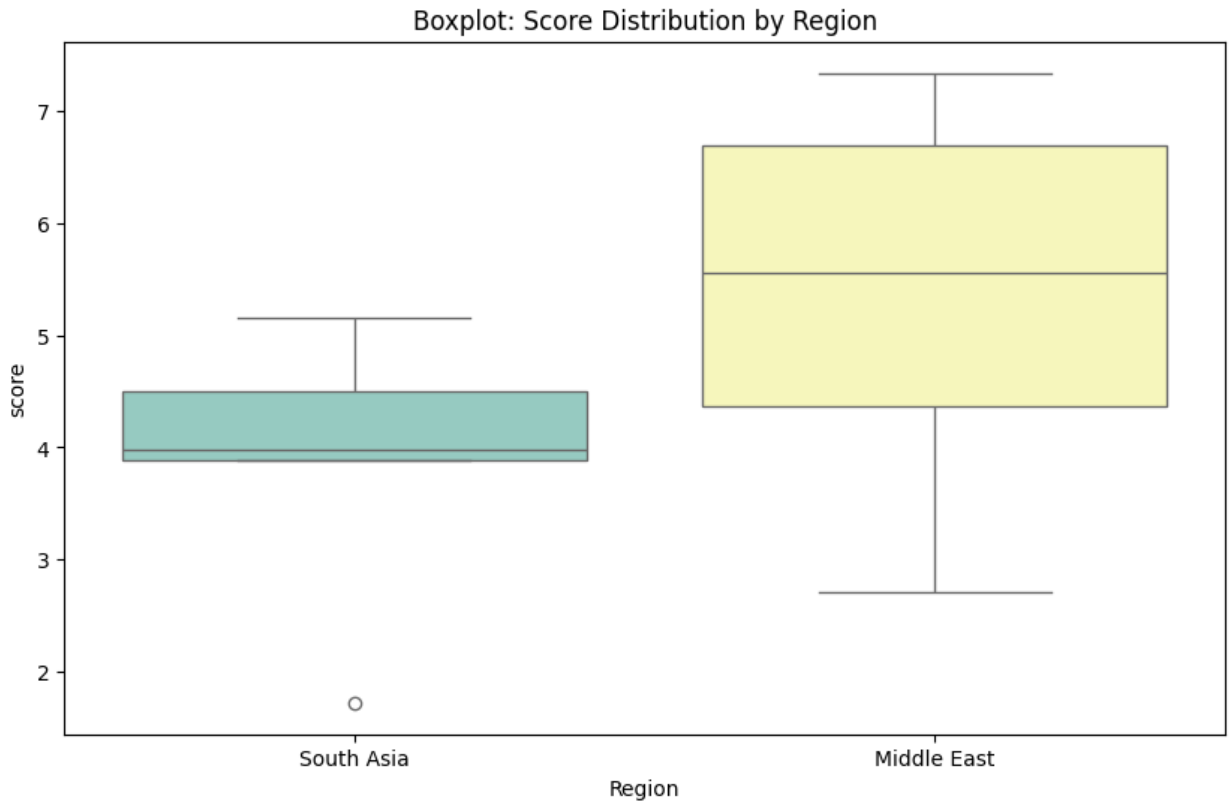


In this figure we have comparison of generosity between middle east and south Asia. In this case the middle east is a bit higher plotted than south Asia.



In this figure we have south Asia, middle east and outliers' comparison. This plot identifies the outlier countries in both regions based on score and GDP per capita.



In this figure we have created a boxplot comparing the distribution of score between South Asia and the middle east. The boxing plots are quite different from each other. the middle east suggests greater variability in scores compared to the south Asia.

Conclusion:

The world happiness report provides intuitive learning factors influencing global happiness. This report ranks countries by happiness scores, they search into their social support, freedom of choice and GDP per capita. We learned about different countries' lifestyles. We enhanced our knowledge by comparing the countries and learning to make graphs based on data provided.