



## Analysis of the World Happiness

Report: Exploring South Asia and Middle East Perspectives.

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## **Acknowledgements**

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## **Introduction**

The World Happiness Report is a crucial international study that evaluates happiness rates across different nations, providing important perspectives on the factors affecting well-being. It acts as a tool for policymakers, researchers, and the public to understand the factors that influence happiness. The dataset presented in this report includes happiness scores along with essential elements like social support, life expectancy, economic performance, freedom, lack of corruption, and generosity. This report aims to explore the World Happiness Report dataset with three main objectives: firstly, to uncover global trends and patterns in happiness; secondly, to examine the factors influencing happiness and the related scores in South Asia; and thirdly, to contrast happiness metrics and inequalities between South Asia and the Middle East, highlighting the geographical and cultural variances in happiness throughout these regions. This analysis seeks to improve the comprehension of happiness from both a regional and comparative perspective.

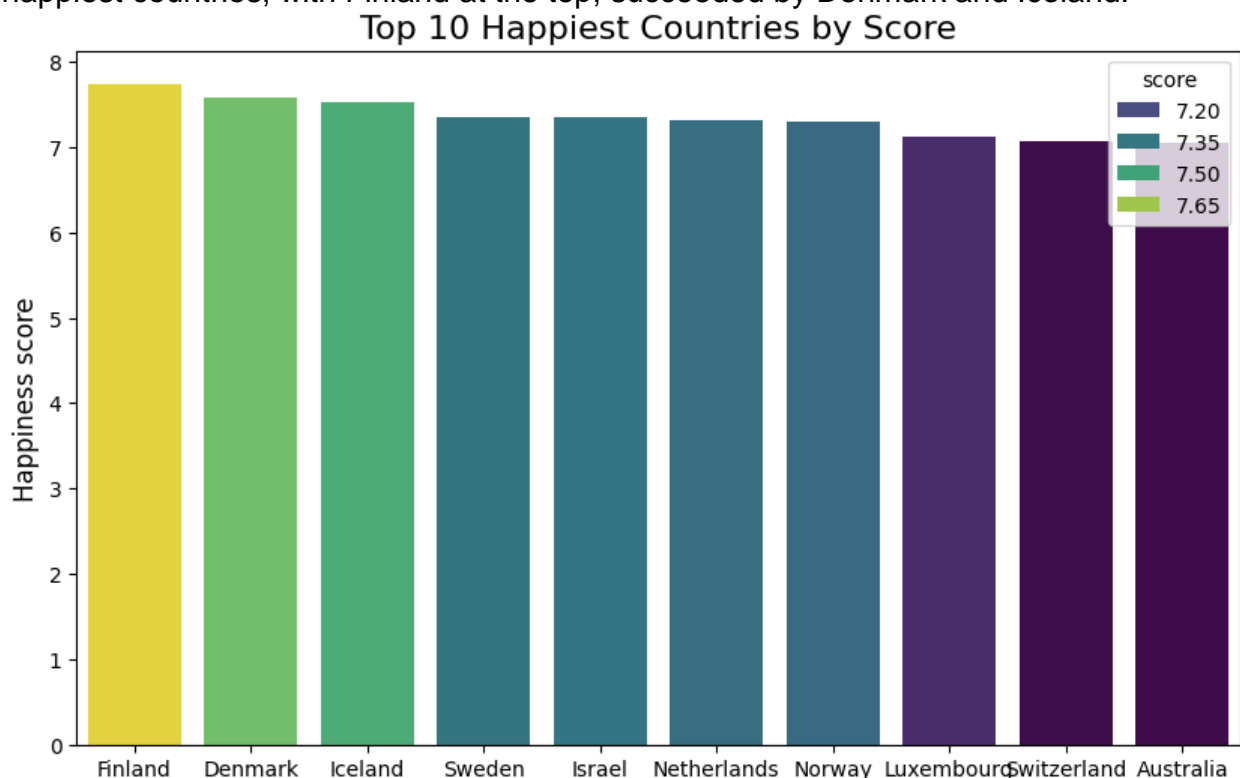
## **Objectives**

The goals of this report are outlined as follows:

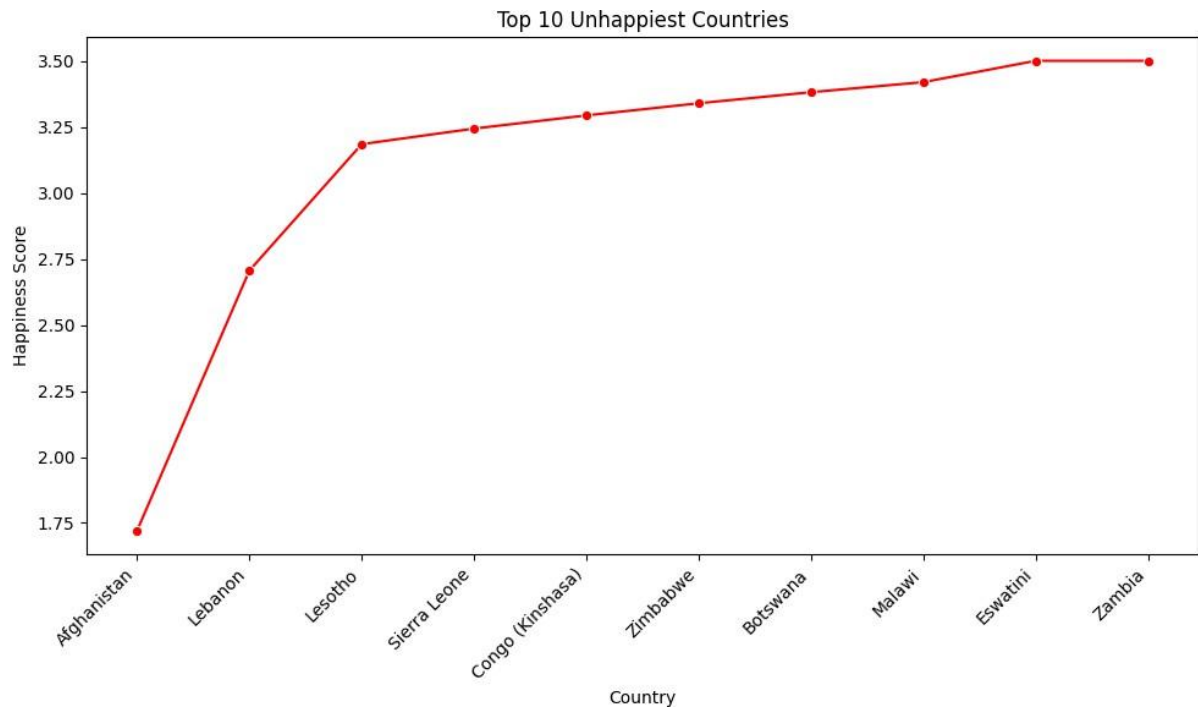
1. To examine and evaluate the World Happiness Report dataset to identify important patterns and trends.
2. To examine happiness ratings and the different elements that influence happiness in South Asia.
3. To perform a comparative study of happiness metrics, relevant factors, and discrepancies between South Asia and the Middle East.
4. To clarify the regional disparities in happiness between these two areas.

The examination of fundamental statistics uncovers multiple important findings about happiness ratings. The summary statistics for the Score column show an average score of 5.53, a median score of 5.79, and a standard deviation of 1.17. In the realm of extremes, Finland achieves the highest happiness rating, whereas Afghanistan records the lowest, as reported by the World Health Organization. Interestingly, the dataset does not contain any missing values. Moreover, by filtering and sorting the data, it is evident that countries with scores exceeding 7.5 comprise Finland, Denmark, and Iceland. Additionally, the ten leading countries ranked by GDP per capita are also some of the happiest. This indicates a connection in which more affluent countries generally claim greater happiness levels, as shown by the GDP per capita data.

To improve the categorization of nations according to their happiness ratings, a new column named "Happiness Category" was added. This new column divides countries into three categories: "Low" for scores under four, and "Moderate" for scores between four and six. Additionally, the data visualizations feature a bar graph displaying the ten happiest countries, with Finland at the top, succeeded by Denmark and Iceland.



The line graph displays the ten nations with the least happiness scores, with Afghanistan at the end of the list, and Lebanon and Lesotho just above it. This illustration effectively underscores the standings of the most unhappy countries.

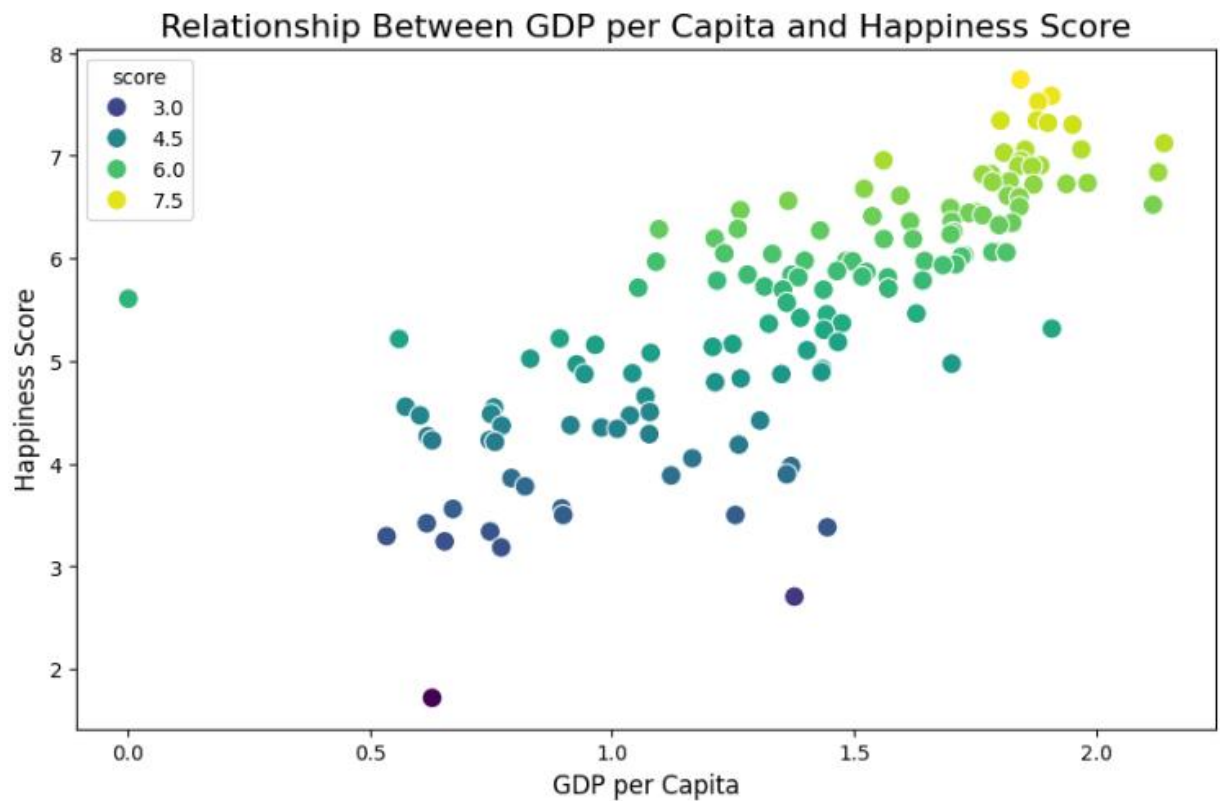


The histogram shows that the highest happiness score noted is 17.5, and the lowest score is 0.2. This  
The depiction accurately reflects the variety of happiness scores found in the dataset.



Scatter Plot:

This scatter plot illustrates the Happiness Score in relation to GDP per capita.



## Problem - 2 - Some Advance Data Exploration Task:

### Task-1

1. Preparing the South Asian Dataset

Nepal, India, Sri Lanka, Pakistan, Afghanistan, Bhutan, Bangladesh and Maldives was saved in new csv file in the name south\_asia\_data.csv

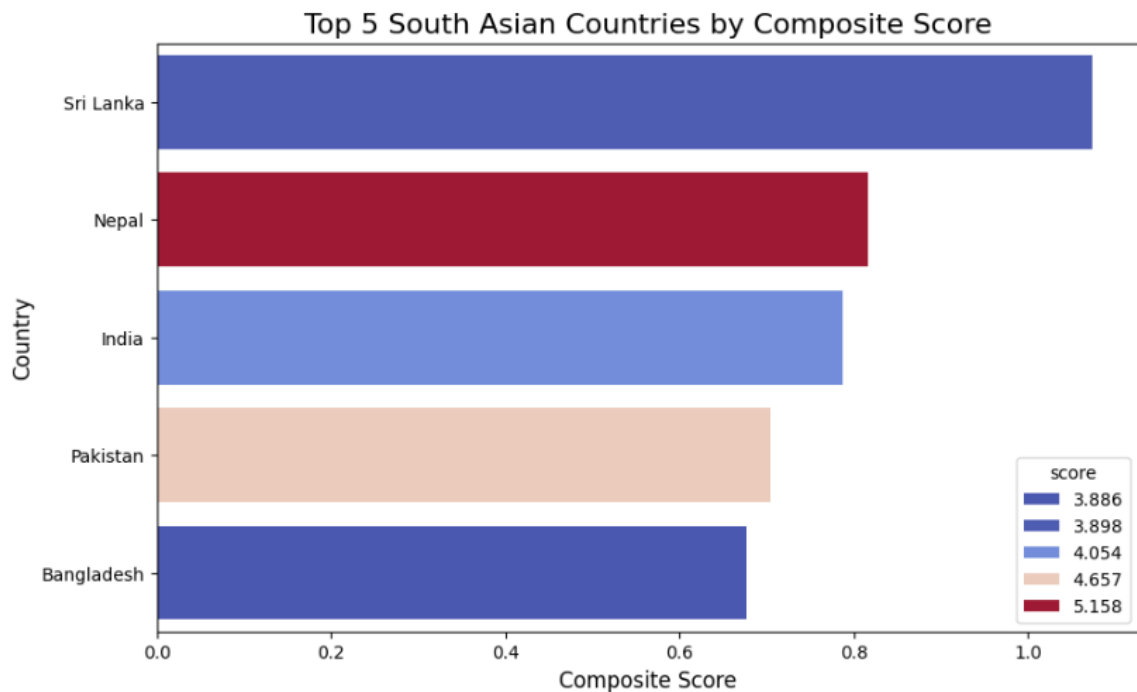
### Task-2

1. New column was created named composite score by using below formula

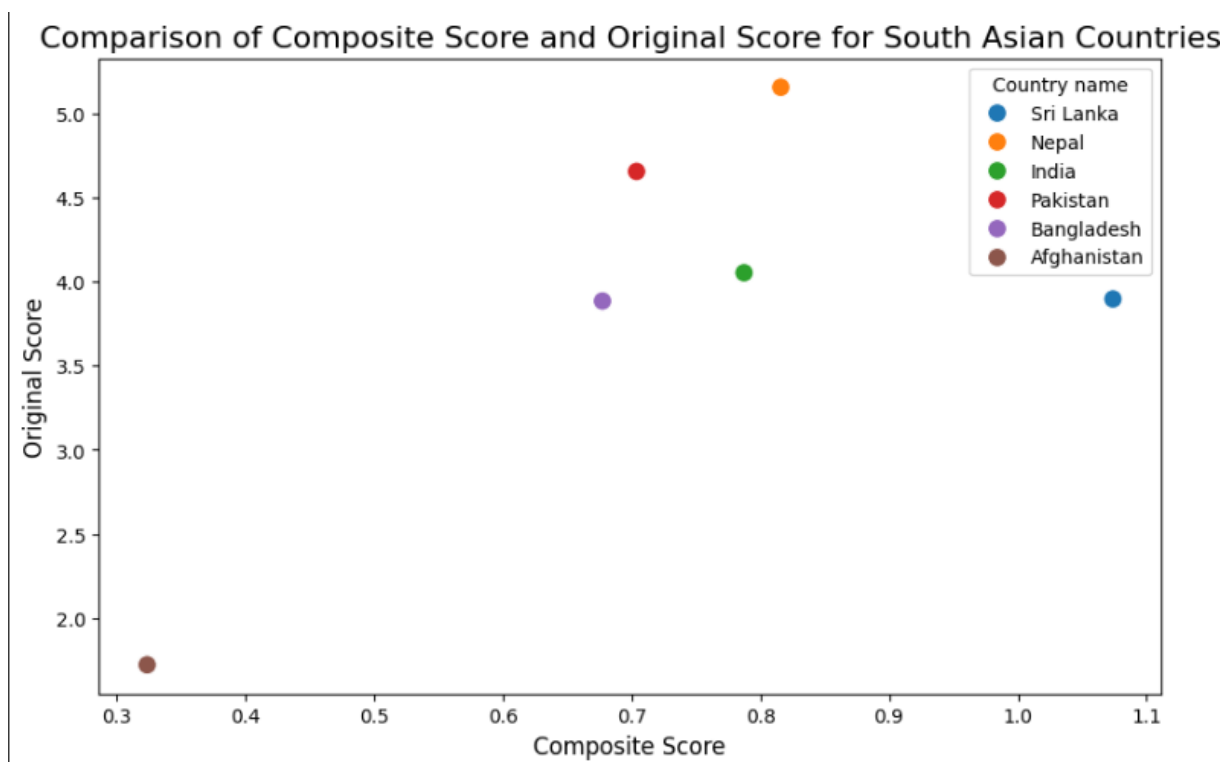
$$\text{Composite Score} = 0.40 \times \text{GDP per Capita} + 0.30 \times \text{Social Support} + 0.30 \times \text{Healthy Life Expectancy}$$

2. The nations were ordered in descending sequence according to their composite score.

3. Five nations are depicted using a horizontal graph illustrating the composite score.



4. Based on the graph, we can see that the composite score and original score do not correlate effectively.



### **Task-3**

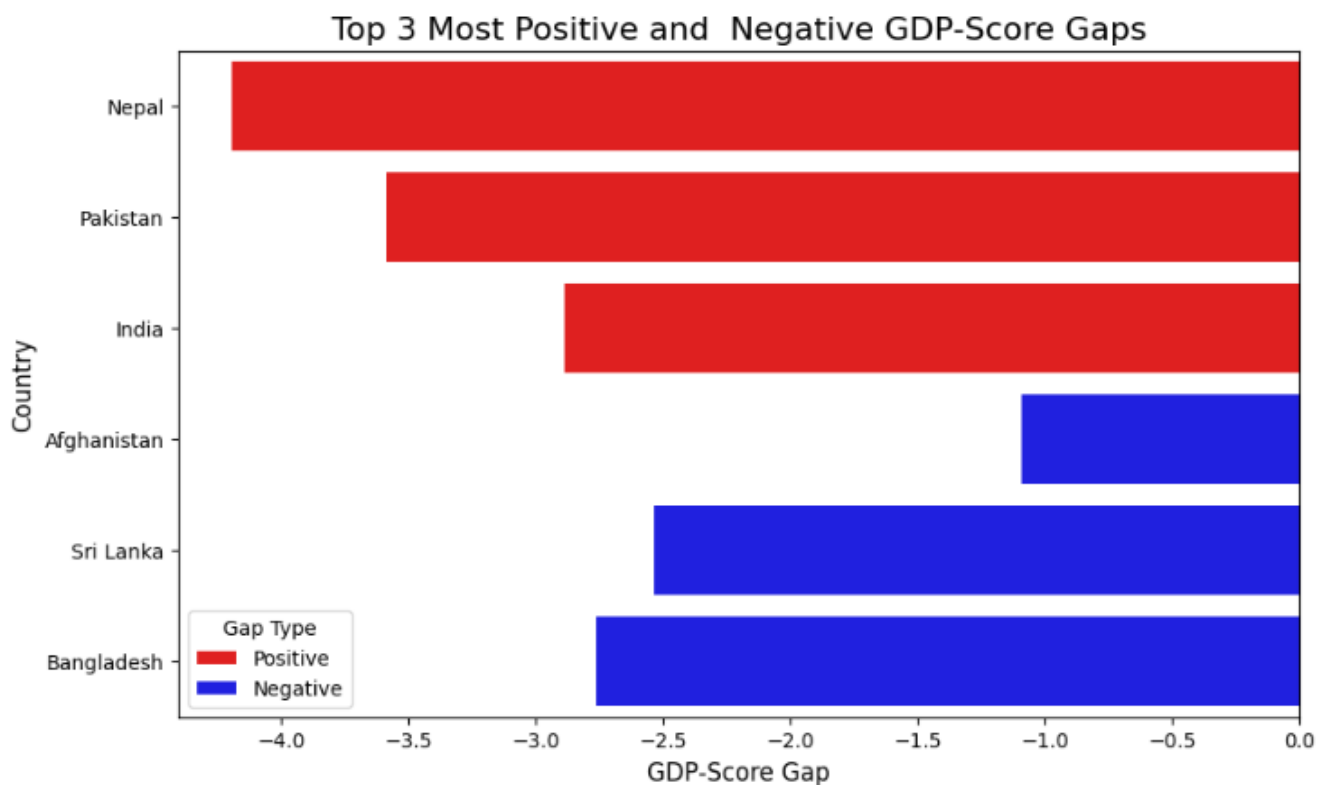
Afghanistan is notable as an exception among South Asian nations in terms of its happiness score and GDP per capita. The interquartile range (IQR) is determined using the formula  $IQR = Q3 - Q1$ , and outliers are identified as data points that fall outside the interval of  $[Q1 - 1.5 \times IQR, Q3 + 1.5 \times IQR]$ . In particular, an outlier is defined as any value that goes beyond  $Q3 + 1.5 \times IQR$  or drops below  $Q1 - 1.5 \times IQR$ . Outliers may result from a range of factors, such as measurement inaccuracies, infrequent events, or truly exceptional performances in particular situations. These data values are notably above or below the IQR and differ from most of the dataset.

### **Task-4**

The analysis of correlation shows important connections between different factors and levels of happiness. Significantly, generosity shows the highest positive correlation with a coefficient of  $r = 0.8745$ , suggesting a strong connection to happiness. Likewise, the ability to make personal choices in life displays a positive correlation as well, though somewhat weaker, with a coefficient of  $r = 0.8005$ . Scatter plots further demonstrate these results, with both metrics showing positive linear patterns in relation to the happiness score; however, generosity aligns more closely with the trend line, highlighting its stronger correlation. In conclusion, although generosity is recognized as the key element affecting happiness, the ability to make life decisions, while important, has a slightly lesser influence.

### **Task-5**

A new column called "GDP-Score Gap" has been added, indicating the disparity between GDP per capita and the happiness score for every South Asian nation. These nations are subsequently ordered according to this disparity in both ascending and descending sequences. The graph illustrates the countries with the largest positive and negative GDP-Score differences, offering a visual depiction of these variances.

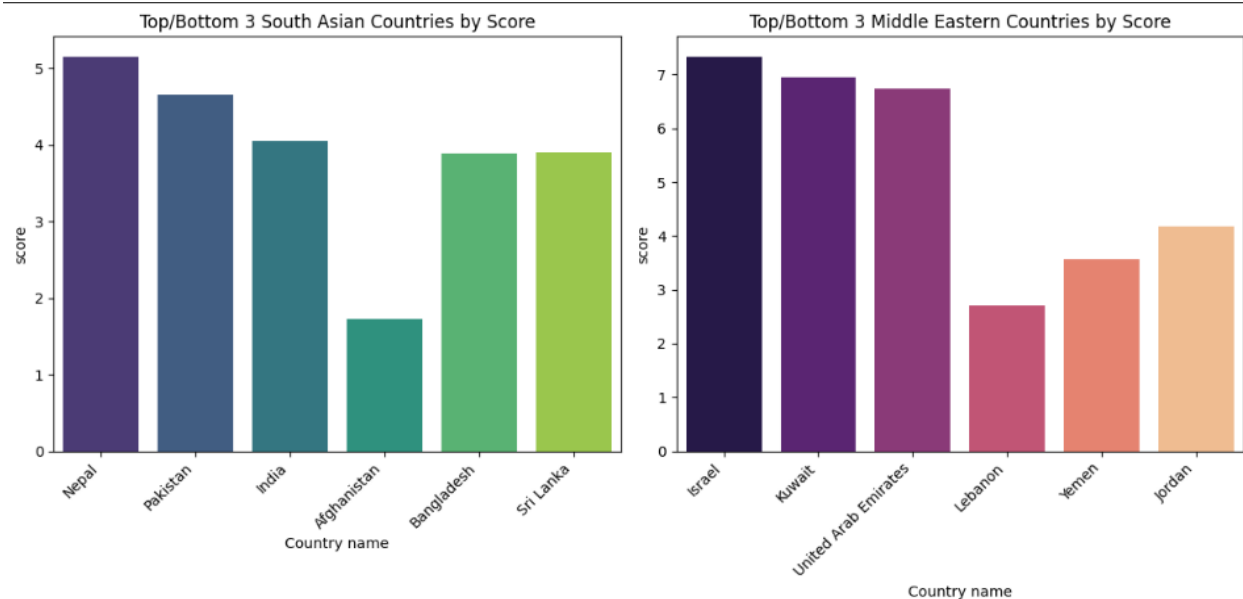


Positive gaps, in which GDP surpasses happiness, suggest that issues like inequality, corruption, and environmental harm may reduce well-being even as the economy grows. Moreover, materialistic values and diminished social trust also play a role in reducing happiness. In contrast, negative gaps, where happiness exceeds GDP, emphasize the significance of robust social ties, resilience, and cultural principles in improving well-being. Welfare programs are essential for enhancing quality of life, even in situations of limited income. The consequences of these results indicate the necessity to tackle inequality and corruption while encouraging social welfare and community assistance to enhance lasting happiness.

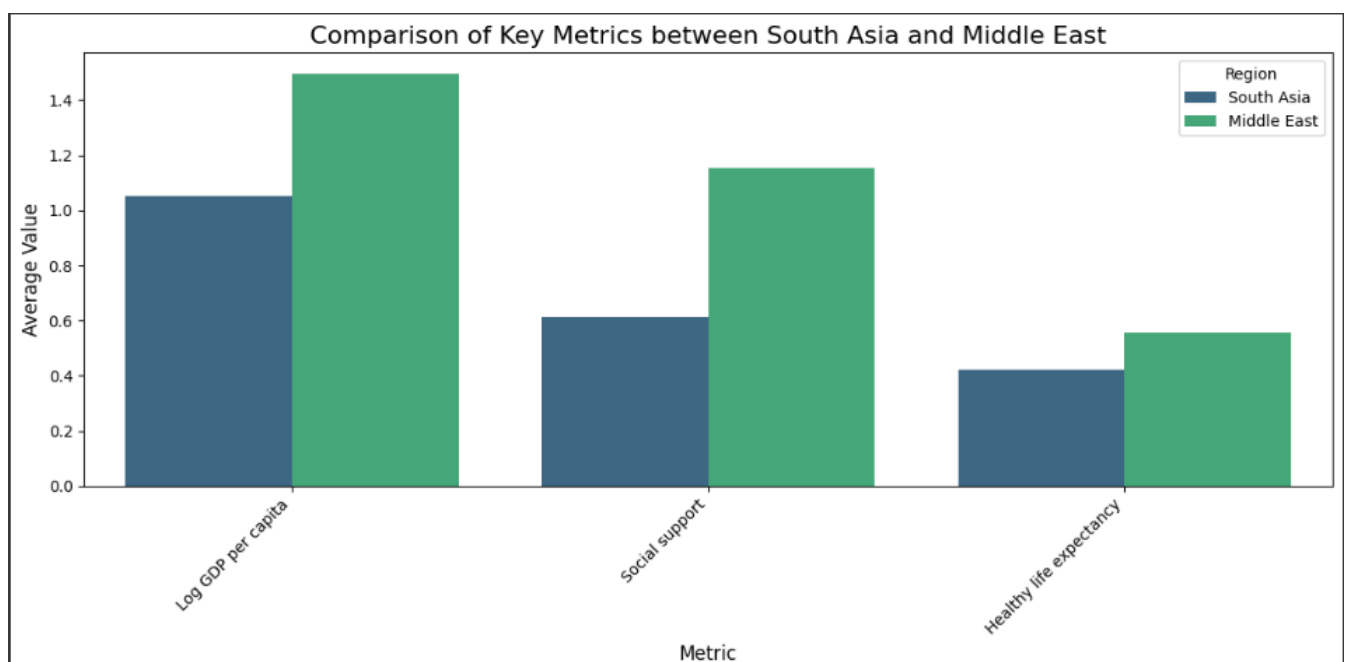
### Problem- 3

1. The chart beneath displays a comparison between nations in Southeast Asia and the Middle East. In South Asia, the primary countries are Nepal, Pakistan, and India, whereas in the Middle East, the foremost nations are Israel, Kuwait, and the UAE. On the other hand, the three countries with the lowest rankings in South Asia are Sri Lanka, Bangladesh, and Afghanistan, while Jordan, Yemen, and Lebanon hold the lowest spots in the Middle East, as shown in the illustrated graph.

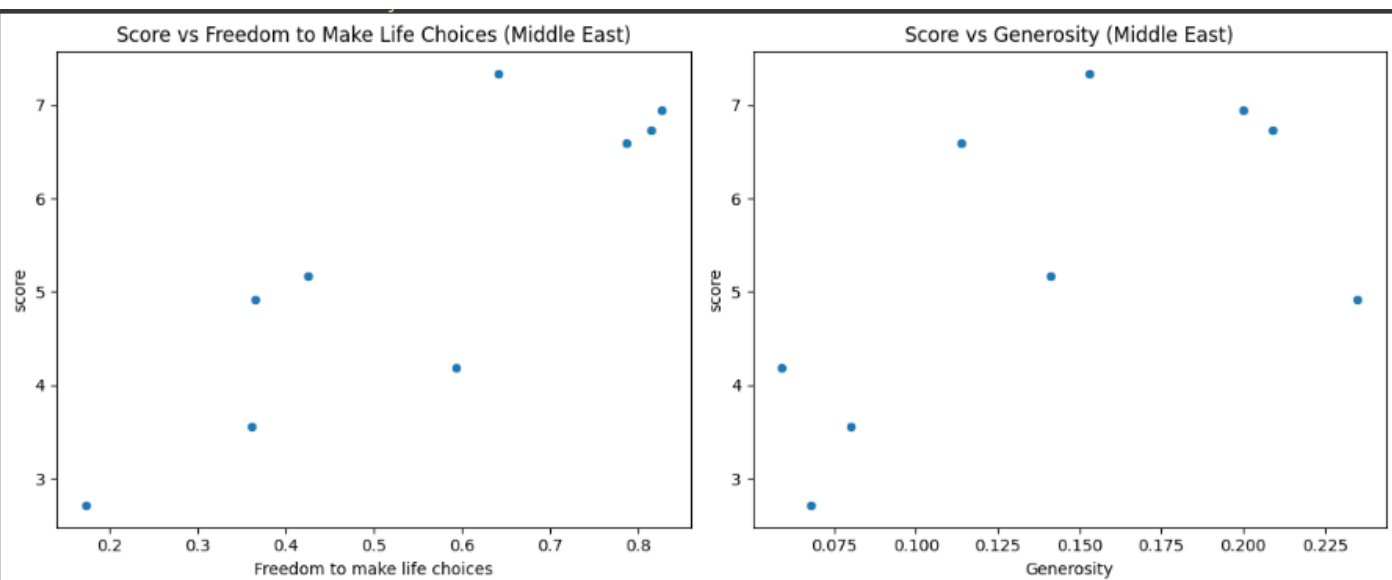
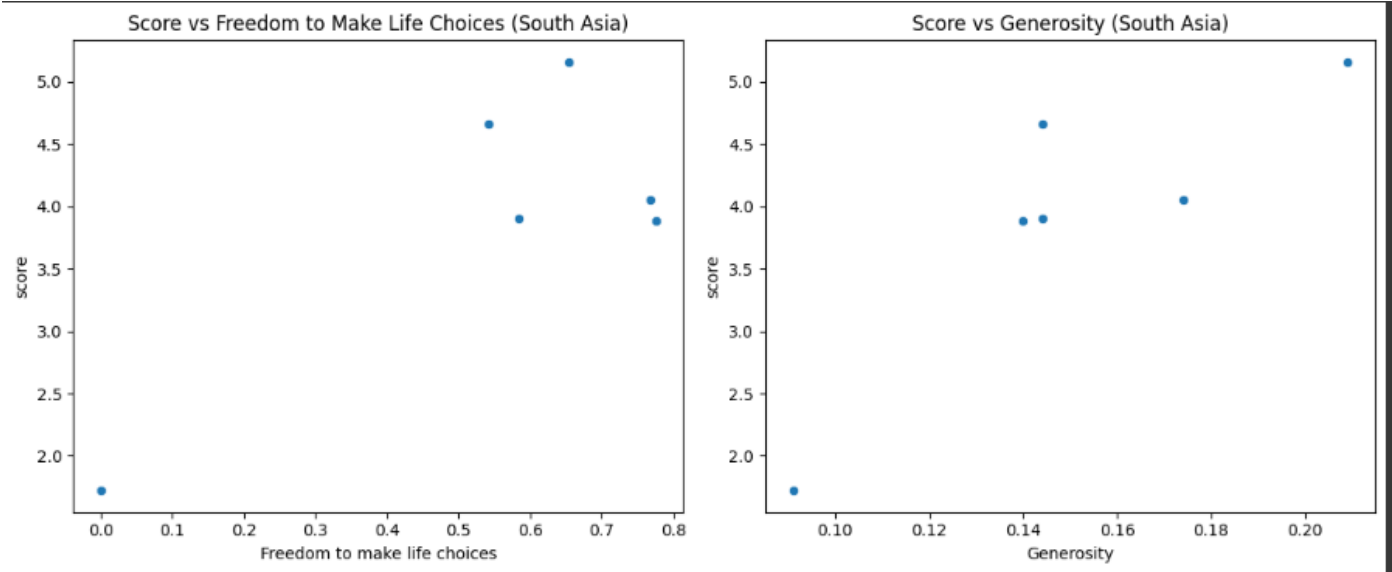




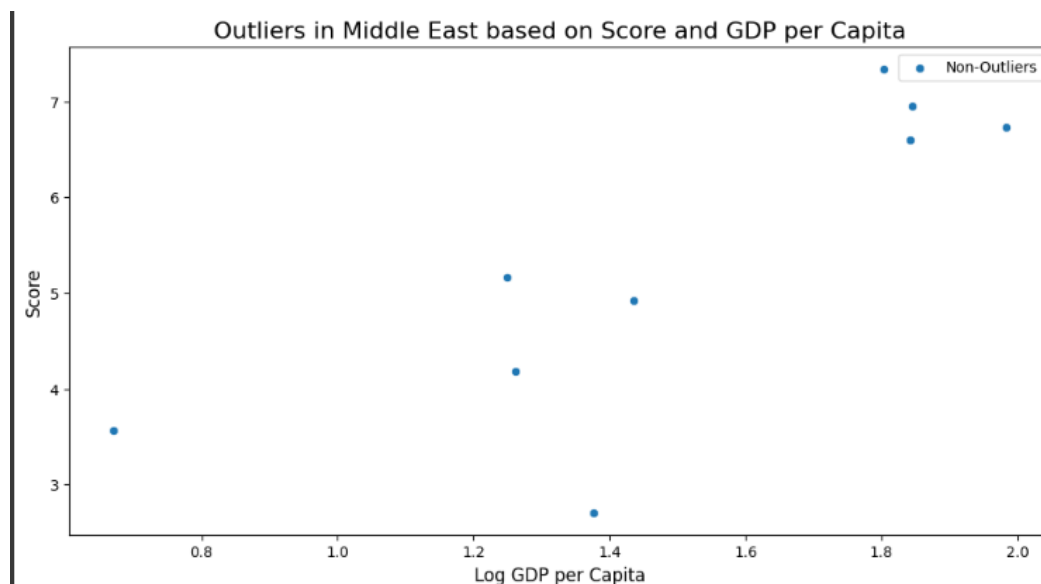
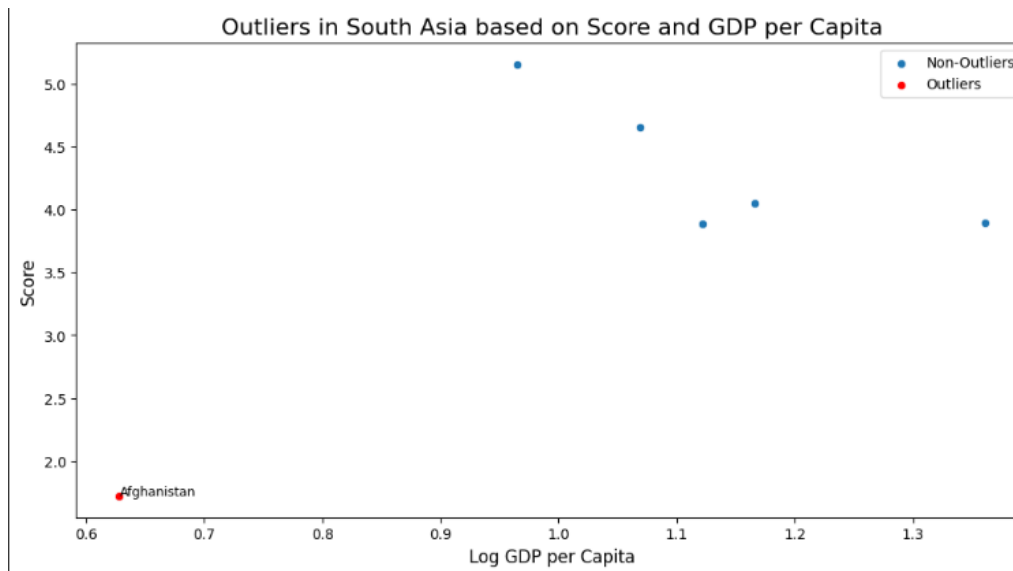
- The graph below contrasts South Asian nations with those in the Middle East, focusing on GDP per capita, social support measures, and life expectancy. Importantly, the social support measure shows a considerable difference between the two areas, with South Asia averaging 0.4 and the Middle East averaging 1.4.



- In South Asia, the span of happiness scores is 3.437, accompanied by a coefficient of variation of 30.21%. In contrast, the Middle East exhibits a range of 4.634 and a variation coefficient of 28.94%. This signifies that South Asia shows more fluctuation in happiness levels.
- After analyzing the relationship between happiness scores and various metrics like Freedom to Make Life Choices and Generosity in each region, scatter plots have been generated to illustrate and understand these connections.



6. Countries that deviate from the norm in both regions have been recognized according to their happiness scores and GDP per capita. These atypical nations usually have unique traits.

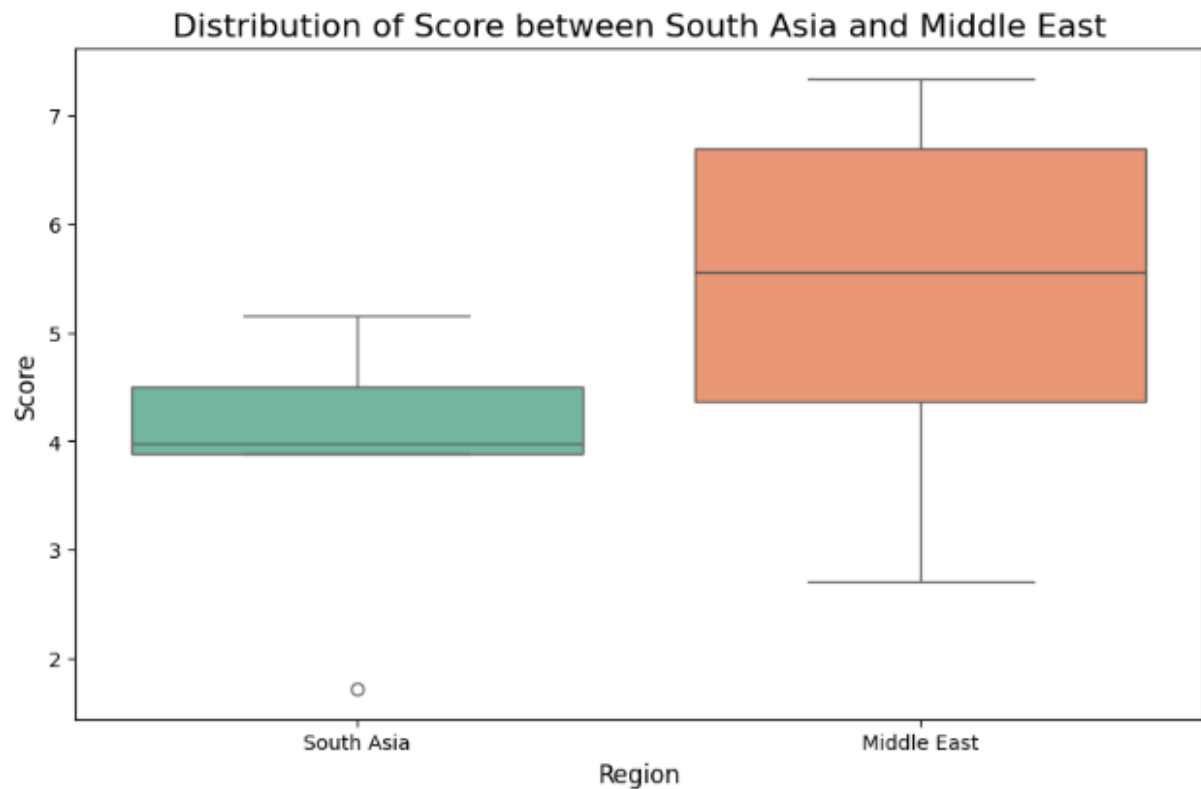


7. Boxplots have been created to compare the distribution of happiness ratings between South Asia and the Middle East.

**Distribution Shapes:** The boxplots demonstrate the general structure of the happiness score distributions for every region.

**Medians:** The line in each box represents the median happiness score, where a higher median demonstrates a typically increased level of happiness in that area.

**Outliers:** Points located beyond the whiskers of the boxplots indicate outlier nations with extremely high or low happiness scores.



## Conclusion:

This report analyzed the World Happiness Report, emphasizing a comparison between South Asia and the Middle East. Research revealed that South Asia demonstrates more fluctuations in happiness, along with lower averages in social support and GDP per capita in comparison to the Middle East. Generosity appeared as the most substantial positive link to happiness, whereas the connection with Freedom to Make Life Choices was slightly less evident. Positive GDP-happiness disparities point to problems with inequality and materialism, while negative disparities imply robust social ties and resilience. Anomalies like Afghanistan in South Asia and Lebanon in the Middle East significantly influence regional averages. In general, healthcare and social support are crucial elements affecting happiness in both areas. Tackling inequality and fostering community well-being are crucial measures for improving happiness levels.

GitHub link- <https://github.com/Saifsiddiqui420/Concept-and-Technology-of-AI/commit/98fdfa136d177a6c8e5470b6251aa3fdcc88238c>