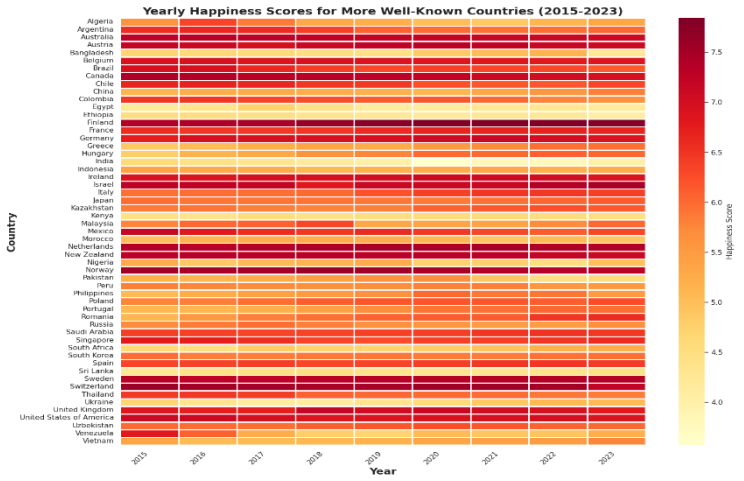
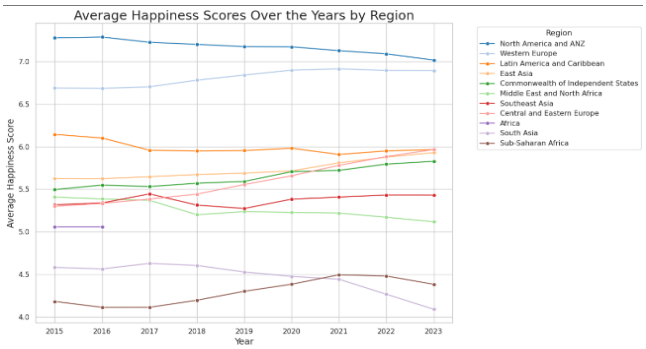
World Happiness Visualization Report 2015 - 2023

***Figure1*: Yearly Happiness Scores for Well Known Countries 2015 – 2023 (*HeatMap*)**



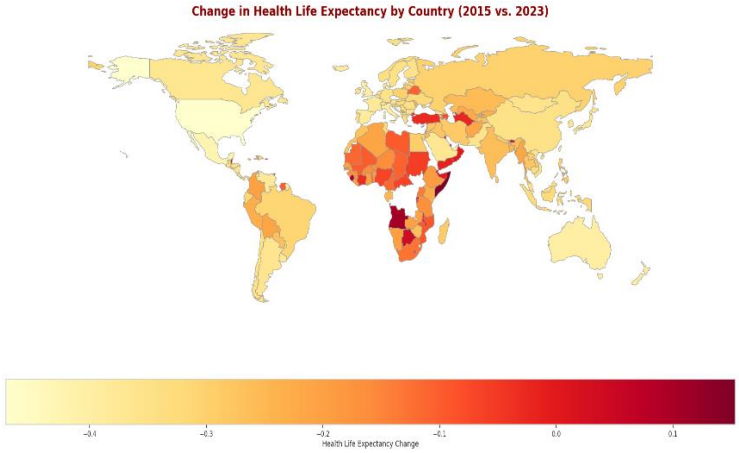
The heatmap illustrates yearly happiness scores for various countries from 2015 to 2023. Each row represents a country, with a color gradient ranging from yellow (lower scores) to red (higher scores). Notably, countries such as Finland, Sweden, Switzerland, Australia, Norway, and the Netherlands consistently maintain high happiness scores (above 6.5), remaining in the red zone throughout the analyzed period. Most of the countries have seen a decline in their happiness scores over the years.

***Figure 2:* Average Happiness Score Over the Years By Region (*Line Plot*)**



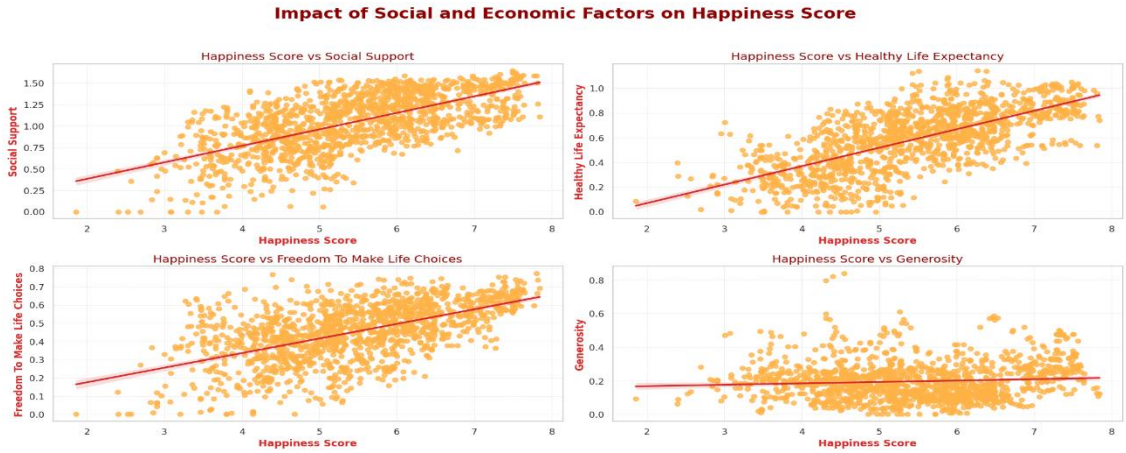
This line plot showcases the variation in average happiness scores across regions from 2015 to 2023 with different colours (of lines) representing each region. We can observe that, Western and North America consistently score high, while Africa and South Asia face persistent challenges in improving happiness levels.

***Figure 3:* Changes in Health Life Expectancy in countries from 2015–2023 (*Geo Plot*)**



This geo plot depicts global changes in healthy life expectancy between 2015 and 2023. The color gradient, from yellow (decrease) to dark red (increase), highlights variations across countries. Most nations experienced declines, particularly in yellow-shaded regions, while several countries in Africa and Western Europe showed notable improvements.

Figure4:* Plot between healthy_life_expectancy and Happiness score *(Regression Plot)

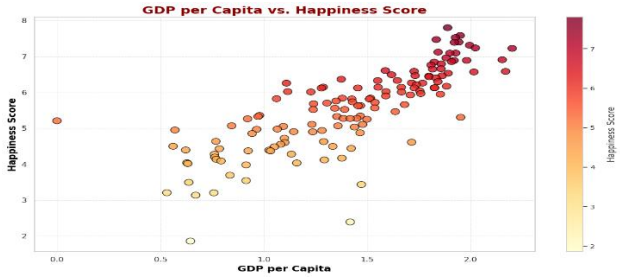


The scatter plots analyse the relationship between happiness scores and factors such as social support, healthy life expectancy, freedom to make life choices, and generosity. Positive correlations are observed with social support, healthy life expectancy, and freedom, where higher values align with greater happiness. However, generosity shows a weaker impact, reflected in a flatter regression slope.

Figure5:* Impact of Freedom to make life choices and Healthy Life expectancy on Happiness (Bubble Size: healthy_life_expectancy) – *Bubble Plot

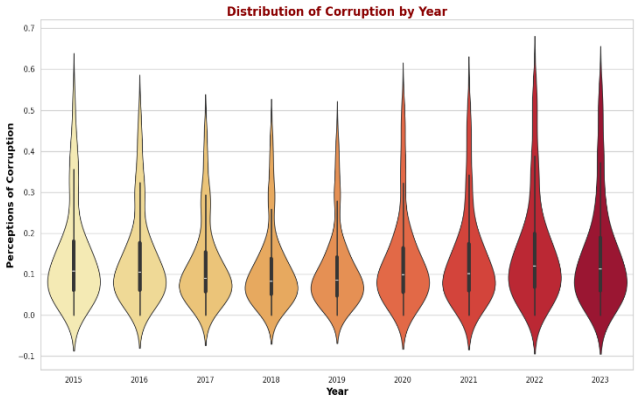
The plot shows the relationship between freedom to make life choices (x-axis), happiness scores (y-axis), and healthy life expectancy (representing the bubble size) while the color gradient from yellow (low) to red (high) shows the level of freedom. Larger bubbles, representing longer life expectancy, are more common in regions with higher freedom and happiness. This highlights that greater freedom and healthier lives contribute to higher happiness levels.

***Figure 6:* Plot between GDP per captia and Happiness Score (*Bubble Plot*)**



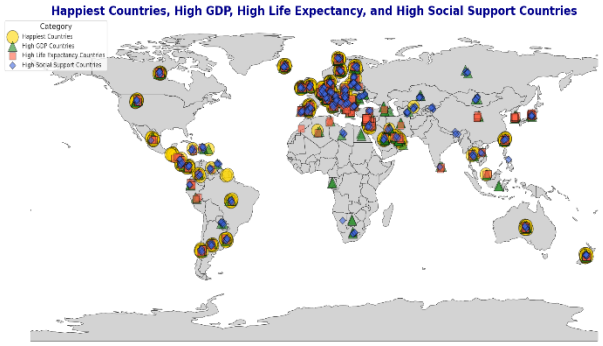
The bubble plot highlights the link between a country's economic status and its happiness levels. The color gradient from yellow (low) to dark red (high) represents happiness scores, with darker red indicating higher happiness. Data points in the top-right cluster, showing high GDP and high happiness, emphasize the importance of economic prosperity in fostering happiness.

Figure 7:* Distribution of Perception of corruption by Year *(Violin Plot)



The violin plot shows the evolution of corruption perceptions from 2015 to 2023, with colors shifting from light yellow to dark red, indicating an intensifying trend. From 2015 to 2018, the narrower violins suggest stable perceptions, while after 2020, the widening shapes and rising medians reflect increased corruption, greater variation, and growing polarization in public sentiment.

Figure 8:* Visualization of the top Happiest Countries having High Life Expectancy and High Social Support *(Point Density Plot)



Summing up, **Plot 8** is the most insightful and interesting which sums up everything in one plot. This point density plot shows the link between happiness, GDP, life expectancy, and social support. Countries in the top 25% for these factors are also the happiest. Europe leads in the convergence of these elements, while Western Asia ties social support and health to happiness. In the Americas, North America connects prosperity to happiness, and South America highlights social ties. Overall, the plot underscores that happiness thrives where these factors align.

Importance and Significance:

The analysis of the World Happiness Dataset from 2015 to 2023 reveals key factors influencing global happiness scores. While most countries saw a decline or stability in happiness, nations like Finland, Greece, and some African countries showed improvement. Health life expectancy, economic stability, social support, and freedom of choice are strongly linked to happiness, with higher GDP and strong social systems contributing to greater well-being. Corruption, initially decreasing but later rising, negatively impacts happiness. By focusing on improving these factors—such as fostering social support, promoting health, and empowering younger generations to make life choices—we can create happier societies. This report combines geographical context, density visualization, and regression analysis to provide a holistic view of how these factors shape global happiness scores.

Data and Methodology

The data used for visualizations, has been taken from Kaggle - Global Happiness datasets, which includes metrics like happiness scores, GDP per capita, life expectancy, and corruption perceptions. Visualizations are being coded in Google Colab using Python libraries such as Matplotlib, Seaborn, and Folium. Relevant codes for the above visualizations are found in the below links.

CollabLink: https://drive.google.com/file/d/1tNUM2eyOofeMI5wQK9Kq7WVY8swcPCWC/view?usp=sharing
Github Link: https://github.com/bhavana-devulapally/world-happiness-report-data-visualizaton
Kaggle Dataset Link: https://www.kaggle.com/datasets/sazidthe1/global-happiness-scores-and-factors