



7BUIS009W

Data Visualisation and Dashboarding

Assessment 002

January 2024

World Happiness Report

Module Leader:

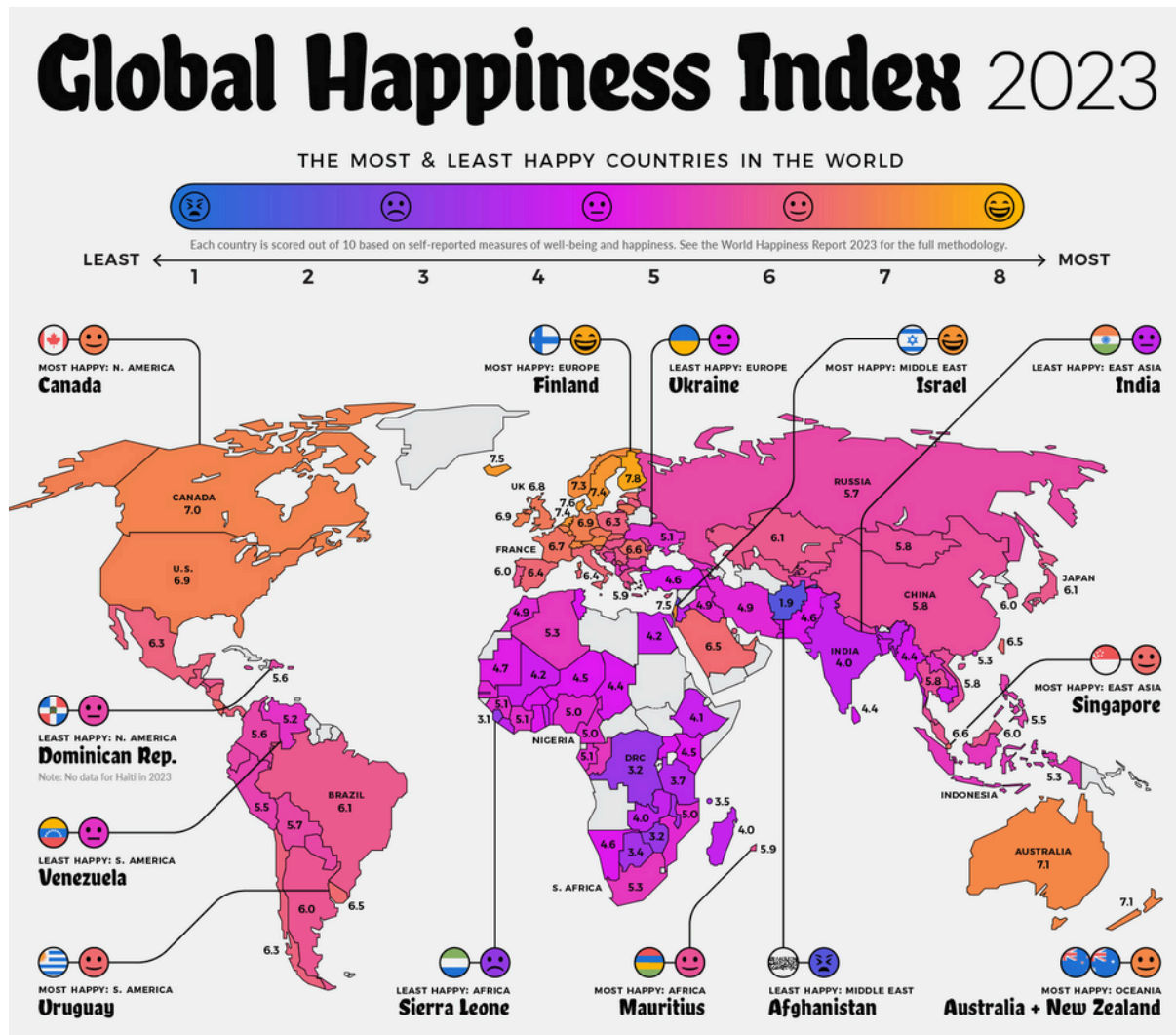
Rolf Bänziger

Akram Naoufel Tabet

w1979246

Part-A

Unveiling the Contributors to Global Happiness: What factors contribute to global happiness in the 2020 World Happiness Report?

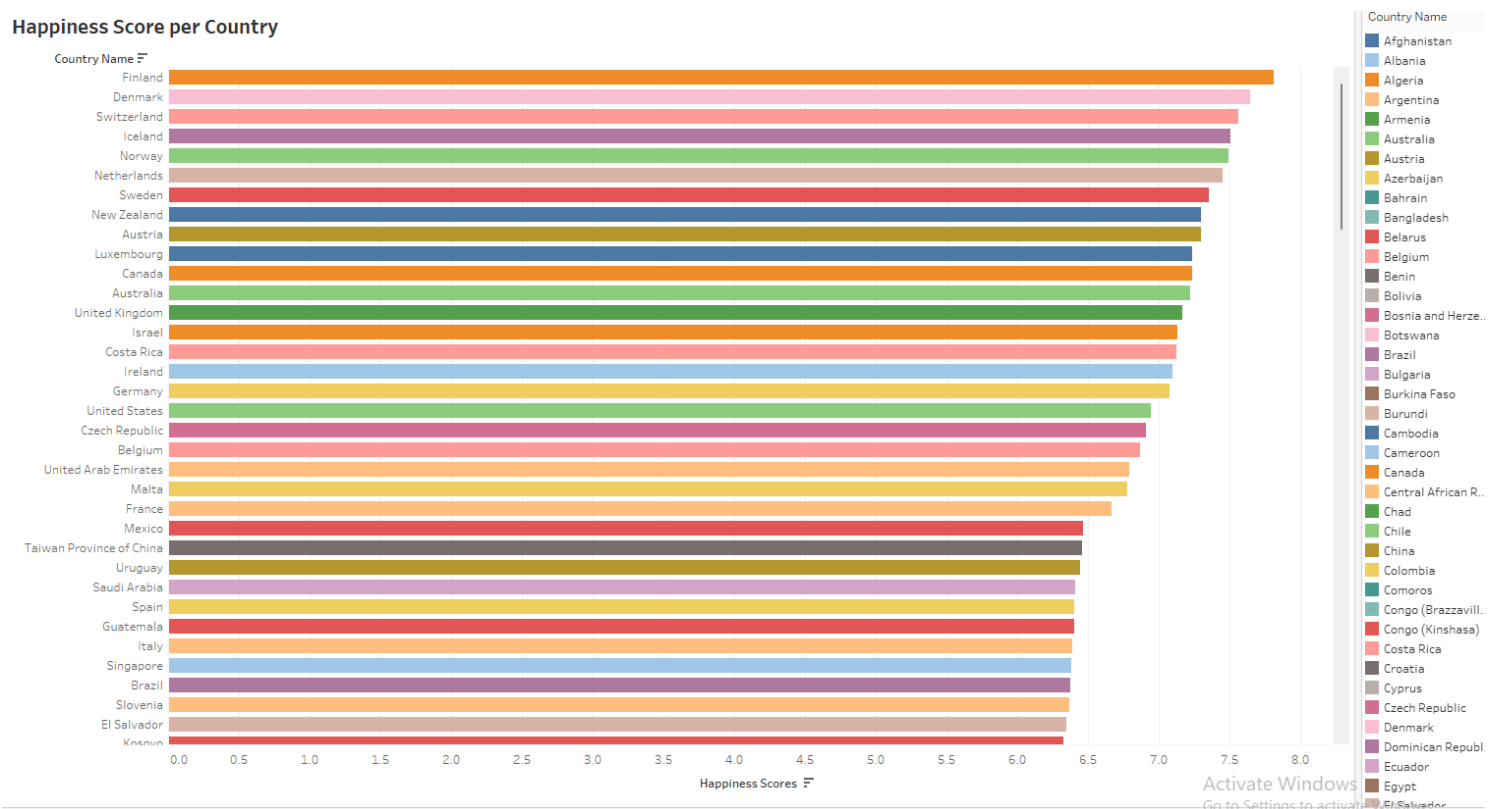


Governments increasingly view happiness as a metric for success, emphasising its link to social capital beyond financial measures. Subjective Well-being (SWB) and Happiness Scores guide policymaking, highlighting the importance of qualitative or quantitative aspects. Questions on the legitimacy of wealth and democracy as happiness indicators add complexity to "ranking happiness." Despite challenges, understanding conditions for happiness aids policymakers in improving lives within their jurisdictions.

The map above is a global snapshot of life satisfaction around the world. It utilises the World Happiness Report, an annual survey of how satisfied citizens are worldwide—to map out the world's happiest and least happy countries.

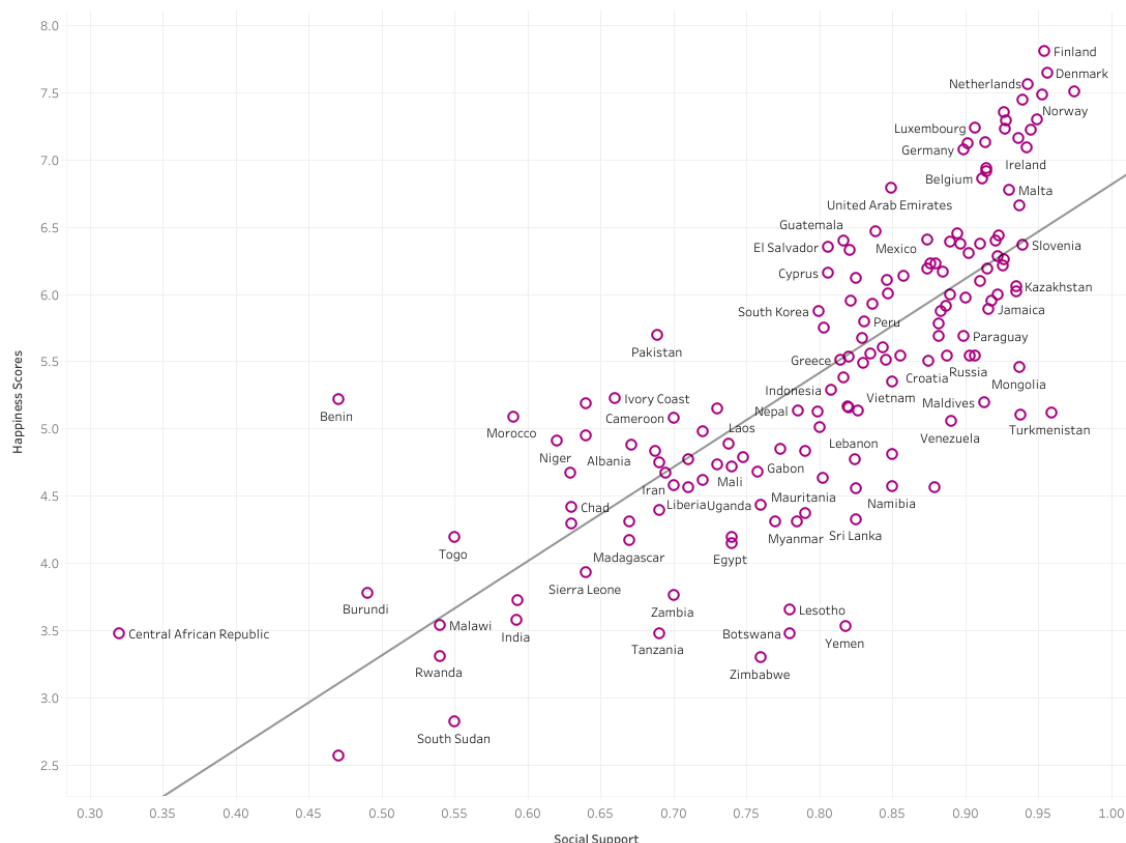
The bar chart depicting Happiness Scores across countries offers a compelling glimpse into global well-being. Leading the pack are European nations, with Finland securing the top spot at an impressive 7.80, closely followed by Denmark (7.64) and Switzerland (7.56). The dominance of European countries extends through the top ten ranks. Noteworthy is the substantial Happiness Score of 6.9 for the United States and a commendable 7.22 for the United Kingdom. Conversely, the chart underscores challenges faced by African nations, evident in lower scores ranging from 4.50 to 2.80, with Sudan registering among the lowest. Afghanistan claims the lowest rank with a score of 2.57, reflective of the hardships and conflicts impacting well-being. Enhancing the chart with a colour gradient for impact, interactive elements, and additional contextual information can elevate its visual appeal and provide a more insightful exploration of global happiness trends.

Happiness Score per Country



To look at the relationships between happiness scores and the other measurements, I created scatterplots. I included a trendline that gives the coefficient and R-squared (coefficient of determination).

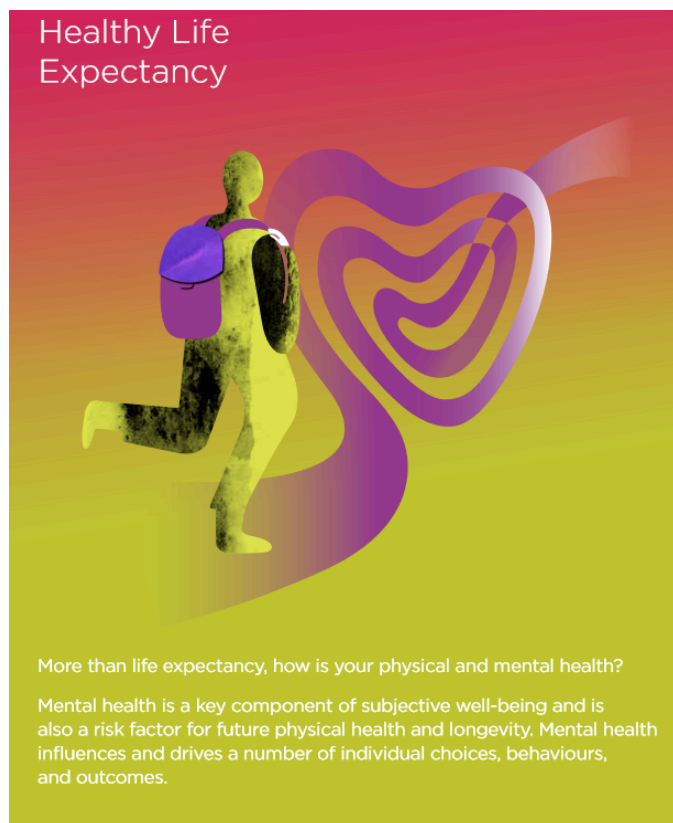
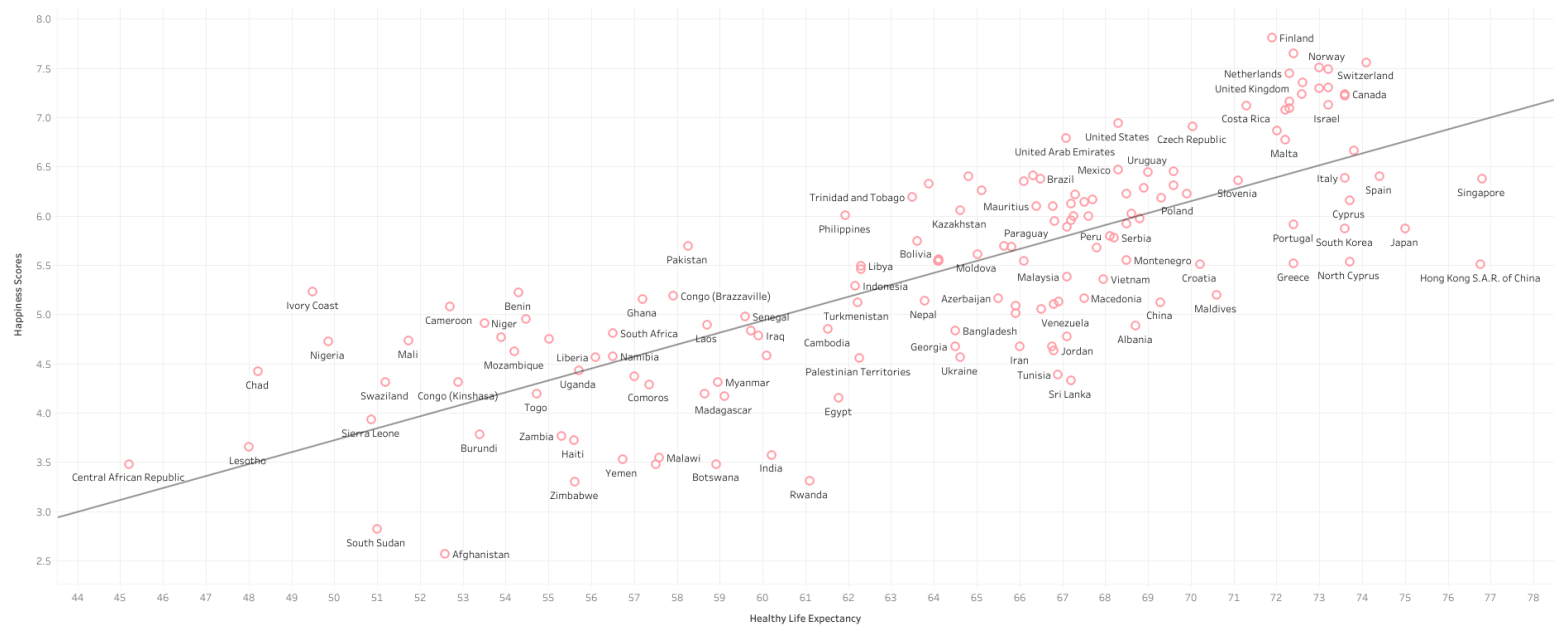
Happiness Score vs Social Support



The scatterplot adeptly illustrates the intricate connection between Happiness Scores and Social Support across diverse countries, highlighting a distinct positive linear relationship between the two variables. High-income nations such as Finland, Denmark, the United Kingdom, the United States, and Switzerland form a noticeable cluster, characterised by elevated levels of both Happiness Scores and Social Support. In contrast, countries like India, Malawi, Sudan, and various African nations, situated at the lower end of the spectrum, exhibit lower Social Support, aligning with diminished Happiness Scores. This global trend suggests that nations with robust social support systems tend to report higher overall happiness levels. The robustness of this linear relationship is reinforced by the calculated R-squared value of 0.58, signifying

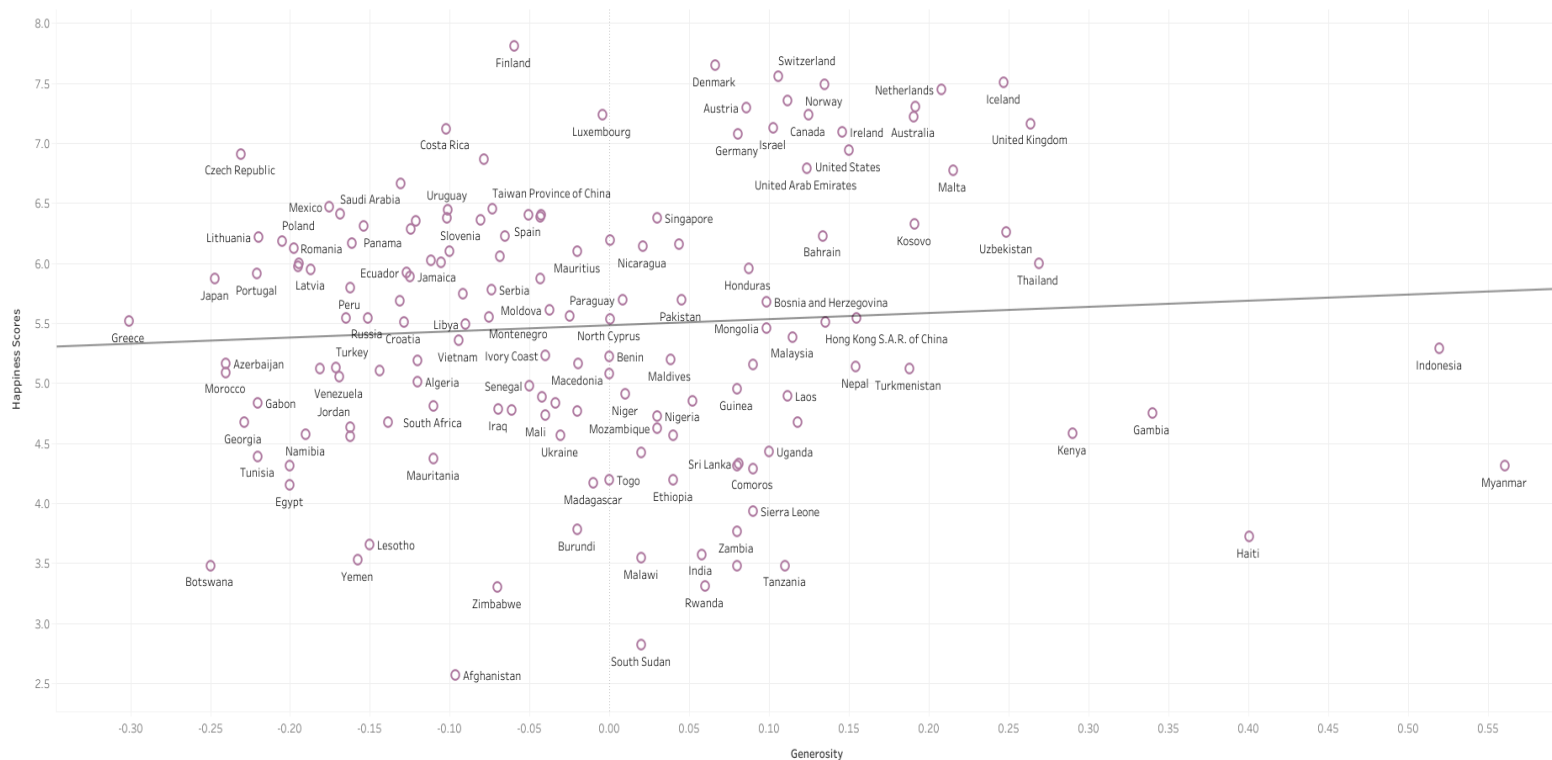
that approximately 58% of the variability in Happiness Scores can be accounted for by variations in Social Support.

Happiness Scores vs Healthy Life Expectancy



The scatter plot reveals a positive linear relationship between Happiness Scores and Healthy Life Expectancy, yet certain developed countries like France, Italy, Spain, and Singapore deviate from this trend. Despite their high Healthy Life Expectancy scores, these nations are positioned below the expected linear association. This observation prompts a closer examination of nuanced factors influencing happiness in these countries, suggesting that elements beyond health, such as socio-cultural dynamics and economic conditions, play a significant role. The robust linear relationship is emphasised by the R-squared value of 0.59, indicating that around 59% of the variability in Happiness Scores can be explained by variations in Healthy Life Expectancy.

Happiness Scores vs Generosity



Generosity



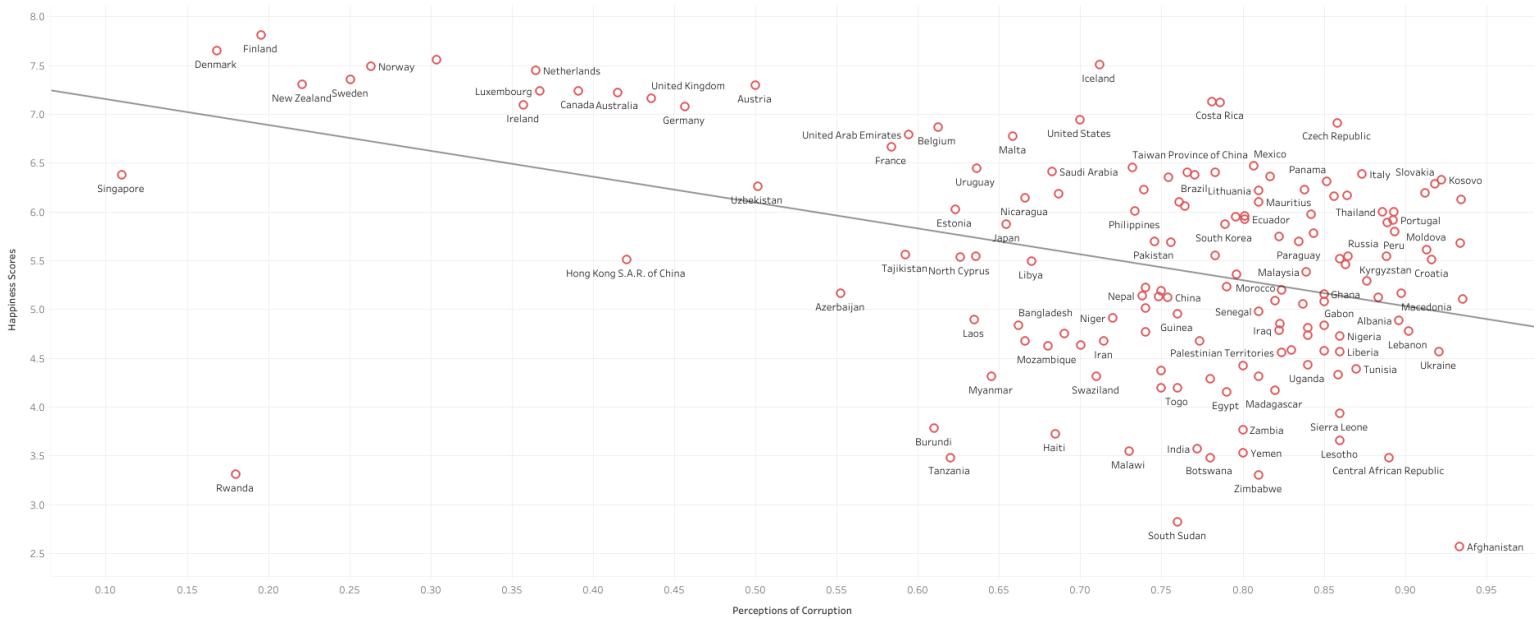
“Have you donated money to a charity in the past month?”

A clear marker for a sense of positive community engagement and a central way that humans connect with each other.

Research shows that in all cultures, starting in early childhood, people are drawn to behaviours which benefit other people.

In examining the scatterplot of Happiness Scores against Generosity, a subtle positive linear association emerges, indicating a connection between altruistic behaviours and overall well-being. However, the correlation is not robust, as evidenced by the modest R-squared value of 0.004. The plot introduces intriguing observations. Countries like Kenya, Indonesia, and Myanmar exhibit high Generosity values but correspondingly low Happiness Scores, challenging the assumption that heightened generosity necessarily translates to increased happiness. Conversely, Finland, despite securing a top position in Happiness Scores, reports an unexpected Generosity value of -0.05, suggesting that other factors may outweigh the impact of generosity in contributing to the nation's well-being.

Happiness Scores vs Perceptions of Corruption



Perception of Corruption



"Is corruption widespread throughout the government or not?" and
"Is corruption widespread within businesses or not?"

Do people trust their governments and have trust in the benevolence
of others?

The scatterplot depicting Happiness Scores against Perceptions of Corruption reveals a clear negative linear relationship, affirming the intuitive notion that higher corruption perceptions correspond with lower happiness levels. Developed countries like Finland, Denmark, and Singapore demonstrate high happiness and low corruption, while many African nations exhibit the opposite pattern. The negative correlation, supported by an R-squared value of 0.17, underscores the detrimental impact of corruption on a nation's overall well-being. Exceptions such as the United States and Italy highlight the role of additional factors in shaping happiness levels. The plot serves as a compelling visual narrative, emphasising the significance of ethical governance in fostering societal contentment.

Part-B

The Gallup World Poll (GWP) is conducted annually to measure and track public attitudes concerning political, social and economic issues, including controversial and sensitive subjects. Annually, this poll tracks attitudes toward law and order, institutions and infrastructure, jobs, well-being and other topics for approximately 150 countries worldwide. The data gathered from the GWP is used to create an annual World Happiness Report (WHR). The World Happiness Report is conducted to review the science of understanding and measuring subjective well-being and to use survey measures of life satisfaction to track the quality of lives in over 150 countries.

At first glance, it seems that world happiness isn't important or maybe it's just an emotional thing. However, several governments have started to look at happiness as a metric to measure success. Happiness Scores or Subjective Well-being (SWB) are national average responses to questions of life evaluation. They are important because they remind policy makers and people in power that happiness is based on social capital, not just financial. Happiness is often considered an essential and useful way to guide public policies and measure their effectiveness. It is also important to note that happiness scores point out the importance of qualitative rather than quantitative. At times, quality is better than quantity.

Selecting the 2020 World Happiness Report dataset was a deliberate choice based on several considerations. The dataset's primary source, Michael Londeen, derived the information from the reputable World Happiness Report for 2020. The World Happiness Report is a widely recognized and authoritative publication that annually assesses and ranks global happiness, making it a robust and comprehensive source for the chosen analysis.

The decision to use the 2020 dataset was influenced by the unavailability of more recent data for 2023. To maintain relevance and consistency in the analysis, the most recent available data was chosen. While it would have been ideal to use the latest information, the 2020 dataset still provided valuable insights into the state of global happiness, offering a representative snapshot for over 150 countries. The choice of the 2020 World Happiness Report dataset was driven by the credibility of its source, the World Happiness Report, and the need to utilise the most recent available data for a comprehensive examination of happiness factors across countries.

In the process of preparing and transforming the data for analysis, rigorous steps were undertaken using the R programming language. Initial data preparation involved loading the dataset and conducting a thorough examination for missing values, data cleansing, and ensuring consistency in column types. The 'dim' function was employed to ascertain the dataset's size, providing a foundational understanding of its scope. Further checks, including the identification of NaN values using the 'any' function, contributed to data integrity. Subsequently, a detailed data analysis was performed, investigating the relationships between variables. The 'cor' function in R facilitated the calculation of correlations, and the results were visualised through the creation of scatterplots. A heatmap, generated with the 'gplots' library, aided in the selection of attributes to be illustrated in the scatterplots. These meticulous data preparation and analysis steps were crucial in laying the groundwork for meaningful insights into the relationships between happiness scores and various factors, enhancing the overall robustness of the academic investigation. In the realm of data analysis, my strengths lie in the creation of Tableau charts, a task that demanded considerable time and effort. I took the initiative to delve into Tableau, aiming for a high level of proficiency. To ensure the quality of my visualisations, I sought the guidance of a friend who possesses extensive knowledge in Tableau. This collaborative effort was crucial in achieving polished and impactful charts. The dedication to

mastering Tableau and leveraging external expertise showcases a commitment to excellence in data presentation.

In terms of my improvement, there's an opportunity to enhance my storytelling techniques, particularly in the descriptive aspects of the charts. Providing more insightful narratives around the visualisations can deepen the audience's understanding. Additionally, diversifying the visualisation formats beyond traditional bar charts, line charts, and scatter plots could add a layer of creativity and reveal more nuanced patterns and insights. Exploring other chart types, such as area charts, bubble charts, or even interactive dashboards, can offer a more comprehensive exploration of the dataset. This creative approach can unveil additional dimensions of the data, making the analysis more dynamic and engaging.

In summary, the analysis of the 2020 World Happiness Report dataset involved rigorous data preparation and insightful visualisations using Tableau. The narrative effectively communicated global happiness trends, but opportunities for improvement include enhancing my storytelling techniques and diversifying visualisation formats for a more dynamic and engaging exploration of the dataset. Overall, the analysis provided a comprehensive and nuanced understanding of happiness across 150 countries, showcasing a blend of analytical and creative approaches.

