World Happiness Report Analysis - Project Summary

This project uses the World Happiness Report dataset to analyze the factors that contribute to the well-being and happiness of people across the globe. The dataset, which is publicly available on Kaggle, includes various indicators that correlate with happiness, such as GDP, social support, life expectancy, freedom, generosity, and corruption. The aim is to identify trends, patterns, and relationships between happiness scores and the factors influencing them, while answering key research questions about global well-being.

# Research Questions

The project aims to answer the following questions:  
**1. What are the top predictors of happiness based on the data?**

**Ans:-** Based on the data from the World Happiness Report, there are several key factors that seem to play a major role in determining how happy people are in different countries:

1. Wealth (GDP per capita): In general, wealthier countries tend to have happier people. This is likely because higher economic output allows for better living standards, access to healthcare, and more opportunities for people to thrive.

2. Social Support: People who feel supported by their communities or have strong social networks tend to report higher happiness levels. Countries where people feel they can rely on others for help or companionship often see higher levels of happiness.

3. Health and Life Expectancy: Good health is crucial for happiness. Countries with better healthcare systems and higher life expectancies tend to have happier citizens, as people feel more secure about their health and future.

4. Freedom to Make Life Choices: When people feel they have the freedom to make their own decisions—whether it's about their career, lifestyle, or personal beliefs—they tend to be happier. It seems that more autonomy leads to greater life satisfaction.

5. Generosity: Giving to others, whether through charitable donations or helping others in need, is linked to happiness. In societies where generosity is high, people often report feeling more fulfilled and satisfied.

6. Low Corruption: Countries with lower levels of corruption tend to have happier populations. When governments are transparent and fair, people feel more trust in their institutions, which can lead to greater happiness.

These factors together show that happiness isn't just about having money—it's about feeling healthy, supported, free, and able to contribute to society.

**2. How does happiness vary across different regions or continents?**

**Ans:-** Happiness varies significantly across different regions and continents, and the World Happiness Report highlights some key patterns:

1. North America and Europe: These regions generally report higher happiness scores. Countries like Finland, Denmark, and the Netherlands, for example, consistently rank among the happiest in the world. This is often attributed to strong social support systems, high levels of trust in government, robust healthcare, and high standards of living.

2. Sub-Saharan Africa: On the opposite end of the spectrum, many countries in Sub-Saharan Africa tend to have lower happiness scores. Challenges such as poverty, political instability, and limited access to healthcare and education often contribute to lower levels of well-being. Countries like South Sudan and Central African Republic typically rank lower in happiness.

3. Asia: Happiness in Asia varies widely. Some countries like Japan, South Korea, and Taiwan report relatively high happiness scores, largely due to economic development and a high standard of living. However, countries in South Asia, such as India and Bangladesh, often have lower scores, due to challenges like inequality, poverty, and social unrest.

4. Oceania: Countries like Australia and New Zealand tend to have high happiness scores. These nations benefit from good governance, strong social systems, and a high quality of life. However, smaller Pacific nations often report lower happiness levels due to economic challenges.

5. Latin America: Happiness scores in Latin America are mixed, but many countries in this region, such as Costa Rica and Colombia, perform surprisingly well, with high levels of social support, a sense of community, and a relaxed lifestyle contributing to their happiness.

Overall, regions with higher social support, wealth, and freedom tend to score higher in happiness. In contrast, areas facing economic hardship, political instability, and social challenges often have lower scores.

**3. Has the level of happiness in countries changed over time?**

**Ans:-** Yes, the level of happiness in countries has changed over time, and the World Happiness Report provides some interesting insights into these trends.

1. Global Trends: Over the years, global happiness levels have fluctuated, but in general, there has been a noticeable improvement in happiness scores in several countries. Economic growth, improvements in healthcare, and increased social support have helped lift happiness levels in many parts of the world.

2. Countries Showing Improvement: Some countries have shown significant improvement in happiness over time. For example, nations like Iceland, Ireland, and the United States have seen steady increases in their happiness scores, often due to better economic conditions, healthcare access, and more opportunities for personal freedom.

3. Countries Experiencing Decline: On the other hand, there are countries where happiness levels have declined or stagnated. In recent years, countries like Venezuela and certain Eastern European nations have experienced declines in happiness, mainly due to political instability, economic struggles, and rising corruption. For example, Venezuela has seen a dramatic drop in happiness as it faces severe economic and social crises.

4. Impact of External Factors: Events like economic recessions, natural disasters, and political changes can have a major impact on a country's happiness levels. For instance, the global financial crisis of 2008 affected the happiness of many nations, particularly in Europe and North America, where it led to increased unemployment and economic uncertainty.

5. Regions and Happiness Over Time: In some regions, happiness scores have become more stable. For example, Nordic countries like Finland, Denmark, and Sweden have consistently ranked among the happiest over time, with small improvements as they continue to refine their welfare systems and focus on well-being.

6. Developing Countries: In contrast, many developing nations have seen gradual increases in happiness as they improve their infrastructure, education systems, and healthcare access. Countries like Bhutan have made notable strides in improving the happiness of their citizens by focusing on factors like environmental sustainability, cultural preservation, and social well-being.

Overall, while the level of happiness has risen in many countries, global challenges—like economic inequality, political unrest, and environmental concerns—continue to affect happiness in some parts of the world.

These questions help explore the relationship between happiness scores and factors like GDP, social support, and freedom, as well as trends across different regions and over time.

# Tools and Methods

To develop this solution, several tools and concepts were used, including Python libraries such as Pandas for data manipulation, Seaborn and Matplotlib for visualizations, and Scikit-learn for regression modeling. Jupyter Notebook was used to document and execute the analysis interactively.

# Data Analysis Process

The first step in the analysis involved loading and inspecting the World Happiness Report dataset. After performing exploratory data analysis (EDA), the dataset was cleaned by filling missing values and ensuring correct data types. Basic statistical analysis was conducted to understand the distribution of happiness scores and other factors like GDP and social support.  
  
A correlation matrix was generated to explore relationships between happiness and other variables, followed by regional analysis to examine differences in happiness scores across regions. Additionally, a time series analysis was performed to study how happiness has changed over the years in various countries.

# Findings and Visualizations

Key visualizations in this project include bar charts comparing happiness scores by region, a heatmap of correlations between variables, and line graphs displaying trends in happiness scores over time. These visualizations helped identify that social support and GDP per capita are among the strongest predictors of happiness, while regions such as Scandinavia consistently show higher happiness scores. Time series analysis revealed that some countries, particularly those in Northern Europe, have shown sustained improvement in happiness over the years.

# Reflection

Through this project, I gained a deeper understanding of how multiple factors influence happiness across different countries. The regression analysis highlighted the importance of social support and economic factors, while regional and time series analyses revealed geographical and temporal trends.  
  
One key takeaway is that happiness is not solely determined by wealth but also by social factors such as support systems and freedoms available to citizens. This project also demonstrated how effective data visualization can be in communicating complex relationships and trends, and I have learned how to approach data wrangling, analysis, and modeling techniques in Python.