📄 World Happiness Report 2023 – Data Visualization Summary

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Tools Used: Python, Pandas, Matplotlib, Seaborn, Plotly

📘 Objective

To analyze the **World Happiness Report 2023** dataset and uncover insights about how socioeconomic and well-being factors such as **GDP, social support, health, freedom, generosity, and corruption** relate to happiness across countries.

📂 Dataset Overview

- **Source**: World Happiness Report (2023)

- **Rows**: 158 countries

- **Key Columns**:

    - `happiness_score`

    - `gdp_per_capita`

    - `social_support`

    - `healthy_life_expectancy`

    - `freedom_to_make_life_choices`

    - `generosity`

    - `perceptions_of_corruption`

📊 Visualizations & Insights

◆ **1. Bar Chart – Top 10 Happiest Countries**

- Highlights the highest scoring countries by happiness.

- **Switzerland, Denmark, and Iceland** top the list.

◆ **2. Scatter Plot – GDP vs Happiness Score**

- Shows a positive correlation between GDP and happiness.

- Countries with high GDP tend to be happier, but not always.

◆ **3. Correlation Heatmap**

- Strongest positive correlation: **GDP & Happiness Score**

- Weakest: **Generosity and Happiness Score**

◆ **4. Boxplot – Happiness by Region**

- Western Europe and North America show the highest median scores.

- Sub-Saharan Africa shows lower happiness levels overall.

◆ **5. Radar Chart – Country Comparison**

- Compared **Finland, India, and the USA** across 6 factors.

- Finland leads in nearly all aspects, especially social support and perceptions of corruption.

◆ **6. Choropleth Map – Global Happiness Distribution**

- Visualized global happiness using a color gradient.

- Highlights geographical patterns and disparities.

◆ **7. Pairplot – Multivariate Relationships**

- Explored inter-relationships between all numerical columns.

- Useful for identifying patterns across multiple features.

- ◆ **8. Histogram – Life Expectancy Distribution**

  - Most countries fall between **0.6–1.0** in normalized healthy life expectancy.

  - Indicates overall improvement in global health.

📈 Key Takeaways

- **GDP, social support, and life expectancy** are top drivers of happiness.

- Countries with **low perceived corruption** and **freedom of choice** tend to report higher well-being.

- Wealth doesn't always guarantee happiness — cultural and governance factors play a significant role.