Visualization1

November 12, 2025

[12]:
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

[13]:
```
df = pd.read_csv(r"C:\Users\sanju\2019.csv")
df.head()
```

[13]:

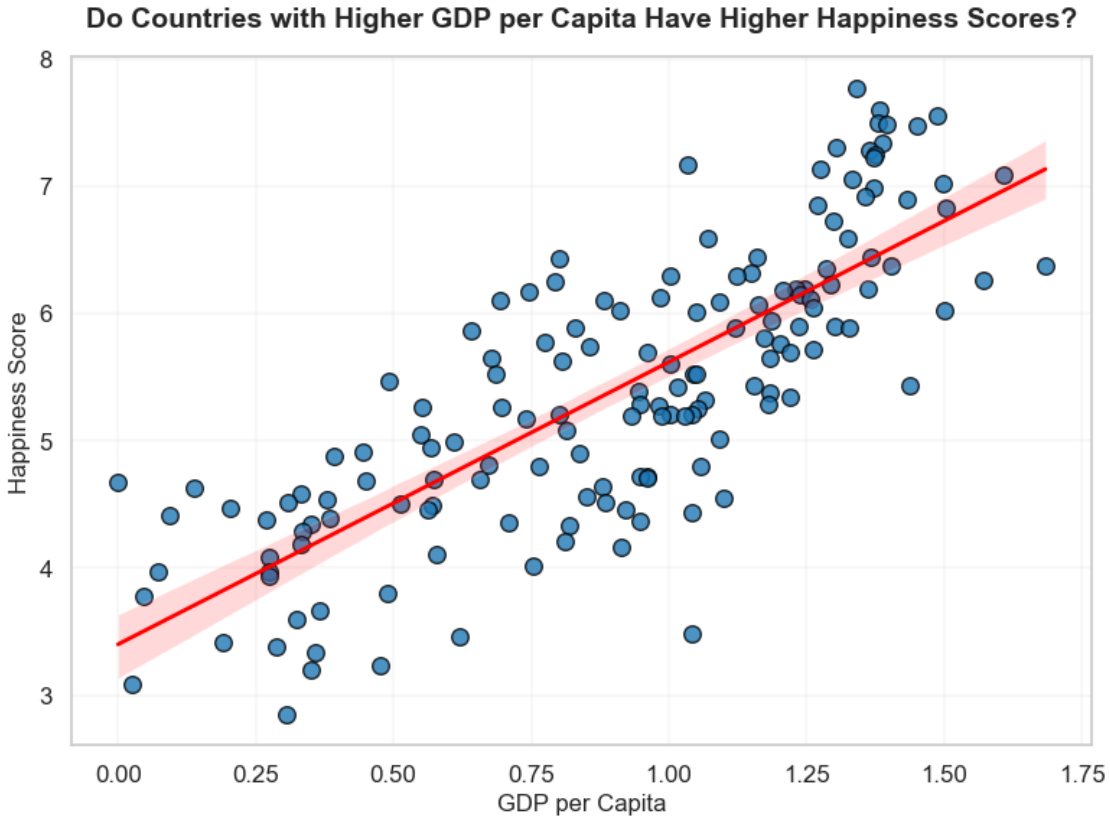
	Overall rank	Country or region	Score	GDP per capita	Social support	Healthy life expectancy	Freedom to make life choices	Generosity	Perceptions of corruption
0	1	Finland	7.769	1.340	1.587	0.986	0.596	0.153	0.393
1	2	Denmark	7.600	1.383	1.573	0.996	0.592	0.252	0.410
2	3	Norway	7.554	1.488	1.582	1.028	0.603	0.271	0.341
3	4	Iceland	7.494	1.380	1.624	1.026	0.591	0.354	0.118
4	5	Netherlands	7.488	1.396	1.522	0.999	0.557	0.322	0.298

[14]:
```
data = df[['Country or region', 'GDP per capita', 'Score']]
data.head()
```

[14]:

	Country or region	GDP per capita	Score
0	Finland	1.340	7.769
1	Denmark	1.383	7.600
2	Norway	1.488	7.554
3	Iceland	1.380	7.494
4	Netherlands	1.396	7.488

[22]:
```
sns.set(style="whitegrid", font_scale=1.1)
plt.figure(figsize=(8,6))
sns.regplot(
    data=data,
    x='GDP per capita',
    y='Score',
    scatter_kws={'color': '#1f77b4', 's': 70, 'edgecolor': 'black', 'alpha': 0.
 ↪8},
    line_kws={'color': 'red', 'linewidth': 2}
)
plt.title('Do Countries with Higher GDP per Capita Have Higher Happiness Scores?
 ↪', fontsize=14, fontweight='bold', pad=15)
plt.xlabel('GDP per Capita', fontsize=12)
plt.ylabel('Happiness Score', fontsize=12)
plt.grid(True, linewidth=0.3, alpha=0.6)
plt.tight_layout()
plt.show()
```



0.0.1 Research Question

Do Countries with higher GDP per capita have higher happiness scores?

0.0.2 Process and Design Decisions

The visulization uses data from the *2019 World Happiness Report*, which contains country-level indicators such as GDP per capita, social support, and happiness score. For this analysis, only two variables were selected - GDP per capita and Happiness Score. The data was already clean and aggregated at the country level, so no additional transformatios were required. A **Scatter Plot** was chosen because both variables are continuous, and this chart type reveals the correlation between economic prosperity and reported happiness.

0.0.3 Visual Encoding and Interpretation

The x-axis encodes GDP per capita, and the y-axis represents the Happiness Score. Each point corresponds to one country, while the red regression line highlights the overall positive trend. The scatter plot design uses simple colors, consistent scaling, and clear axis labels to improve readability. The upward slope of the regression line indicates that countries with higher GDP per capita generally report greater happiness. However, the scatter around the line shows that other factors such as freedom, generosity, or corruption also influence happiness. This design emphasizes the main relationship while alone does not fully determine well-being.