QTM350HW5

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QTM350 HW5

2. Load Data

```python
import pandas as pd
df = pd.read_csv("/Users/chenyunqing/Documents/QTM350/QTM350HW5-cyq/wdi.csv")
```

3. Exploratory Data Analysis

```python
import pandas as pd
df = pd.read_csv("/Users/chenyunqing/Documents/QTM350/QTM350HW5-cyq/wdi.csv")

df = df.dropna(subset=['life_expectancy', 'gdp_per_capita', 'country', 'gdp_growth_rate'])

highest_life_expectancy = df['life_expectancy'].max()
highest_life_expectancy_idx = df['life_expectancy'].idxmax()
country_highest_life_expectancy = df.loc[highest_life_expectancy_idx, 'country']
gdp_per_capita_country_highest_life_expectancy = df.loc[highest_life_expectancy_idx, 'gdp_per
gdp_growth_rate_country_highest_life_expectancy = df.loc[highest_life_expectancy_idx, 'gdp_gr

highest_gdp_per_capita = df['gdp_per_capita'].max()
highest_gdp_per_capita_idx = df['gdp_per_capita'].idxmax()
country_highest_gdp_per_capita = df.loc[highest_gdp_per_capita_idx, 'country']
life_expectancy_country_highest_gdp_per_capita = df.loc[highest_gdp_per_capita_idx, 'life_exp
gdp_growth_rate_country_highest_gdp_per_capita = df.loc[highest_gdp_per_capita_idx, 'gdp_grow

display(highest_life_expectancy)
```

```
display(country_highest_life_expectancy)
display(gdp_per_capita_country_highest_life_expectancy)
display(gdp_growth_rate_country_highest_life_expectancy)

display(highest_gdp_per_capita)
display(country_highest_gdp_per_capita)
display(life_expectancy_country_highest_gdp_per_capita)
display(gdp_growth_rate_country_highest_gdp_per_capita)
```

85.377

'Macao SAR, China'

36909.9564090312

-19.6093363742205

125006.021815486

'Luxembourg'

83.0463414634146

1.38018589083207

Maco SAR, China has the highest life expectancy. Its life expectancy is 85.38, its GDP per capita is 36909.96, and its GDP growth rate is -19.61. Luxembourg has the highest GDP per capita. Its GDP per capita is 125006.02, its life expectancy is 83.05, and its GDP growth rate is 1.38.
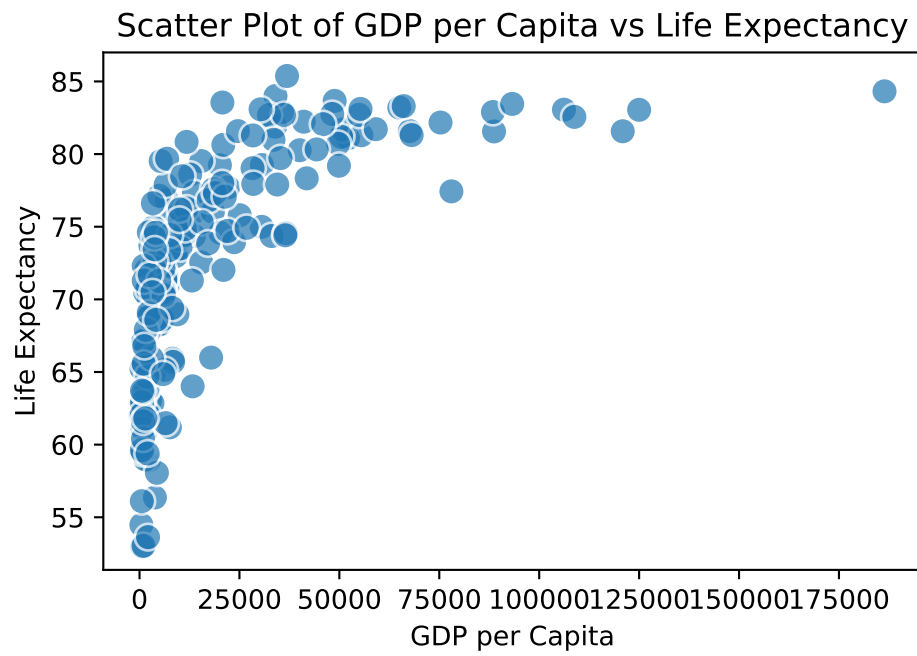
4. Plots

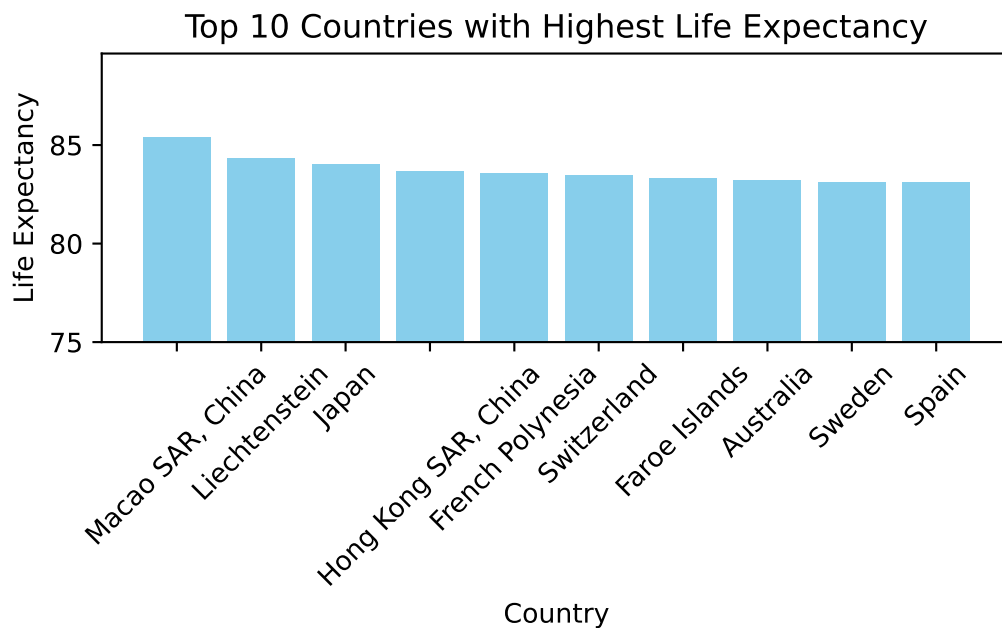Figure 1: Scatter Plot of GDP per Capita vs Life Expectancy Data Source: (**worldbank?**)

Top 10 Countries with Highest Life Expectancy

Figure 2: Top 10 Countries with Highest Life Expectancy Data Source: (**worldbank?**)

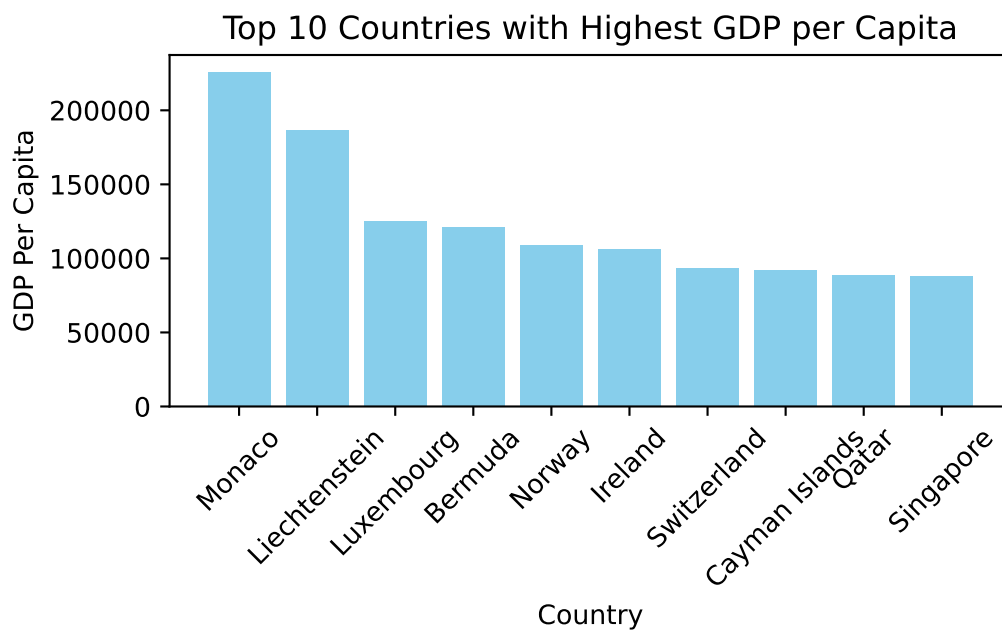## Top 10 Countries with Highest GDP per Capita

Figure 3: Top 10 Countries with Highest GDP Per Capita Data Source: (**worldbank?**)

5. Table of Key Statistics

Table 1: Key Statistics Table {#table1}

Country	Life expectancy	GDP Per Capita	GDP growth rate	Why Important?
Macao SAR, China	85.38	36909.96	-19.61	Highest Life Expectancy
Luxembourg	83.05	125006.02	1.38	Highest GDP Per Capita

Q6 Cross-reference

(**figure1?**) presents the scatter distribution of country's life expectancy and GDP per capita. We can observe a positive correlation between life expectancy and GDP per capita. (**figure2?**) presents the top 10 countries with highest life expectancy. We can observe Macao SAR, China has the highest life expectancy. (**figure3?**) presents the top 10 countries with highest GPD per capita. We can observe Lienchtenstein has the highest GDP per capita. (**table1?**) presents the statistics of countries with the highest life expectancy and the highest GDP per capita.

Q7 Reference

Chris Bradley (2022) proves a positive correlation between health and income. Organization (n.d.) provides the definitions and implications of GDP per capita and GDP growth rate.

Chris Bradley, Sven Smit, Marc Canal. 2022. "A Dividend Paid in Years: Getting More Health from Each Dollar of Income." https://www.mckinsey.com/mgi/our-research/pixels-of-progress-chapter-3.

Organization, World Health. n.d. "Gross Domestic Product (GDP) Per Capita and GDP Per Capita Annual Growth Rate." https://www.who.int/data/nutrition/nlis/info/gross-domestic-product-(gdp)-per-capita-and-gdp-per-capita-annual-growth-rate.