**Data Visualization with Pandas and Matplotlib**

**Insights from the Analysis**

The datasets used for this assignment were sourced online from the World Bank and other online sources. Upon cleaning and merging of the used datasets, we were left with 2544 observations (rows). We then went ahead to pick three indicators which are:

1. Electric Power Consumption (kWh per capital).
2. Access to Electricity (% of population) and
3. CO2 Emission (kt).

Next, we proceed to grouping the data by two metrics:

1. Year
2. Country Name

Upon grouping by year, we found the minimum, maximum, and average values for the selected indicators to be:

1. Electric Power Consumption: 910kWh; 4415.25kWh and 3560.15kWh respectively.
2. Access to Electricity: 81.59%; 98.51%; and 87.52% respectively.
3. CO2 Emission: 136061.20kt; 583110.00kt; and 246592.36kt respectively.

Next, we checked the top-3 years when access to indicators were the highest. The resulting years were:

1. Electric Power Consumption: 2010, 2013, and 2014 respectively.
2. Access to Electricity: 2018, 2017, and 2016 respectively.
3. CO2 Emission: 2018, 2017, and 2016 respectively.

Next, we checked for the correlation between the indicators. here, we found that there is about 91% reduction in access to electricity, and about 96% reduction in CO2 emissions per unit increase in electric power consumption. This however might not conform to reality, as the indicators had different units of measurement, and higher values than each other.

Upon grouping by country, we found the minimum, maximum, and average values indicators to be :

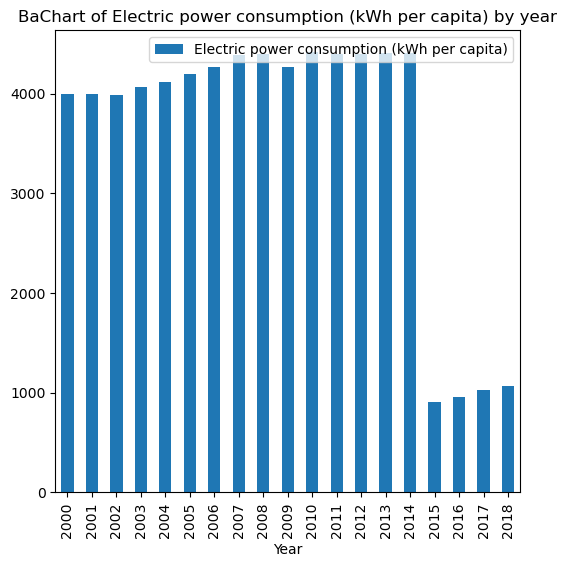
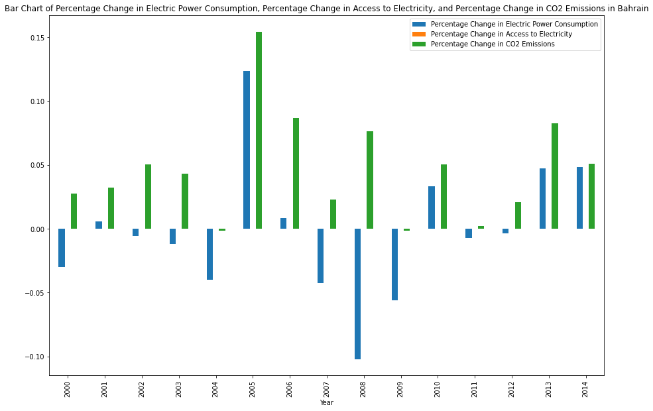
1. Electric Power Consumption: 33.58kWh; 40004.74kWh and 4173.88kWh respectively.
2. Access to Electricity: 3.61%; 100.00%; and 84.53% respectively.
3. CO2 Emission: 5.99e+02; 6.77e+06kt; and 1.71e+05kt respectively.

Next, we checked the top-3 countries by the respective indicators. The countries:

1. Electric Power Consumption: Iceland, Norway, and Bahrain respectively.
2. Access to Electricity: Australia, Austria, and Bahrain respectively.
3. CO2 Emission: Australia, Austria, and Bahrain respectively.

From the analyses, we found that there was a sharp drop in electric power consumption in the year 2015. Though there has been increment over the subsequent years, but it is not as much as the year past. This might indicate that other sources of energy are fast being adopted globally in recent years. We also found that the percentage of population that has access to electricity is on the increase annually. Finally, we also found that CO2 emissions has tremendously increased over the years.

**Snapshots from the analysis**

Chart, histogram

Description automatically generated 