Title: "Climate Change Indicators: A Comparative Cluster and Curve Analysis using World Bank Data
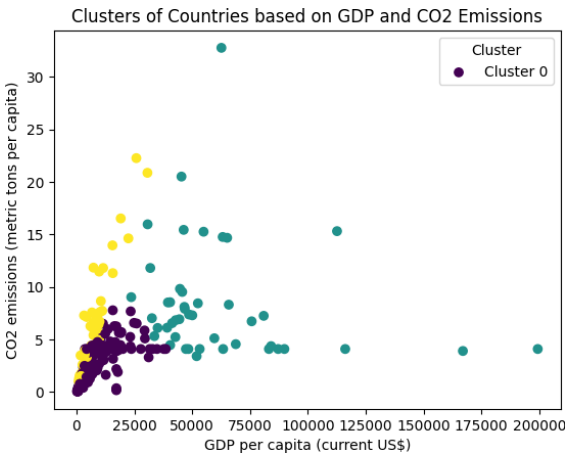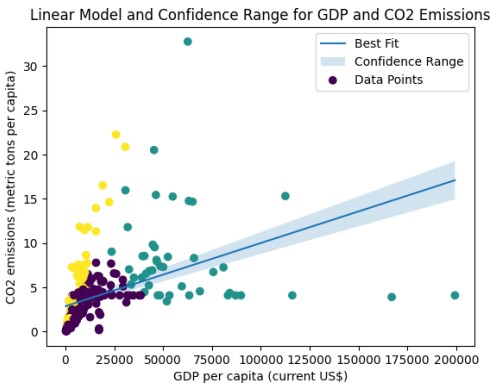
Name: Samra Nouman

1. https://github.com/Samranouman/Clustering.git
2. https://data.worldbank.org/indicator/EN.ATM.CO2E.PC
3. https://data.worldbank.org/indicator/NY.GDP.PCAP.CD
4. https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG

The line labeled 'Best Fit' is the best-fitting linear function, representing the relationship between GDP per capita and CO2 emissions per capita
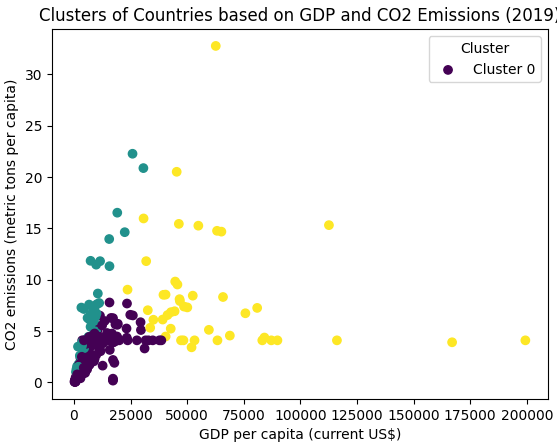

The data has been clustered using KMeans clustering algorithm with 3 clusters. The graph shows the different clusters with different colors, and it can be observed that countries with higher GDP per capita tend to have higher CO2 emissions per capita, and they belong to Cluster 2, while countries with lower GDP per capita tend to have lower CO2 emissions per capita and they belong to Cluster 0. Cluster 1 has countries with moderate GDP per capita and moderate CO2 emissions per capita. The graph provides a visual representation of how the countries are grouped based on their GDP and CO2 emissions.

	Country Name	Cluster	GDP per capita (current US$)	CO2 emissions (metric tons per capita)
54	Czechia	0	23664.847863	9.022786
16	Burundi	1	216.972968	0.060632
234	Tajikistan	2	889.020262	1.008889

countries are grouped based on their economic and environmental characteristics. The clustering allows for better understanding of the relationships between GDP and CO2 emissions, as well as identifying similarities and differences among countries.

In conclusion, our analysis using the KMeans clustering algorithm identified three distinct groups of countries based on their GDP and CO2 emissions per capita. The results highlighted a positive correlation between economic prosperity and environmental impact, revealing a critical challenge for nations to balance growth with sustainability. This clustering approach provides valuable insights into global environmental trends and their links to economic factors.