

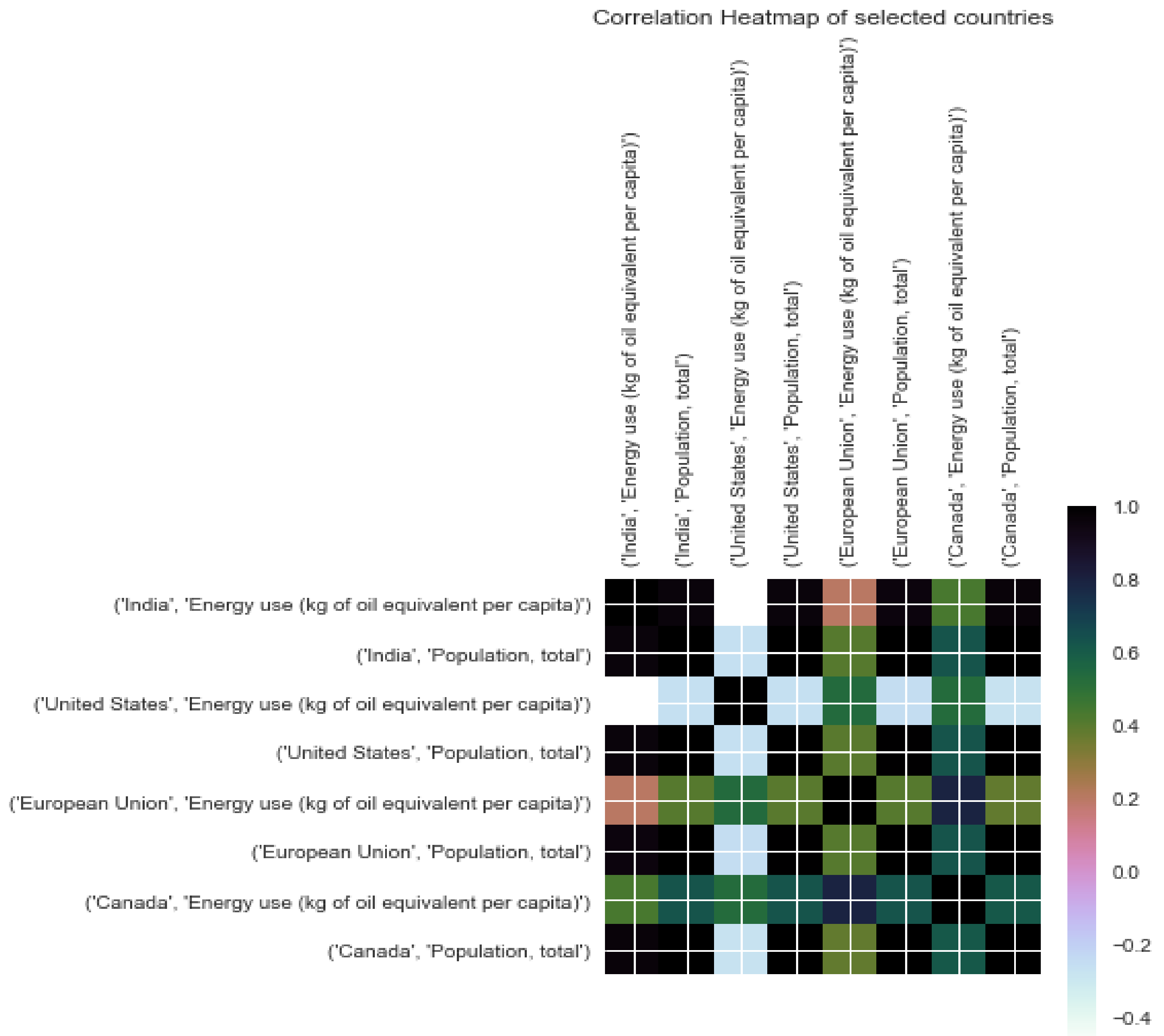
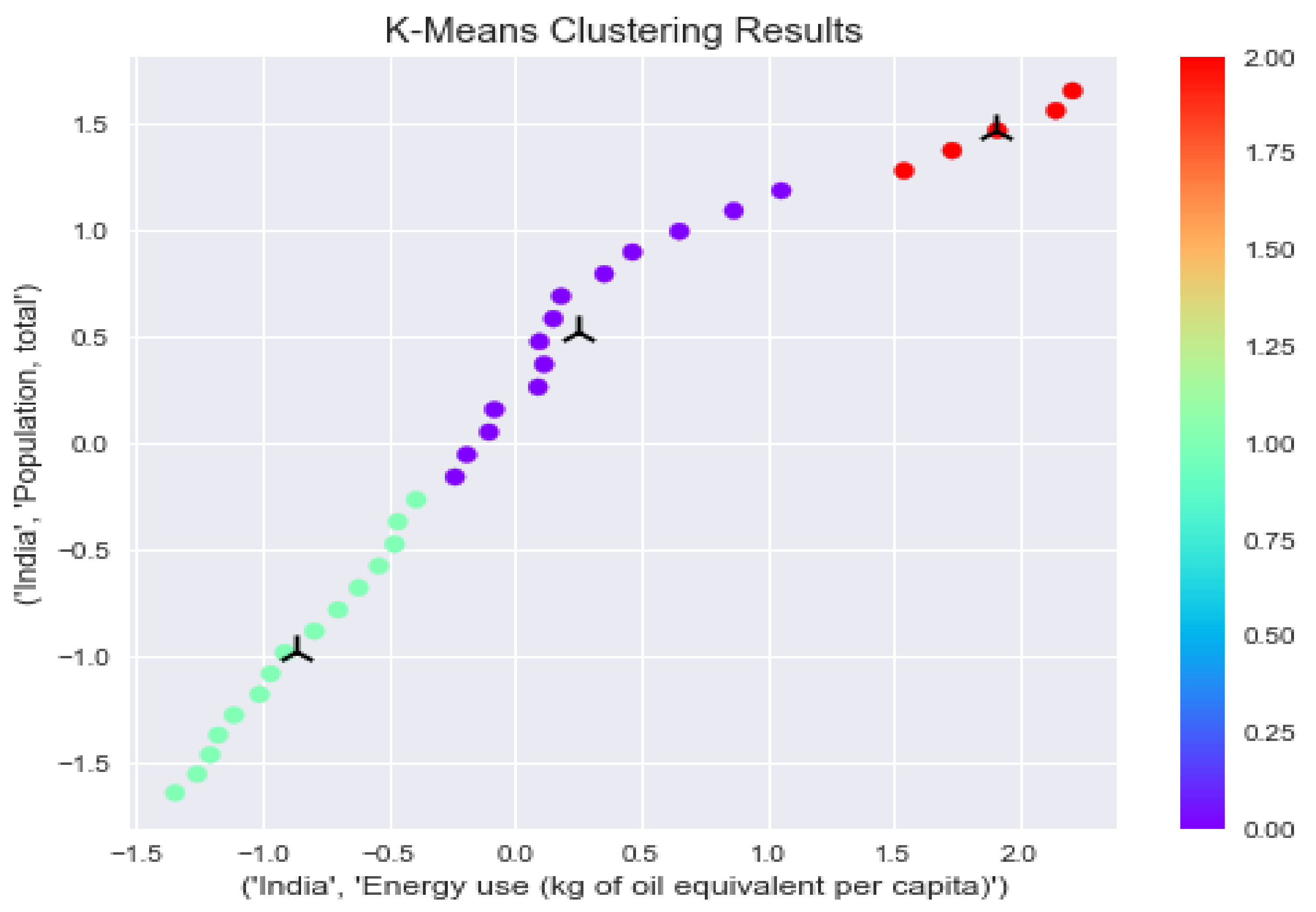
An Investigation into Energy Consumption and Population Growth in Select Countries: Insights from Clustering and Curve Fitting Analysis

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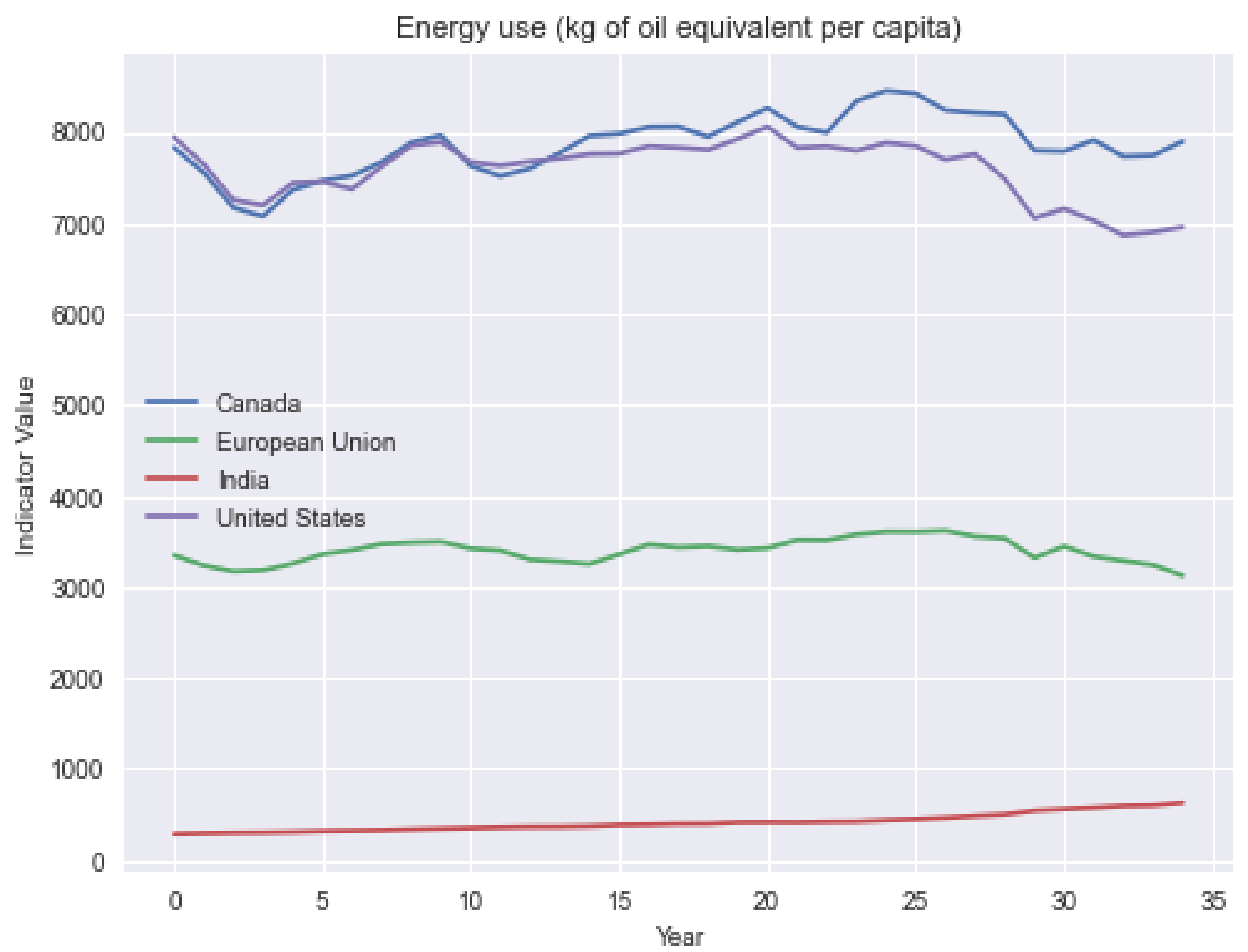
Repo-Link: <https://github.com/MouliSirigiri/ADS-Assignment3.git>

Abstract: In this project, we aimed to analyze and model the relationship between energy use and population size in select countries over a period of 34 years. We used data from the World Bank and applied clustering techniques to identify patterns and trends in the data. We also created simple models to fit the data and make predictions for future years. Our findings suggest that there are distinct clusters of countries based on energy use and population, and that some countries have experienced significant growth in energy use over time.



Introduction: Energy use and population size are two important indicators of a country's economic and social development. Understanding the relationship between these indicators can help policymakers make informed decisions about energy policy and sustainable development. In this project, we focused on four countries: India, United States, European Union, and Canada, and analyzed their energy use and population data over a period of 34 years. We applied clustering techniques to identify patterns and trends in the data and created simple models to fit the data and make predictions for future years.

Result : We found that there are distinct clusters of countries based on their energy use and population size. The European Union countries showed the highest average energy use, while India had the lowest average energy use. We also observed that energy use has increased over time in all four countries, but at different rates. India experienced the highest rate of growth in energy use, followed by the United States, European Union, and Canada. Our simple models suggest that energy use in all four countries will continue to increase in the future, with India showing the highest rate of growth.



Conclusion: In conclusion, our study suggests a close link between energy use and population size in a country's development. Clustering techniques effectively identified unique country groups based on these factors, while simple models provided insights into future trends. Our study can inform policymakers on energy policy and sustainable development, but more research is needed to improve future trend predictions.