

**INTRODUCTION**

In the previous assignment, I explored the relationship between population growth and power consumption. We noticed that power consumption has been on the rise over time, while population growth has been decreasing.

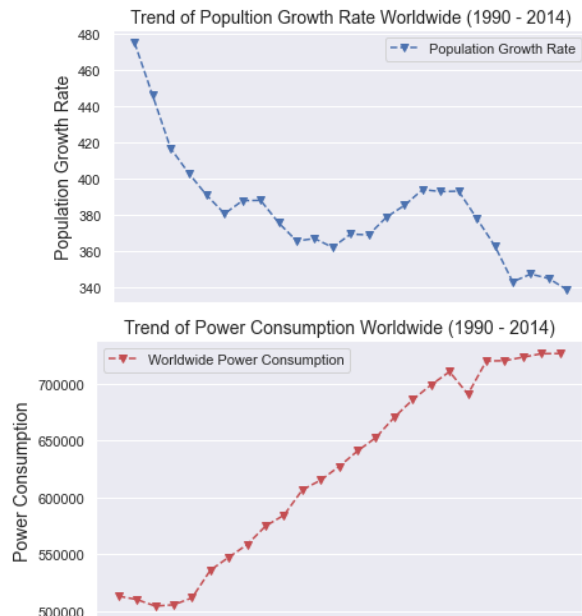


Figure 1

In this report, we would dig a little deeper and look for interesting clusters in countries population growth and energy consumption from 1900 to 2014. We would be working with population growth and power consumption dataset from data.worldbank.org. After cleaning both datasets, we summed the observations from 1990 to 2014, and then created a new dataset with the total observation from each country.

To determine the appropriate number of clusters for the dataset, the Elbow Method was used which resulted in three (3) clusters:

- Countries with low population growth,
- Countries with high population growth, and
- Countries with high power consumption.

Majority of the countries had power consumption below 20,000kWh per capital. Please refer to figure 2.

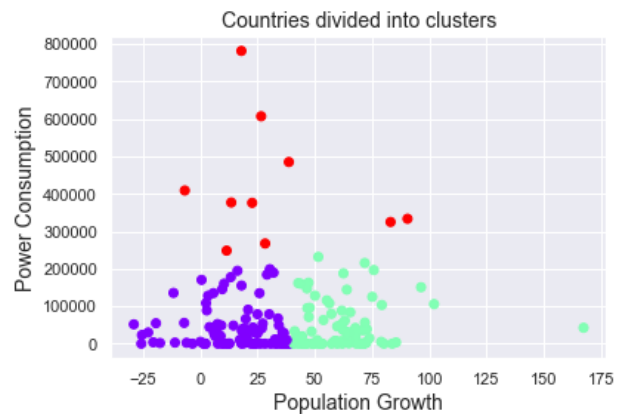


Figure 2

The tables below identifies the countries in each cluster.

	Power Consumption	Population Growth	Clusters
Country Names			
Arab World	2980.065662	-11.089867	Low Population Growth
Austria	54649.728133	-19.415139	Low Population Growth
Azerbaijan	40157.995774	19.527818	Low Population Growth
Benin	0.000000	33.372959	Low Population Growth
Bulgaria	184450.211016	29.110439	Low Population Growth

	Power Consumption	Population Growth	Clusters
Country Names			
Africa Eastern and Southern	0.000000	53.082003	High Population Growth
Africa Western and Central	18972.771769	67.830828	High Population Growth
Angola	0.000000	68.232893	High Population Growth
Albania	3587.967675	85.527052	High Population Growth
United Arab Emirates	33332.284897	41.224196	High Population Growth

	Power Consumption	Population Growth	Clusters
Country Names			
Australia	267482.009940	28.312988	High Power Consumption
Bangladesh	248477.483399	11.478545	High Power Consumption
Canada	484988.302050	38.680191	High Power Consumption
Curacao	408999.109350	-6.807941	High Power Consumption
IDA blend	376886.757740	13.496046	High Power Consumption
Middle East & North Africa (excluding high income)	781610.110340	17.918930	High Power Consumption
Nepal	324935.649640	83.135127	High Power Consumption
South Asia	375984.474960	22.632062	High Power Consumption

Figure 3