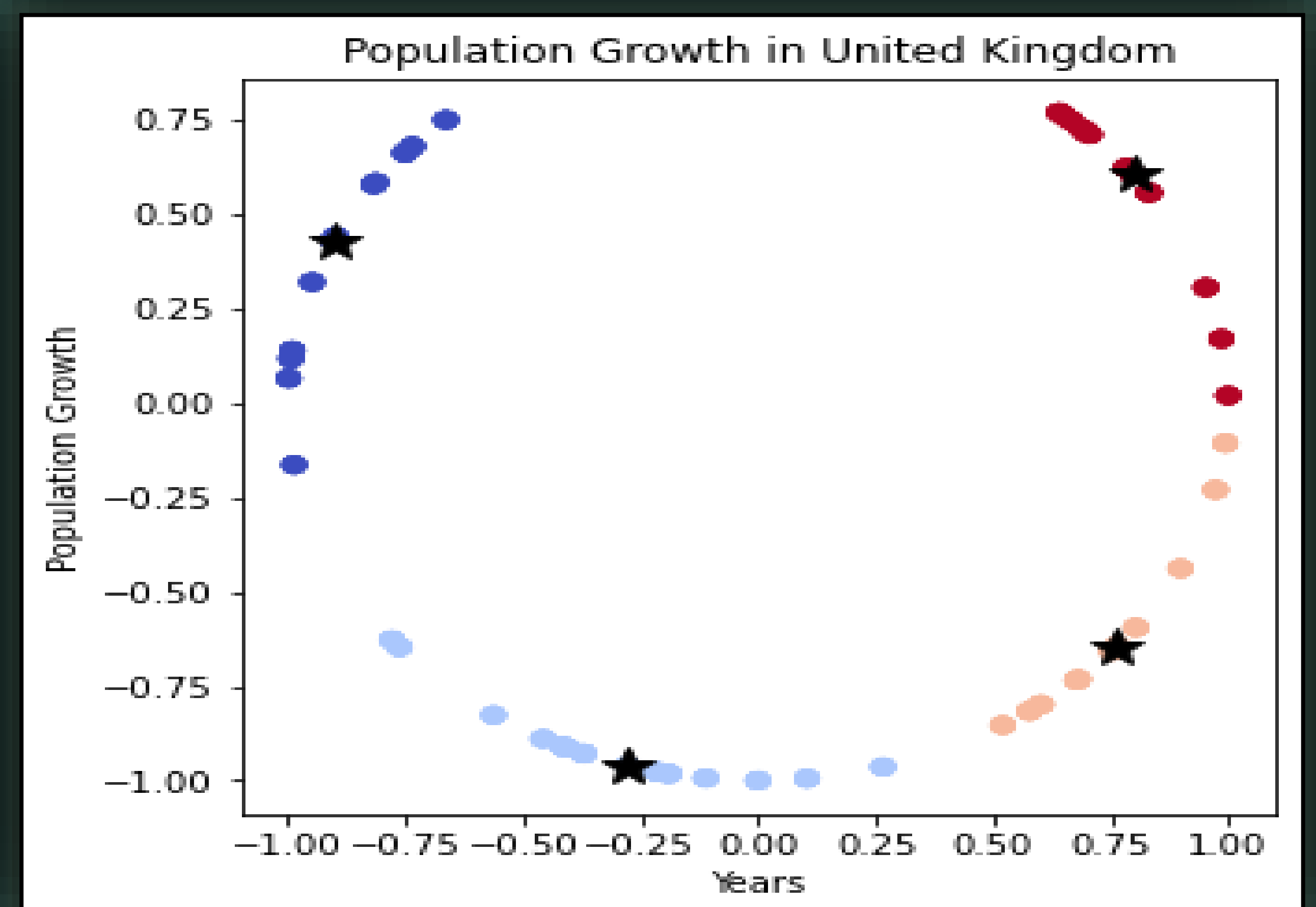


CLUSTERING AND FITTING

ADITHYA OTHAYOTH

INTRODUCTION

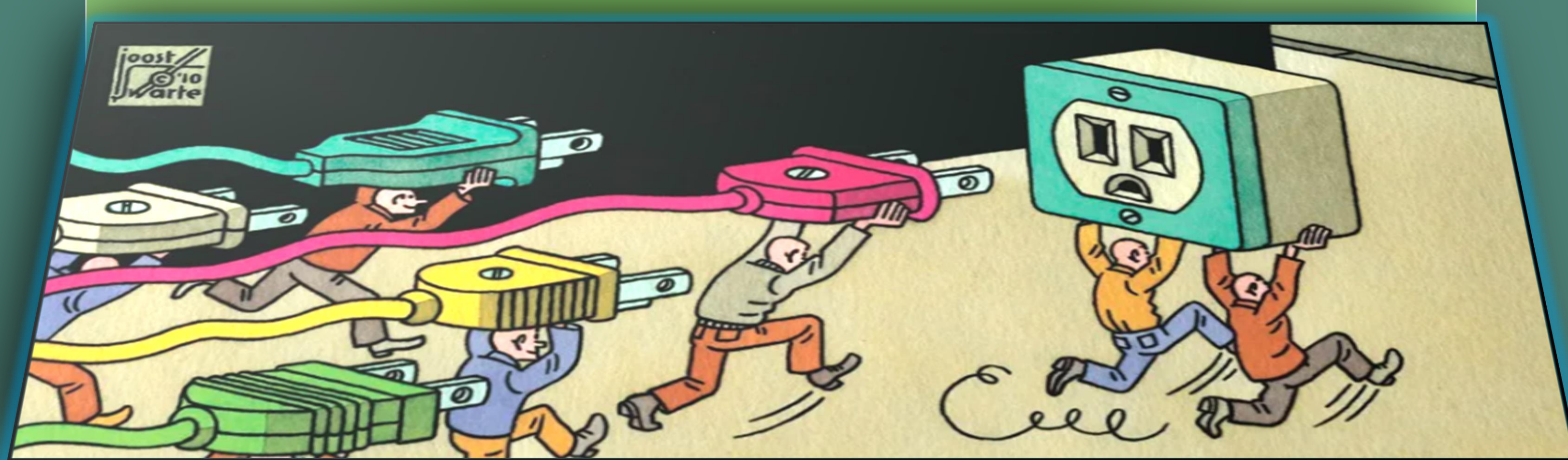
The population growth has increased due to the higher health and living conditions of the people. Some of the main reasons are medical facilities, public health improvement, hygiene and sanitization, development of trade and transportation, and so on. All of these things are discussed usually. But a main factor, which is energy, plays a big role in all of this development and the mechanism of all of the machines in the world. While increasing the population, the consumption of energy is also increasing day by day. The main energy resource we are using is electricity. A world without electricity is inconceivable.



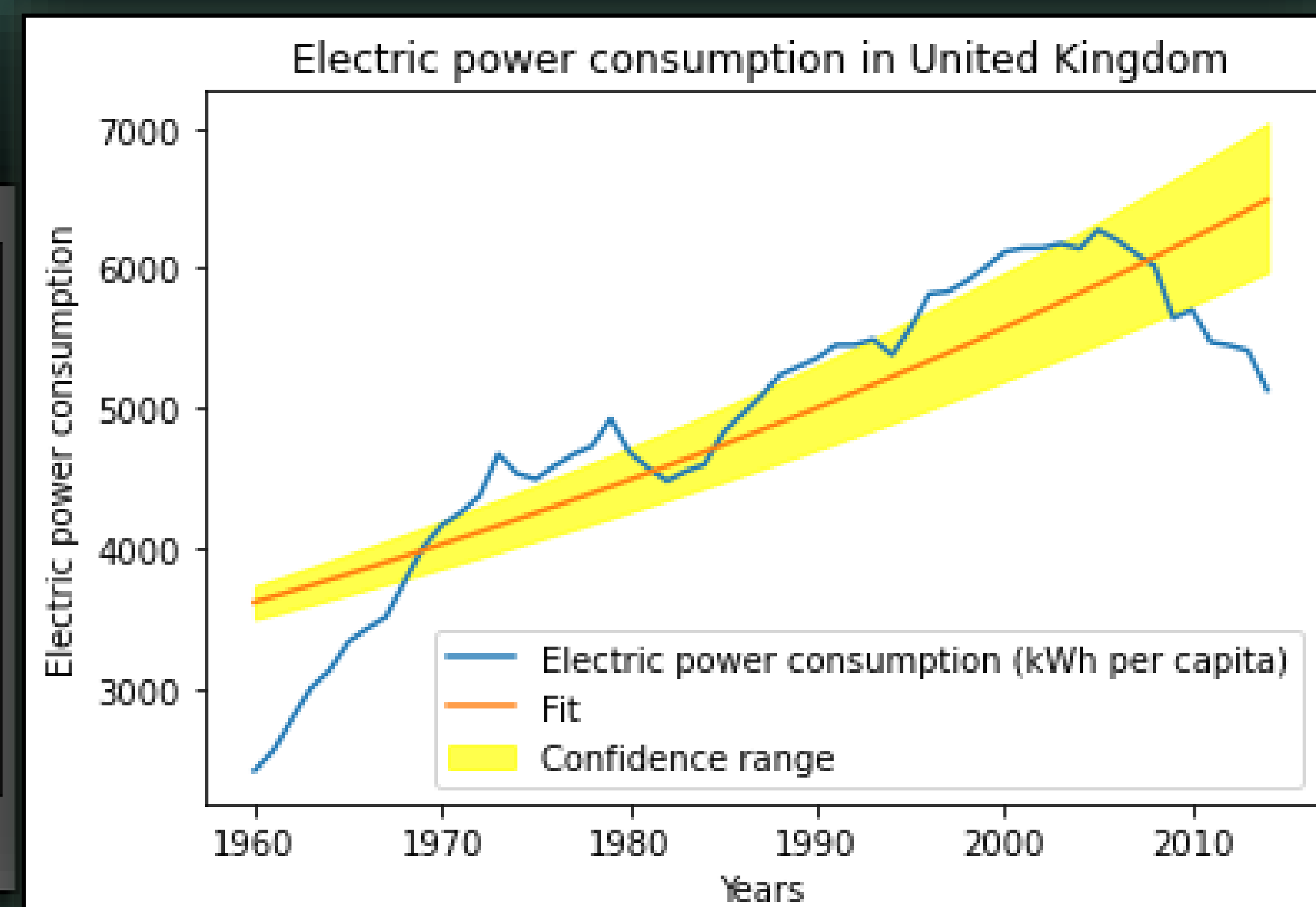
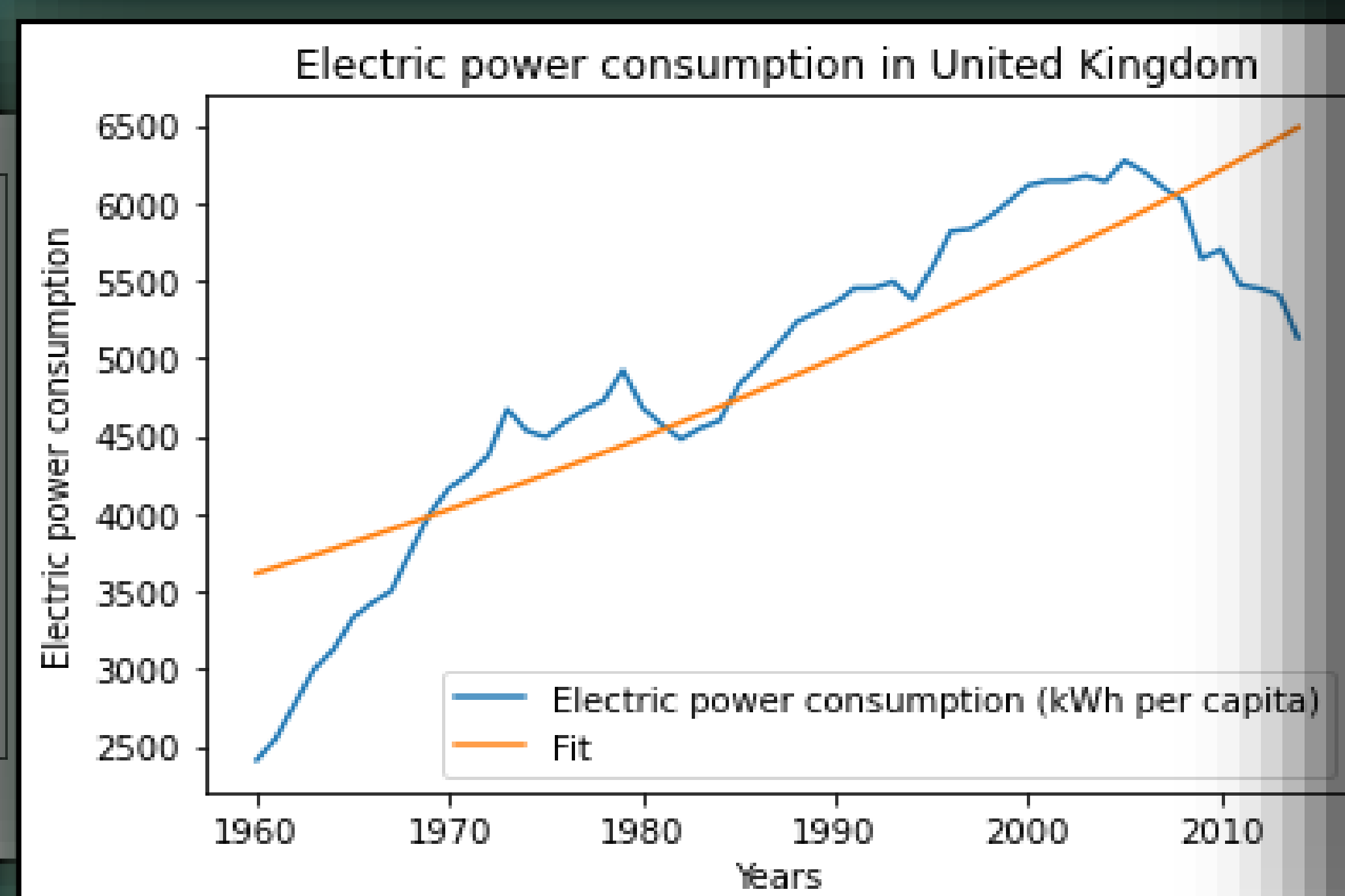
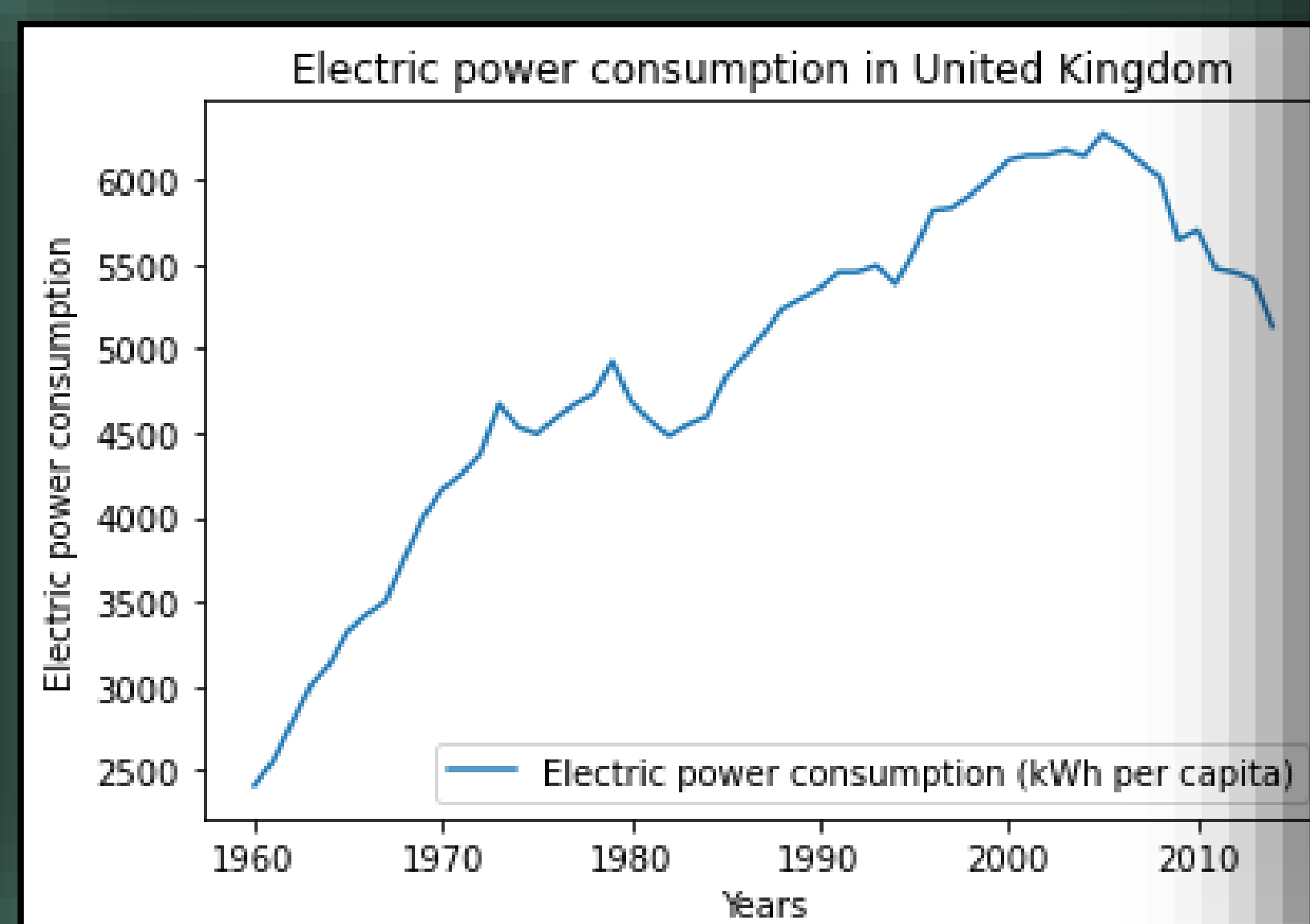
The above cluster illustrates the population growth in each year in united kingdom.

Methods used

To plot the cluster, the affinity propagation method is used. To fit the data points, the Curve fit method is used in the below graphs. By using these methods, it was easy to plot the relationship between electricity consumption, year, and population.



United Kingdom is a developed country where a lot of energy consumption is needed for the living. Here the population of the UK and the electricity consumption are analysed.



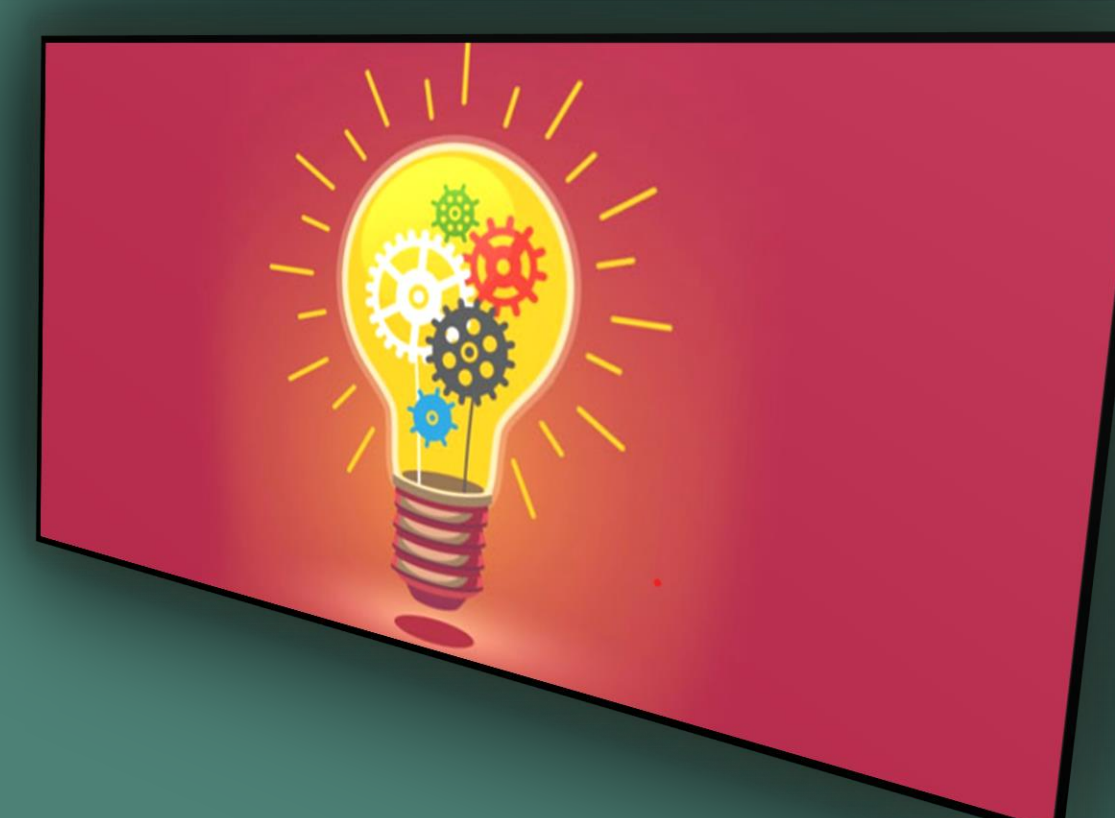
Electricity Consumption in United kingdom from the year 1960 to 2010

The graphs above illustrate the energy consumption in the United Kingdom during the period 1960 -2010. A gradual increase can be seen from the year 1960 to 2005. After that, the consumption of electricity has been started to decrease. It was between the years 1990 and 2005 most the people used electricity.

CONCLUSION

The usage of electricity has increased over the years and it will continue if any alternatives are not found. Now a lot of renewable energies are being used. Even in the UK, from the graph, it is clear that after 2005 a decrease in electricity consumption decreased, which is a positive sign of an increase in the renewable energy usage.

Energy Use	Example – home type and number of residents	Typical annual gas use (kWh)	Typical annual electricity use (kWh)
Low	Flat or 1-bedroom house; 1-2 people	8,000	1,800
Medium	2-3 bedroom house; 2-3 people	12,000	2,900
High	4+ bedroom home; 4-5 people	17,000	4,300



References

Data sets :
[Population Growth](#)
[Electrical Power Consumption](#)
GIT Hub:
[Fitting-and-Clustering](#)