Applied Data Science Assignment 3: Clustering and Fitting For World Climate change

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Github Repository: https://github.com/dr000212/applieddatascienceassignement3_clustering_and_fitting.git

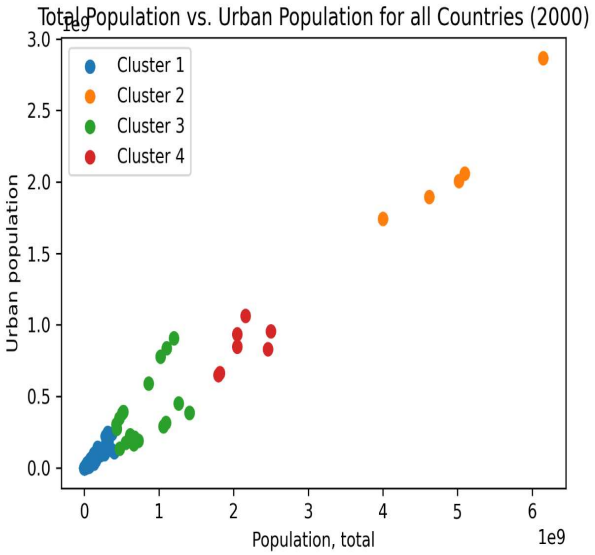
INTRODUCTION:

Climate change is most complex problem in the world, natural systems and poses significant challenges for agricultural and urban populations. Rising temperature and extreme weather can negatively impact the planet agriculture and urban population contributes green house emission that drives climate change.

ABSTRACT:

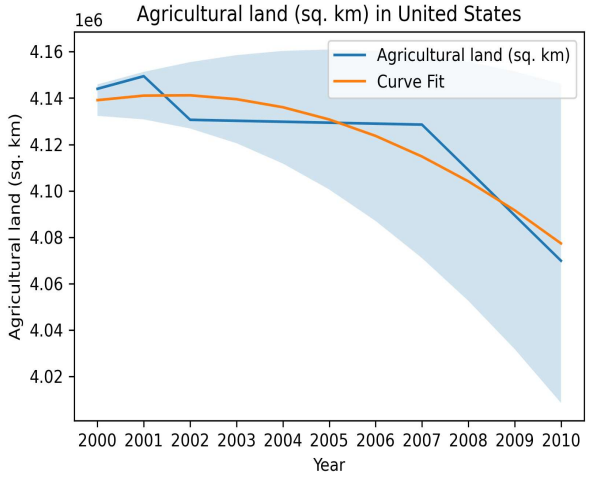
World climate change plot explores the relationship between the total population, the urban population for the year 2000, and the agricultural land plot, Using this data for multiple countries in the dataset a relationship between the total population and urban population the plots revealed unique clusters with highlighting the different levels and the line plot with curve demonstrate the agricultural land for country between 2000 to 2010 the importance addressed in the climate change.

TOTAL POPULATION VS URBAN POPULATION FOR ALL COUNTRIES USING CLUSTER METHOD



The code performs K means clustering in the scatter plot for total population vs urban population indicators for all countries in the year 2000. the KMeans is applied on K = 4 clusters. It has grouped the cluster into 4 groups based on their relationship with the different colors and labels, it has revealed patterns and insights, it helps to identify similar population and urbanization characteristics and it can used in the results

AGRICULTURAL LAND IN UNITED STATED USING CURVE FIT :



The plot displays the trend of agricultural land (in square kilometers) in the United States between 2000 and 2010. It includes two lines: a blue line for the actual data and an orange line for the fitted curve obtained using a quadratic function. The shaded area around the fitted curve represents the confidence interval, indicating the possible range of values within which the true curve may lie with a certain degree of confidence. The plot also features a legend, axis labels, and a title that clearly convey the information presented. Overall, the plot effectively presents the trend of agricultural land in the United States and provides an estimate of future trends.

CONCLUSION:

Based on the analysis of the world climate change plot, it can be concluded that there is a relationship between total population, urban population, by use of clustering techniques allowed for the identification of unique clusters among the different countries in the dataset found that the four clusters are based in it . The line plot with curve demonstrated the changes in agricultural land over time in the united states has decreased , which is an important aspect of climate change. Overall, this analysis highlights the need to monitor and manage the relationship between population growth, urbanization, and agricultural land use in order to address the challenges posed by climate change.