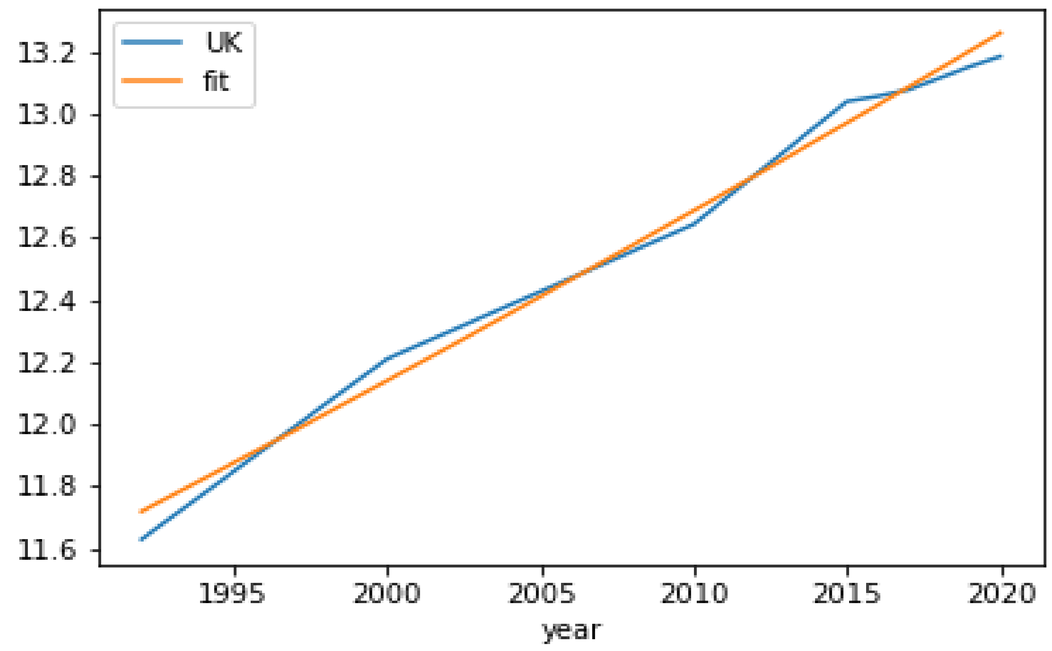
Analyzing the Growth of Forest Lands

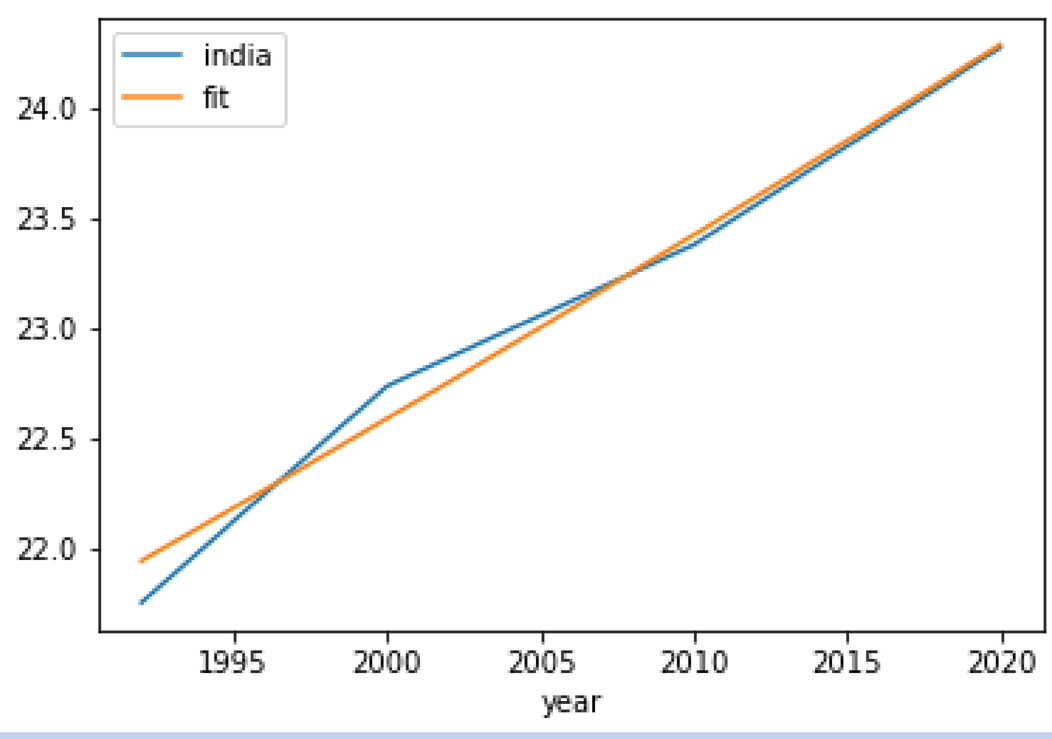
Introduction

- In order to support a variety of plant and animal species, regulate the quality of the air and water, and help to lessen the consequences of climate change by absorbing carbon dioxide from the atmosphere, forests are a crucial component of the Earth's ecosystem. Areas of land that are covered in trees and other vegetation are called forest lands. The size, age, and type of the trees in these locations can vary. This poster talks about how the amount of forest areas has changed over time in various nations. This will allow us to identify the nations where forest lands have increased and those where they have decreased.



Data

- The World Bank provided the information that was used to create this poster. From 1960 to 2020, 295 nations and regions are included. In this poster, only years from 1995 through 2020 are used. The CSV format is used to acquire the data.
- Few countries with missing data are not taken into account. The information is then combined with another dataset that contains continents and subregions for every nation. This information makes it simple to understand which countries belong on which continents and in which subregions.
- The dataset shows how many acres of forest each country has. As seen, the percentage of forest lands has increased in several countries throughout time.



Sample Pattern And Trend Analysis

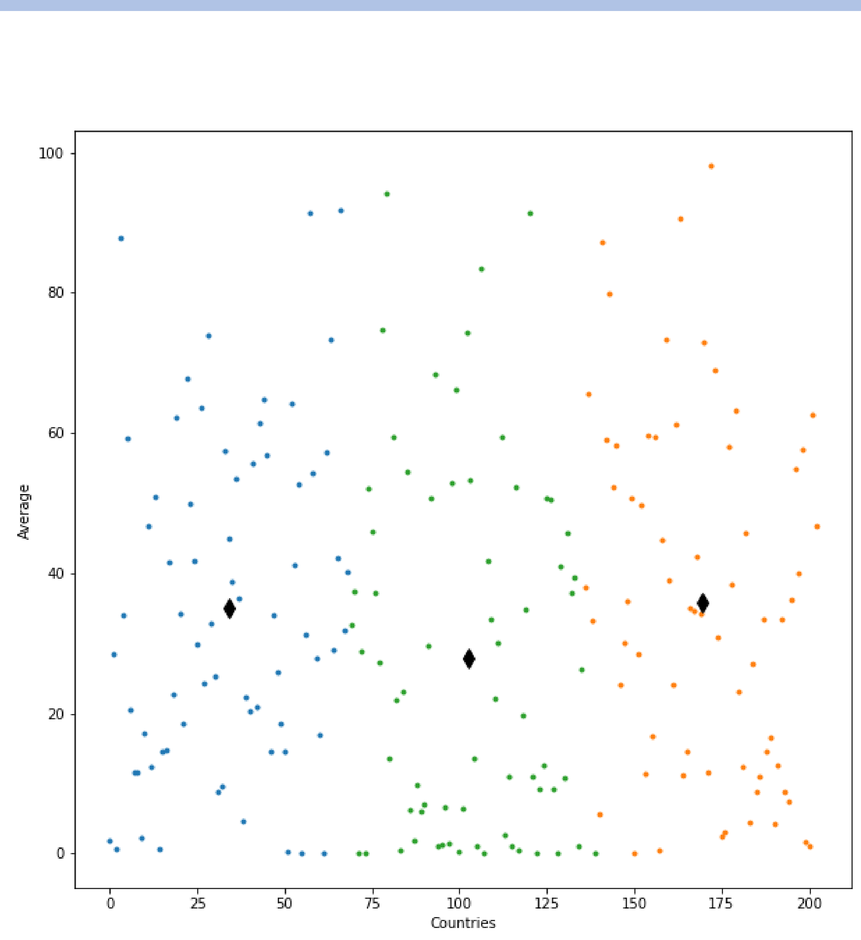
- In both the UK and India, the share of forested areas is steadily rising (as shown in above graphs). As can be seen, the orange line projects forward until 2030. As we can see, the number of forest lands in the USA is not constantly increasing. Over time, both percentages of lands increased and decreased. This might be as a result of various unnatural occurrences. (As seen in the graph above). Therefore, the orange line predicts the precise rate of growth in forest lands throughout time. We may learn how effectively the countries are working to extend their forest lands through this approach.

Clustering

It is one of the finest ways to spot patterns and trends in the amount of change that has occurred in forest lands over time. In this regard, of change that has occurred in forest lands over time. In this regard, a KMeans clustering model with appropriate 3 clusters was put up, and the data was fitted to it. The estimated cluster centers and cluster labels are then extracted. The performance of the clustering is then evaluated using the silhouette score. A score of 1 indicates a good cluster structure, whereas a score of -1 indicates a bad cluster structure. The silhouette score goes from -1 to 1. Each dot indicates how many forest lands a country has relative to its total geographical area. The cluster a dot belongs to is represented by its color. The black point represents the centroid of the cluster

Conclusion

- In conclusion, a number of nations have seen a rise in their forest lands recently. This expansion can be ascribed to a number of things, including community-based initiatives, government-led reforestation programs, and attempts to maintain existing forests. Additionally, it's crucial to keep in mind that even while the area of forest lands may have increased in some countries, this is not the case in many others, where it is actually shrinking. According to the data being analyzed, many countries still do not have an adequate forests, which might cause temperatures to rise and the amount of oxygen in the air to decrease. Governments should implement appropriate measures to preserve the sustainability of forests



Github link :
ttps://github.com/DeekshaShashidharaPoojary/ASD-Poster.git