CLIMATE CHANGE

Impact of carbon emission and other Environmental and Energy Indicators

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INTRODUCTION

- The world bank data for climate change with its various indicators has been taken and the analysis has been done.
- The correlation between the indicators CO2 emission, Access to electricity, power consumption and Renewable energy consumption have been found
- Hence how each factor is effecting the change in the other factors has been analysed.

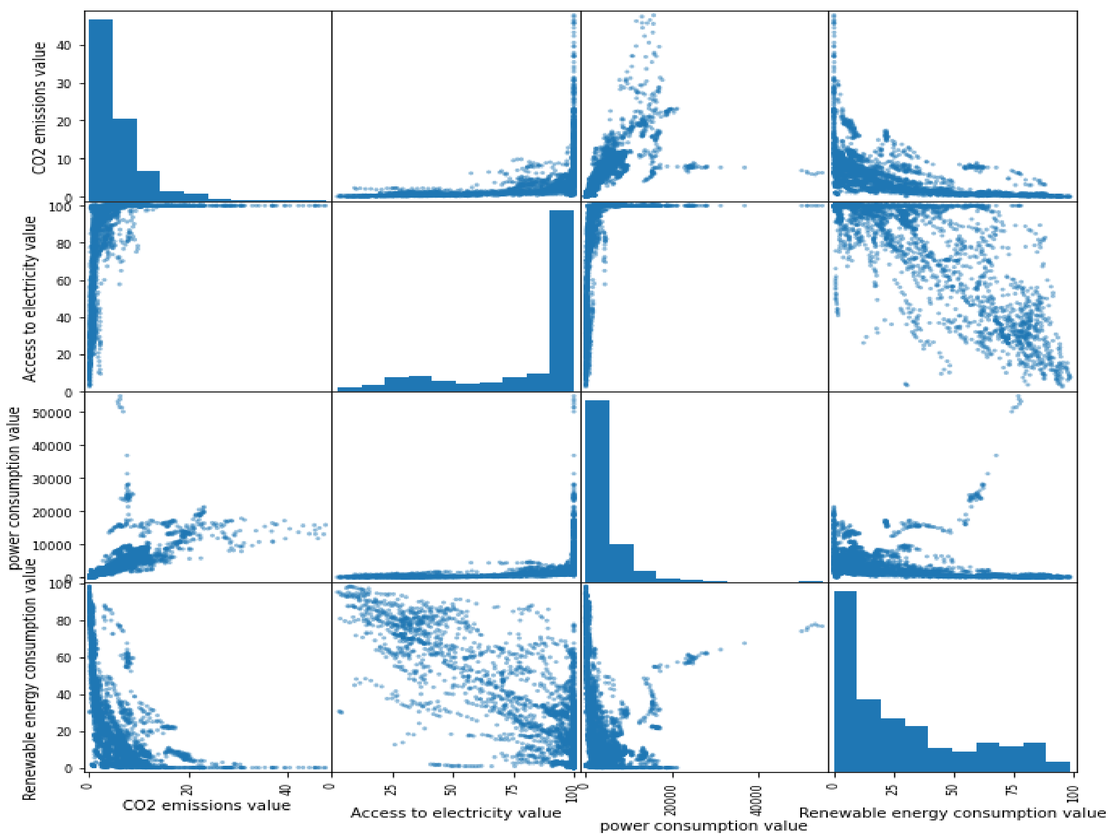
METHODOLOGY

- Over the last few decades the world has witnessed a large deviation on the climate due to many factors.
- Here, we analyze this change by looking at some parameters that are derived from World Bank Data.
- The main aim is to get correlation between few indicators from the climate change data and generate an interesting clusters by the use of K-mean algorithm

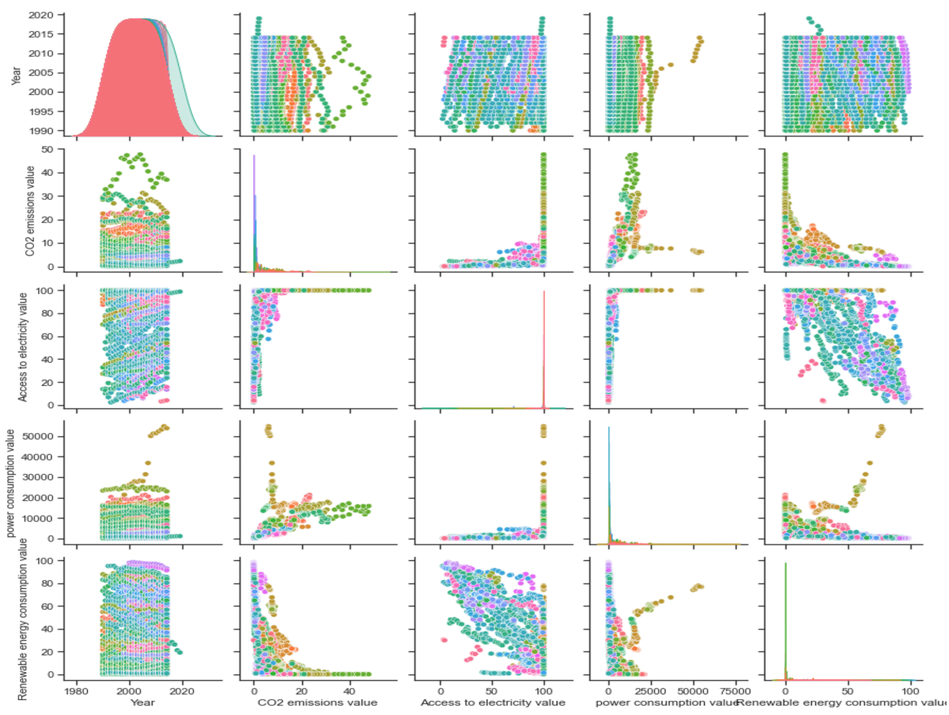
INDICATORS USED FOR K-MEAN CLUSTERING

CO2 Emission	Electric power consumption
Access to electricity	Renewable energy consumption

The following pair plot give the brief of correlation between all the 4 indicators for a particular year which is 2010.



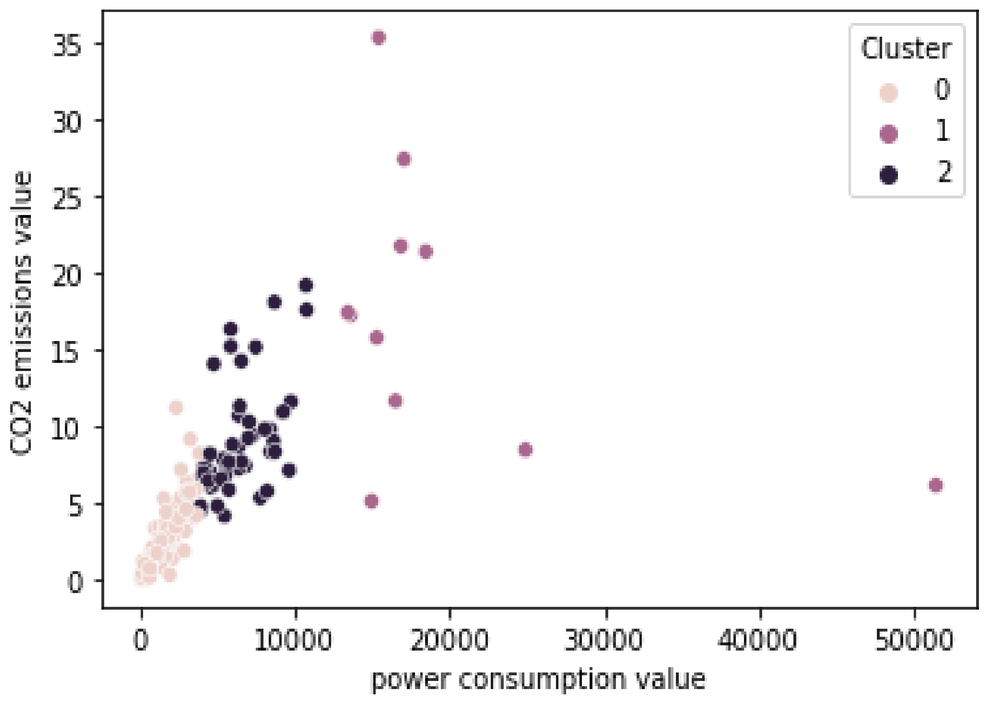
Below is shown the pair plots of all four indicators for the countries at each and every year.



CLUSTERING AND RESULT

Does electric power consumption has an impact on CO2 emission

- Using K-mean clustering algorithm we have created clusters between electric power consumption and CO2 emission of the countries.
- The countries with low electric power consumption has low CO2 emission and similarly countries with high power consumption has high CO2 emission.



CLUSTER CENTERS

The 3 clusters produced have centers which are given as the following

```
array([[1.33859546e+03, 2.45767131e+00],
       [1.75444062e+04, 1.73144005e+01],
       [6.36550786e+03, 9.84103154e+00]])
```

CONCLUSION

Hence, the K-mean clustering and curve fitting are used to show the above results with the cluster value. This showed us the relations between the 4 indicators for all the countries data taken from the world bank data.