Climate changing factors

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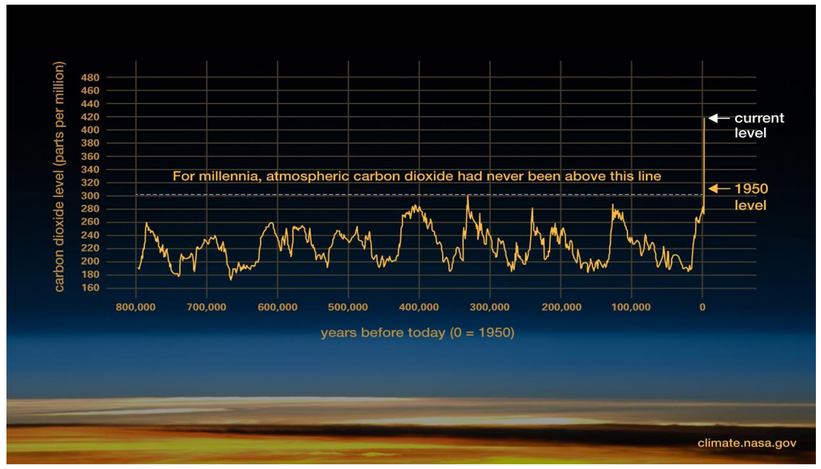
Navigation to repository

Introduction

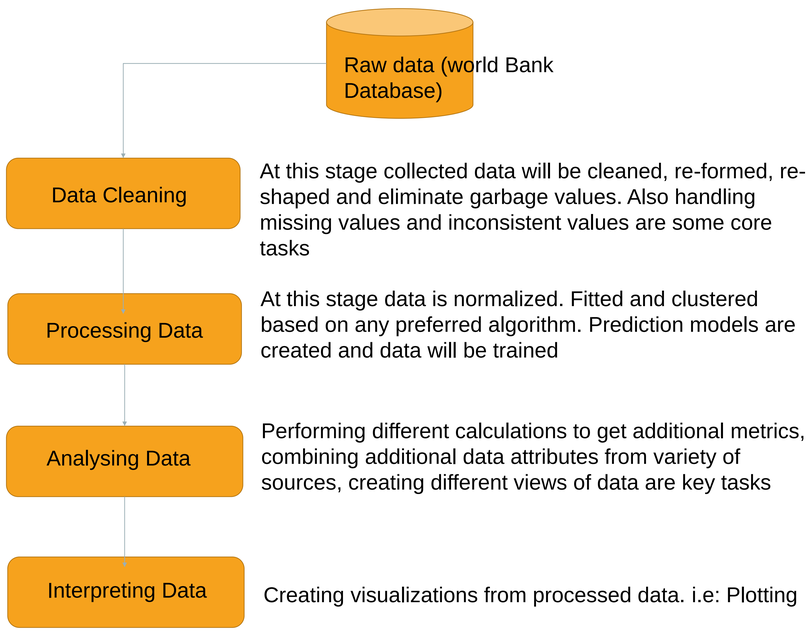
Climate change refers to long-term change in weather and temperature patterns. These changes chttps://climate.nasa.gov/an be natural, such as through variations in the solar cycle. But since mid-1800 the main cause for rapid increase of climate change is because of human activities and it is proceeding at a rate not seen over many recent years.



Source: https://climate.nasa.gov/

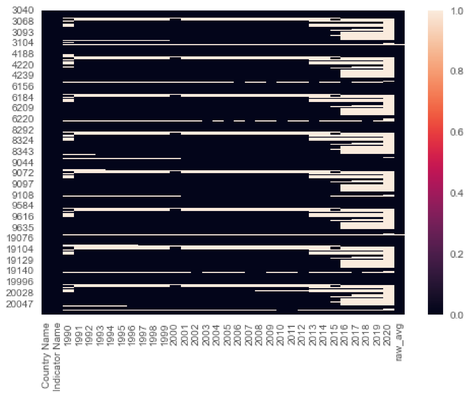
My goal for this assignment is to analyse the data which is publicly available, starting from latter 1900s to recent 2020 including several factors in every country.

Preparation



Process

Raw data from the source is acquired and thoroughly studied. Then I have listed down the challengers and corresponding actions to overcome them. In data pre-processing phase I have identified the missing data and handled them.

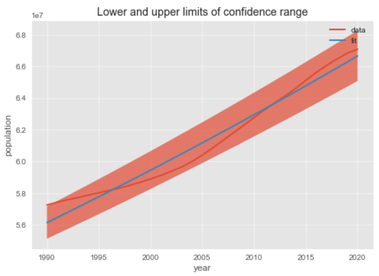


This image shows how the data was available in original format. I have taken measures to eliminate the gaps by eliminating the missing values.

"Scientific evidence for warming of the climate system is unequivocal."

-Intergovernmental Panel on Climate Change

As next step I have applied fitting techniques and found the suitable algorithm.




```
Forcasted population
2030 between  68787428.50215709 and 72421794.63858575
2040 between  72704047.95771612 and 76834352.93335329
2050 between  76843671.94031864 and 81515762.21147314
```

In this lower and upper limits of the confidence level for above built model is illustrated. By using this model few predictions from data are done.

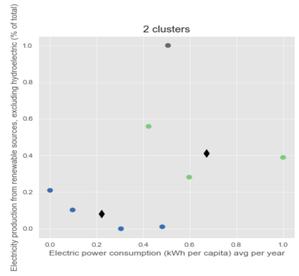
References

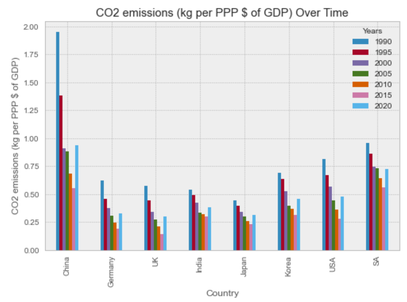
NASA (2021). *Climate change: Vital signs of the planet*. [online] Climate Change: Vital Signs of the Planet. Available at: https://climate.nasa.gov/.

Garbade, M. (2018). *Understanding K-means Clustering in Machine Learning*. [online] Towards Data Science. Available at: https://towardsdatascience.com/understanding-k-means-clustering-in-machine-learning-6a6e67336aa1.

Analysis

Data distribution between electric power consumption (kWh per capita) and electricity production from renewable sources, excluding hydroelectric (% of total) are identified by clustering mechanisms.

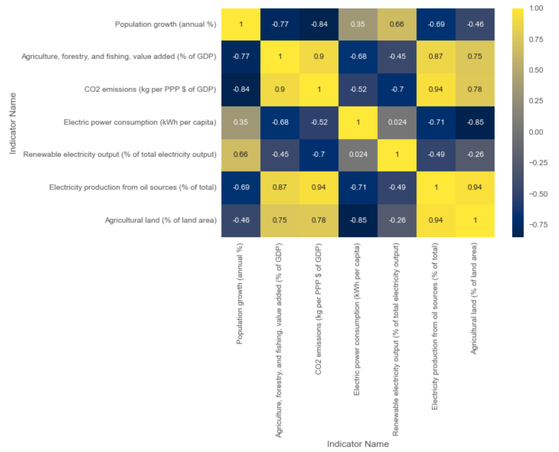




As per this bar plot it is clearly visible that CO2 emission per capita is gradually decreased over the two decades until 2015 and then again showing a significant rise in year 2020. The same pattern is shown in all the selected countries for this analysis. Countries are chosen in a way that all the continents are represented.

Hence we can assume that whole globe shows a same pattern of CO2 emission.

This correlation heatmap depicts the relationship between key factors towards climate change. As we can see here CO2 emission is highly positively correlated with Electricity production with oil sources.



Conclusion

For global climate changes, CO2 emission, population growth, energy usage, productions with oil sources and emission of various gases are highly contributed. With the global competition, every country make their way towards massive productions to improve their economies. But none take measures to see the risk of global climate change and it's impacts to the living. Analysing these data and facts, time has come to think about this without a further do. Whole globe should consider this as a TOP PRIORITY before it is too late.