ASSIGNMENT – 2

STATISTICS AND TRENDS

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Module : Applied Data Science 1

Data Source link used : https://data.worldbank.org/topic/climate-change

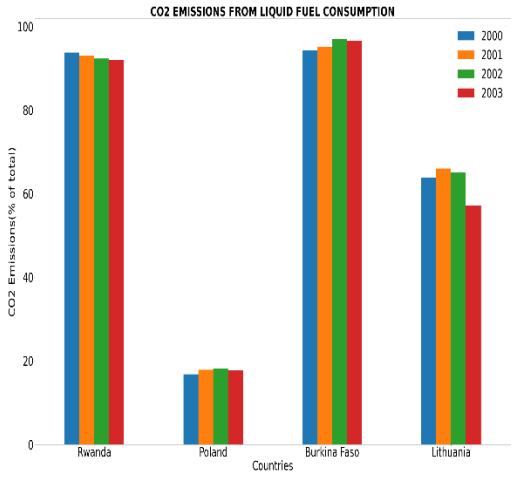
GitHub : https://github.com/AnnMaryKurian/ADSAssignment-2.git

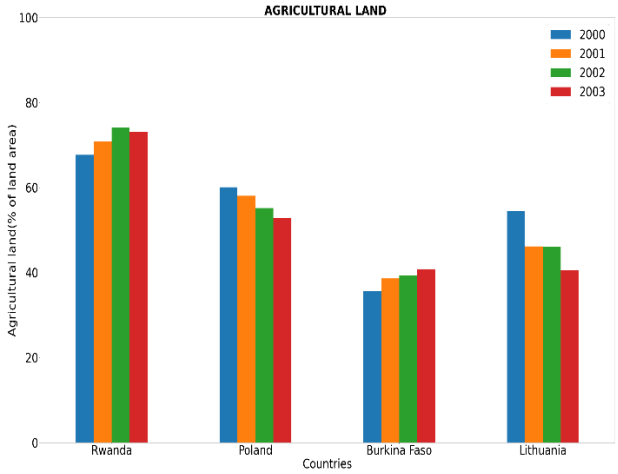
ABSTRACT

The report shows the analysis of climate change based on some selected indicators. The visualization is done using Bar graph, Line plots and Heat Map. Climate conditions varies by the changes occurring in the selected indicators. Here change in indicators for some countries are analyzed for a particular time period. Positive and negative correlations among the indicators can be interpreted by using Heat Map.

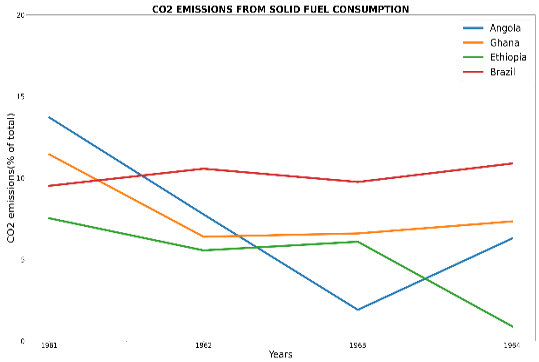
Data analysis of climate change based on world bank data

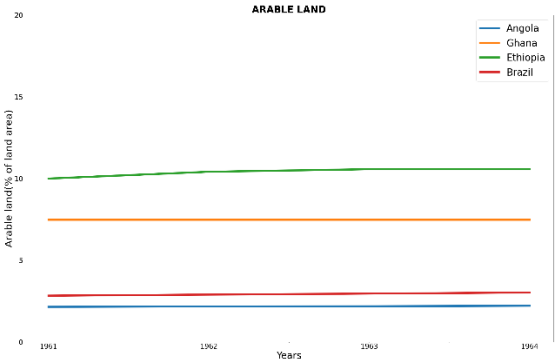
In this analysis four countries from different continents are selected and the changes in following indicators on climate change are analyzed for a particular period of time: CO2 emissions from liquid fuel consumption, CO2 emissions from solid fuel consumption, Arable land, Agricultural land, Agriculture forestry and fishing value added. An investigation is done to find the correlation between the factors and interpretations are made.





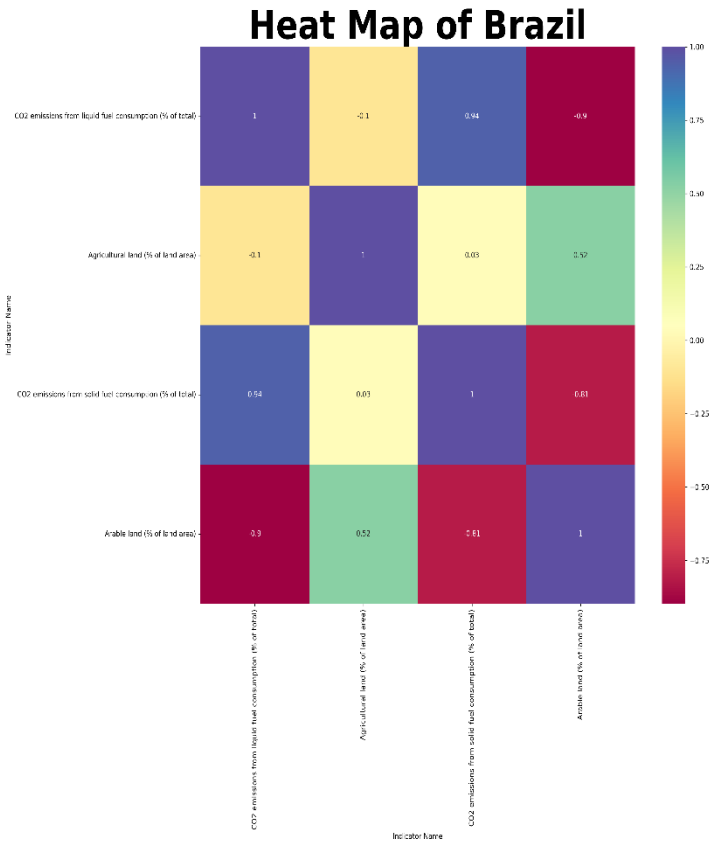
The above bar graph on CO2 emission from liquid fuel consumption by the countries are given for the years from 2000 to 2003.Burkina Faso has the lowest percentage of agriculture land and the highest producer of CO2.The lowest percentage of agriculture land results in the highest emission of CO2.Increased levels of agriculture land results in lowest CO2 emission rates, which is visible in the case of Poland. The plot also shows that Rwanda and Lithuania shows similar trends(decreasing) in CO2 emission. The decrease in agriculture land is inversely related to CO2 emission. This causes great impacts on Climate change.





From the Line plots shown above, initially Angola shows a decline trend in CO2 emission due to the consumption of solid fuel from the start of 1961 and later it shows steady increase after 1963. At the same time Angola shows the lowest percentage of Arable land area. Ethiopia shows the lowest CO2 emission from the solid fuel consumption and highest percentage of Arable land area. In the end of comparison time period all the countries except Ethiopia shows an increase in CO2 emission. While comparing with the graph of CO2 emission from the solid fuel

consumption, Arable land graph does not shows any noticeable changes. Generally the countries with lesser Arable land shows increased CO2 emission rates. The presence of CO2 in atmosphere impacts badly on climate changes.



Heat Map on Brazil shows a positive correlation between CO2 emission from liquid and solid fuel consumption. The positive correlation indicates that CO2 emission from solid and liquid fuel consumption are directly proportional to each other.

The graph also shows a negative correlation between Arable land and CO2 emission from liquid fuel consumption. The strong negative correlation between Arable land and CO2 emission means as the Arable land decreases more industrialisation occurs and the emission of CO2 from the consumption of fuels in factories also increases. When Arable land increases the green plants neutralises the CO2 present in atmosphere and thus regulates the climate change.

summary_statis1

	CO2 emissions from liquid fuel consumption (% of total)	Agricultural land (% of land area)	Agriculture, forestry, and fishing, value added (% of GDP)	Arable land (% of land area)
count	16.0	16.0	16.0	16.0
mean	77.577697368125	8.3175505050625	0.367886564375	0.5369668911250000
std	12.557459441642200	0.21071032348997300	0.10269319038032200	0.1468031593037030
min	65.48698605	7.968574635	0.160021	0.280583614
25%	67.02372423	8.06677890025	0.29160045475	0.3787878785
50%	73.6756192	8.417508418	0.400060425	0.6032547700000000
75%	82.2542241075	8.47362514	0.446533315	0.634118967
max	103.739213	8.529741863	0.516824849	0.729517396

The above Image shows the Statistical Data of Kuwait.