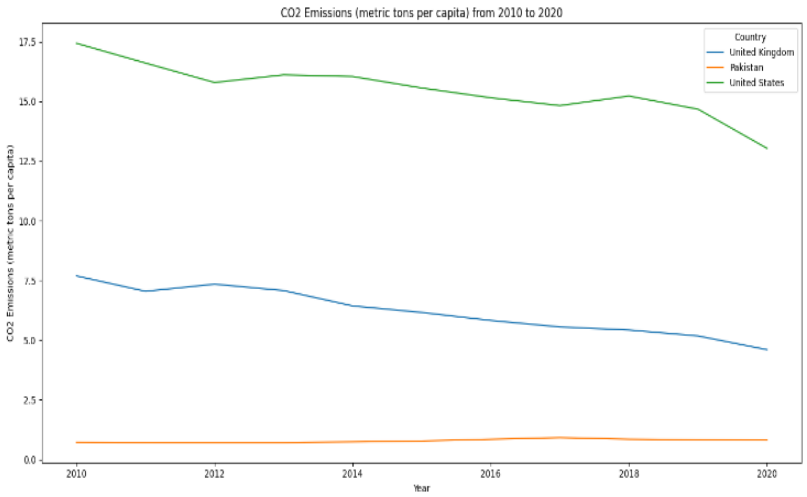
7PAM2000 Applied Data Science
Assignment 2: Statistics and trends.

22093856
Muhammad Usman

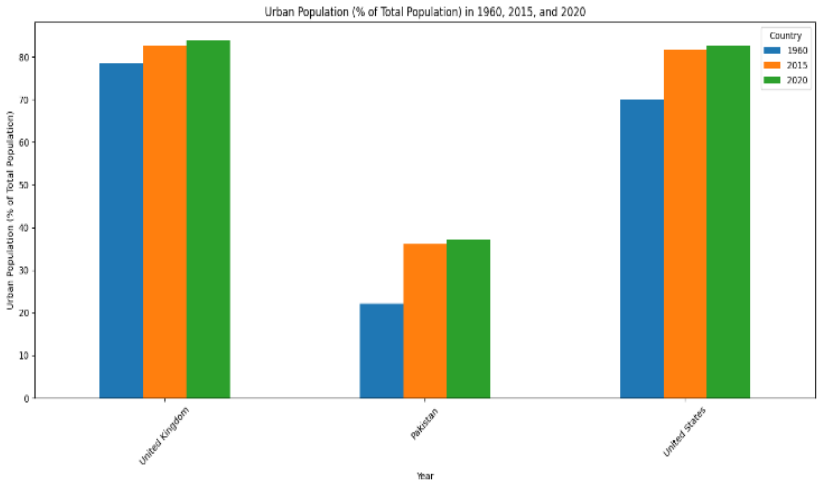
The World Bank dataset encompasses a variety of pertinent metrics, such as access to electricity, agricultural activity, urban population, among others, fostering an in-depth analysis of climate-related dynamics worldwide.

World Bank Data Analysis

The world bank data was downloaded and loaded onto python. Some analysis was done on indicators like CO2 emission, urban population and population growth. I mainly selected 3 countries for some analysis. Different graphs were used for analysis, some of the graphs and analysis are given below.



CO2 emissions were seen in 3 countries: the United Kingdom, USA and Pakistan from 2010-2023. The line graph tells us that the trend in the UK and US is decreasing but in Pakistan the trend is slowly and gradually increasing. This tells us that Pakistan needs to work on this and the UK and USA are getting better day by day.

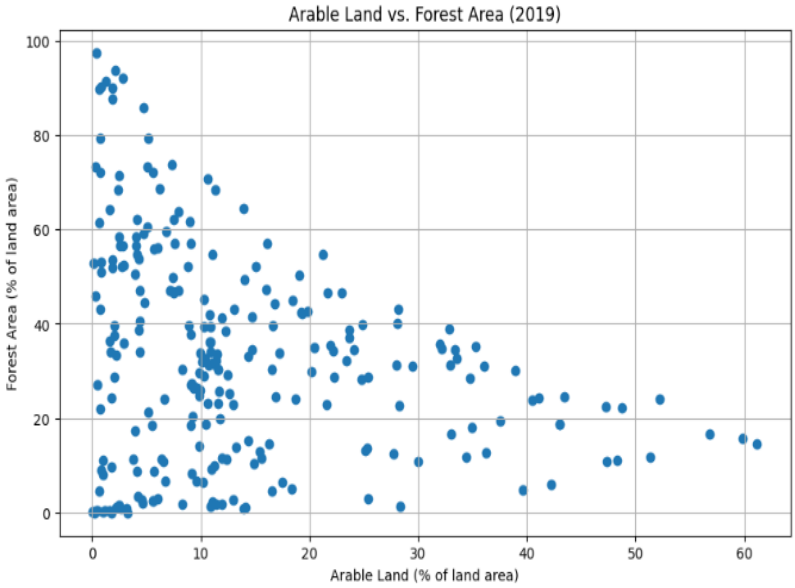


In this clustered bar chart I compared 3 years and the urban population of 3 countries. The 3 countries I selected were the United Kingdom, United States and Pakistan. The chart tells us that all the 3 countries have seen the trend go upward. This is a real concern nowadays and they data also says so. The urban population is increasing significantly,

	Country Name	2020
15241	Qatar	31.726842
1713	Bahrain	21.976908
2397	Brunei Darussalam	21.705812
9693	Kuwait	21.169610
649	United Arab Emirates	20.252272
13873	Oman	15.636201
1029	Australia	14.772658
15621	Saudi Arabia	14.266585
2701	Canada	13.599375
12961	North America	13.088837

The data reflects the per capita carbon dioxide (CO2) emissions for various countries and regions in 2020. Notably, Qatar exhibited the highest CO2 emissions per capita at 31.73 metric tons, emphasizing a significant environmental footprint attributed to the country's activities. Bahrain followed closely with 21.98 metric tons per capita, while Brunei Darussalam and Kuwait recorded values of 21.71 and 21.17 metric tons, respectively. The United Arab Emirates and Oman also

demonstrated notable emissions at 20.25 and 15.64 metric tons per capita, respectively. In contrast, Australia, Saudi Arabia, Canada, and North America displayed relatively lower CO2 emissions per capita, ranging from 13.09 to 14.77 metric tons. These figures underscore the varying contributions of different nations and regions to global carbon emissions, prompting discussions on sustainable practices and environmental policies to mitigate climate change impacts.



The scatter plot visually explores the connection between two key environmental indicators: the percentage of land covered by forests in the year 2019 and the percentage of land allocated for arable agriculture. In this representation, each data point represents a distinct country, allowing for a comprehensive overview of global trends. The observed correlation between these variables is identified as weak and negative, implying that, on average, as the proportion of land designated for agriculture increases, there is a tendency for a decrease in the percentage of land covered by forests. However, it is crucial to note that the correlation strength is not particularly robust, signifying a considerable degree of variability in the relationship across countries. Numerous nations exhibit deviations from the general trend, highlighting the complex and multifaceted nature of land use dynamics on a global scale. This nuanced understanding underscores the need for region-specific and context-aware analyses when addressing land management and environmental conservation strategies.