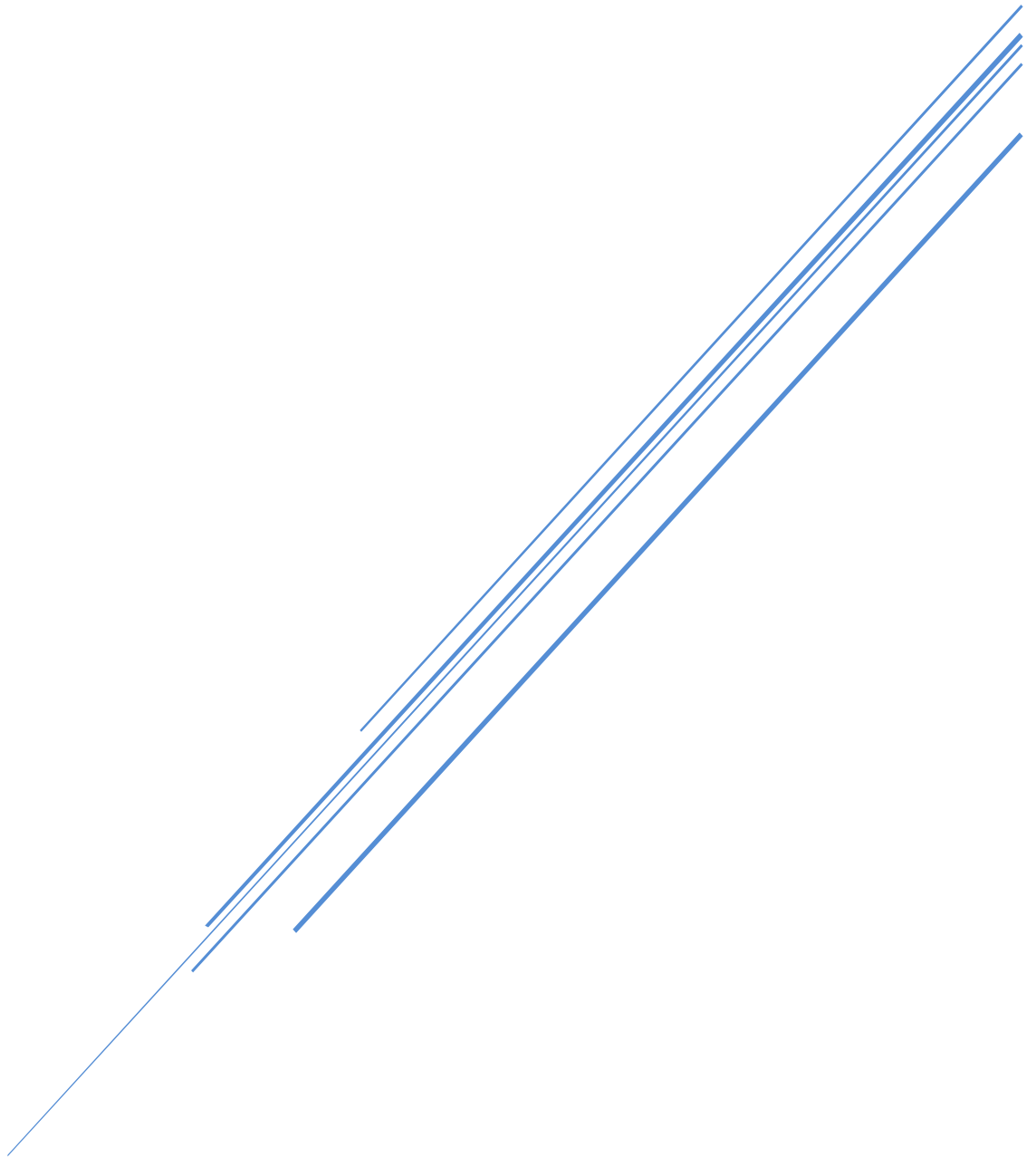


7PAM 2000 APPLIED DATA SCIENCE 1

Assignment 2: Statistics and Trend Report



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ABSTRACT: Python, a programming language, is utilized throughout this data science practical exercise that is being carried out here. To plot the graphs, we are basically making use of the various Python libraries, such as the matplotlib and the seaborn libraries. In this case, I make use of the values of the indicator column that have a greater number of observations in comparison to the other values since doing so will assist in accurately producing the graph. In the plots, I show the proportion of the population that is urban using a bar plot, the amount of foreign direct investment using a heat map, the amount of CO2 emissions using a line graph, and I use a comparison bar graph to demonstrate how the population is growing. In each of the graphs, we have displayed the data for a random selection of 10 or more nations, and we have also displayed the data for a variety of years. This has been done so that we are able to compare the results if we are looking at them year by year.

Dataset of climate change provided by the World Bank

The technique of applied data science on Python is utilized in the study that is performed here, and this data analysis is performed on the dataset of climate change that is provided by the World Bank. In practice, data analysis is performed on ten countries at random the majority of the time. This is done so that an overall picture of global trends over the past seventy to eighty years may be derived. This report contains the results of an examination of the data pertaining to the following topics: total population increase, urban population, foreign investment, and CO2 emissions. The next page has a description of each graph as well as some graphs that are the product of some of the data analysis.

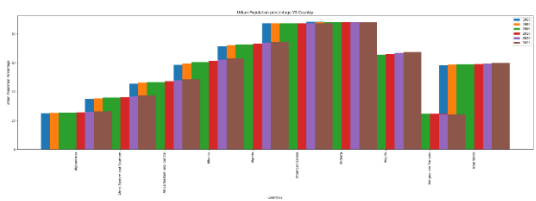


Figure 1 Urban Population Analysis

This overall work is done to analyze climate change, the data is collected and analyzed by the world bank. The first aspect of climate change is the population. Here in the graph, it is shown very clearly the urban population percentage of 10 countries. The years included in the analysis are 1960 - represented by blue colour, 1980 – represented by orange colour, 2000 – represented by green colour, 2010 – represented by red colour, 2020 – represented by purple colour, 2021 – represented by brown colour and countries included in the analysis. Afghanistan, Africa's eastern and southern, Africa's Western, and central, Albania, Algeria, American Samoa, Andorra, Angola, Antigua and Barbuda, Arab World. It is clearly shown the largest percentage is of Andorra that is 90% and that too in the year 1960.



Figure 2 Foreign Direct investment percentage

Now another aspect to calculate climate change is the GDP percentage. The above figure is calculated and shows the Foreign direct investment percentage. The same dataset is analyzed and the result is extracted accordingly. The years analyzed are 1990, 2000, 2010, 2012, 2014, 2018, and 2021. Countries that are selected for the analyzing process are Afghanistan, the British Virgin Islands, Dominica, Gibraltar, Japan, Malaysia, North Macedonia, Seychelles, and Timor-Leste. The analysis is done by World Health Organization and a clear result is shown in the above-given figure, the highest Foreign Investment Percentage is of Seychelles, which is 58%. This percentage is from the year 2012.

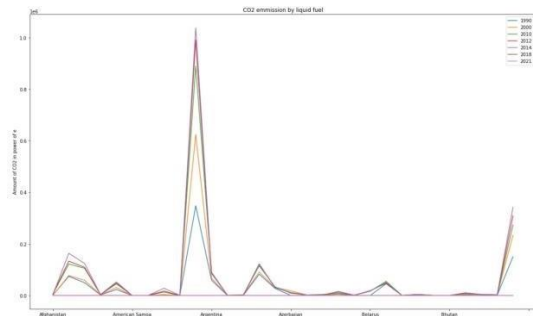


Figure 3 CO2 emission by liquid fuel

Another main aspect to calculate climate change is CO2 emission. This line graph is showing the amount of CO2 that emerged in different countries in the power of e. In this line graph, the years are represented by coloured lines, as the year 1990 is represented by blue colour, the year 2000 is represented by a yellow colour, the year 2010 is represented by green colour, the year 2012 is represented by red colour, the year 2014 is represented by purple colour, the year 2018 is represented by brown colour and at last the year 2021 is represented by pink colour. And the countries selected for this analysis are Afghanistan, American Samoa, Argentina, Azerbaijan, Belarus, and Bhutan. From the above-given figure, the result of the analysis is calculated through a line graph and the result can be easily understood. The highest emission of CO2 in liquid fuel is in Argentina in the year 2014.

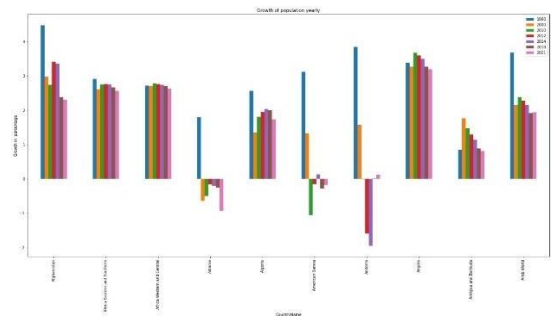


Figure 4 Population Growth Percentage

Now, coming to the next aspect that is analyzed by the World Health organization is Growth Population. Here the Growth population of Different countries are analyzed and the result on that basis is represented by the graph. The same data set is being used for this analysis, the years are represented by the colours the year 1990 is represented by the blue colour, the year 2000 is represented by the orange colour, the year 2010 is represented by the green colour, the year 2012 is represented by the red colour, the year 2014 is represented by the purple colour, the year 2018 is represented by the brown colour, the year 2021 is represented by the pink colour. Countries selected here are Afghanistan, Africa's eastern and southern, Africa's Western, and central, Albania, Algeria, American Samoa, Andorra, Angola, Antigua and Barbuda, Arab World. And as the result can be calculated through the graph, the highest population growth percentage is of Afghanistan in the year 1990. And the lowest is of Andorra in the year 2014.