

# **Applied Data Science – 1**

## **Needs of People and Environmental Degradation**

A report by,

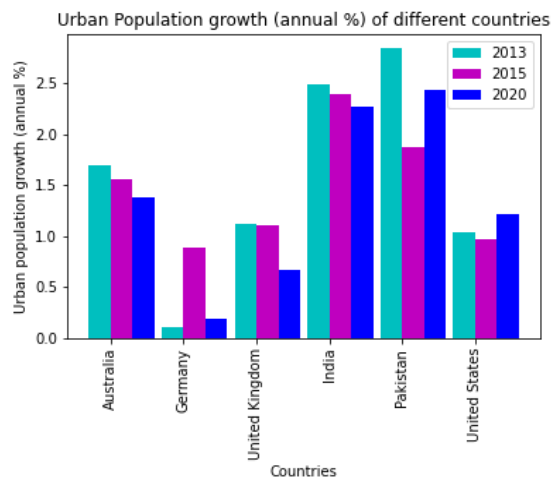
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GitHub link:

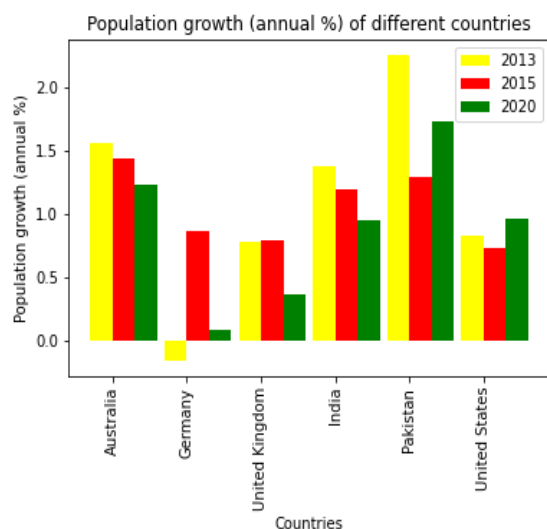
### **Abstract**

For this visualisation report countries like Australia, Germany, United Kingdom, India, Pakistan, United States are selected from various nations. In this report we can see the change in trend between urban population and overall population, usage of renewable energy and production of electricity from different sources. We'll also look at how the forest areas have changed over time. It also includes a few statistical takeaways from the information at hand.



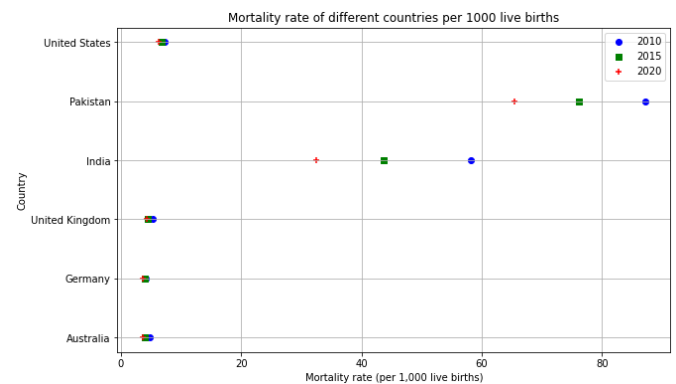
The urban population growth trend from 2010 to 2020 is depicted in the above bar graph, with five-year increments.

It is evident from this that population growth has slowed. In contrast, the trend in the US is different. It displays a about 0.3% increase. In Germany, there is a noticeable difference. the unexpected increase in 2015 and the 1% decline in 2020.

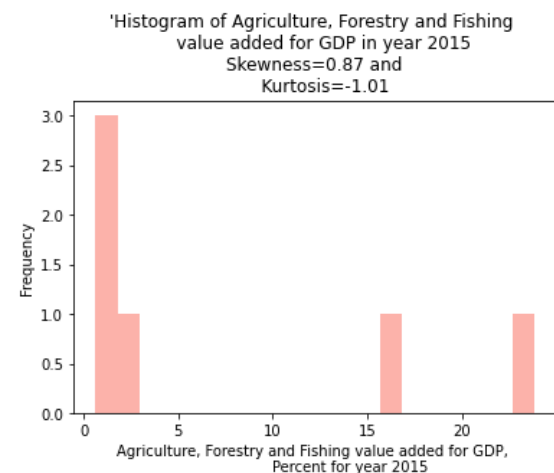


This visualization clearly illustrates how the urban population contributes to the total population by looking at the annual population growth across a few chosen countries. In this case, the US population has increased somewhat while Pakistan's has decreased by about 0.5%. Similar

declining trends are seen in other nations. There are several countries where the rate of population growth is not significantly different.



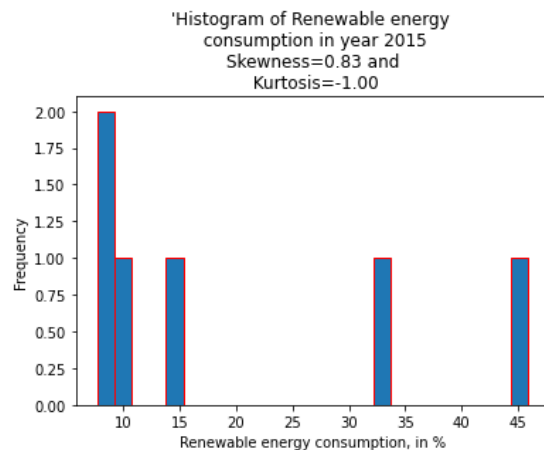
Based on the mortality rate talk, India and Pakistan have the greatest rates of death, with Pakistan taking the top spot from 2010 to 2020. Over a ten-year period, the death rates of other countries show minimal variation. This has an impact on the nation's overall population increase.



The distribution of the GDP added value from agriculture, forestry, and fisheries in 2015 is depicted in the histogram chat.

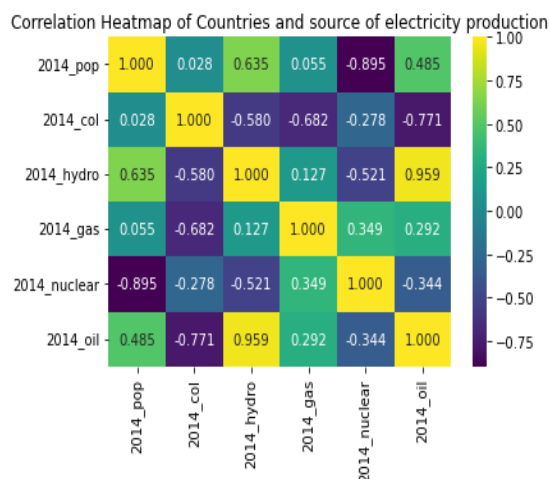
The chat shows positive skew with skewness of 0.87 and the negative excess kurtosis is -1.01, indicating a flatter peak and lighter tail. The majority of countries contribute very little to the GDP overall,

although it's encouraging to see some contributing close to 25%.



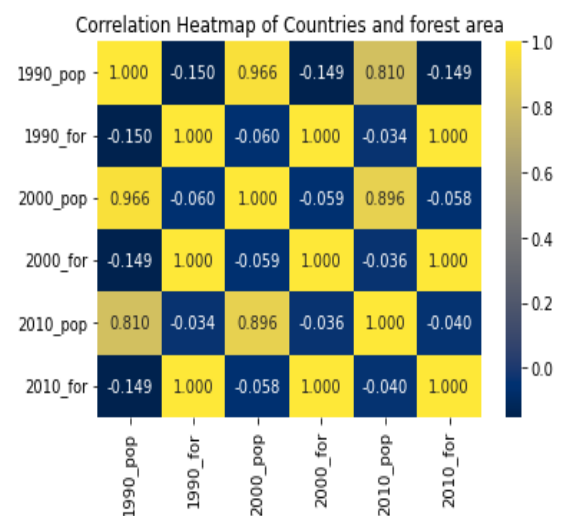
The distribution of renewable energy use among the chosen nations is shown in this histogram. Most countries use as little as 11 percent renewable energy. High population growth nations employ non-renewable energy sources, which pollutes the air and water.

It is visually clear that there is a positive skew, with a skewness of 0.83. Kurtosis is -1.00, it has a flatter peak and a lighter tail, indicating negative excess kurtosis.



The heatmap is correlated with population growth and electricity produced from various sources like coal, hydroelectric, gas, nuclear and oil. Every resource, with the exception of hydroelectric power, is non-renewable energy, it is the primary cause of disturbances in the environment.

The only value in the conversation that shows a negative relationship is between nuclear source electricity production (2014\_nuclear) and population increase (2014\_pop) is -0.895. This indicates that as the population grows, the use of nuclear sources decreased. While population increase is proportionate to other non-renewable resource, all other non-renewable resource exhibits positive trends. However, use of hydroelectric (2014) is the highest in number, 0.635 but use of oil is just behind this with 0.485.



The countries and forest acreage are correlated in this heatmap. Plotting the population growth in 1990, 2000, and 2010 against the forest area recorded in 1990, 2000, and 2010. It's evident that the forest area is declining in line with the trend over the years from 1990-2010.

Forests are sacrificed in order to meet human needs. Our next generation will be impacted because trees are our primary source of oxygen.

To sum up, I would want to say that it will be very challenging to protect our ecosystem if this trend continues. People also have to deal with the fallout from this.