

ADS-1 Assignment-2

Renewable Energy Landscapes: A Global Tapestry of Sustainability

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Abstract : Understanding socioeconomic patterns and possible relationships between these countries is made easier by the comprehensive view of these important indicators provided by the statistical insights and visualizations.

Github Link : <https://github.com/rithikashree1707/Ads-assignment2>

DataSet Link : <https://data.worldbank.org/topic/climate-change>

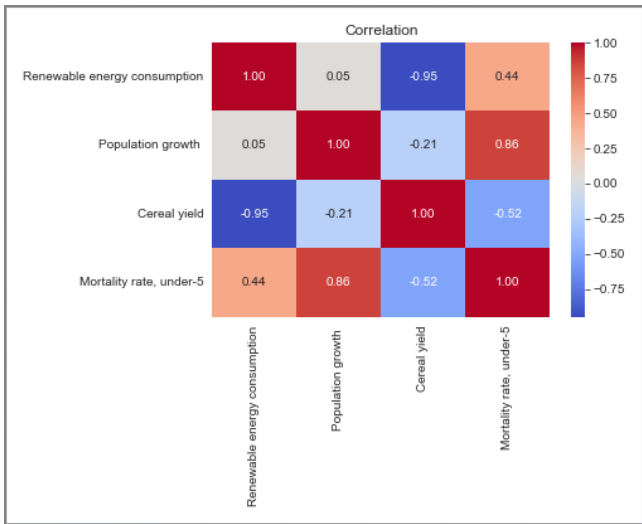
Student ID : 22032586

Introduction :

In today's global landscape, understanding socio-economic indicators across diverse nations is pivotal in comprehending their developmental trajectories. This report embarks on an analytical journey encompassing multifaceted metrics across five nations – Bangladesh, India, Pakistan, Sri Lanka, and the United Kingdom. Leveraging robust statistical tools and Python libraries such as Pandas, Matplotlib, Seaborn, and Scipy, we aim to unravel the narratives behind various indicators and their interconnections. Data on mortality rates, population growth, grain production, usage of renewable energy, and other pertinent factors are included in this dataset.

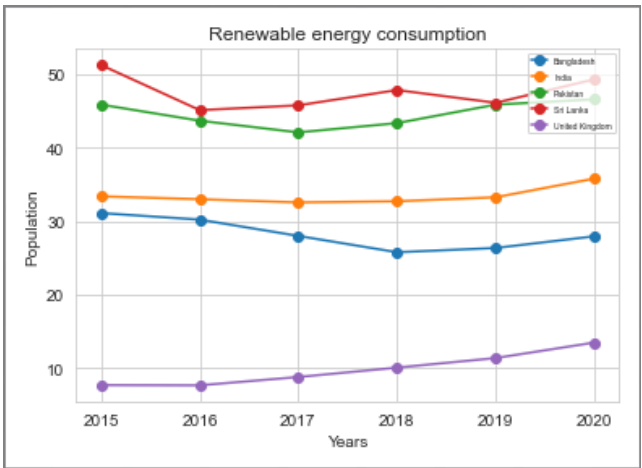
Exploratory Data Analysis:

We carried out an exploratory data analysis prior to examining the connection between population growth, crop yield, Mortality rate and Renewable energy. To find any possible abnormalities or outliers, we created a heatmap of the dataset. Additionally, we calculated descriptive statistics for every variable, including the mean, standard deviation, minimum, and maximum values in the year 2017.

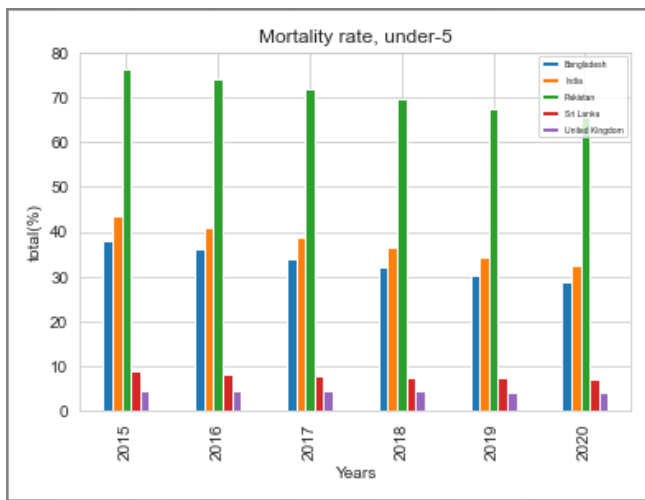


A bar plot is produced, showing the under-5 mortality rates for each country over time, using the function that is provided. With the help of this graphic depiction, which provides a comparative summary of the death rates, differences and patterns between these countries can be quickly understood. Differences in bar heights correspond to differences in child mortality rates between the countries, making it easy to compare healthcare standards for younger people

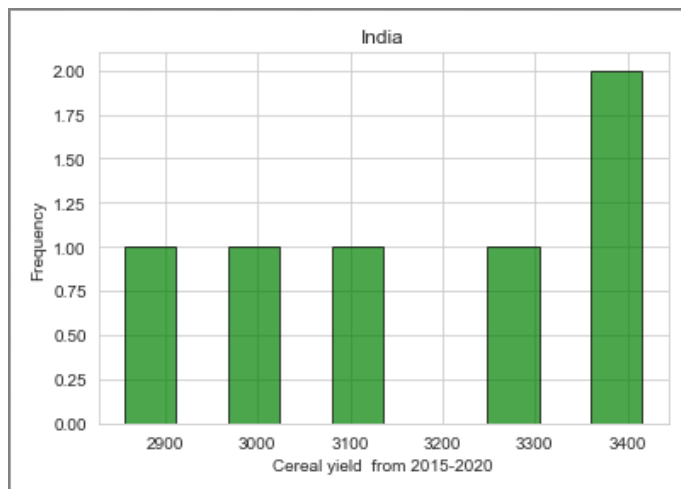
The dataset encompassing renewable energy consumption statistics from 2015 to 2020 for Bangladesh, India, Pakistan, Sri Lanka, and the United Kingdom is examined using powerful data analysis tools. The meticulous data preparation process ensures that all datasets are consistent and relevant. The line graph shows how each nation's annual consumption of renewable energy has changed over time. Trend variations provide information about how renewable energy sources are adopted and grow



A study carried out by the United Nations Development Programme has revealed that a higher consumption of renewable energy is associated with slower rates of population growth. This is so that natural resources won't be under as much stress, as renewable energy sources are less likely to have a major negative influence on the environment.

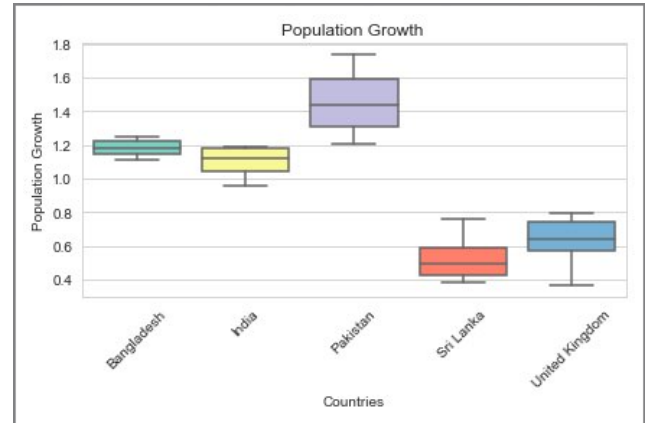


The function Skew-kurtplot computes skewness and kurtosis for a dataset, providing statistical measures of its distribution characteristics. It also generates a histogram plot displaying the frequency distribution of cereal yield in India from 2015 to 2020. The distribution pattern and the spread of values over the specified time span are shown by the histogram. While these analyses help to understand various aspects of data distributions and population metrics.



Consumption of renewable energy is important in promoting sustainable development. According to the World Bank, 144 countries have pledged to source at least 50% of their final energy consumption from renewable sources by 2040. This progress, however, has been uneven, with countries such as India, Pakistan, and Bangladesh facing significant challenges in transitioning to a low-carbon economy. However, there is a serious risk to human health and welfare from environmental factors such as pollution and climate change.

The use of renewable energy sources can have a big impact in Bangladesh, a country that depends a lot on fossil fuels. For instance, more funding for renewable energy could result in employment opportunities in the industry, raising incomes and improving living standards for all.



In terms of population growth, India, Bangladesh, and Pakistan have some of the world's highest rates. Sri Lanka and the United Kingdom, on the other hand, have relatively low population growth rates. As a result, the variation in population growth across these countries is an important factor to consider. The countries also differ in terms of mortality rates. The mortality rates in India and Pakistan are higher than those in Sri Lanka and the UK. However, Bangladesh has one of the highest global rates of mortality for children under five.

In conclusion, Renewable energy consumption can be used effectively as a target indicator to promote long-term development. Through the process of tracking and assessing how well nations are doing in meeting their renewable energy targets, interested parties can make well-informed decisions and implement suitable actions to guarantee a smooth transition to a low-carbon economy. It is crucial to include a variety of socioeconomic indicators, including mortality rates and population growth, in the assessment process in order to guarantee this. By doing this, decision-makers can pinpoint possible areas for development and put specific plans into place to deal with the problems they've found. Countries can benefit from the potential of renewable energy sources to advance sustainable development, enhance public health, and lessen economic vulnerability by utilizing these data and analytical tools.