Exploratory Data Analysis and Visualization of Urban Population Trends

This research examines urban population growth across nations using the World Development Indicators dataset from 1960 to 2022. The goal is to comprehend the global evolution of urbanization as well as to investigate major patterns and variations found throughout time.
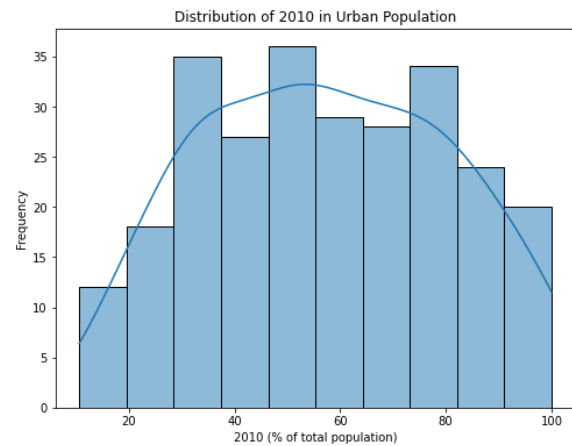
1. Basic Dataset Information

The dataset has 266 items and 68 columns, including Country Name, Country Code, Indicator Name, Indicator Code, and urban population percentages for each year. There are 64 columns of float64 data type and 4 columns of object type. The dataset gives a detailed summary of urban population fluctuations across nations.
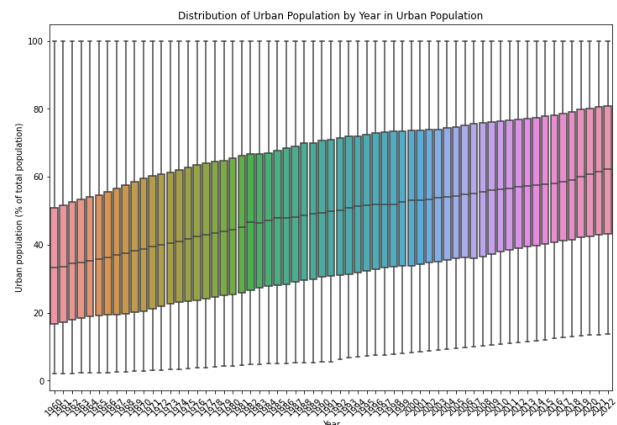
2. Descriptive Statistics

The fundamental data depict the primary patterns and fluctuations in urban population percentages from 1960 to 2022. The average urban population proportion has progressively climbed from roughly 36% in 1960 to over 61% in 2022, with standard deviations reflecting considerable variability between the years.

3. Distribution Plot for Urban Population
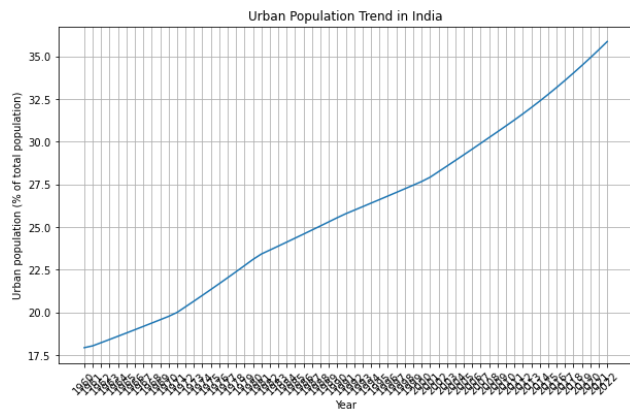
in 2010 Data Visualization and Analysis

To depict the dispersion of urban population percentages in 2010, a histogram was drawn. The distribution looks to be somewhat biased to the right, showing that there were differences in urbanization rates among nations that year.
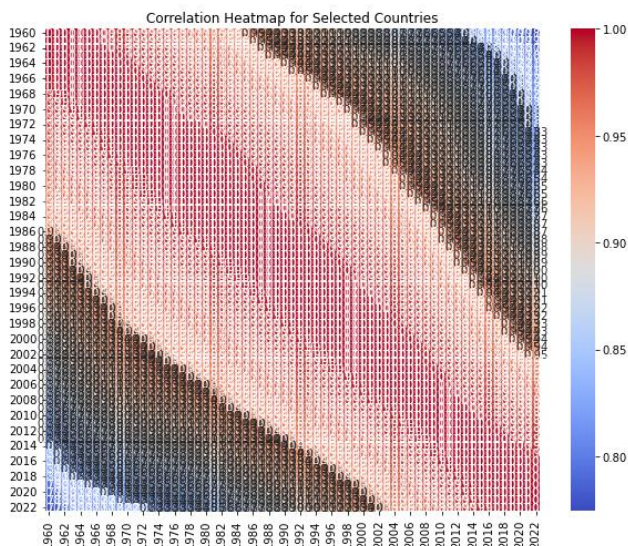

Distribution of 2010 in Urban Population

A meticulously designed box plot depicts the nuanced distribution of urban population percentages over different years." Identifying outliers and deviations, it gives substantial insights into significant shifts or persistent patterns in urban population trends across the time spectrum.

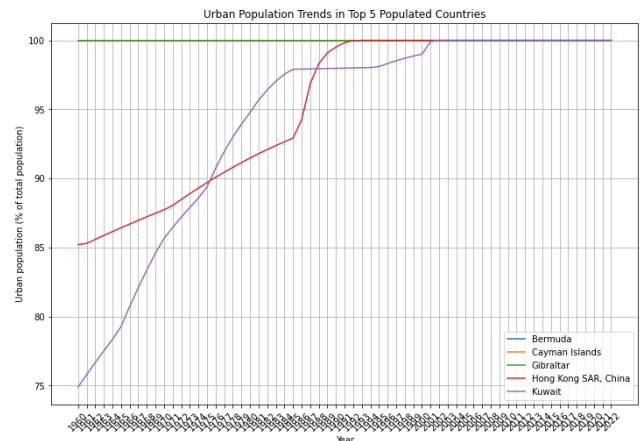Distribution of Urban Population by Year in Urban Population

A compelling line plot depicts India's urban population trend from 1960 to 2022, depicting a gradual and consistent increase." This informative visualization provides a short yet comprehensive portrayal of India's growing urban population environment throughout the time period chosen.

Urban Population Trend in India

Urban Population Trends in Top 5 Populated Countries

 Created for five nations (China, the United States, India, Brazil, and the United Kingdom), a heatmap visually depicts the relationships between urban population percentages throughout time. This graphical approach efficiently expresses the degree of connection, providing an instructive picture of how urban population trends align or diverge over time across the selected nations.

Correlation Heatmap for Selected Countries

 The top five most populated countries' urban population trends were examined, revealing variations and growth patterns in urbanization." This study depicts the dynamic panorama of urban population changes among the world's most populated countries, giving significant insights into their various paths of urban growth and demographic transitions.

4. Conclusion

The examination of the urban population dataset reveals dynamic worldwide urbanization trends, revealing variable growth rates, correlations, and country-specific patterns. This extensive investigation advances our knowledge of the complicated relationship between urban population dynamics and worldwide societal development.

Links :
https://data.worldbank.org/indicator/SP.URB.TOTL.I N.ZS?view=chart