**7PAM2000 APPLIED DATA SCIENCE 1**

**ASSIGNMENT 2: STATISTICS AND TRENDS**

**Analysis of world Development Indicators based on World Bank Data**

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**ABSTRACT**

**The** world bank data is a large repository of various social and statistical indicators covering different countries over a large time period.The world development indicators is a compilation of pertinent and globally standardized data such as Gross Domestic Product (GDP),population growth,education,gender statistics,etc.In this analysis we have filtered 11 countries and 24 countries covering the years 1960 to 2022 and various statistical and graphical methods are used and their contribution to world development is studied. Indicators from a number of categories, including labour, health, gender issues, resources and population, education, and the economy, are utilized for analysis. Findings of this analysis are helpful for decision-making and policy formulation in fostering global development. The findings contribute to a broader understanding of economic trajectories and offer valuable perspectives for informed actions that can shape a more sustainable and equitable future.

World Bank Dataset: <https://datacatalog.worldbank.org/search/dataset/0037712>

GitHub: <https://github.com/ASHIKAMOHAN/Assignment2_ADS>

**Analysis of world Development Indicators based on World Bank Data**

The World Development Indicators are a collection of relevent and globally comparable data with several indicators.For this analysis 11 nations and 24 indices covering the years 1960 to 2022 are chosen, and several plots are used to analyze each country's contribution to world development.Indicators from a number of categories, including labor, health, gender issues, resources and population, education, and the economy, are utilized for analysis.

**BAR GRAPH:**

A graph of different colored bars

Description automatically generated

The population growth(in %)of four distinct nations for four separate years is represented in the above barplot.According to the data, Australia's population growth slowed between 1960 and 2022. In Canada and Germany, population growth initially declines then increases, but in India, population growth grows till 1980 then decreases. Some nations will find it difficult to afford public expenditure due to their rapid population growth, which will have an impact on world development.

A graph of different colored bars

Description automatically generated

The GDP per capita Growth shows an upward growth for India which is significant in world development. For countries like Australia, Canada and Germany it decreases after 2000.

GDP per capita growth is a crucial measure of economic advancement as it reflects growing living standards and promotes general worldwide development and well-being.

**CORRELATION HEATMAP:**

A colorful squares with numbers

Description automatically generatedThe above correlation heatmap for Australia, shows that “Domestic general government health expenditure (% of GDP)" and "Life expectancy” are positively(0.77) corelated.This implies that investing in health care will result in public health and it can contribute to improved life expectancies,froasting healthier and more productive societies, ultimately supporting sustainable world development.

A colorful squares with numbers

Description automatically generated

The heatmap of Singapore shows that there is a positive correlation between “Education attainment” and “Individuals using internet”(77%) which indicates that higher education levels are associated with internet use. The connectivity of these two can contribute significantly to world development by accessing,cleaning,sharing information, enhancing communication etc.

A yellow and blue squares

Description automatically generated

The heatmap on India data shows no  
definite correlation between arable lands and  
any other factors. However, arable land is negatively correlated between and “GDP per capita” and “Research and development indicators. This observation may highlight potential challenges or trade-offs between agricultural priorities and economic development or innovation in India's development.

**SCATTER PLOT:**

A graph of scatter data

Description automatically generated with medium confidence

The scatter plot illustrates the GDP growth rate (annual %) for the United Kingdom and the United States over different years. Each point represents a specific year, showcasing the economic performance of the two countries. Despite some fluctuations, both nations generally exhibit positive GDP growth trends. The distinct colors for each country facilitate visual comparison. Analyzing multiple countries' GDP trends collectively provides a comparative view, aiding in understanding how economic policies and external factors contribute to or impede global development efforts.

**SUBPLOT**

A screenshot of a graph

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The subplots display gross savings and expenses for the United States, Australia, and India. Analysis reveals India has higher savings than expenses, contrasting with the other two nations where expenses are lower than savings. This visual comparison offers insights into diverse fiscal trends, shedding light on economic strategies. These indicators play a crucial role in comprehending global economic development and the formulation of fiscal policies.

**CONCLUSION:**

In summary, the analysis of World Bank indicators involved diverse statistical and graphical methods, encompassing 11 nations and 24 indices from 1960 to 2022. These insights are crucial for decision-making and policy formulation, crucial elements in fostering global development. The findings contribute to a broader understanding of economic trajectories and offer valuable perspectives for informed actions that can shape a more sustainable and equitable future.