NAME: Aryan Shankhapal
ROLL NO: 2021300117

AIM: Create basic charts using Tableau / Power BI / R / Python / D3.js to be performed on the dataset of Ecommerce field

Description of Dataset:

This dataset provides a comprehensive overview of various socio-economic, geographic, and demographic indicators for different countries. Below is a detailed description of the dataset columns:

Dataset Columns Description:

1. **Country: Name of the country.**

2. **Density (P/Km²): Population density of the country, measured as the number of people per square kilometer.**

3. **Abbreviation: The official country abbreviation (ISO Alpha-2 code).**

4. **Agricultural Land (%): The percentage of the country's land area that is used for agricultural purposes.**

5. **Land Area (Km²): The total land area of the country in square kilometers.**

6. **Armed Forces Size: The size of the country's military personnel.**

7. **Birth Rate: The number of live births per 1,000 people per year.**

8. **Calling Code: The international dialing code for the country.**

9. **Capital/Major City: The capital city or a major city in the country.**

10. **Co2-Emissions: The total CO2 emissions for the country, typically measured in metric tons.**

11. **CPI: Consumer Price Index, indicating the average change in prices over time that consumers pay for a basket of goods and services.**

12. **CPI Change (%): The percentage change in the Consumer Price Index.**

13. **Currency-Code: The three-letter ISO 4217 currency code for the country's official currency.**

14. **Fertility Rate: The average number of children that would be born to a woman over her lifetime.**

15. **Forested Area (%):** The percentage of the country's land area that is covered by forests.

16. **Gasoline Price:** The average price of gasoline in the country, typically measured per liter or gallon.

17. **GDP:** Gross Domestic Product, representing the total monetary value of all goods and services produced within the country.

18. **Gross Primary Education Enrollment (%):** The gross enrollment ratio for primary education, indicating the total enrollment in primary education, regardless of age, expressed as a percentage of the population of official primary education age.

19. **Gross Tertiary Education Enrollment (%):** The gross enrollment ratio for tertiary (higher) education.

20. **Infant Mortality:** The number of deaths of infants under one year old per 1,000 live births.

21. **Largest City:** The largest city in the country by population.

22. **Life Expectancy:** The average number of years a newborn is expected to live under current mortality rates.

23. **Maternal Mortality Ratio:** The number of maternal deaths per 100,000 live births.

24. **Minimum Wage:** The minimum wage set by the government, typically measured per hour or month.

25. **Official Language:** The official language(s) of the country.

26. **Out-of-Pocket Health Expenditure:** The percentage of total health expenditure that is paid out-of-pocket by households.

27. **Physicians per Thousand:** The number of physicians per 1,000 people in the country.

28. **Population:** The total population of the country.

29. **Population: Labor Force Participation (%):** The percentage of the population that is part of the labor force.

30. **Tax Revenue (%):** The tax revenue as a percentage of the country's GDP.

31. **Total Tax Rate:** The total tax rate, usually expressed as a percentage, which includes various types of taxes.

32. **Unemployment Rate:** The percentage of the labor force that is unemployed.

33. **Urban Population:** The total number of people living in urban areas within the country.

34. **Latitude:** The latitude coordinate of the country's geographic center.

35. **Longitude:** The longitude coordinate of the country's geographic center.

Dashboard Preview:

Insights/Observation/Question Answered Using Data Visualization:

1. What is the global GDP, and which countries have the highest GDP?

- **Insight:** The global GDP is shown as 92118 billion. The "GDP by Country" treemap highlights the United States, China, Japan, India, and Russia as the countries with the highest GDP.

2. What is the global population, and what percentage lives in urban areas?

- **Insight:** The total global population is 8 billion, with 4 billion people (50%) living in urban areas. The "Urban Population by Country" bar chart shows that China, India, the United States, Indonesia, and Pakistan have the largest urban populations.

3. Which countries have the highest and lowest population density?

- **Insight:** The "Density (P/Km²)" donut chart lists countries like Monaco, Singapore, and Bahrain as having high population density, while countries like Madagascar, Malawi, and Rwanda have lower densities.

4. What is the unemployment rate and tax rate for the highlighted country?

- **Insight:** The unemployment rate is 0.07, and the tax rate is 0.41, with Zimbabwe highlighted as a specific country of interest.

5. What is the agricultural land size percentage by country?

- **Insight:** The "Agricultural Land Size" bar chart indicates that Uruguay, Saudi Arabia, Kazakhstan, and South Sudan have large percentages of land dedicated to agriculture, with Rwanda at 88.9%.

6. How do primary and secondary education enrollment rates vary across countries?

- **Insight:** The line chart for "Primary Ed Enrollment and Secondary Ed Enrollment by Country" shows fluctuations in enrollment rates across various countries, with some countries having higher primary than secondary enrollment and vice versa.

7. Which countries contribute most to CO2 emissions?

- **Insight:** The "CO2 Emissions by Country" map visualization highlights regions with high CO2 emissions, predominantly in the Northern Hemisphere, particularly North America, Europe, and Asia.

8. What are some key socio-economic indicators for Zimbabwe?

- **Insight:** Zimbabwe is specifically highlighted for urban population. Additional insights for the country might include GDP, tax rate, unemployment rate, and education enrollment rates, though these would need to be inferred or calculated based on the provided data.

9. What is the correlation between the various socio-economic indicators?

- **Insight:** While not directly calculated in the visual, the report allows for visual comparison and potential correlation analysis between GDP, population, education enrollment, CO2 emissions, and agricultural land size.

10. How do birth rates, gas prices, life expectancy, and other socio-economic factors compare globally?

- **Insight:** Though specific data points for these factors aren't highlighted in detail, the visualization offers categories for deeper analysis, such as birth rate, gas price, and life expectancy, which could be explored further in an interactive setting.

Conclusion:

In this experiment, I created a detailed dashboard using a socio-economic dataset, allowing me to effectively visualize key global indicators. The dashboard provided valuable insights into economic conditions, population trends, education, health, and environmental impact, enabling me to answer important questions about global disparities.

This work demonstrates how data visualization can simplify complex information, making it easier to understand and use for informed decision-making. The dashboard I developed serves as a powerful tool for analyzing and addressing global socio-economic challenges.