**Topic:**

The Impact of Economic Indicators on National Income

**Research Objectives:**

**Descriptive Analytics**

To examine GDP, GDP growth, foreign investment, inflation rate, and government spending across various countries over the past three years.

To analyze and summarize the relationships between these economic indicators and national income levels.

**Predictive Analytics**

To develop machine learning models that accurately predict whether a country is classified as having a high-income level.

To evaluate and compare the effectiveness of various machine learning algorithms (such as logistic regression, decision tree, random forest, XGBoost, and neural networks) in predicting high-income levels.

**Research questions:**

1. Were there any changes in income level distributions between the years 2021 to 2023?
2. Were there any changes in GDP distribution between the years 2021 to 2023?
3. How does GDP growth differ for various income levels?
4. How has GDP changed from 2021 to 2023 in the top 20 countries with the highest GDP?
5. Have there been differences in the inflation rate for countries with different income levels within the years 2021 to 2023?
6. How has the portion of government military spending, in comparison to total government spending, changed between 2021 to 2023?
7. Is there any detectable relationship between foreign investment indicators?
8. Is there any relationship between GDP and inflation rates in countries with different income levels?
9. Is there a relationship between income level and GDP growth?
10. What is the distribution of high-income countries compared to other countries?
11. How did inflation trends evolve from 2021 to 2023 for different regions?
12. How did GDP growth trends evolve from 2021 to 2023 for different regions?
13. Is there a significant difference in GDP growth rates between high-income countries and others?
14. Does income level impact inflation?
15. Is there a significant relationship between GDP and government education spending?
16. Is there a significant relationship between the proportion of government education spending and GDP growth?
17. Is it possible to determine if foreign investment, government spending, and inflation collectively impact GDP using the available data?
18. Can available data on economic indicators classify countries into high-growth versus low-growth categories?
19. Are there distinct clusters of countries based on income level, economic growth, inflation, and foreign investment patterns?
20. How effective are logistic regression, decision tree, random forest, and XGBoost models in predicting high-income countries based on GDP, GDP growth, foreign investment, inflation rate, and government spending data?
21. Is a neural network model more effective than traditional regression models at identifying the most significant economic indicators for high-income nations?
22. What economic indicators predict high-income countries?