**Examining Government Spending and Foreign Investment on GDP and Inflation**

**Research Objectives**

* Analyze the impact of government spending on GDP.
* Evaluate the effect of government spending on GDP growth.
* Examine the relationship between government spending and the inflation rate.
* Assess the role of foreign investment in influencing income levels.
* Determine the effect of foreign investment on GDP.
* Analyze the impact of foreign investment on the inflation rate.

**Research Questions**

**A. Time Series Analysis**

1. How do inflation and GDP growth trends evolve over time for different regions?
2. Can time series forecasting models predict future GDP growth rates and inflation levels based on historical data?

**B. Hypothesis Testing - Statistical Comparisons**

1. Is there a significant difference in GDP growth rates between high-income and low-income countries? (T-Test)
2. Do income levels significantly impact inflation trends across regions? (Reframed as a broader focus to replace duplication)
3. Is there a significant relationship between foreign investment levels and a country's inflation rates? (Chi-Square Test)
4. Does government spending primarily on infrastructure lead to lower inflation compared to other spending types? (Introduced a new question)
5. Does the proportion of foreign investment to GDP differ significantly between low income and high income countries? (T-Test)
6. Do countries with higher military spending exhibit higher inflation rates?

**C. Multiple Linear Regression (MLR) - Predicting Outcomes**

1. How do foreign investment, government spending, and inflation collectively impact GDP?
2. How do foreign investment, government spending, and inflation collectively impact GDP growth?
3. What role does foreign investment play in shaping economic growth trends?
4. How does government expenditure on military influence GDP growth? (Broadened for sector-based analysis)
5. What are the primary determinants of a country's inflation rate?

**D. Classification - Categorizing Countries Based on Economic & Debt Factors**

1. Can economic indicators classify countries into high-growth vs. low-growth categories? (Logistic Regression)
2. Which macroeconomic indicators best predict a country's ability to manage inflation effectively? (Decision Tree)
3. Which countries are most likely to attract significant foreign investments? (Random Forest)
4. Does a country's inflation rate serve as a predictor for its ability to achieve long-term economic growth? (Naïve Bayes)
5. Can we identify countries most at risk of high inflation due to excessive foreign investment? (Random Forest)
6. How accurately can foreign investment categorize countries into high-growth or low-growth economies? (KNN)
7. Can we predict whether a country’s inflation rate will exceed a specified threshold? (KNN)

**E. Clustering - Identifying Economic & Public Debt Patterns**

1. Are there distinct clusters of countries based on income levels, economic growth, inflation, and foreign investment patterns? (K-Means Clustering)
2. Can clustering identify unique patterns among countries with similar GDP growth trajectories but different inflation rates?
3. Do countries with similar levels of foreign investment cluster together based on income levels, inflation, and GDP growth?

**F. Neural Networks - Deep Learning for Economic Forecasting**

1. Can a neural network model predict GDP growth more accurately than traditional regression models?
2. Can neural networks forecast a country’s foreign investment potential based on historical economic indicators?
3. How accurately can neural networks forecast the GDP growth of low-income countries compared to traditional statistical models?