Global GDP Analysis Using IBM Granite

Capstone Project • AI-Only Analysis

Saif Ali Khoeril Alim

Project Objective

- Analyze the World GDP dataset using IBM Granite (AI model).

- Summarize global economic trends

- Classify countries by income levels

- Generate policy recommendations

- This project demonstrates AI-driven reasoning without traditional ML models.

Dataset Overview

- Source:
  https://raw.githubusercontent.com/datasets/gdp/master/data/gdp.csv

- Columns:

- Country Name

- Country Code

- Year

- Value (GDP per capita in USD)

Data covers GDP trends globally across multiple years.

Tools & AI Model

Tools Used:

- Google Colab (Python)

- Pandas for data handling

- Replicate API for AI model calls

IBM Granite Model:

- ibm-granite/granite-3.3-8b-instruct

- Capable of summarization, classification, and reasoning from raw data.

AI-Driven Analysis Workflow

1. Load dataset from public source

2. Filter most recent GDP per country

3. Prompt IBM Granite for:

   • Global economic summary

   • Country income classification

   • Economic recommendations

4. Save and interpret Granite outputs

Granite Summary

• Significant variation in GDP across regions, showing diverse economic levels.

• Africa Eastern & Southern region has notably higher GDP than Western & Central Africa.

• Albania and Algeria show similar GDP levels, Angola slightly higher among mid-level economies.

• Overall trends imply gradual growth in several developing regions.

Granite Country Classification

Country	Income Category
Afghanistan	Low Income
Eastern & Southern Africa	High Income
Western & Central Africa	High Income
Albania	Middle Income
Algeria	Middle Income
Angola	Middle Income
American Samoa	Low Income
Arab World	High Income

Granite Economic Recommendations

1 Low-income: Invest in education and healthcare to build human capital.

2 Middle-income: Promote innovation and entrepreneurship to enhance productivity.

3 High-income: Apply progressive taxation and redistribution to reduce inequality.

Insights & Takeaways

- AI (IBM Granite) can interpret large datasets without manual coding.

- Provides clear, explainable insights from numeric data.

- Demonstrates the use of generative reasoning for real-world analysis.

Conclusion

- This capstone showcases how AI-driven reasoning (IBM Granite) can replace traditional data analysis pipelines for exploratory insight generation.

- Granite's responses summarize, classify, and recommend strategies from real economic data.