1. Objective

To analyze and visualize key U.S. macroeconomic indicators in order to:

- Understand the relationship between monetary policy, inflation, and interest rates.
- Identify structural shifts (regimes) in economic policy using data science techniques.
- Provide actionable insights for policymakers, investors, and academic researchers.

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2. Stakeholders

- **Primary:** Economic analysts, policy researchers, and academic institutions.
- **Secondary:** Investors, financial journalists, and general data science learners.

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3. Business Questions

- How do changes in money supply (M2) influence inflation over time?
- What is the lag between changes in interest rates and observable inflation responses?
- Can we classify monetary policy periods (regimes) based on CPI and Fed Funds Rate behavior?
- How tightly are different interest rate instruments (SOFR, 10Y Yield, Fed Rate) correlated?

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4. Scope

- **Included:** U.S. monthly data from 2018 to 2025 for M2, CPI, Inflation Rate, Fed Funds Rate, SOFR, and Treasury Yield.
- **Excluded:** Global indicators, labor market data, GDP growth, or sector-specific metrics.

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5. Tools and Technologies

- **Data Handling:** Excel, Python (Pandas, NumPy)

- **Visualization:** Matplotlib, Seaborn
- **Modeling:** KMeans clustering (scikit-learn)
- **Version Control:** GitHub
- **Documentation:** Jupyter Notebooks, Markdown, MS Word

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6. Deliverables

- Cleaned and documented dataset
- Time series visualizations and correlation analysis
- Regime clustering model (KMeans) and visual interpretation
- Final report with recommendations, assumptions, and caveats
- GitHub repository with README and supporting files

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7. Success Criteria

- Clear, interpretable visualizations of trends and correlations
- Accurate clustering of economic regimes
- Actionable insights derived from exploratory analysis