📉 Global Inflation Analysis (2000–2025)

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Tools: Power BI • SQL Server • DAX • Python • Google Docs
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1. 🎯 Objective / Problem Statement

To analyze **global inflation trends between 2000 and 2025** across multiple countries. The project aims to:

- Identify inflation hotspots
- Track average inflation over time
- Surface key insights using an interactive dashboard
- Extend predictions through 2030 using time series forecasting in Python

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2. 🌐 Data Source

- **Primary Source:** World Bank – Global Inflation Dataset (CPI % annual)
- **Data Format:** CSV, covering years 1960–2025
- **Project Scope:** 2000–2025
- **Data Gaps:** Missing values for countries such as Venezuela and Cuba due to unavailable or unreliable reporting

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3. 🧹 Data Cleaning & Transformation

- Imported raw CSV
- Reshaped data from wide to long format: (`Country_Name`, `Year`, `Inflation (%)`)
- Filtered to keep only years **2000 through 2025**

- Removed null values and standardized column names
- Saved as `Global_Inflation_Cleaned.csv`
- Loaded into **SQL Server** as `GlobalInflation` table

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4. 🤖 Forecasting (2026–2030) Using Python

To predict future global inflation trends, I used **Prophet**, a time series forecasting library from Meta. Here's a summary:

Tools:

- Python
- Prophet
- Pandas
- Matplotlib

Steps:

1. Filtered data from 2000–2025
2. Calculated average global inflation per year
3. Prepared data for Prophet with columns `ds` (date) and `y` (value)
4. Trained a Prophet model to forecast from 2026 to 2030
5. **Created a forecast visualization directly in Python** showing trends and a 95% confidence interval

Output:

- Forecasted global inflation values for 2026–2030
- Visual chart showing trend + 95% confidence interval
- CSV file: `forecast_inflation_2026_2030.csv`

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5. 📊 Power BI Dashboard Components

The dashboard provides a comprehensive and interactive view of global inflation using a clear and well-structured layout. Key components include:

- **World Map (Choropleth)**:
  Displays inflation by country across selected years using a color gradient to represent inflation intensity.

- **Top 10 Countries Bar Chart**:
  Shows the countries with the highest recorded inflation between 2000–2025. The chart dynamically adjusts based on slicer selections.

- **Global Average Inflation Line Chart (2000–2025)**:
  A time-series line chart visualizing the yearly average inflation globally. This reveals long-term trends, peaks, and dips.

- **KPI Cards**:

  - **Global Average Inflation (%)**: Shows the calculated average for the entire 2000–2025 period.

  - **Max Inflation Year**: Displays the specific year with the highest inflation value.

  - **Max Inflation Country**: Highlights the country with the highest recorded inflation rate.

- **Interactive Slicer**:
  A dropdown filter allows users to select specific years and see all visuals adjust accordingly.

- **Inflation Table**:
  A detailed matrix showing:

  - Country

  - Year

  - Inflation (%)
    With conditional formatting using a green color scale, this table emphasizes the relative magnitude of inflation values.

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6. 💡 Insights & Findings

- 📈 Global average inflation showed spikes in **2008** (financial crisis) and **2022** (post-pandemic pressure)
- 🌍 Countries such as **Argentina**, **Zimbabwe**, and **Turkey** experienced highest inflation rates
- 🧊 Developed nations (e.g., Western Europe) maintained inflation mostly under 3%
- ⚠️ Venezuela and Cuba excluded due to major data gaps

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7. 🚧 Challenges

- Missing data for certain nations required documentation and exclusion
- Formatting inflation values correctly in Power BI KPIs — solved with **DAX measures**
- Ensured visual design clarity, consistent color palette, and intuitive layout