Final Project Report

Title: Power BI Inflation Analysis Journeying Through Global Economic Terrain

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1. Introduction

1.1 Project Overview

This project analyzes global inflation trends across countries and decades using **Power BI**. The dataset spans 1980–2024 and provides annual inflation rates for multiple countries. The project's primary goal is to visualize inflation patterns, identify outliers, compare regions, and present insights in an interactive dashboard.

1.2 Objectives

- To study global inflation behavior across countries and decades.
- To identify countries with the highest and lowest inflation.
- To highlight regions and decades showing inflation volatility.
- To create a Power BI dashboard that supports policymakers, analysts, and researchers in decision-making.

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2. Project Initialization and Planning Phase

2.1 Define Problem Statement

Global inflation varies significantly across countries and time periods. While some countries maintain stable economies, others face hyperinflation. This volatility needs to be analyzed to extract valuable insights for economic planning and financial forecasting.

2.2 Project Proposal (Proposed Solution)

The solution involves creating a Power BI dashboard with interactive visuals to:

- Track inflation by year, country, and region.
- Classify countries into inflation distribution categories (Low, Medium, High).
- Highlight outlier countries such as Venezuela, Argentina, and Zimbabwe.
- Compare regional and temporal inflation trends.

2.3 Initial Project Planning

- Dataset selected: Annual inflation rates (1980–2024).
- Tools used: Power BI, Excel.
- Project Phases: Data preprocessing → Visualization development → Dashboard creation → Documentation.

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3. Data Collection and Preprocessing Phase

3.1 Data Collection Plan and Raw Data Sources Identified

Source Name	Description	Location/URL	Format	Size	Access Permissions
Inflation Dataset	Annual inflation rate data (1980–2024) for countries worldwide.	Kaggle/World Bank	CSV	10 MB	Public

3.2 Data Quality Report

- Missing data found for some countries (e.g., Eritrea, Estonia, Syria).
- Extreme outliers (Venezuela with 91.88K inflation sum).
- Null values handled using **median imputation**.
- Columns standardized: Year (numeric), Inflation rate (float), Country (string).

3.3 Data Exploration and Preprocessing

- Added **calculated columns**:
  - Inflation Distribution Category (Very Low, Low, Medium, High, Very High).
  - Decade (1980s, 1990s, etc.).
- Cleaned null and duplicate rows.
- Created dimension tables: **Dim_Year, Dim_Region**.

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4. Data Visualization

4.1 Framing Business Questions

Some of the key business questions addressed:

1. What are the global inflation trends over time?
2. Which countries have the highest and lowest inflation rates?
3. Which countries show the most inflation volatility?

4. How does inflation vary by decade?
5. How is inflation distributed across categories (High/Medium/Low)?
6. Which regions have stable vs. volatile inflation patterns?
7. What are the top 5 outlier countries by inflation?
8. How do the lowest inflation countries compare to the highest?

4.2 Developing Visualizations

- **Line charts**: Trends by country, decade, region.
- **Bar charts**: Top 5 highest/lowest inflation countries.
- **Pie charts**: Inflation distribution categories.
- **Maps**: Regional inflation differences.
- **Variance chart**: Countries with inflation volatility.

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5. Dashboard

5.1 Dashboard Design File

The Power BI dashboard is divided into three main pages:

1. **Overview Page** – Global summary, top 5 high/low inflation countries, inflation distribution.
2. **Country Page** – Drill-down for individual country analysis.
3. **Time Page** – Decade-wise comparison of inflation rates and distribution.

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6. Report

6.1 Story Design File

The report narrates the journey of global inflation from 1980 to 2024, highlighting extreme outliers, decade trends, and category distributions. Key takeaways include:

- Venezuela contributes **58.18%** of global inflation sum (91.88K).
- Argentina and Zimbabwe rank second and third in inflation.
- Developed nations (Germany, Japan, Switzerland) show stable low inflation.
- The 1980s and 1990s were the most volatile decades globally.

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7. Performance Testing

7.1 Utilization of Data Filters

- Slicers added for Year, Region, Country, and Inflation Category.

7.2 Number of Calculation Fields

- 5 calculated measures (Average Inflation, Sum Inflation, Volatility, Category Distribution, Decade Average).

7.3 Number of Visualizations

- Total visuals used: **15** across 3 pages.

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8. Conclusion / Observation

- Venezuela, Argentina, and Zimbabwe dominate global inflation contribution.
- Most developed economies maintain stable and low inflation.
- Decade-level analysis reveals volatility peaks in the **1980s–1990s**.
- The distribution chart shows ~60% of countries remain in the **Low/Medium** category.
- Power BI dashboards provide interactive exploration and quick insights for policymakers and analysts.

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9. Future Scope

- Add real-time inflation data integration (via APIs).
- Extend analysis to **GDP, unemployment, and exchange rates** for macroeconomic insights.
- Predict future inflation trends using ML/AI models integrated with Power BI.
- Create a storytelling dashboard with automated insights.

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10. Appendix

10.1 GitHub & Project Demo Link

- GitHub Repo: https://github.com/Expert610/Power-BI-Inflation-Analysis--Journeying-Through-Global-Economic-Terrain.git
- Power BI Demo: https://drive.google.com/file/d/1_0QgPr4kdGwaXa2NxfdKFPkYetU4NxE0/view?usp=sharing