Power BI Inflation Analysis: Journeying Through Global Economic Terrain

Description:-

Inflation, a critical economic indicator, profoundly impacts businesses, consumers, and policymakers worldwide. In this scenario, a multinational corporation operating in diverse markets seeks to optimize pricing strategies, mitigate risks, and make informed investment decisions. Leveraging Power BI's analytical prowess, we delve into inflation data to offer tailored recommendations aligned with each market's unique economic conditions.

Our approach involves data collection, preparation, and modeling to build a robust analysis framework. Through insightful visualizations and strategic recommendations, we aim to equip stakeholders with actionable insights for informed decision-making. Our deliverables include an interactive Power BI dashboard showcasing inflation trends and a comprehensive report summarizing analysis findings and recommendations.

Project Flow:-

1) Data Collection

   o Collect the dataset,

   o Connect Data with Power Bl

2) Data Preparation

   o Prepare the Data for Visualization

3) Data Visualizations

   o Visualizations

4) Dashboard

   o Responsive and Design of Dashboard

5) Report

   o Report Creation

6) Performance Testing

   o Utilization of Data Filters

   o No. of Calculation fields

   o No. of Visualizations/Graphs

7) Project Demonstration & Documentation

   o Record explanation Video for project end to end solution

   o Project Documentation Step by step project development procedure

Data Collection

❖ **Collect the dataset:-** We collect data set from the website called "Kaggle". Link:-
https://www.kaggle.com/datasets/sazidthe1/global- inflation-data

Data contains all the meta information regarding the columns described in the CSV files.
Column Description of the Dataset:

1) Country_name: Name of the Country.
2) Inflation Rate: Inflation rate of each country.
3) Region: Region of country which belongs
4) Year: represents the calendar year for which the corresponding inflation data is recorded.
5) AdjustedInflationRate: The 'Adjusted Inflation Rate' column is derived by multiplying the inflation rate by 0.01 .
6) InflationRateCategory:The 'Inflation Rate' column is categorized as high, medium, or low based on predefined thresholds.

❖ **Connect Data with Power Bl:-**

Open Power BI ----> click "Get Data" ----> Select option either "CSV/EXCEL"-> Then choose file from ypur computer -- > Finally click "Load".

Data Preparation

Data preparation is a critical stage in the data analysis process, encompassing activities aimed at cleaning, transforming, and organizing raw data into a structured format suitable for analysis. This process involves identifying and addressing issues such as missing values, outliers, inconsistencies, and inaccuracies in the dataset, ensuring data quality and reliability. Data processing can be done at "**Transform state**". Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency. Since the data is already cleaned, we can move to visualization.

❖ **Before data Pre-processing:-**

A	B	C	D	E	F
country_n	indicator_	1980	1981	1982	1983
Afghanist:	Annual av	13.4	22.2	18.2	15.9
Albania	Annual average inflation (consumer prices) rate				
Algeria	Annual av	9.7	14.6	6.6	7.8
Andorra	Annual average inflation (consumer prices) rate				
Angola	Annual av	46.7	1.4	1.8	1.8
Antigua a	Annual av	19	11.5	4.2	2.3

❖ **After data Pre-processing:-**

Index	Year	Inflationrate	AdjustedInflationrate	InflationRateCategory	InflationrateDifference	InflationRateChange
1	1980	13.4	1.34	High	12.06	-0.382222222222222
2	1981	22.2	2.22	High	19.98	-0.382222222222222
3	1982	18.2	1.82	High	16.38	-0.382222222222222
4	1983	15.9	1.59	High	14.31	-0.382222222222222
5	1984	20.4	2.04	High	18.36	-0.382222222222222
6	1985	8.7	0.87	High	7.83	-0.382222222222222

Data Visualization

Data visualization is the process of creating graphical representations of data to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.
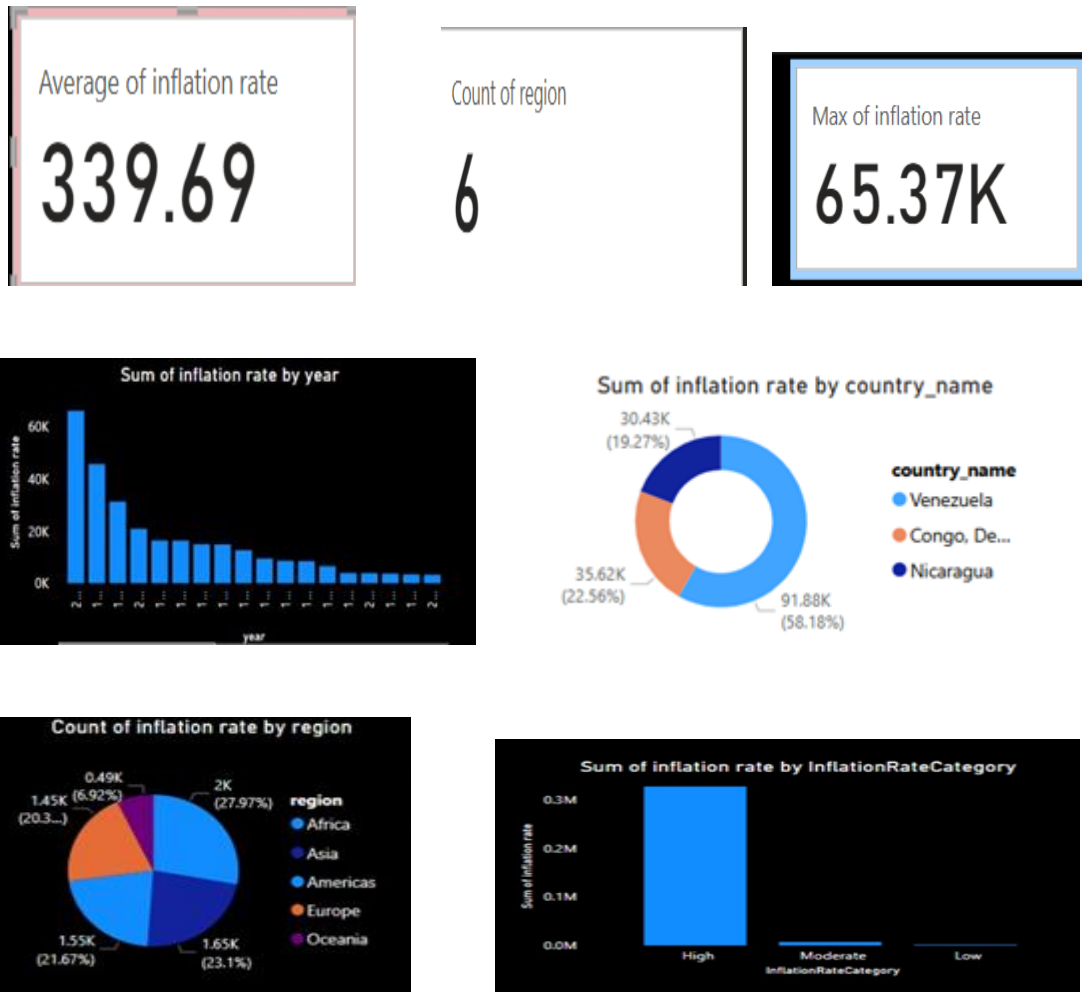
Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables. A well-designed dashboard provides users with actionable insights by consolidating complex data into visual representations that facilitate quick decision-making. It often integrates data from multiple sources, offering a centralized view of critical information. Dashboards can be interactive, allowing users to filter, drill down, and customize data views according to their specific needs.

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Report

A report is a comprehensive document that provides a detailed and structured account of data analysis, findings, and insights. It is typically used for in-depth analysis, documentation, and communication of results. Reports are suitable for a diverse audience, including decision-makers, analysts, and stakeholders who need a comprehensive understanding of the data.

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.Venezula had the highest Sum of InflationRate at 91,877,80, followed by Congo,Dem.Rep.of the at 35,624,30 and Nicargua at 30,426,90
.Venezuela accounted for 58.18% of Sum of InflationRate.
.At 3,64,127.87, High had the highest Sum of InflationRate and was 2,64,412.47% higher than Low,which had the lowest
Sum of InflationRate at 137.66.
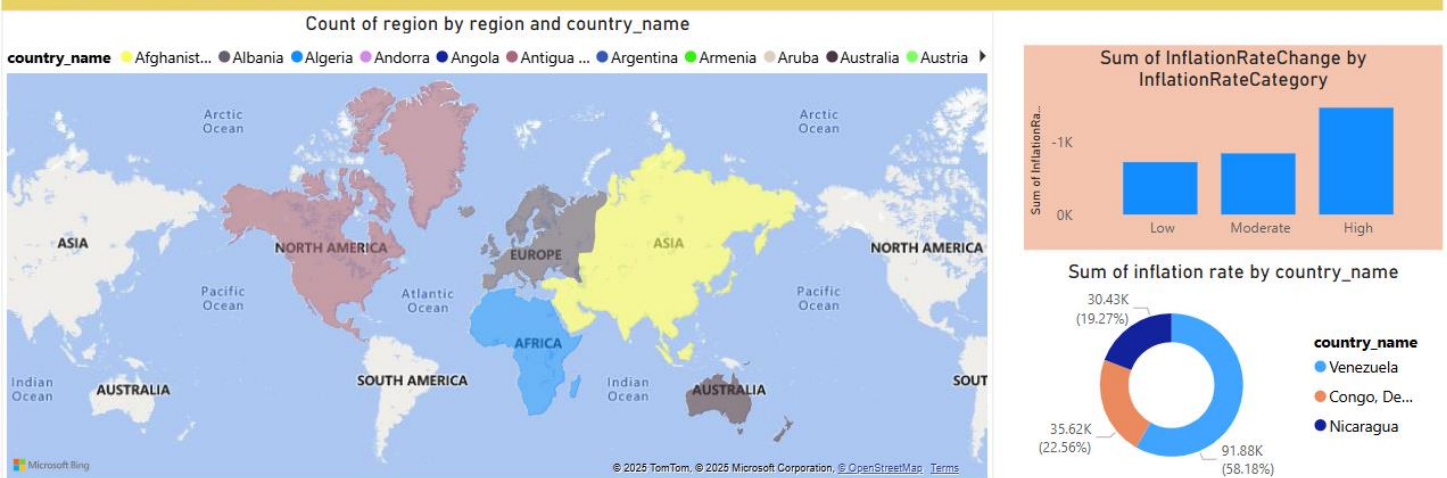
Performance Testing

Performance testing is a critical component of software development aimed at evaluating the speed, responsiveness, and stability of an application under varying load conditions. By simulating real-world scenarios, such as heavy user traffic or high data volumes, performance testing helps identify potential bottlenecks, weaknesses, and areas for optimization within the system. In the context of the **Power BI Inflation Analysis: Journeying Through Global Economic Terrain** project, **performance testing** plays a vital role in ensuring the smooth functioning and efficiency of data processing, visualization rendering, and real-time analysis. Given the large volume of economic data sourced from multiple databases, including historical inflation rates, macroeconomic indicators, and live financial updates, the system must be able to handle **massive datasets without lagging or crashing**.

Amount of Data Loaded

"Amount of Data Loaded" refers to the quantity or volume of data that has been imported, retrieved, or loaded into a system, software application, database, or any other data storage or processing environment. It's a measure of how much data has been successfully processed and made available for analysis, manipulation, or use within the system.