Data Collection and Preprocessing Phase

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Skillwallet ID	SWUID20250200484
Project Title	Power BI Inflation Analysis: Journeying Through Global Economic Terrain
Maximum Marks	10 Marks

Data Exploration and Preprocessing Template

Identifies data sources, assesses quality issues like missing values and duplicates, and implements resolution plans to ensure accurate and reliable analysis.

Section	Description
Data Overview	We have two main datasets. The first is **Global Inflation Data** (our main fact table), which has Country, Year, and the raw Inflation Rate. The second is the **Continent Mapping** file to organize countries by region. The data is **reliable** as it came from official sources (**World Bank/Govt. Websites**), but the biggest challenge was the **lack of standardization** and **historical data gaps** in the early years.
Data Cleaning	We started in **Power Query** to check the quality. The primary issue was **Missing Values (Nulls)**, especially in older records (which confirms the "Limited Historical Data" challenge). We decided **not to delete** these rows but to leave them as Nulls to accurately show the historical data gaps in our comparative charts. We found **no duplicates**, which saved us a lot of time.
Data Transformation	This was the key step to solve the **standardization** problem. We created two crucial new columns: 1. **AdjustedInflationRate** (The raw rate multiplied by 0.01 for easier metric comparison). 2. **InflationRateCategory** (Categorized the inflation into **High, Medium, or Low** using Power Query's conditional logic to enable fast risk analysis via color coding).

Data Type Conversion	We made sure all data types were correct for accurate DAX calculations. We converted the Year column to **Whole Number**. Both the Inflation Rate and AdjustedInflationRate were converted to **Decimal Number**. All name columns (Country_name, Region) were confirmed as **Text**.
Column Splitting and Merging	Since the inflation data and continent data were separate, we performed a **Merge operation** (like a V-Lookup) in Power Query. We used the **Country_name** column as the common key to join the tables. This step successfully enriched the main inflation data table by adding the **Region** information, making **Continent-wise Analysis** possible.
Data Modeling	We built a simple but effective **Star Schema** model. The main Inflation Data became the **Fact Table**, and the Continent table became the **Dimension Table**. We established a **One-to-Many Relationship** between them. Finally, we created core **DAX Measures** like Average Inflation Rate and Max Inflation Rate for our dashboard KPIs (Key Performance Indicators).
Save Processed Data	Once all the cleaning, modeling, and measure creation was done in Power Query, we hit **"Close & Apply."** This saved the entire **Cleaned and Modelled Data** structure into the Power BI data model and the **.pbix** file. The data is now officially **ready for visualization**.