DATA DESCRIPTION

XAU/JPY….DAILY TIMEFRAM 2021 -2024

XAU/USD…WEEKLY TIME FRAME 2021-2024

XAU/GBP….HOURLY TIMEFRAM 2021-2024

TASK.

1. DATA CLEANING

First clean the data set perform all the data cleaning task on the dataset.

* **Missing Values**:
  + Identify missing values and remove them.
* **Outliers**:
  + Detect and remove outliers that can distort analysis or model training.
* **Irregular Intervals**:
  + Check for and address irregular time intervals.
  + Resample or aggregate the data to a consistent time interval if necessary.
* **Duplicate Timestamps**:
  + Identify and resolve duplicate timestamps which can cause inaccuracies in analysis.
* **Seasonality and Trends**:
  + Recognize and handle seasonality and trends appropriately.
  + Use decomposition techniques to separate these components.
* **Stationarity**:
  + Check for stationarity, as many time series models assume the series is stationary.
  + Apply transformations like differencing or detrending to achieve stationarity if required.
* **Data Types and Formats**:
  + Ensure that the date and time formats are consistent and correctly parsed.
  + Verify that all numerical values are in the correct data types for analysis.
* **Scaling and Normalization**:
  + Apply appropriate scaling or normalization techniques.
* **Time Zone Adjustments**:
  + Verify and adjust for any time zone differences if the dataset includes timestamps from different time zones.
* **Domain-Specific Checks**:
  + Perform domain-specific checks to ensure data integrity (e.g., sensor data might require range checks based on known operating conditions).

1. **DATA VISUALIZATION**

 **Seasonality**:

* Identify and illustrate any seasonal patterns or cyclical behavior in the data.
* Use seasonality decomposition plots to separate trend, seasonal, and residual components.

**Comparisons**:

* Compare different time periods, using side-by-side plots or overlay plots to facilitate comparison.
* Highlight differences and similarities clearly.

1. MODEL DEVELOPMENT USING RECURRENT NEURAL NETWORKS (RNN).
   1. Develop and train the model
   2. Evaluate the model using evaluation matrices like:,

**Mean Absolute Error (MAE)**:

 **Mean Squared Error (MSE)**:

 **Root Mean Squared Error (RMSE)**:

 **R-squared (Coefficient of Determination)**:

 **Mean Absolute Percentage Error (MAPE)**:

1. VISUALIZE THE RESULT OF THE MODEL.