



# GOLD PRICE PREDICTION

# INTRODUCTION

- Gold has held significant value and served as a medium of exchange for centuries, making it a precious and sought-after commodity.
- Predicting gold prices can be crucial for investors and traders as it helps them make informed decisions about when to buy or sell gold.
- The problem statement revolves around developing a predictive model using Long Short Term Memory (LSTM) to forecast future gold prices accurately.

# Methodology Overview

- The predictive model's development involves several key steps, starting with data collection and preprocessing.
- Historical gold price data and relevant features like daily high and low prices, % volume of transactions, and % change in prices are collected.
- Data preprocessing ensures that the collected data is cleaned, normalized, and transformed into a suitable format for LSTM model training.
- The most relevant features are selected to serve as inputs for the LSTM model.

# Data Collection and Preprocessing

- The dataset for gold prices, covering the years 2013 to 2022, is collected from reliable sources.
- During data preprocessing, the dataset is carefully checked for duplicates and missing values.
- Missing values are handled appropriately, and duplicates are removed to ensure the accuracy of the data.

# Model Training and Evaluation

- The dataset is split into training and testing sets to enable the model to learn from past data and evaluate its performance on unseen data.
- To ensure that all features have equal importance during training, the data is scaled using MinMaxScaler.
- The LSTM model is trained on the preprocessed training dataset using a suitable training algorithm, such as Nadam.
- The model's performance is evaluated on the testing dataset using metrics like loss and accuracy.

# Fine-tuning the LSTM Model

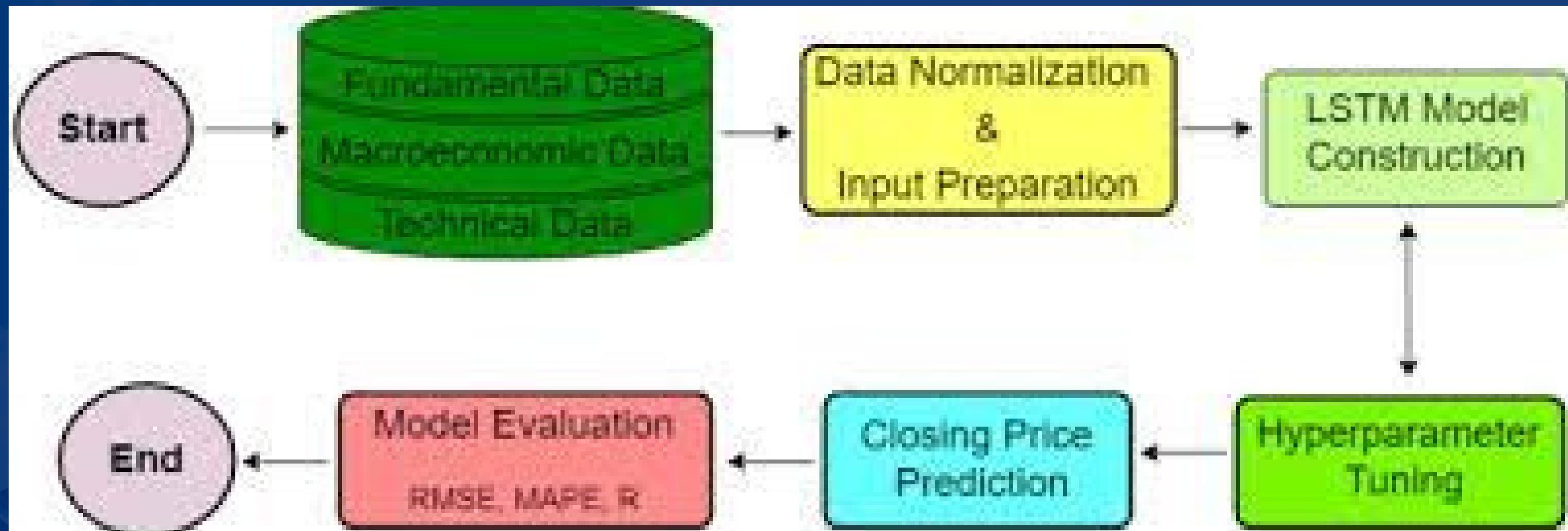
- Fine-tuning involves adjusting hyperparameters to optimize the LSTM model's performance.
- Key hyperparameters that can be fine-tuned include the number of nodes and hidden layers in the LSTM, the number of units in the Dense Layer, and the Dropout rate.
- Fine-tuning helps to improve the model's accuracy and make it more effective in predicting gold prices.

# Impact of this idea

- Better Investment Decisions: Investors can use the predictive model to make more informed decisions about buying or selling gold. By having a reliable forecast of future gold prices, investors can adjust their portfolios accordingly, potentially maximizing returns and minimizing risks.
- Risk Management: Traders and financial institutions can utilize the model's predictions to manage their exposure to gold prices more effectively

- Business Strategy: Companies involved in gold-related industries, such as mining companies, jewelry manufacturers, or financial institutions offering gold-based products, can leverage the model to develop better business strategies and operational planning based on anticipated price trends.
- Economic Analysis: Governments and policymakers can benefit from accurate gold price predictions for economic analysis. Gold prices often reflect overall market sentiment, inflationary pressures, and global economic conditions, making them a valuable indicator for economic forecasting.
- Resource Allocation: For gold mining companies, accurate price predictions can aid in optimizing resource allocation and mine production decisions. It allows them to adjust production levels based on forecasted demand and price trends.

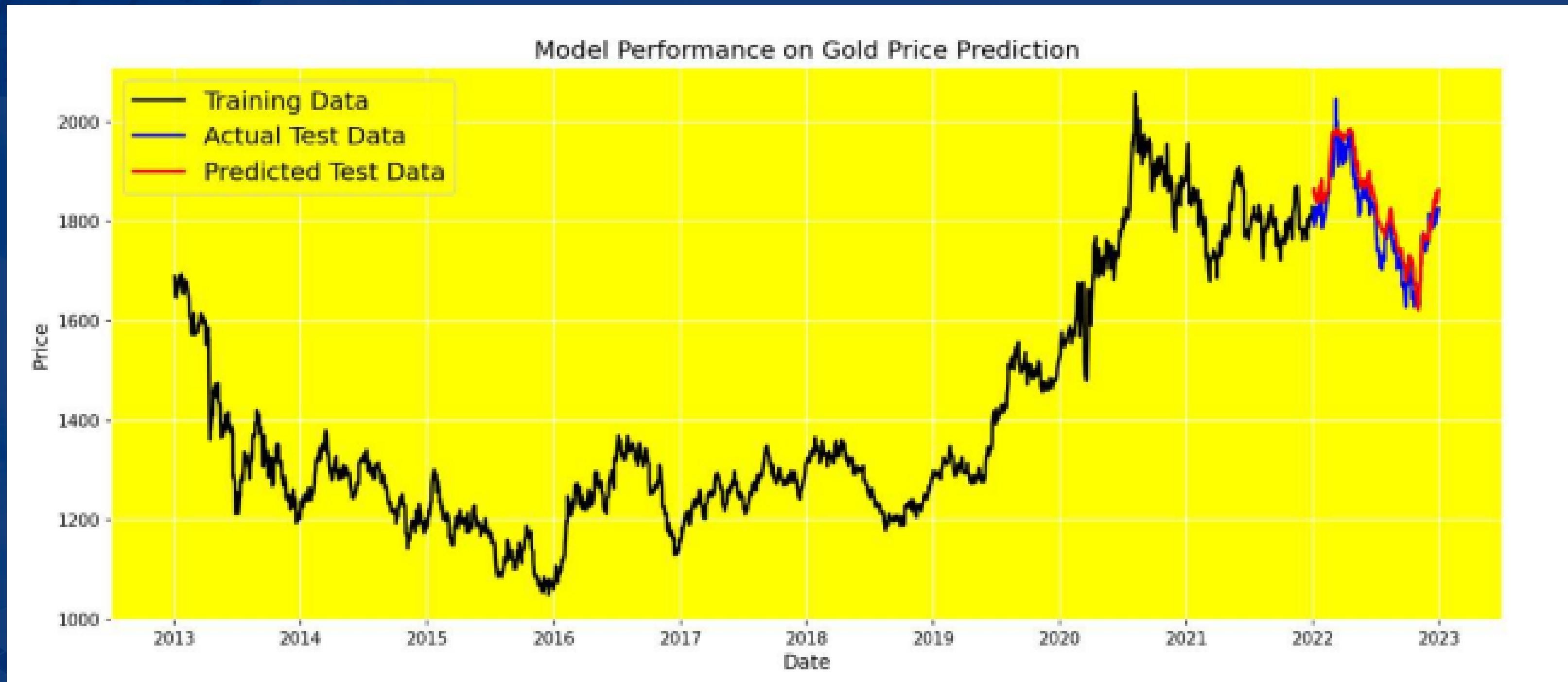
# Block diagram



# Results and Performance

- The validation data's accuracy and loss of the model may vary depending on different training scenarios.
- In an ideal scenario, the loss should decrease, and accuracy should increase with each successive training period.
- The achieved results of the project include the model's loss and accuracy values on the validation data.

# Results and Performance



# Link Demo

Google colab-

<https://colab.research.google.com/drive/1I3-Md7dSOEOPJWjxxRMM-1Dlgd4Uaqm?usp=sharing>

# THANK YOU !

