



PROJECT REPORT
GOLD PRICE PREDICTION BASED ON OIL PRICE
FLUCTUATIONS USING TIME SERIES FORECASTING
MODEL ARIMA AND LSTM

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ABSTRACT

Gold and oil prices are commodities that influence and have a significant impact on the global economy. This research aims to analyze the relationship between gold and oil prices and incorporate them into ARIMA and LSTM algorithms that will be compared to find an algorithm that can predict future gold prices more accurately. Previous research has shown that rising real oil prices have a positive effect on gold prices. Taking this relationship into account, accurate gold price predictions can help market participants to make informed investment decisions. The limitation of this study is that it only focuses on oil price fluctuations and does not include other factors that affect the gold market. The goal is to provide accurate gold price predictions for the next one year. The best prediction algorithm is LSTM which produces Mean Squared Error 2488.0454, Mean Absolute Error 37.7266, Mean Absolute Percentage Error 2.52%. Gold price predictions for the period November 2023 to October 2024 range from 1659.7815 - 1884.176US\$. The findings contribute to the development of reliable gold price predictions based on oil price fluctuations and help in making the right investment decisions for stable economic growth.

Keyword: Gold Price, Oil Price, ARIMA, LSTM, prediction

