SCHOOL OF COMPUTING
Faculty of Engineering

Project Proposal Form MCST1043
Sem: 2 Session: 2024/25

SECTION A: Project Information.

Program Name: **Masters of Science (Data Science)**

Subject Name: **Project 1 (MCST1043)**

Student Name: Siti Nur Elisya Aqmar binti Mohamad Kamal

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Project Title: Predictive Machine Learning Modeling for Gold Prices

Supervisor 1:

Supervisor 2 / Industry Advisor(if any):

SECTION B: Project Proposal

Introduction:

For a long time, gold has been an asset that is reliable to have, especially during difficult economic times. Investors, financial experts and politicians are all very interested in making accurate gold price predictions. However, predicting the price of gold is a difficult undertaking because of its volatility and reliance on a number of market-driven, geopolitical, and economic variables.

Using historical data and certain economic factors, this research seeks to create predictive machine learning models that can estimate short- and medium-term gold prices

Problem Background:

Although gold is regarded as a safe-haven asset, its price fluctuates greatly and is affected by a number of variables, including interest rates, inflation, oil prices, and world events. The complex and non-linear interactions between these variables are difficult for traditional gold price forecasting techniques to take into consideration. Because machine learning can examine enormous information, uncover hidden patterns, and produce more accurate predictions, it presents a potential answer. This study intends to investigate how these methods might increase the precision of gold price forecasts, as machine learning applications in gold price prediction are still rather limited.

Problem Statement:

The complex and unpredictable interaction of market, geopolitical, and economic factors makes it difficult to predict gold prices with any degree of accuracy. The non-linear correlations between these factors are frequently missed by conventional forecasting techniques like technical analysis and statistical models. Because of this, financial experts and investors find it difficult to base their decisions on accurate price forecasts. By utilizing past data and spotting trends that are difficult to spot using traditional techniques, machine learning presents an effective approach. In order to give investors and financial experts' additional useful tools, this project intends to use machine learning techniques to increase the predicting accuracy of gold prices.

Aim of the Project:

The aim of this initiative is to create and assess machine learning models that use historical price data and pertinent economic variables to more accurately forecast gold prices. To find trends and increase the accuracy of gold price forecasts, the project aims to investigate a variety of machine learning approaches, which include regression models and time-series forecasting algorithms. The main goal is to give financial experts and investors a better tool for making informed judgments in the unstable gold market.

Objectives of the Project:

- To use exploratory data analysis (EDA) in order to find correlations, trends, and patterns between external factors and gold prices.
- To create and evaluate many machine learning models for short-term gold price prediction, such as Linear Regression.
- To analyse and display model outputs to help decision-makers comprehend and make sense of the findings.

Scopes of the Project:

The information on daily or weekly gold prices over the previous ten to twenty years will be the project's main emphasis. The US Dollar Index, oil prices, interest rates, inflation (CPI), and stock market indices are among the economic data that will be considered.

Python will be used to create machine learning models, which will then be assessed for predicted accuracy.

The study might include the developing of a basic dashboard or user interface for visualization, but it will not involve actual deployment or real-time trading systems.

Expected Contribution of the Project:

A collection of trained machine learning models that can predict the price of gold in the short to medium term.

An understanding of the main economic variables affecting gold pricing.

A detailed analysis of various machine learning techniques for financial time-series forecasting.

A visual dashboard or report that presents results in an interactive and approachable way.

An insightful case study that shows how machine learning may be used practically in financial data analysis.

Project Requirements:

Software:

Hardware:

Technology/Technique/ Methodology/Algorithm:

Type of Project (Focusing on Data Science):

[/] Data Preparation and Modeling

[ ] Data Analysis and Visualization

[ ] Business Intelligence and Analytics

[/] Machine Learning and Prediction

[ ] Data Science Application in Business Domain

Status of Project:

[/] New

[ ] Continued

If continued, what is the previous title?

SECTION C: Declaration

I declare that this project is proposed by:

[/] Myself

[ ] Supervisor/Industry Advisor ( )

Student Name: Siti Nur Elisya Aqmar binti Mohamad Kamal

Signature **Date**

SECTION D: Supervisor Acknowledgement

The Supervisor(s) shall complete this section.

I/We agree to become the supervisor(s) for this student under aforesaid proposed title.

Name of Supervisor 1:

	Signature	Date
Name of Supervisor 2 (if any):		
	Signature	Date

SECTION E: Evaluation Panel Approval

The Evaluator(s) shall complete this section.

Result:

[ ] FULL APPROVAL
[ ] CONDITIONAL APPROVAL (Major)*
[ ] CONDITIONAL APPROVAL (Minor)
[ ] FAIL*

***** Student has to submit new proposal form considering the evaluators' comments.

Comments:

Name of Evaluator 1: .....

Signature **Date**

Name of Evaluator 2: .....

Signature **Date**