**Problem Statement**

Title: Analysis of Simple Moving Average (SMA) Strategy on Bank nifty Index and Option Contract Price Data in February 2022

Objective:

The main objective of this assignment is to implement and analyse a Simple Moving Average (SMA) strategy on the bank nifty index price data and bank nifty option contract price data for select days in February 2022. The SMA strategy will involve specific entry and exit conditions to execute long and short selling positions.

Dataset:

Bank nifty index data – this dataset contains already calculated SMA value, use it for strategy

Bank nifty option contract data

Entry Strategy:

The entry strategy comprises two scenarios:

Scenario 1 - Long Selling:

A long selling position will be executed when the previous minute SMA value is >= closing price for the previous minute and current minute SMA < closing price for the current minute. The trade will involve buying the bank nifty option contract at the current minute, considering its price.

Scenario 2 - Short Selling:

A short selling position will be executed when the previous minute SMA value < closing price for the previous minute and current minute SMA value >= closing price for the current minute. The trade will involve selling the bank nifty option contract at the current minute, based on its price.

Exit Strategy:

The exit strategy consists of two key conditions:

Stop Loss:

If a trade faces a loss of 20, the position will be exited immediately.

Target:

If a trade achieves a profit of 30, the position will be exited to lock in the gains.

Other conditions for the strategy:

Only one trade can be active at any given time. Thus, a new trade can only be entered after the current running trade has been exited.

Execute trades only between 9:30 am to 3PM. If there is an active trade exit the trade st 3PM by noting it as end of the day exit

Please make any assumptions necessary and do mention the assumptions you have made.

Evaluation Metrics:

After implementing the SMA strategy on the provided data, please records metrics like total profit/loss, success rate, total number of trades etc.

The program should automatically record the trades into a csv or excel file with details of all the trades executed and their times and prices. Please include all necessary datapoints related to executed trades in this file for analytics purposes.

Other major evaluation factors:

* It is suggested to implement the code in a object oriented manner with good modularity
* Clean, readable, modular, plug and play approach of coding would be highly appreciated in terms of selection of the candidate.
* Good amount of weightage will be given to the overall code structure and quality.

Submission details:

* Please submit below files for evaluation
  + CSV or excel file containing all the executed trades
  + All the python code files.
  + Excel or word doc containing overall results of the strategy and assumptions
  + Basic approach and explanation of code structure and logic flow would be helpful, but this is not mandatory
  + You can share the google driver folder containing all the above files

Conclusion:

The assignment aims to assess the effectiveness of the SMA strategy in capturing potential trends and signals in the bank nifty index and option contract price data for February 2022. By analysing the trading results and relevant metrics, we can draw conclusions about the strategy's profitability and suitability for the given market conditions.