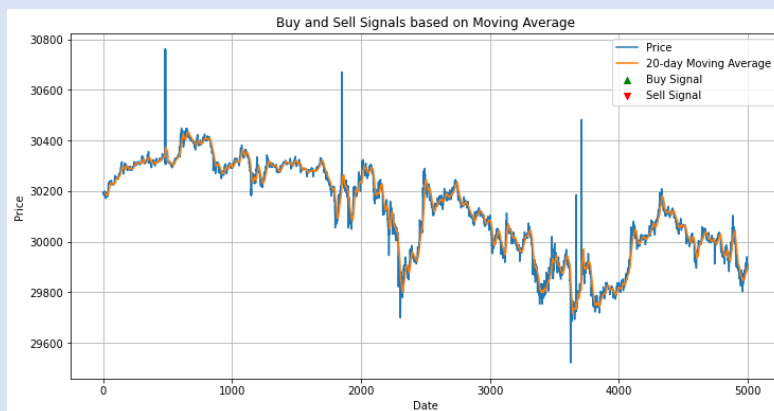
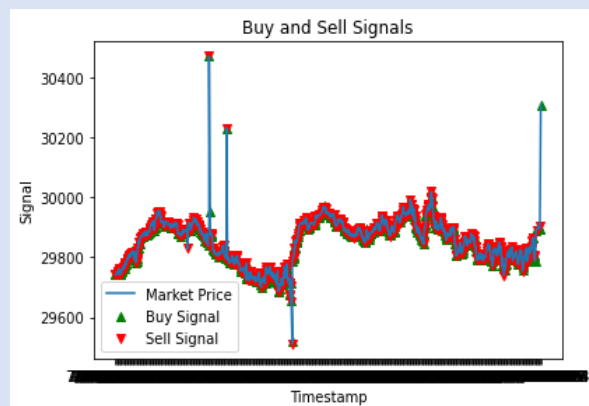




Algorithmic Trading Strategy Development and Performance Analysis in Cryptocurrency Markets

Trading in cryptocurrency has become increasingly important as digital assets gain global popularity. Crypto markets are known for their high volatility, which can offer both opportunities and risks to traders. Thus, algorithmic trading plays a vital role in cryptocurrency markets due to their 24/7 nature and high volatility. It enables traders to execute **automated strategies**, analyse vast data, and capitalize on market opportunities efficiently. This Investment Performance Analysis is based on algorithmic trading with **Three Moving Average** strategy. This method helps traders make informed decisions by confirming market direction. However, it's essential to be aware of its limitations, such as delayed signals and false signals.

$Buy_signal = (close > sma_{10}) \& (sma_{10} > sma_{20}) \& (sma_{20} > sma_{50})$
 $Sell_signal = (close < sma_{10}) \& (sma_{10} < sma_{20}) \& (sma_{20} < sma_{50})$



Strategy was initially implemented on 15th July, due to technical errors on script and limitations of contract details for test **Deribit** account, trading was interrupted several times, by failure of sell execution. Thus, for final analysis last 8.5 hours of trading data was considered for analysis. The **loss amount** is 0.073% of the capital, and **Sharpe ratio** is -0.670, which indicates that investment is not efficient. I calculated **annualized volatility** based on current data, and its 0.0210. If we consider logarithmic returns as substitute for buy and hold strategy returns, particular strategy performed better than Three Moving Averages on particular conditions. Volatility of price change was 0.0003 for the trade period, thus bad market conditions highly affected the results, as for entire trading period price didn't change much significantly.

Aim of this analysis:

Inform investors about performance of strategy

Outcome of analysis:

Strategy implementation needs improvement

Potential development of strategy:

Analysing for wider time horizon, and implement additional factors on buy and sell signals

Critics of Analysis:

Time and market conditions for performance analysis were inefficient