Options strategies and market analysis

Assignment 4

June 16,2024

Submission Deadline: June 19,23:59.

1.If we find that your code is entirely written using ChatGPT or another AI source, we will not consider your submission. However, you are allowed to take help from the internet to code. The code should be your own work.

2.Refrain from any means of plagiarism.

3.The deadline will not be extended, so please ensure that you adhere to it and submit your work before the deadline.

Ques 1. Using the Max Pain theory, find the strike price that is likely to expire worthless. Utilize data from Yahoo Finance (yfinance) and deploy a suitable strategy to make profits.

Ques 2. Using the normal distribution, calculate the average returns and volatility (1st and 2nd standard deviations) of Nifty 50 and Sensex.

1. Calculate the range in which both indices is likely to trade in the next. (You can choose any range of days from last financial year)

   a. 30 days b. 3 months c. 6 months.

2. Deploy a strategy to make profits from both indices being within this range.

Ques 3. Write a Python code that takes user input for stock symbols and a specified time period, calculates the volatility for that period, and enables traders to set stop-loss levels and manage risks effectively for trading within that timeframe.

Ques 4. Create a function that calculates the potential profit/loss of a butterfly spread strategy given the three strike prices (two for the call options and one for the put option) and the premiums paid/received for each option.

Ques 5. Create a function that calculates the cost of setting up a protective put strategy, considering that you own the stock. The function should take the stock price, strike price of the put option, and the premium paid for the put option as inputs.

Ques 6. Explain the concept of option spreads and how they can be used to manage risk in options trading. Provide examples of different types of option spreads and their potential outcomes.(Make separate doc)