Options strategies and market analysis

Assignment 6

July 9,2024

Submission Deadline: July 13,23:59.

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. Write a Python program that constructs a diversified portfolio by selecting assets with the lowest correlation. Given a set of assets and their historical price data, the program should:

1. Calculate the daily returns for each asset.
2. Compute the correlation matrix of these returns.
3. Select a subset of assets that are least correlated to each other.
4. Output the selected subset of assets.

Ques 2. Write a Python program to calculate the Value at Risk (VaR) of a portfolio using the historical simulation method. The program should: (mention the csv file also)

1. Load historical price data for a set of assets from a CSV file.
2. Calculate the daily returns for each asset.
3. Calculate the portfolio returns based on given weights.
4. Calculate the Var at a 95% confidence level.
5. Output the Var value.