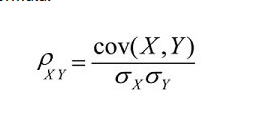
**Computing Project – Stock Market Correlation + more.**

**Extras that need to be considered:**

The projects algorithms may be a bit too basic so need to extra with the data created and received. Such as making a portfolio where the computer chooses the stocks, additionally could use this data to help the algorithm trading helping the computer choose and decided which stocks to buy and sell. Also need to decide how the information needs to be presented, as it’s in python the GUI will have to be more basic. Ideas to make the algorithm more complex are listed below:

* GUI
  + Limited as in python, however could list from highest to lowest correlation.
* Use it to make a portfolio
  + Will use an extra algorithm to make multiple instances of its perfect portfolio taking into account factors such as stock correlation, previous years stock prices, how the stock did in this quarter(e.g. Q2), and other factors
* Use it for algorithm trading
  + Use it to influence potential purchases and sales in
* Need to get a definite use and reason for creating the project.
* <https://www.investopedia.com/articles/active-trading/121014/stock-correlation-strategy-effective.asp>



<http://francescopochetti.com/stock-market-prediction-part-introduction/>

<http://blog.yhat.com/posts/stock-data-python.html>

<https://www.oreilly.com/learning/algorithmic-trading-in-less-than-100-lines-of-python-code>

For the algorithmic stock market predictions the needed values from the previous days and weeks of trade is: Date, open, close, volume, high, low and maybe adjusted close. Choose a group of stock markets e.g. FTSE 100 or S&P 500. There are 2 things the algorithm could do predict whether it will go up or down, and if given enough time can estimate by how much. With this data it should also give its own confidence rating about how likely it will be to achieve this prediction. This will be based on previous predictions accuracy and how the new prediction has now changed from its reliability. This AI feature will be done by recording all the readings it makes storing them then recalling them to make a better decision, or to give it guidance on its decision.

Also will include predictions for the day, week, month, quarter, and year, as a up or down figure and if time allows as a distinct numerical value.

Rather than waiting on live data, and seeing how well it does against that. It is better to use 2 year old data and see how well its predictions fair against the actual values 1 year ago. This eliminates the waste of time waiting for data to come in for the prediction model to be wrong. Additionally if I have the time can adjust the prediction model based on how the model is changing over time. To match the current pattern.

There are many different algorithms which can be implanted to predict the stock price I ideally would like to incorporate as many as possible of these algorithms as possible. And hopefully use an AI feature to weight each algorithm accordingly in predicting the stock price.

An additional feature that I wish to be implemented is a predicted sell datetime and a predicted buy sell datetime for stocks that are already bought or are maybe waiting to be bought.

The AI feature I want ideally to be prominent in the solution to this problem. I intend to tackle this by storing the data that it predicted and the actual data that occurred seeing how off it was and by changing the weighting of the algorithms or by increasing the uncertainty or by adding a value to the data to accommodate for this in the future. But if the stock is within let’s say a 1% of the actual price then it doesn’t affect the algorithm as it would be down to human sway. Consider including algorithms to do with ‘hypothesis testing’ in the solution.

**Reason for the user to want this:**

The user decided to want a solution (algo-trading) like this because it eliminates the human factors that influence trading such as emotion, doubt and any psychological factor . Additionally the computer can check all the factors such as moving day averages a lot quicker than a human can check them therefore they can make informed decisions a lot quicker than humans. They also can execute trades instantly so they trade at the price they wanted it. It can also make simultaneous transactions on multiple platforms instantaneously which would be impossible for a single human. It gives reduced risk in manual errors made in placing trades.

Greatest proportion are HFT’s which are high frequency trading this involves making many trades on many platforms very quickly repeatedly based on a specific algorithm set.

<https://www.investopedia.com/articles/active-trading/101014/basics-algorithmic-trading-concepts-and-examples.asp>

<https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/what-are-algorithms-algos/>

<https://www.quantinsti.com/blog/algorithmic-trading-strategies/>

**Objectives:**

1. To pull data from a stock API like google finance or yahoo finance.
2. To manipulate the data to get some useful data.
3. To correctly apply algorithms such as moving day averages.
4. For the algorithms to successfully identify turning points
5. To incorporate different algorithms to predict profitability.
6. To weight different algorithms accordingly to impact the outcome of the decision of profitability.
7. To use previous data and predictions to make a more informed choice about the weighting and overall prediction of the stocks profitability.
8. (Advanced) To make a prediction on the date that a stock needs to be bought or sold.
9. To identify stock correlation
10. To make different portfolios and compare which were the most profitable.