NUMPY LAB 1

Stock exchange:

Indicators are used to analyze fluctuations in value.

Two popular indicators are the HLC/3 and the SMA9. The HLC/3 averages the High, Low and Close prices. The SMA9 (Simple Moving Average) indicator calculates the daily average of the closing price (Close) for the last 9 days.

The stock price history is read from a file with 4 columns: Open, High, Low and Close.

For example, given a sequence of daily logs with the following format:

14695.80 15279.00 14307.00 14656.20

14681.90 14681.90 12350.10 12952.20

12897.70 14377.40 12755.60 14156.40

14112.20 14112.20 13154.70 13657.20

13625.00 15444.60 13163.60 14982.10

14978.20 15572.80 14844.50 15201.00

15270.70 15739.70 14522.20 15599.20

15477.20 17705.20 15202.80 17429.50

17462.10 17712.40 16764.60 17527.00

17527.30 17579.60 16087.70 16477.60

16476.20 16537.90 14208.20 15170.10

15123.70 15497.50 14424.00 14595.40

14588.50 14973.30 13691.20 14973.30

Column 1 will be Open column 2 Low 3 High and last close.

We want to get 2 lists or arrays that contain HLC/3 and SMA9

The result of calculating the HLC/3 and SMA9 should be as follows:

[14747.4 13328.1 13763.1 13641.4 14530.1 15206.1 15287 16779.2 17334.7 16715 15305.4 14839 14545.9]

[15129 15331.4 15577.8 15626.6 15772.8]

Write the program using NUMPY arrays to calculate HLC/3 and SMA9.

2- We want to get all values from a numpy array that satisfy a certain condition, For example:

Na=[1,3,5,3,6,2,8,9,10] element less than 6 □ result =[1,3,5,3,2]

Of course you can do a loop and treat the array as if it were a list but numy can do that with implemented methods.

Search (on the internet) at least two different ways without using cycles to solve the situation and find the solution.

3-Remember the exercise used in theoretical classes with weights.

How can we test the initial array to make sure that no array values' weights are zero? Of course without using cycle

4-We want to know if 2 numpy arrays are more or less equal. More or less means that two by two the elements are different only by an epsilon tolerance.

Is there a method ?

Write the function that uses the method. What happens if some array values are unknown? N/A type of excel?

5- The file used in exercise one is organized by date. That is, each line corresponds to a date. If you consider that the first line of the file has today's date and what follows are dates from previous days, write a function that reads the file and returns a dictionary that has the dates as key and the elements of each file line as data in the form of an array of numpy.

6- How about changing last week's exercise code to obtain a pie chart but with the SMA9 data obtained in exercise 1?