

In this part, I took two data sets as argument “GOOG-2016.csv” for training and “GOOG-2017.csv” for testing.

First I modify data table, and create table with two columns which are Date and Price, where price is average of Open, High, Low, Close attributes of my input data.

Then I create another table from the first table that I created, this table will have equal amount of attributes as my Window_Size which I also took as argument. Lets say my Window_Size is 3 then my table will look like

Price1, Price2, Price3

Price2, Price3, Price4

...

Here Price3, Price4 will be my label which means I will try to predict Price3 with help of Price1 and Price2. I will create and save this table for both my training data and test data. For Window_Size 6 you can look examples Modified_Data_GOOG-2016, Modified_Data_GOOG-2017, Modified_Data_MSFT-2016, Modified_Data_MSFT-2017.

Then I will give the train data's modified table (Modified_Data_GOOG-2016) to part1 and part2 and predict W(weights) vector for each part. Then using these W vector I will test my weights with help of test data's modified table(Modified_Data_GOOG-2017) for the accuracy.

Here is the result that I got when my Window_Size is 6 for GOOG-2016.csv, GOOG-2017.csv data sets:

```
3 W matrix and RMS-Error from Part1
4 w = < 23.034809613820002, -0.08821476797714478, 0.2882164370182927, -0.2351432474458317, 0.12008563882851075, -0.4087410259667891,
  1.2925330378328637 >
5 RMS-Error=7.287847935944748
6
7 W matrix and RMS-Error from Part2
8 w = < -1.739985642077191E145, -1.2968757318986044E148, -1.296492958865439E148, -1.2961006052021997E148, -1.2956641069504667E148,
  -1.2952320193769117E148, -1.2948337031668525E148 >
9 RMS-Error=5.784797707969538E151
10
11 Predicted Error from 2017
12 Error Using Weight value from Part1=47.39626367126085
13 Error Using Weight value from Part2=6.063141792801673E151
14
```

Here w vector in line 4 is final vector that we got from Part1 for Modified_Data_GOOG-2016 and RMS-Error in line 5, is error for Modified_Data_GOOG-2016. Line 8 and 9 is for Part2. And line 12 is error for Modified_Data_GOOG-2017 using weights that we found in Part1 and line 13 is for weights that we found in Part2. Here we can see that iterative approach gave us more precise result. Also by changing Window_Size we can get different results. I checked for 3 different Window_Size 6, 10, 15 the results of them you can find in “result_GOOG” for “GOOG” data sets and “result_MSFT” for “MFST” data sets. Window_Size 15 gave me very promising result.

Note: while running the code choosing appropriate “stepsize” and “stoppingcondition” as argument is important, because I used recursive function in Part2 which may give stackoverflow if my W will jump between two points infinitely.

0.00001 as Stepsize and 0.000001 as Stopping condition for “GOOG” data sets

0.00001 as Stepsize and 0.0001 as Stopping condition for “MFST” data sets

worked for me perfectly.