Stock market Assignment 6.

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Questions:

1. take k = 3, 5, 7, 9, 11. For each value of k compute the accuracy of your k-NN classifier on year 1 data. On x axis you plot k and on y-axis you plot accuracy. What is the optimal value of k for year 1?

Ans:

Plot of Accuracy versus K.

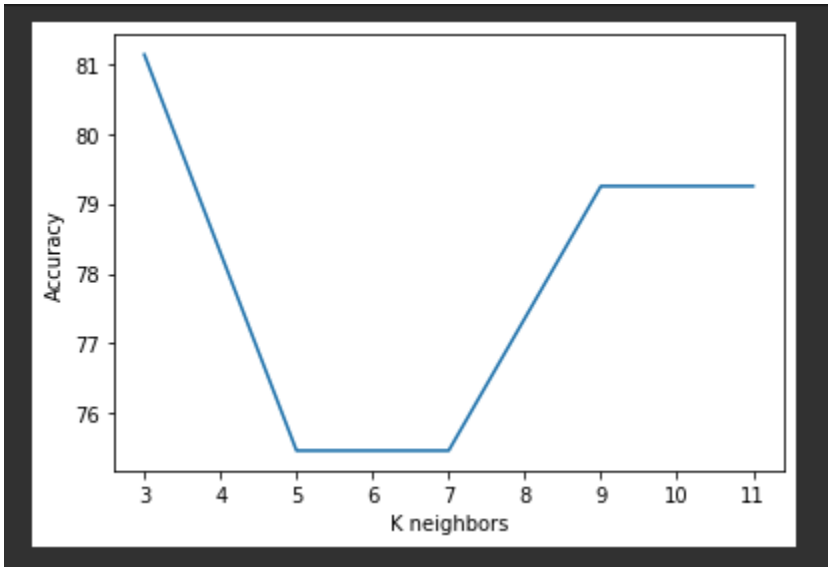

Table of accuracies for different values of k:

	k_neighbors	accuracy_score
0	3.0	81.13
1	5.0	75.47
2	7.0	75.47
3	9.0	79.25
4	11.0	79.25

The optimal value of k for year 1 is 3.

2. use the optimal value of k from year 1 to predict labels for year 2. What is your accuracy?

Ans: Using optimal value (k=3), I get an accuracy of 67.31% for year 2 (2021) data.

3. using the optimal value for k from year 1, compute the confusion matrix for year 2

Ans:

Confusion Matrix for prediction on Year 2 data (2021)

	Positive	Negative
Positive	17 (TP)	13 (FN)
Negative	4 (FP)	18 (TN)

4. What is true positive rate (sensitivity or recall) and true negative rate (specificity) for year 2?
Ans:

true positive rate or sensitivity	**56.67%**
true negative rate or specificity	**81.82%**

5. implement a trading strategy based on your labels for year 2 and compare the performance with the ”buy-and-hold” strategy. Which strategy results in a larger amount at the end of the year?

Ans:

The strategy I implemented based on my labels resulted in a larger amount at the end of the year.

Return from my strategy on investing hundred dollars = 394.92
Return from buy and hold strategy on investing hundred dollars = 225.78