

# Assignment

Implement k-NN classifier For each week, your feature set is  $(\mu, \sigma)$  for that week. Use your labels (you will have 52 labels per year for each week) from year 1 to train your classifier and predict labels for year 2.

## 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?
2. use the optimal value of  $k$  from year 1 to predict labels for year 2. What is your accuracy?
3. using the optimal value for  $k$  from year 1, compute the confusion matrix for year 2
4. what is true positive rate (sensitivity or recall) and true negative rate (specificity) for year 2?
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?