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Machine Learning
KNN Classifier
Undergrad

1.To run the program, simply run the JAR file, further instructions are within the program and it is extremely straight forward.

2.You shouldn't need anything special, just the latest version of JAVA.

3.I made two classes, one for fruit, and one for test fruit. I start by reading the input files, storing the data in array lists of fruit and then test fruit, using a constructor which sets the weight, redness, yellowness, volume, and type of each fruit. I then loop over the array list of fruit, finding the min and max value of each attribute, then use those to normalize all the data of both the array list of fruit and the array list of test fruit. Then for each test fruit I loop through all the fruit and call a distance calculation method I wrote which just calculates the euclidean distance from each fruit to the current test fruit. Then I sort the list using Java's comparable interface. Then I tally votes based on the inputted K value, or tally all the weights if K was set as 0. Using the votes I set an attribute in the test fruit which tells what fruit it was classified as. Once all that is done I display a UI which shows the actual and classified name of every test fruit and tells you what the accuracy was.

4.I handled those instances by not handling them, I remembered that we discussed in class that it is OK

5.At K = 1, accuracy was 93/100, at K = 5,10, accuracy was 97/100, at K = 20,100, accuracy was 98/100, and using the weighted votes the accuracy was 97/100.

6.I didn't really have any issues, it seems to perform similar to yours and to everyone else's.

WEKA screen-cap: