

## **What makes for a good discussion on HW 2, Problem 1**

You should give complete answers to the three questions asked in the assignment.

### **1. How much, if at all, did bagging help?**

This question is asking you to compare the result from HW 1 to the result of this HW.

The result from HW 1 is the test set accuracy achieved using a single decision tree.

The result from this HW is the test set accuracy achieved using bagging.

There are three ways you could look at the test set accuracy from this HW:

- (a) the highest test set accuracy achieved over all values of  $L$
- (b) the test set accuracy achieved using majority vote ( $L=51$ )
- (c) the test set accuracy achieved using the value of  $L$  that gives the highest tune set accuracy

A complete solution would consider all of the above results. However, you got full credit if you considered at least one of the above results.

You should state the accuracies from both HWs. You should also explicitly state which accuracy is higher. If the accuracy using bagging is higher, then you can infer that bagging helped. Since the question asks how much bagging helped, you should make a comment about that. A good answer would compute the percent increase (or decrease) in accuracy, but you didn't have to do that to get full credit.

### **2. How much, if at all, did it help to use a tune set (compared to simply using a majority vote)?**

This question is asking you to compare (b) and (c) above.

If you didn't compute (c) above, you should do that here. You would state which value of  $L$  gives the highest tune set accuracy. Then you would state the test set accuracy for this value of  $L$ .

To compare the accuracies, you should state both accuracies and explicitly say which one is higher. Again, the question is asking how much it helped (or didn't help). So you would make a comment about. Something along the lines of "Although we achieved an increase in accuracy using the tune set, the increase was only a percentage point, so tuning didn't help that much".

It would also be great to talk about some of the reasons why you would want to use a tune set in general, even if using a tune set in this specific example was about the same or worse than using majority vote. You did not have to do this to get full credit.

### **3. How well did the tune set select the best $L$ for the test set?**

This question is asking you to compare (a) and (c) above.

If you haven't already done so, this is a good place to make some general comments about the trends in the graph. For example, what are the shapes of the graph, does the tune set graph

look a lot different than the test set graph or are they similar, where are the low points and high points, etc.

Compare (a) and (c) like described for the previous questions.