CS 1571 Last “Homework” (not to turn in)

Problems from the text:

16.8

18.6, 18.11

Solutions follow
18.6 In order to find the best test to split the data, the algorithm finds the attribute that leads to the largest information gain, then recurses on the resulting pieces of the data set.

The first test selected is on A1. One side of the split is a pure node, meaning there is only one label in the node. The other set of instances will then be split on A2, and every leaf in the resulting tree will be a pure node.

18.11 The majority classifier simply selects the most common label among the training instances. If a positive example is left out, there will be 49 positive training instances and 50 negative ones so the classifier will predict negative. When a negative instance is left out, there will be more positive training instances, so the classifier will predict positive. Therefore, the classifier will never make a correct prediction using leave-one-out cross-validation.