Artificial Intelligence: Assignment 5

Due date: April 16 (Wednesday)

Problem 1 (4 points)
Read Chapter 18 and answer the following questions:
(a) What are the main advantages and drawbacks of using Occam's razor in learning?
(b) What are the main limitations of the decision-tree learning?

Problem 2 (6 points)
Implement a program for building decision trees. It should read a file with training and test examples, use the training examples to build a tree, and then classify the test examples. The only required output is the classification of the test examples; it does *not* have to include the tree itself. The input format is as follows:

```
<classification> <attribute> <attribute> ... <attribute>
    ...
<classification> <attribute> <attribute> ... <attribute>

<attribute> <attribute> ... <attribute>
    ...
<attribute> <attribute> ... <attribute>
```

The training examples are above the blank line, and the test examples are below the blank line. `<classification>` is either "`positive`" or "`negative`," and each `<attribute>` is a string of lower-case letters. The length of an attribute is at most ten characters; successive attributes are separated by one or more spaces. For instance, the following file includes three training examples and two test examples:

```
positive   empty   short   sunny
negative   low     short   cloudy
negative   full    long    rainy

empty   short   sunny
full    long    rainy
```