```
milesaccount@dyn233168 mej327 cse327 p3 % java MushroomLearning
odor=[a, l, c, y, f, m, n, p, s]
  =a
        Yes
  =l
        Yes
  =c
        No
  =y
        No
  =f
        No
  =m
        No
  =n
        spore-print-color=[k, n, b, h, r, o, u, w, y]
        =k
              Yes
        =n
              Yes
        =b
              Yes
        =h
              Yes
        =r
              No
        =o
              Yes
        =u
              Yes
        =w
              habitat=[g, l, m, p, u, w, d]
              =g
                    Yes
              =l
                    bruises?=[t, f]
                    =t
                          No
                    =f
                          Yes
              =m
                    Yes
              =p
                    Yes
```

```
                =u
                        Yes
                =w
                        Yes
                =d
                        No
        =y
                Yes
  =p
        No
  =s
        No
```

Testing on A.L. Training set:
Accuracy: 100.000000 percent (6499/6499)
Testing on A.L. Testing set:
Wrong prediction on example M414 [b, y, y, f, n, f, w, n, y, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M469 [b, s, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false
Wrong prediction on example M472 [x, s, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false
Wrong prediction on example M697 [k, y, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false
Wrong prediction on example M794 [f, y, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false
Wrong prediction on example M797 [k, y, y, f, n, f, w, n, y, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M869 [f, y, y, f, n, f, w, n, w, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M903 [c, y, y, f, n, f, w, n, y, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M985 [f, y, y, f, n, f, w, n, y, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M1102 [b, y, y, f, n, f, w, n, w, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M1208 [c, y, y, f, n, f, w, n, w, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M1219 [b, y, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false
Wrong prediction on example M1241 [k, y, y, f, n, f, w, n, w, e, c, y, y, y, y, p, y, o, e, w, c, l] false: incorrectly predicted true
Wrong prediction on example M1281 [k, s, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false

Wrong prediction on example M1389 [x, y, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false
Wrong prediction on example M1486 [f, s, n, f, n, f, c, b, w, e, b, y, y, n, n, p, w, t, p, w, y, d] true: incorrectly predicted false
Accuracy: 99.015385 percent (1609/1625)

Changes to the tree:
-The two first classifications the tree makes (odor, spore print color) are correct.
-The habitat classification has an issue: The tree classes all mushrooms from habitat d (woods) as inedible if they have a certain odor and spore print color, but some in the testing data are edible. This may be a classification issue, resulting from the way mushrooms that were hard to classify as poisonous or not were marked poisonous. It may also be an issue with the way the training data is split up - we could have randomly assigned 80% of the items to training and the other 20% to testing, keeping them in the original order might cause complications due to how they were entered (since we don't know much about whether the table was created in any particular order…) This accounts for all Type II errors in the testing data.
-The bruises classification has an issue: The tree classes all mushrooms with no bruises as edible if they have a certain odor, spore print color, and habitat, but several examples with no bruises are inedible. Similar to the previous example, this could be a training data or classification issue. This accounts for all Type I errors in the testing data. As Type I errors are obviously much worse than Type II in this situation (you don't want to be eating a poisonous mushroom), this should be considered a more "serious" issue.