Machine Learning

Project 1
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(Question 1)

We first defined a class called ID3 which is going to model the decision tree with the input data. It will print the result in a JSON format, draw the decision tree with DOT format (with the help of PyDot and Graphviz) and calculates the accuracy if the test data injected to it.

After importing and injecting the "PlayTennis" dataset to an object of this class, the output in a JSON format is something like this :

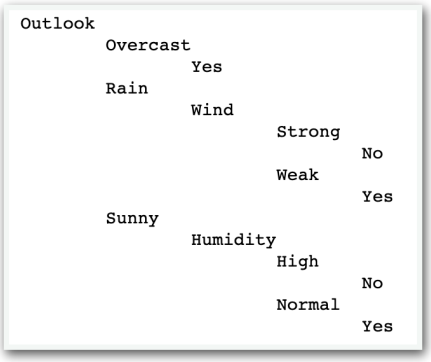

Image1. Output of the ID3 for "PlayTennis" dataset.

And the graphical decision tree is :

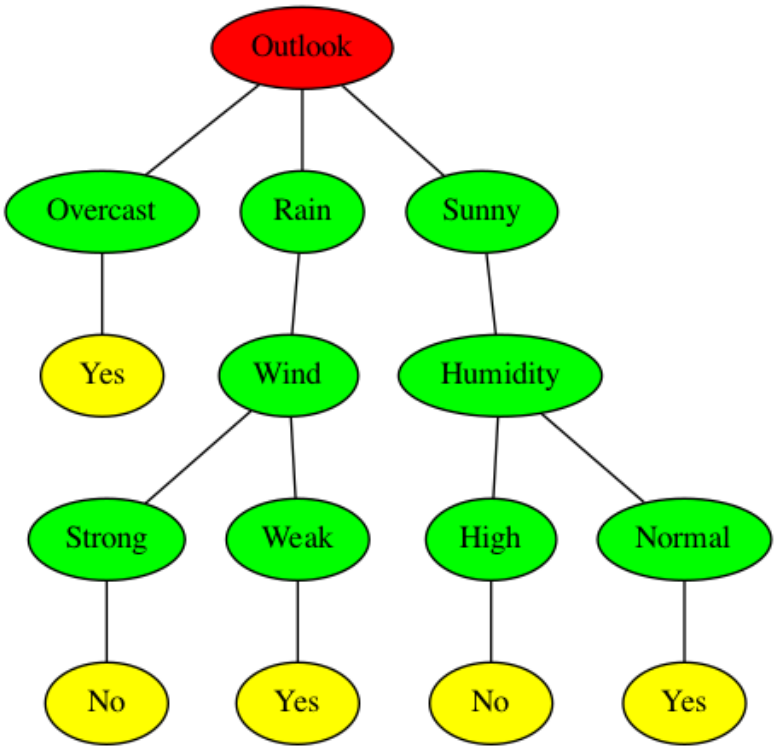

Image2. The Graphical Decision tree for the dataset

For the second part we imported the "Mushrooms" data set and after learning the decision tree, we injected the test data to the prediction function of the class. And the result is :

```
Accuracy Result
Total Test Samples :  1125
Correctly Classified :  1121
Miss Classified:  4
Accuracy :  99.64444444444445 %
```

Image3. Result of training and testing the Mushrooms dataset

And the Graphical decision tree is :

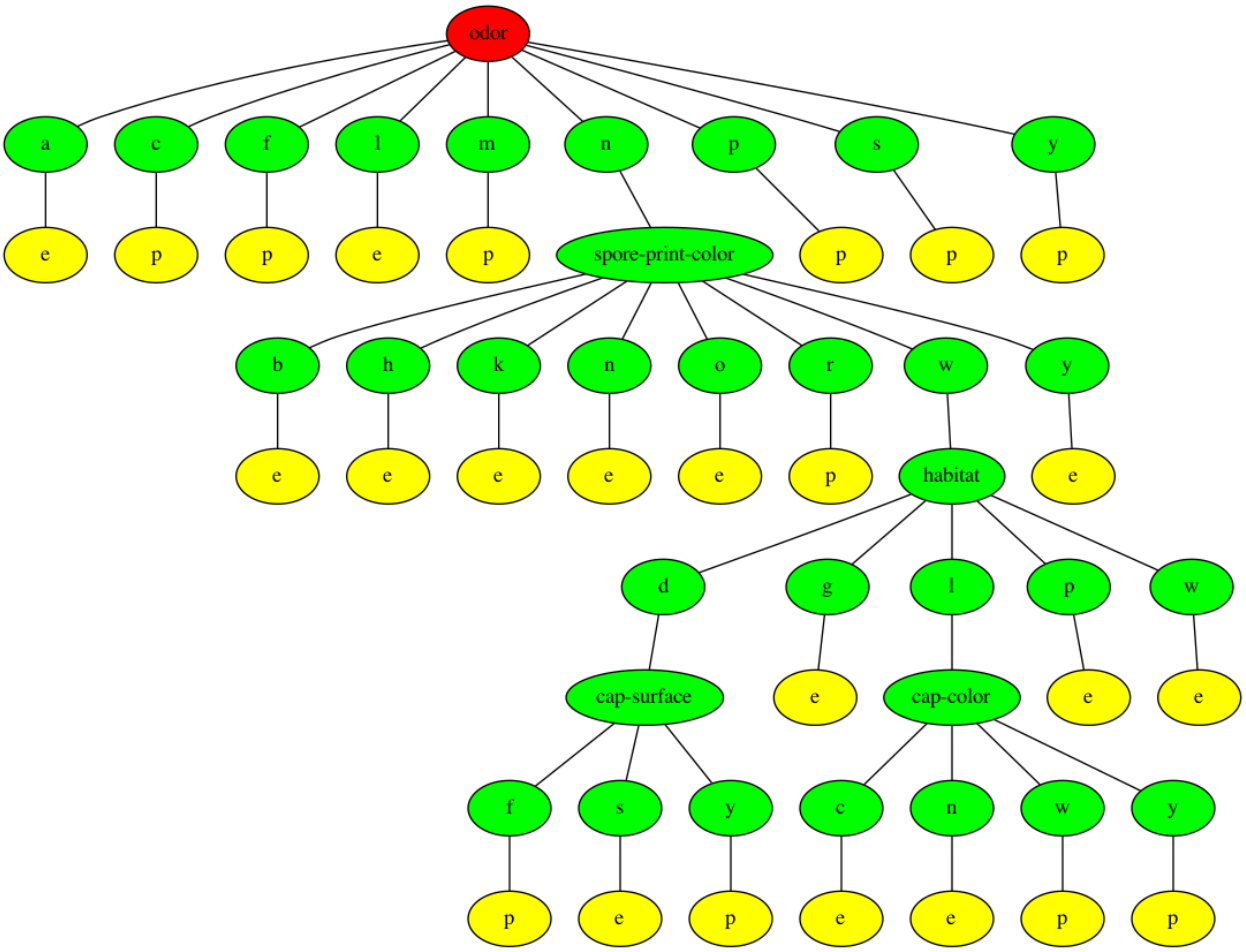

Image4. The Graphical Decision tree for the Mushrooms dataset