Learning and Adaptivity Assignment I

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A one paragraph abstract of the topic which the assignment covers can go here. Try to summarize the topic in five sentences. This should be considered preparation for the exam were you are expected to talk about the subject in your own words.

6 Decision Tree Learning

6.1 Simple Prediction

1. First itemtext
2. Second itemtext
3. Last itemtext
4. First itemtext

6.2 Scalability

1. First itemtext
2. Second itemtext

6.3 Noise

1. First itemtext
2. Second itemtext
3. Last itemtext
4. First itemtext

Conclusion

After doing the assignment, and playing with machine learning we want to get a few of your thoughts.

Where the assignment abstract began as a general summary of the topic, which you can use for your exam studying- the conclusion should be more specific to the course content. Feedback can be included here. Also I would like to know if there are any issues with the assignments. If you felt the assignment was **stupid**, please write your arguments for here. If you really want to get our attention, you should highlight your text

We want to make this course as applicable and useful as possible, and this can only be done with useful and continuous feedback. We are actively investigating the best tools for teaching machine learning.

Sources

Sources are expected. If you follow a tutorial online, used a stack overflow answer or github repo then list it here. Getting caught will result in trouble.

1. First itemtext
2. Second itemtext
3. Last itemtext

Appendix A: Code

Once you've answered the assignment questions please include only relevant code snippets in the appendix. You're expected to submit full working source code with the assignments in a subdirectories of your zipped assignment folder. The bellow snippets are not really relevant, but I can't give out assignment solutions here.

code/letters_ml.py

```
    def prepare_data(self):
        # Read the data from file
        data = np.genfromtxt('data/letter-recognition/letter-recognition.data',
                             delimiter=',')
        self.data = np.delete(data, 0, 1)
        # The first column of data is of type string, amd wasn't read properly
        data_raw = np.genfromtxt('data/letter-recognition/letter-recognition.data',
                                 delimiter=',', dtype=None)
        letters = list()
        for i in xrange(data_raw.size):
            letters.append(data_raw[i][0])
        letters = np.array(letters)
        # Now encode the strings
        self.le = sklearn.preprocessing.LabelEncoder()
        self.le.fit(letters)
        self.encoded_letters = self.le.transform(letters)[:,np.newaxis]
```

code/zoo_ml.py

```
    def draw_graph(self, classifier, filename="out.svg"):
        dot_data = StringIO()
        tree.export_graphviz(classifier, out_file=dot_data)
        graph = pydot.graph_from_dot_data(dot_data.getvalue())
        graph.write_svg(filename+".svg")
```

Appendix B: Results

Your results should be written in your assignment answers Images, Figures etc. should be included in this appendix. Use LaTeXto properly refer to the correct figure if needed, same goes for code snippets. The assignment answers should discuss the results, we are interested in assessing your knowledge. If you're told to generate 10 figures from the same data set, you need to include all the figures in sub directories of your assignment zip folder, but you should only include in the appendix as many figures as needed to back up your answer.

Figure 1: *A decision tree of zoo animals*
Include the filename, and try to pick readable graphics