Lab 2 – Classification and Prediction #1

Data Mining, Spring 2017

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Feedback on last week's lab

Today's Lab: Classification and Prediction round 1

Mushrooms!

Classification & Prediction #1

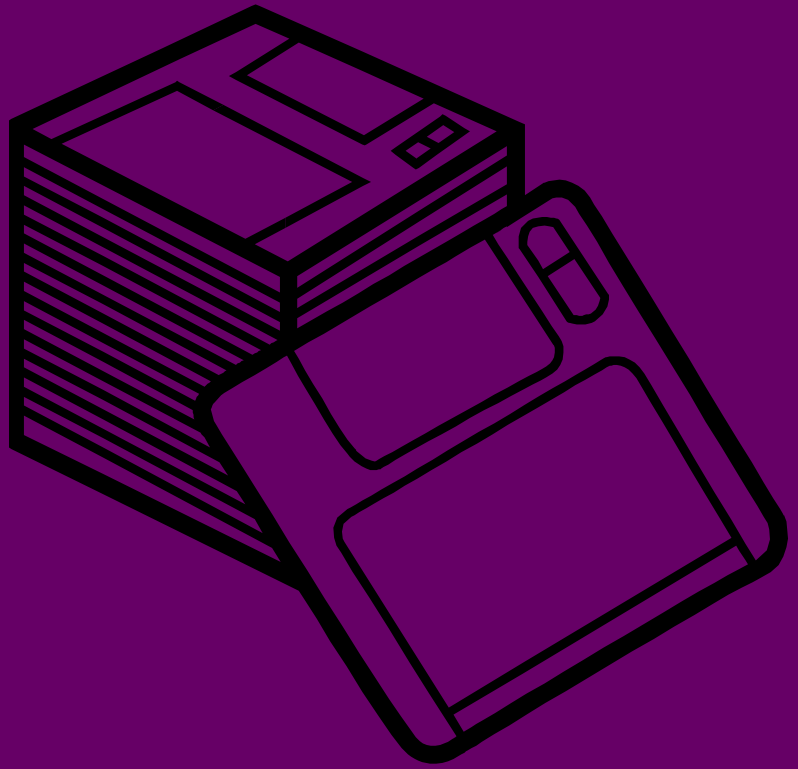
- Today you will be working with data concerning mushrooms.
- Objective: build a classifier to predict if a given mushroom is edible or poisonous.
- You will build two classifiers:
- One using the ID3 algorithm
- The other using the kNN algorithm
- Compare their accuracy when classifying the mushroom data.
- Code is provided to help you load data and convert it to Java objects.

Plan of attack

- First take a look at the code provided.
- Then decide which of the two classifiers to begin with
  - kNN is the simplest of the two, and thus easier to implement.
    - Pg. 422-423 in book.
  - ID3 is more complicated and takes a bit longer getting started with
    - Pg. 332-340 in book.
    - Decision tree data structure needed that can be used in the algorithm but also for classification of test tuples.
    - Visualization of decision tree?
    - Where to split data into training and test data?
- After implementing each classifier compare the two's accuracy.

The data

- Has been cleaned – no preprocessing needed.
  - No missing values
- 3000 tuples
- 22 attributes
  - Mixture of nominal and binary attributes.
- The mushroom data can be found in the agaricus-lepiotadata.txt file in the java-project
- An explanation found in the agaricus-lepiotaexplanation.txt file is also included



The code provided

- Mushroom.java
  - A mushroom class used to store data for each mushroom
  - Utilizes a lot of enums
- CSVFileReader.java, DataManager.java
  - Loads the data and creates the corresponding mushroom objects
- Main.java
  - Initializes the data loading process

Help working with enums

- Get all possible values for an enum:

```
for(Cap_Shape shap : Cap_Shape.values())
{
     System.out.println(shap.toString());
}
```

- Get a mushroom's enum value for a specific enum class:

```
mushroom.getAttributeValue(Cap_Shape.class);
```

- Get a list of all the attributes a mushroom has:

```
mushroom.getAttributeList();
```

Thanks for listening!