

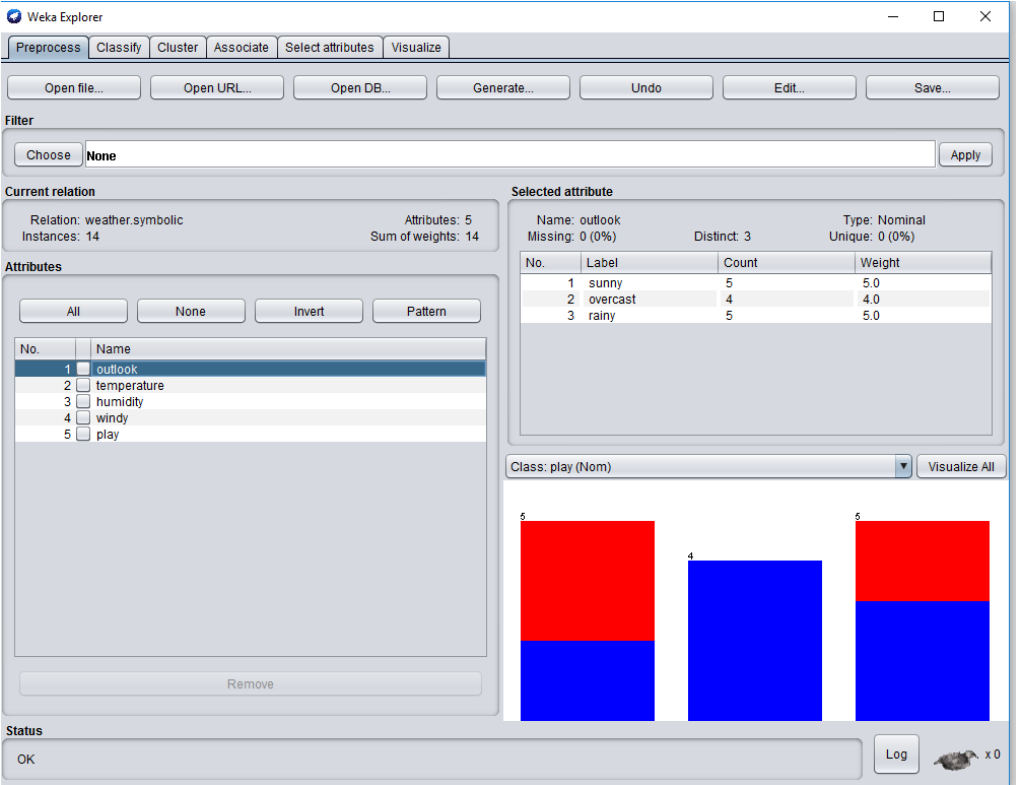
INLS 623 – In Class Assignment: Decision Trees

Date Assigned: March 30, 2017

Completion Date: April 6, 2017 (11:55pm)

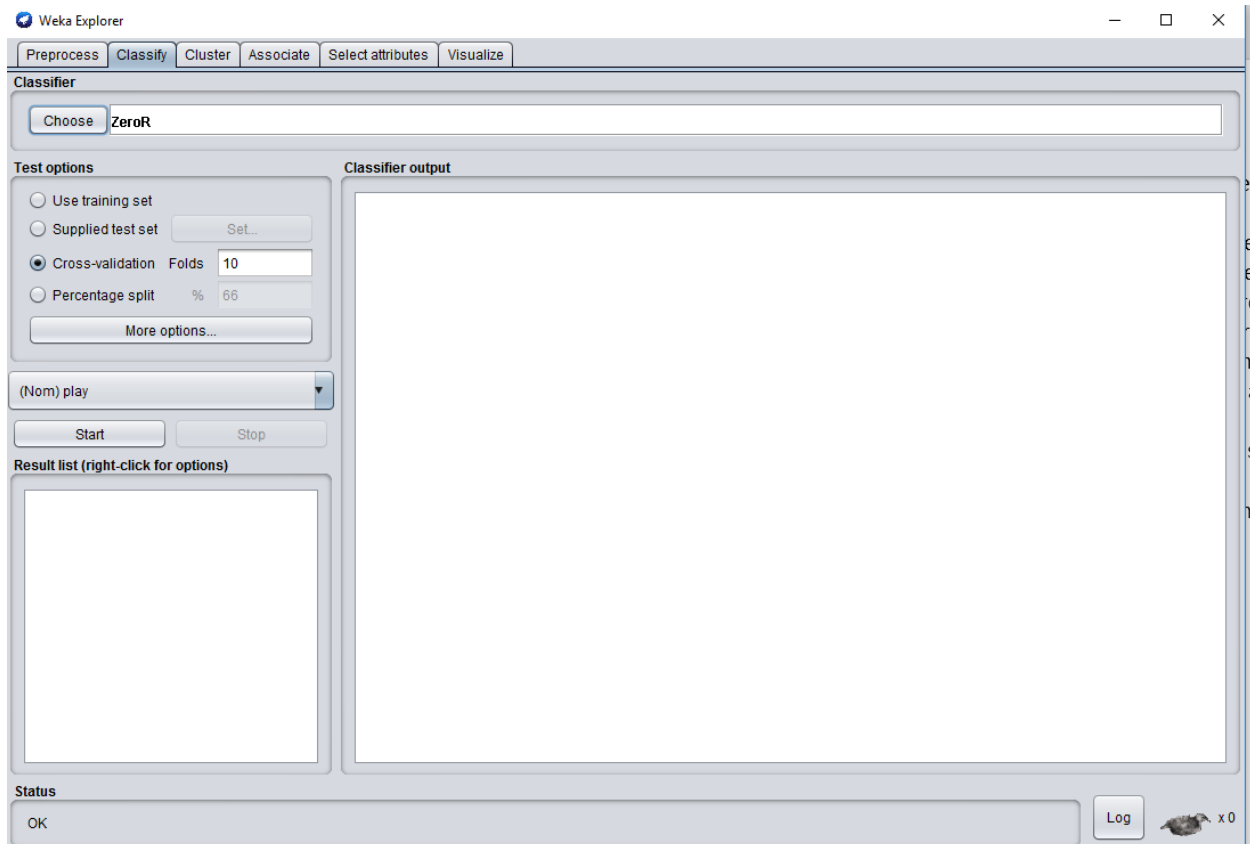
Open the file named: weather.nominal.arff in weka. This file can be found in: C:\Program Files\Weka-3-8\data.

Your screen should look like this:



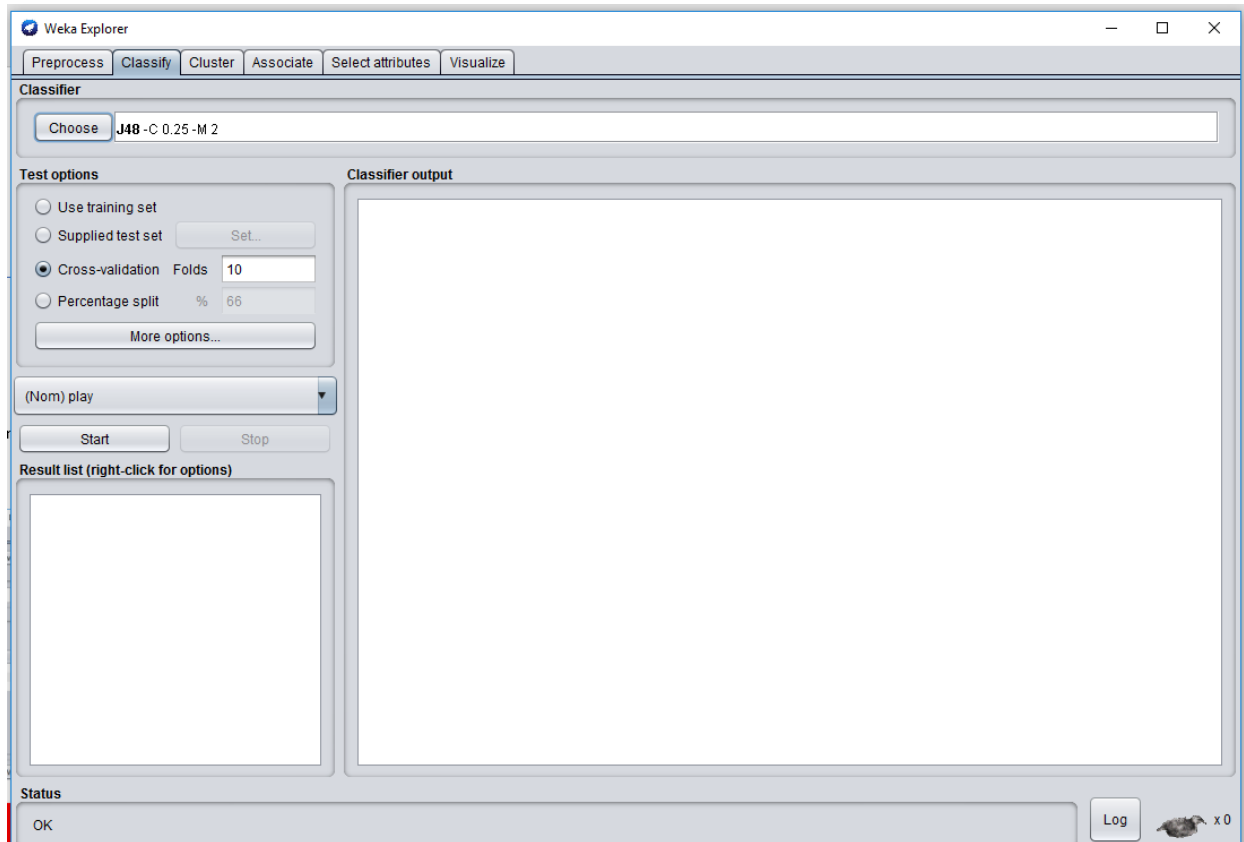
Next, click on the classify tab.

Your screen should look like this:



Click the choose button, open the trees folder, and select J48 (this is the decision tree). Click the start button.

Your screen should look like this.



After pressing start your screen should look like this:

The screenshot shows the Weka Explorer interface with the 'Classify' tab selected. The classifier chosen is 'J48 -C 0.25 -M 2'. The 'Test options' section shows 'Cross-validation' selected with 10 folds and 66% split. The 'Classifier output' pane displays the following results:

Time taken to build model: 0.02 seconds

=== Stratified cross-validation ===
=== Summary ===

| | | | |
|----------------------------------|----------|----|---|
| Correctly Classified Instances | 7 | 50 | % |
| Incorrectly Classified Instances | 7 | 50 | % |
| Kappa statistic | -0.0426 | | |
| Mean absolute error | 0.4167 | | |
| Root mean squared error | 0.5984 | | |
| Relative absolute error | 87.5 | % | |
| Root relative squared error | 121.2987 | % | |
| Total Number of Instances | 14 | | |

=== Detailed Accuracy By Class ===

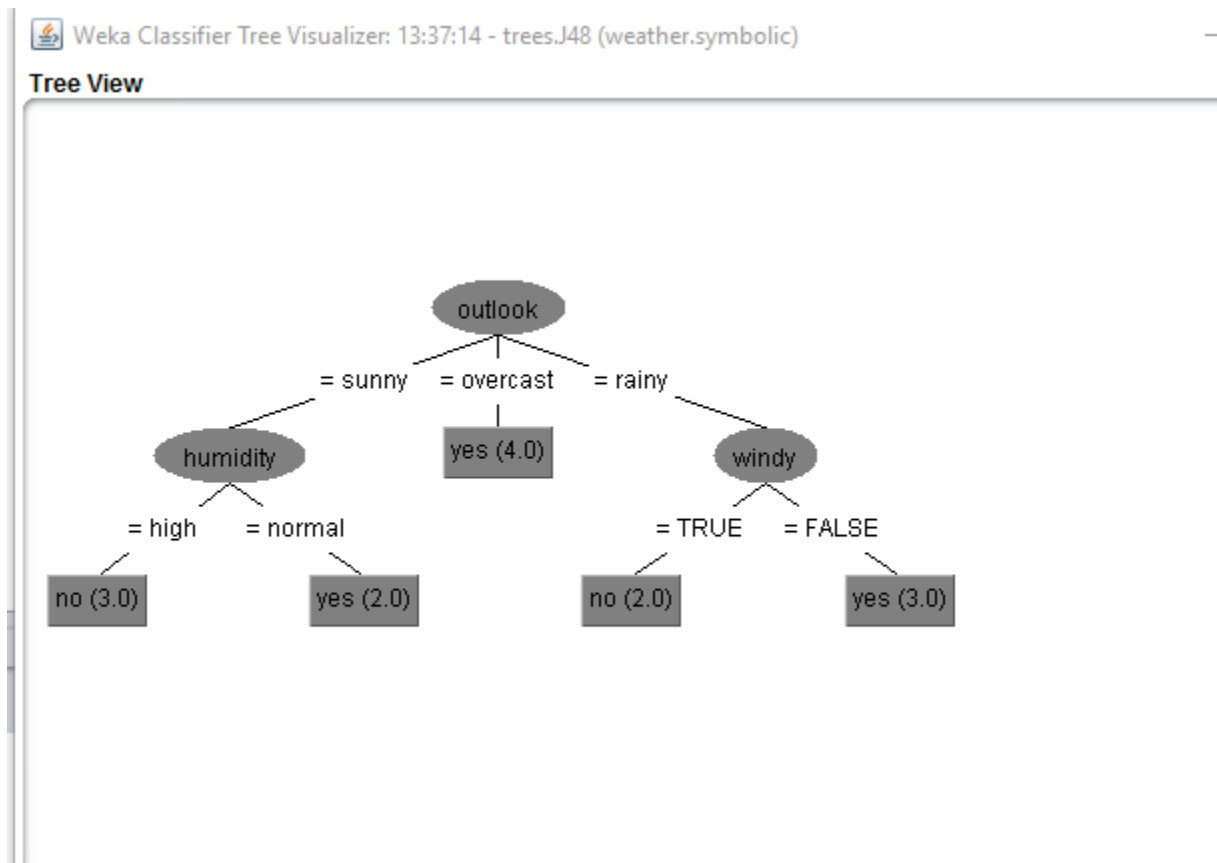
| | TP Rate | FP Rate | Precision | Recall | F-Measure | MCC | ROC Area | PRC Area | Class |
|---------------|---------|---------|-----------|--------|-----------|--------|----------|----------|-------|
| | 0.556 | 0.600 | 0.625 | 0.556 | 0.588 | -0.043 | 0.633 | 0.758 | yes |
| | 0.400 | 0.444 | 0.333 | 0.400 | 0.364 | -0.043 | 0.633 | 0.457 | no |
| Weighted Avg. | 0.500 | 0.544 | 0.521 | 0.500 | 0.508 | -0.043 | 0.633 | 0.650 | |

=== Confusion Matrix ===

```
a b <-- classified as
5 4 | a = yes
3 2 | b = no
```

The 'Result list' shows a single entry: '13:37:14 - trees.J48'. The 'Status' bar at the bottom shows 'OK' and a 'Log' button.

Your decision tree should look like this:

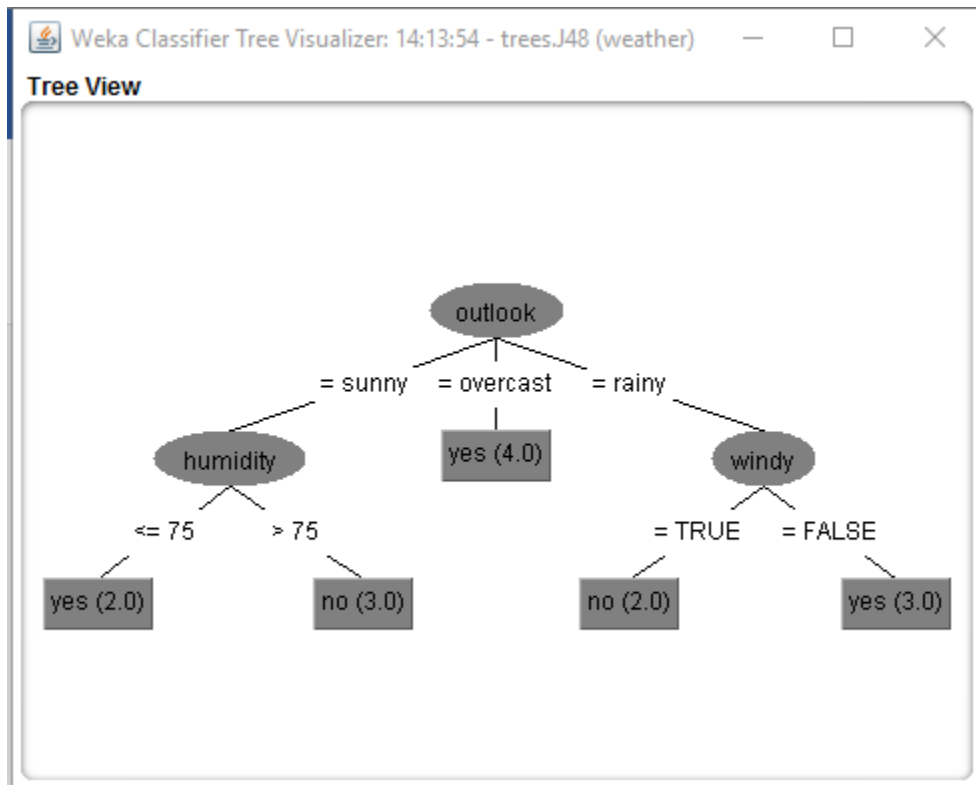


1. Write down the rules of the decision tree using if else statements. For example,

```
Varchar play = "";  
if(outlook == overcast)  
    play = "yes";
```

2. Create a stored procedure named PREDICT_PLAY_CLASS_NOMINAL. This stored procedure takes 3 IN parameters, outlook, humidity, and windy. It takes 1 OUT parameter play, which returns a 1 for yes (meaning I should go outside and play) and a 0 for no.
3. Perform the same steps for the file: weather.numeric.arff.

Your decision tree should look like this:



1. Write down the rules of the decision tree using if else statements.
2. Create a stored procedure named PREDICT_PLAY_CLASS_NUMERIC. This stored procedure takes 3 parameters, outlook, humidity, and windy. It takes 1 OUT parameter play, which returns a 1 for yes (meaning I should go outside and play) and a 0 for no.