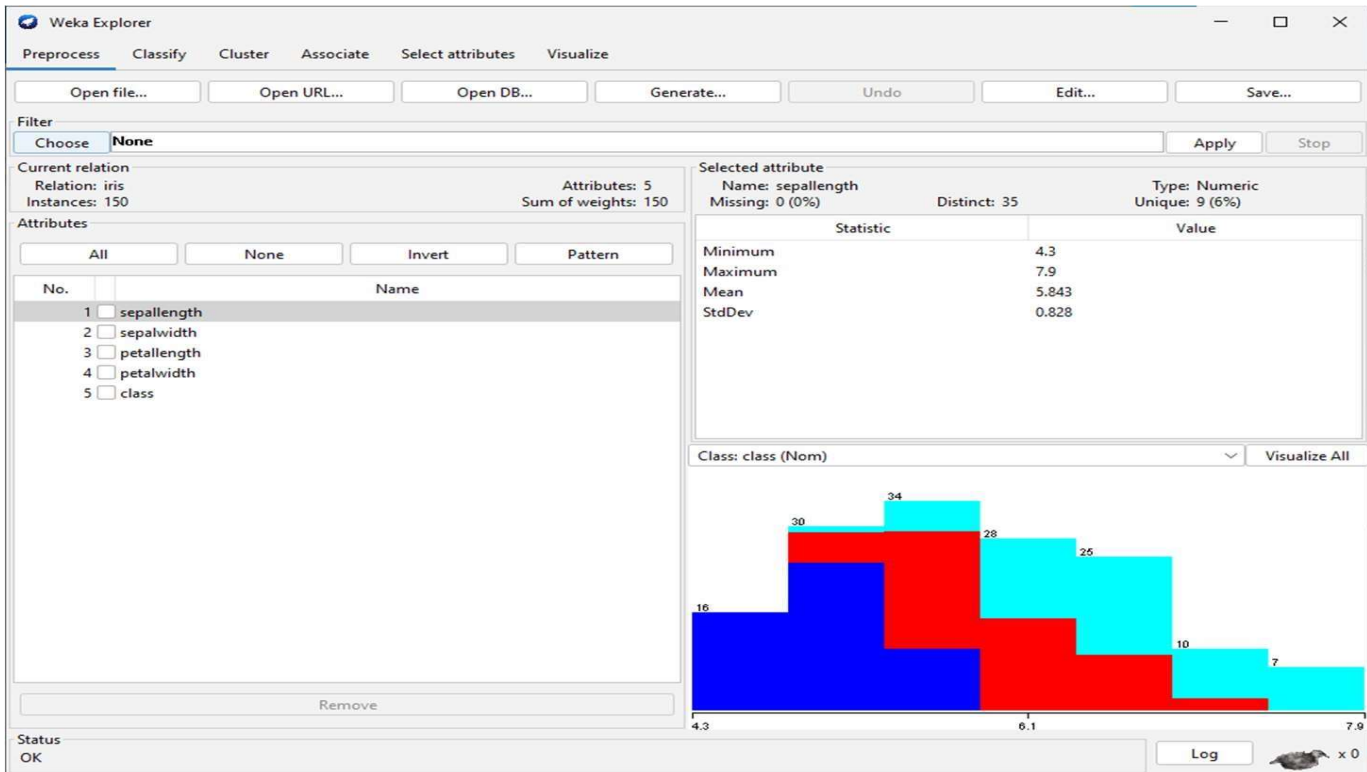
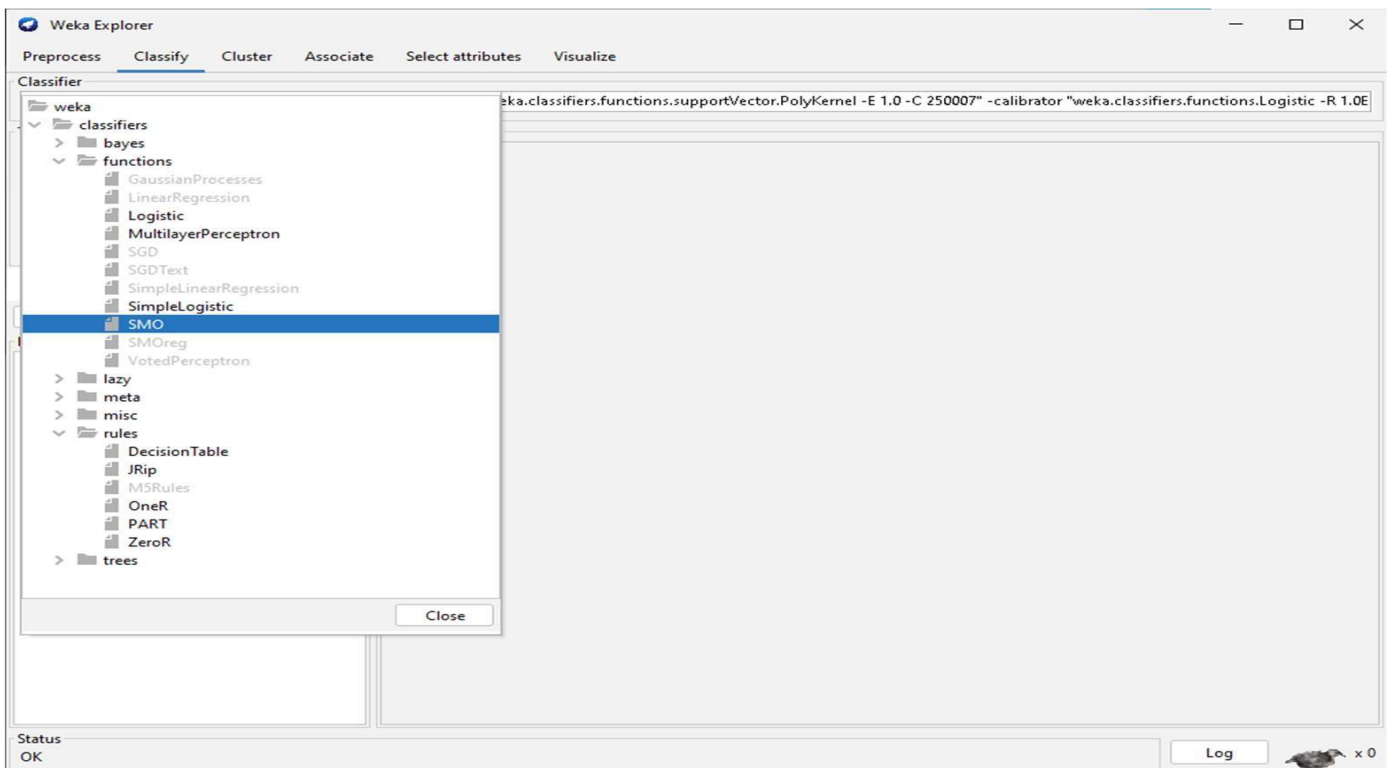


Aim : Pre-process the given dataset and hence classify the resultant dataset using support vector machine. Interpret the result

1. Open Weka > click Explorer > click open file > select file iris.arff file.



2. In classify window, click on choose > weka > functions > SMO



### 3. click on start

**Weka Explorer**

Preprocess **Classify** Cluster Associate Select attributes Visualize

Classifier: Choose **SMO** -C 1.0 -L 0.001 -P 1.0E-12 -N 0 -V -1 -W 1 -K "weka.classifiers.functions.supportVector.PolyKernel -E 1.0 -C 250007" -calibrator "weka.classifiers.functions.Logistic -R 1.0"

Test options:  
☐ Use training set  
☐ Supplied test set  
☒ Cross-validation Folds: **10**  
☐ Percentage split % **66**  
More options...

(Nom) class: **Start** **Stop**

Result list (right-click for options):  
09:01:29 - functions.SMO

Classifier output:

```
=== Run information ===
Scheme:      weka.classifiers.functions.SMO -C 1.0 -L 0.001 -P 1.0E-12 -N 0 -V -1 -W 1 -K "weka.classif
Relation:     iris
Instances:    150
Attributes:   5
              sepalwidth
              sepalwidth
              petalwidth
              class
Test mode:    10-fold cross-validation

=== Classifier model (full training set) ===
SMO
Kernel used:
  Linear Kernel: K(x,y) = <x,y>
Classifier for classes: Iris-setosa, Iris-versicolor
BinarySMO
Machine linear: showing attribute weights, not support vectors.
+ 0.6829 * (normalized) sepalwidth
+ -1.523 * (normalized) sepalwidth
+ 2.2034 * (normalized) petalwidth
+ 1.9272 * (normalized) petalwidth
- 0.7091
Number of kernel evaluations: 352 (70.32% cached)
Classifier for classes: Iris-setosa, Iris-virginica
BinarySMO
Machine linear: showing attribute weights, not support vectors.
+ 0.5886 * (normalized) sepalwidth
+ -0.5782 * (normalized) sepalwidth
+ 1.6429 * (normalized) petalwidth
+ 1.4777 * (normalized) petalwidth
- 1.1668
Number of kernel evaluations: 284 (68.996% cached)
Classifier for classes: Iris-versicolor, Iris-virginica
```

Status: OK Log x 0

**Weka Explorer**

Preprocess **Classify** Cluster Associate Select attributes Visualize

Classifier: Choose **SMO** -C 1.0 -L 0.001 -P 1.0E-12 -N 0 -V -1 -W 1 -K "weka.classifiers.functions.supportVector.PolyKernel -E 1.0 -C 250007" -calibrator "weka.classifiers.functions.Logistic -R 1.0"

Test options:  
☐ Use training set  
☐ Supplied test set  
☒ Cross-validation Folds: **10**  
☐ Percentage split % **66**  
More options...

(Nom) class: **Start** **Stop**

Result list (right-click for options):  
09:01:29 - functions.SMO

Classifier output:

```
Number of kernel evaluations: 284 (68.996% cached)
Classifier for classes: Iris-versicolor, Iris-virginica
BinarySMO
Machine linear: showing attribute weights, not support vectors.
+ 0.3176 * (normalized) sepalwidth
+ -0.863 * (normalized) sepalwidth
+ 3.0543 * (normalized) petalwidth
+ 4.0815 * (normalized) petalwidth
- 4.5924
Number of kernel evaluations: 453 (61.381% cached)

Time taken to build model: 0.02 seconds

=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances      144      96      %
Incorrectly Classified Instances    6      4      %
Kappa statistic                    0.94
Mean absolute error                 0.2311
Root mean squared error             0.288
Relative absolute error             52      %
Root relative squared error         61.101 %
Total Number of Instances          150

=== Detailed Accuracy By Class ===
      TP Rate  FP Rate  Precision  Recall   F-Measure  MCC      ROC Area  PRC Area  Class
      1.000    0.000    1.000     1.000    1.000     1.000    1.000    1.000    Iris-seto
      0.980    0.050    0.907     0.980    0.942     0.913    0.965    0.896    Iris-vers
      0.900    0.010    0.978     0.900    0.938     0.910    0.970    0.930    Iris-virg
Weighted Avg.    0.960    0.020    0.962     0.960    0.960     0.941    0.978    0.942

=== Confusion Matrix ===
  a  b  c  <-- classified as
50  0  0 | a = Iris-setosa
 49  1  1 | b = Iris-versicolor
 0  5 45 | c = Iris-virginica
```

Status: OK Log x 0

4. Right click on result list>select visualize tree

