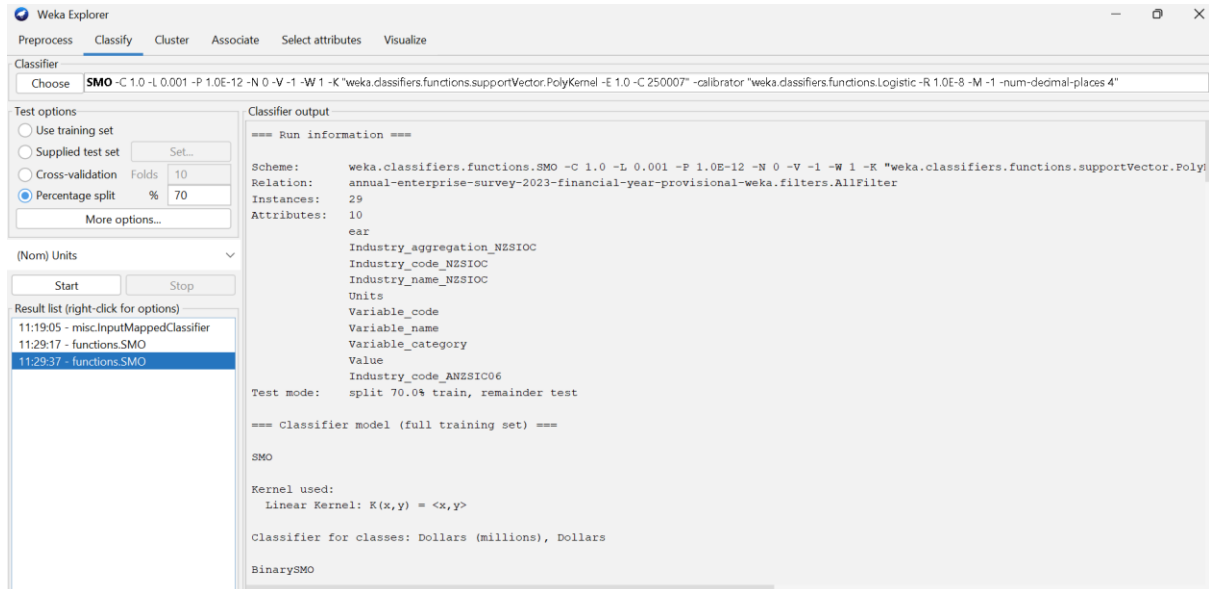


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AIML LAB EXPERIMENT 2



The screenshot shows the Weka Explorer interface with the 'Classify' tab selected. The classifier chosen is SMO with the following command: `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 1.0E-8 -M -1 -num-decimal-places 4"`. The test options are set to 'Percentage split' at 70%. The classifier output shows the following information:

```
=== 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.classifiers.functions.supportVector.PolyKernel -E 1.0 -C 250007" -calibrator "weka.classifiers.functions.Logistic -R 1.0E-8 -M -1 -num-decimal-places 4"
Relation:    annual-enterprise-survey-2023-financial-year-provisional-weka.filters.AllFilter
Instances:   29
Attributes:  10
ear
Industry_aggregation_NZSIOC
Industry_code_NZSIOC
Industry_name_NZSIOC
Units
Variable_code
Variable_name
Variable_category
Value
Industry_code_ANZSIC06

Test mode:   split 70.0% train, remainder test

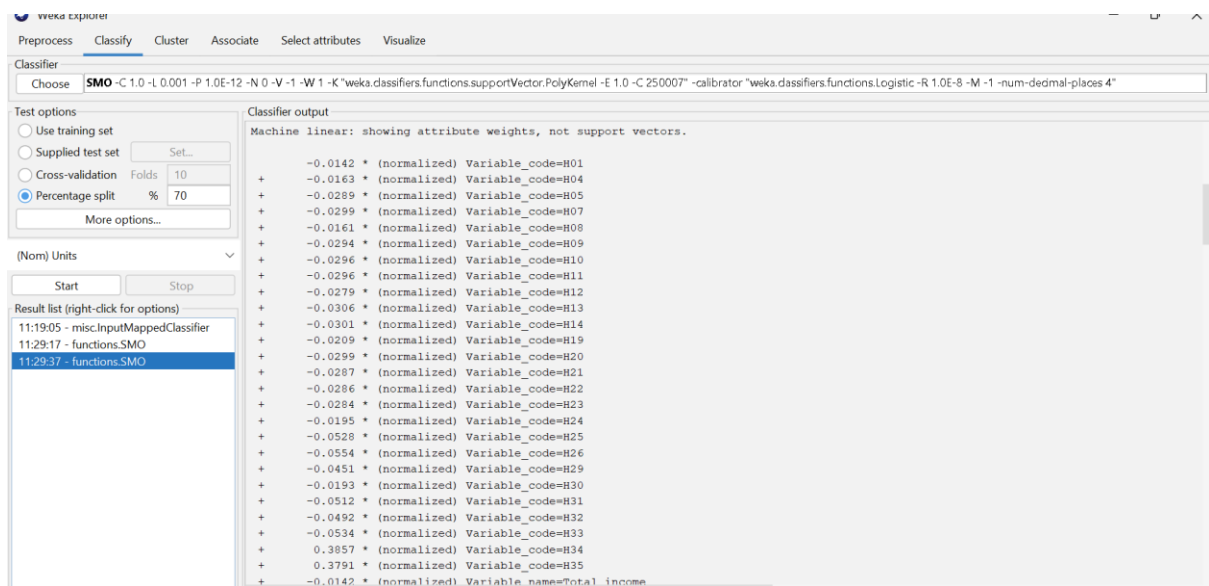
=== Classifier model (full training set) ===

SMO

Kernel used:
  Linear Kernel: K(x,y) = <x,y>

Classifier for classes: Dollars (millions), Dollars

BinarySMO
```



The screenshot shows the Weka Explorer interface with the 'Classify' tab selected. The classifier chosen is SMO with the same command as the previous screenshot. The test options are set to 'Percentage split' at 70%. The classifier output shows the following information:

```
Machine linear: showing attribute weights, not support vectors.

-0.0142 * (normalized) Variable_code=H01
+
-0.0163 * (normalized) Variable_code=H04
+
-0.0289 * (normalized) Variable_code=H05
+
-0.0299 * (normalized) Variable_code=H07
+
-0.0161 * (normalized) Variable_code=H08
+
-0.0294 * (normalized) Variable_code=H09
+
-0.0296 * (normalized) Variable_code=H10
+
-0.0296 * (normalized) Variable_code=H11
+
-0.0279 * (normalized) Variable_code=H12
+
-0.0306 * (normalized) Variable_code=H13
+
-0.0301 * (normalized) Variable_code=H14
+
-0.0209 * (normalized) Variable_code=H19
+
-0.0299 * (normalized) Variable_code=H20
+
-0.0287 * (normalized) Variable_code=H21
+
-0.0286 * (normalized) Variable_code=H22
+
-0.0284 * (normalized) Variable_code=H23
+
-0.0195 * (normalized) Variable_code=H24
+
-0.0528 * (normalized) Variable_code=H25
+
-0.0554 * (normalized) Variable_code=H26
+
-0.0451 * (normalized) Variable_code=H29
+
-0.0193 * (normalized) Variable_code=H30
+
-0.0512 * (normalized) Variable_code=H31
+
-0.0492 * (normalized) Variable_code=H32
+
-0.0534 * (normalized) Variable_code=H33
+
0.3857 * (normalized) Variable_code=H34
+
0.3791 * (normalized) Variable_code=H35
+
-0.0142 * (normalized) Variable_name=Total income
```

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 1.0E-8 -M

Test options
☐ Use training set
☐ Supplied test set Set...
☐ Cross-validation Folds 10
☒ Percentage split % 70
 More options...

(Nom) Units
 Start Stop

Result list (right-click for options)
 11:19:05 - misc.InputMappedClassifier
 11:29:17 - functions.SMO
 11:29:37 - functions.SMO

Classifier output

```

+ -0.0296 * (normalized) Variable_name=Indirect taxes
+ -0.0296 * (normalized) Variable_name=Depreciation
+ -0.0279 * (normalized) Variable_name=Salaries and wages paid
+ -0.0306 * (normalized) Variable_name=Redundancy and severance
+ -0.0301 * (normalized) Variable_name=Salaries and wages to self employed commission agents
+ -0.0209 * (normalized) Variable_name=Purchases and other operating expenses
+ -0.0299 * (normalized) Variable_name=Non-operating expenses
+ -0.0287 * (normalized) Variable_name=Opening stocks
+ -0.0286 * (normalized) Variable_name=Closing stocks
+ -0.0284 * (normalized) Variable_name=Surplus before income tax
+ -0.0195 * (normalized) Variable_name=Total assets
+ -0.0528 * (normalized) Variable_name=Current assets
+ -0.0554 * (normalized) Variable_name=Fixed tangible assets
+ -0.0451 * (normalized) Variable_name=Other assets
+ -0.0193 * (normalized) Variable_name=Total equity and liabilities
+ -0.0512 * (normalized) Variable_name=Shareholders funds or owners equity

```

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 1.0E-8 -M -1 -num-decimal-places 4"

Test options
☐ Use training set
☐ Supplied test set Set...
☐ Cross-validation Folds 10
☒ Percentage split % 70
 More options...

(Nom) Units
 Start Stop

Result list (right-click for options)
 11:19:05 - misc.InputMappedClassifier
 11:29:17 - functions.SMO
 11:29:37 - functions.SMO

Classifier output

```

Time taken to test model on test split: 0 seconds

=== Summary ===

Correctly Classified Instances      8      88.8889 %
Incorrectly Classified Instances    1      11.1111 %
Kappa statistic                    0.7
Mean absolute error                 0.2716
Root mean squared error             0.3514
Relative absolute error             110.9649 %
Root relative squared error         99.8679 %
Total Number of Instances          9

=== 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    Dollars (millions)
      0.000    0.000    ?         0.000    ?         ?        0.500    0.111    Dollars
      1.000    0.125    0.500     1.000    0.667    0.661    0.938    0.500    Percentage
Weighted Avg.   0.889    0.014    ?         0.889    ?         ?        0.938    0.846

=== Confusion Matrix ===

a b c  <-- classified as
7 0 0 | a = Dollars (millions)
0 0 1 | b = Dollars
0 0 1 | c = Percentage

```

Status