

Thyroid Report

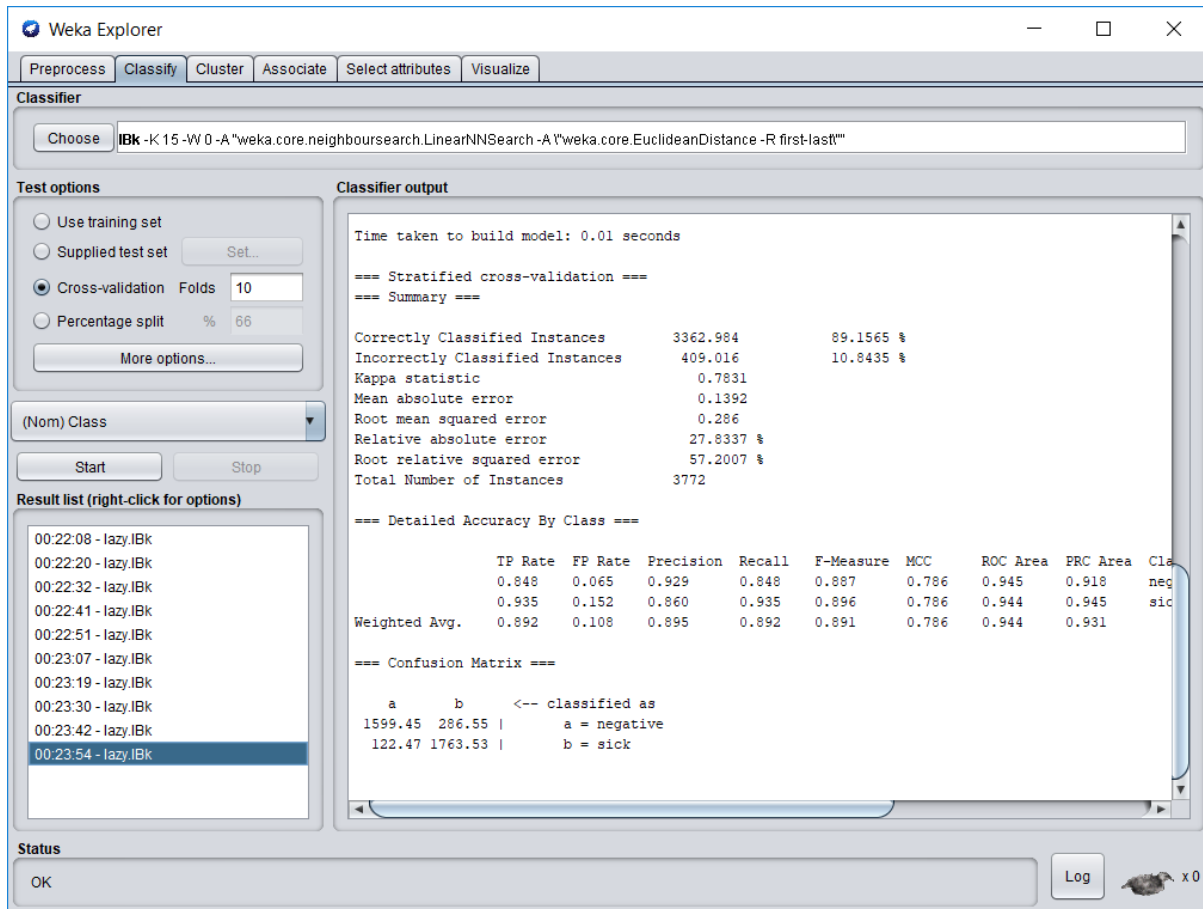
Pre Processing Method:

ClassBalancer – To balance weightage between classes.

Classification Models:

KNN

Where K=15



The screenshot displays the Weka Explorer application window. The 'Classify' tab is active, showing the results of a K-Nearest Neighbors (K=15) classification model. The 'Test options' section on the left indicates that cross-validation was used with 10 folds. The 'Classifier output' section on the right provides a detailed summary of the model's performance, including accuracy, error rates, and a confusion matrix.

Classifier

Choose: `IBk -K 15 -W 0 -A "weka.core.neighboursearch.LinearNNSearch -A "weka.core.EuclideanDistance -R first-last"`

Test options

- ☐ Use training set
- ☐ Supplied test set (Set...)
- ☒ Cross-validation Folds:
- ☐ Percentage split %:
- More options...

(Nom) Class: (Nom) Class

Start Stop

Result list (right-click for options)

- 00:22:08 - lazy.IBk
- 00:22:20 - lazy.IBk
- 00:22:32 - lazy.IBk
- 00:22:41 - lazy.IBk
- 00:22:51 - lazy.IBk
- 00:23:07 - lazy.IBk
- 00:23:19 - lazy.IBk
- 00:23:30 - lazy.IBk
- 00:23:42 - lazy.IBk
- 00:23:54 - lazy.IBk

Classifier output

Time taken to build model: 0.01 seconds

=== Stratified cross-validation ===

=== Summary ===

Correctly Classified Instances	3362.984	89.1565 %
Incorrectly Classified Instances	409.016	10.8435 %
Kappa statistic	0.7831	
Mean absolute error	0.1392	
Root mean squared error	0.286	
Relative absolute error	27.8337 %	
Root relative squared error	57.2007 %	
Total Number of Instances	3772	

=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
	0.848	0.065	0.929	0.848	0.887	0.786	0.945	0.918	neg
	0.935	0.152	0.860	0.935	0.896	0.786	0.944	0.945	sic
Weighted Avg.	0.892	0.108	0.895	0.892	0.891	0.786	0.944	0.931	

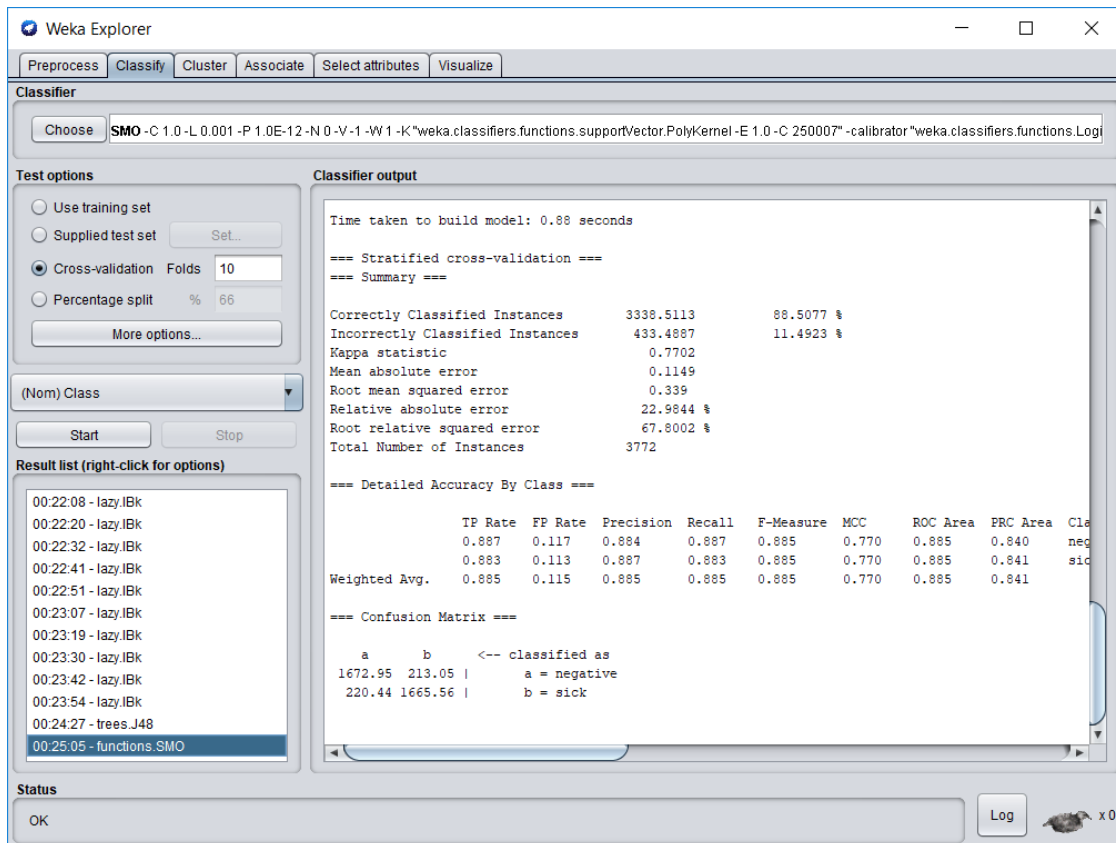
=== Confusion Matrix ===

a	b	<-- classified as	
1599.45	286.55	a	= negative
122.47	1763.53	b	= sick

Status

OK Log x0

SVM:



The screenshot shows the Weka Explorer interface with the SVM classifier selected. The classifier output window displays the following information:

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.Logit**

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

Classifier output
Time taken to build model: 0.88 seconds
=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances 3338.5113 88.5077 %
Incorrectly Classified Instances 433.4887 11.4923 %
Kappa statistic 0.7702
Mean absolute error 0.1149
Root mean squared error 0.339
Relative absolute error 22.9844 %
Root relative squared error 67.8002 %
Total Number of Instances 3772
=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
Weighted Avg.	0.887	0.117	0.884	0.887	0.885	0.770	0.885	0.840	neg
	0.883	0.113	0.887	0.883	0.885	0.770	0.885	0.841	sic

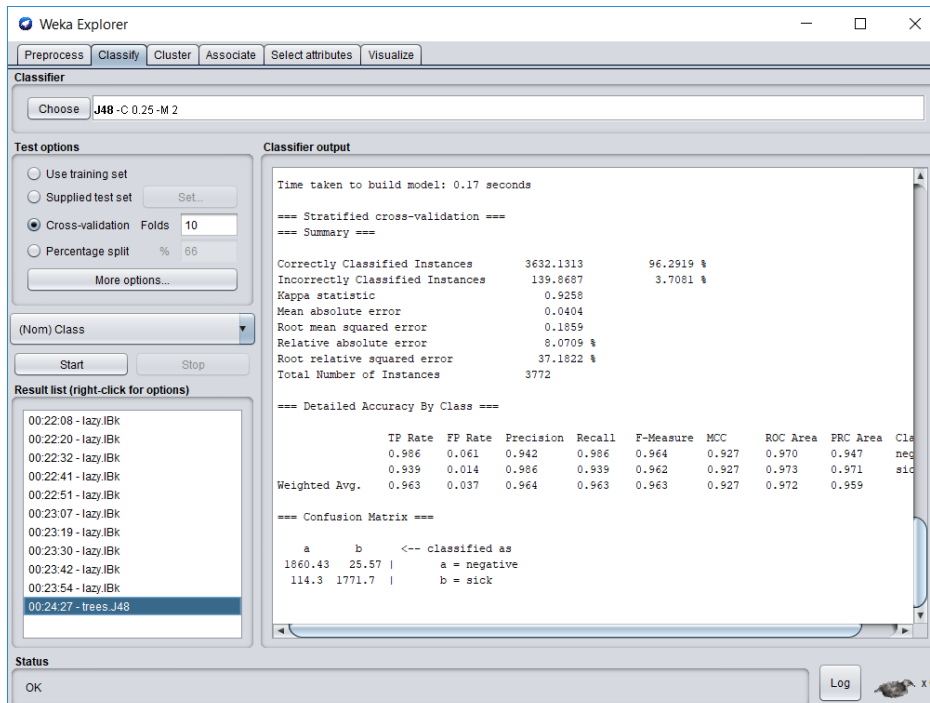
=== Confusion Matrix ===

a	b	<-- classified as	
1672.95	213.05	a = negative	
220.44	1665.56	b = sick	

Result list (right-click for options)
00:22:08 - lazy.IBk
00:22:20 - lazy.IBk
00:22:32 - lazy.IBk
00:22:41 - lazy.IBk
00:22:51 - lazy.IBk
00:23:07 - lazy.IBk
00:23:19 - lazy.IBk
00:23:30 - lazy.IBk
00:23:42 - lazy.IBk
00:23:54 - lazy.IBk
00:24:27 - trees.J48
00:25:05 - functions.SMO

Status
OK **Log** x 0

Decision Tree:



The screenshot shows the Weka Explorer interface with the J48 decision tree classifier selected. The classifier output window displays the following information:

Classifier
Choose **J48 -C 0.25 -M 2**

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

Classifier output
Time taken to build model: 0.17 seconds
=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances 3632.1313 96.2919 %
Incorrectly Classified Instances 139.8687 3.7081 %
Kappa statistic 0.9258
Mean absolute error 0.0404
Root mean squared error 0.1859
Relative absolute error 8.0709 %
Root relative squared error 37.1822 %
Total Number of Instances 3772
=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
Weighted Avg.	0.986	0.061	0.942	0.986	0.964	0.927	0.970	0.947	neg
	0.939	0.014	0.986	0.939	0.962	0.927	0.973	0.971	sic

=== Confusion Matrix ===

a	b	<-- classified as	
1860.43	25.57	a = negative	
114.3	1771.7	b = sick	

Result list (right-click for options)
00:22:08 - lazy.IBk
00:22:20 - lazy.IBk
00:22:32 - lazy.IBk
00:22:41 - lazy.IBk
00:22:51 - lazy.IBk
00:23:07 - lazy.IBk
00:23:19 - lazy.IBk
00:23:30 - lazy.IBk
00:23:42 - lazy.IBk
00:23:54 - lazy.IBk
00:24:27 - trees.J48

Status
OK **Log** x 0

ANN:

Weka Explorer

Preprocess | **Classify** | Cluster | Associate | Select attributes | Visualize

Classifier

Choose **MultilayerPerceptron -L 0.3 -M 0.2 -N 500 -V 0 -S 0 -E 20 -H a**

Test options

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

(Nom) Class

Start Stop

Result list (right-click for options)

- 00:22:20 - lazy.IBk
- 00:22:32 - lazy.IBk
- 00:22:41 - lazy.IBk
- 00:22:51 - lazy.IBk
- 00:23:07 - lazy.IBk
- 00:23:19 - lazy.IBk
- 00:23:30 - lazy.IBk
- 00:23:42 - lazy.IBk
- 00:23:54 - lazy.IBk
- 00:24:27 - trees.J48
- 00:25:05 - functions.SMO
- 00:25:37 - functions.MultilayerPerceptron**

Classifier output

Time taken to build model: 19.02 seconds

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

Correctly Classified Instances	3279.0471	86.9313 %
Incorrectly Classified Instances	492.9529	13.0687 %
Kappa statistic	0.7386	
Mean absolute error	0.1567	
Root mean squared error	0.3397	
Relative absolute error	31.3352 %	
Root relative squared error	67.9332 %	
Total Number of Instances	3772	

=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	
	0.877	0.139	0.864	0.877	0.870	0.739	0.909	0.905	n
	0.861	0.123	0.875	0.861	0.868	0.739	0.909	0.894	s
Weighted Avg.	0.869	0.131	0.869	0.869	0.869	0.739	0.909	0.900	

=== Confusion Matrix ===

a	b	<-- classified as	
1654.31	231.69		a = negative
261.26	1624.74		b = sick

Status

OK Log x0

Decision Tree has greater accuracy than the other models.