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CPTS 434

Introduction to Neural Networks and Applications

10-22-19

Homework 6

**SimpleLogistic**

=== Summary ===

Correctly Classified Instances 247 83.165 %

Incorrectly Classified Instances 50 16.835 %

Kappa statistic 0.6598

Mean absolute error 0.2674

Root mean squared error 0.3698

Relative absolute error 53.7993 %

Root relative squared error 74.185 %

Total Number of Instances 297

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.869 0.212 0.827 0.869 0.848 0.661 0.872 0.849 0

0.788 0.131 0.837 0.788 0.812 0.661 0.872 0.872 1

Weighted Avg. 0.832 0.175 0.832 0.832 0.831 0.661 0.872 0.859

=== Confusion Matrix ===

a b <-- classified as

139 21 | a = 0

29 108 | b = 1

**Logistic**

=== Summary ===

Correctly Classified Instances 193 64.9832 %

Incorrectly Classified Instances 104 35.0168 %

Kappa statistic 0.2925

Mean absolute error 0.3438

Root mean squared error 0.5727

Relative absolute error 69.165 %

Root relative squared error 114.8823 %

Total Number of Instances 297

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.700 0.409 0.667 0.700 0.683 0.293 0.710 0.685 0

0.591 0.300 0.628 0.591 0.609 0.293 0.709 0.691 1

Weighted Avg. 0.650 0.359 0.649 0.650 0.649 0.293 0.709 0.688

=== Confusion Matrix ===

a b <-- classified as

112 48 | a = 0

56 81 | b = 1

**Attribute Selection**

=== Attribute Selection on all input data ===

Search Method:

Best first.

Start set: no attributes

Search direction: forward

Stale search after 5 node expansions

Total number of subsets evaluated: 82

Merit of best subset found: 0.287

Attribute Subset Evaluator (supervised, Class (nominal): 14 heartdisease::category|0|1):

CFS Subset Evaluator

Including locally predictive attributes

Selected attributes: 3,9,11,12,13 : 5

cp

exang

slope

ca

thal

**SimpleLogistic Reduced Set**

=== Summary ===

Correctly Classified Instances 249 83.8384 %

Incorrectly Classified Instances 48 16.1616 %

Kappa statistic 0.6734

Mean absolute error 0.2454

Root mean squared error 0.3524

Relative absolute error 49.3697 %

Root relative squared error 70.6853 %

Total Number of Instances 297

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.875 0.204 0.833 0.875 0.854 0.674 0.894 0.878 0

0.796 0.125 0.845 0.796 0.820 0.674 0.894 0.887 1

Weighted Avg. 0.838 0.168 0.839 0.838 0.838 0.674 0.894 0.882

=== Confusion Matrix ===

a b <-- classified as

140 20 | a = 0

28 109 | b = 1

**Logistic Reduced Set**

=== Summary ===

Correctly Classified Instances 249 83.8384 %

Incorrectly Classified Instances 48 16.1616 %

Kappa statistic 0.6734

Mean absolute error 0.2255

Root mean squared error 0.3399

Relative absolute error 45.3747 %

Root relative squared error 68.1886 %

Total Number of Instances 297

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.875 0.204 0.833 0.875 0.854 0.674 0.904 0.879 0

0.796 0.125 0.845 0.796 0.820 0.674 0.904 0.901 1

Weighted Avg. 0.838 0.168 0.839 0.838 0.838 0.674 0.904 0.889

=== Confusion Matrix ===

a b <-- classified as

140 20 | a = 0

28 109 | b = 1