Algoritmo j48

Arvore

ELONGATEDNESS <= 41

| MAX.LENGTH ASPECT RATIO <= 7

| | COMPACTNESS <= 95

| | | PR.AXIS ASPECT RATIO <= 67

| | | | KURTOSIS ABOUT\_MINOR <= 196

| | | | | COMPACTNESS <= 89: opel (6.0/1.0)

| | | | | COMPACTNESS > 89

| | | | | | SKEWNESS ABOUT\_MAJOR <= 72: saab (10.0)

| | | | | | SKEWNESS ABOUT\_MAJOR > 72: opel (2.0)

| | | | KURTOSIS ABOUT\_MINOR > 196: opel (3.0/1.0)

| | | PR.AXIS ASPECT RATIO > 67: bus (16.0)

| | COMPACTNESS > 95: bus (70.0/1.0)

| MAX.LENGTH ASPECT RATIO > 7

| | SCALED VARIANCE\_MINOR <= 721

| | | HOLLOWS RATIO <= 195

| | | | MAX.LENGTH ASPECT RATIO <= 8

| | | | | ELONGATEDNESS <= 37: opel (2.0)

| | | | | ELONGATEDNESS > 37

| | | | | | DISTANCE CIRCULARITY <= 82: opel (2.0)

| | | | | | DISTANCE CIRCULARITY > 82: saab (6.0/1.0)

| | | | MAX.LENGTH ASPECT RATIO > 8

| | | | | KURTOSIS ABOUT\_MINOR <= 185

| | | | | | COMPACTNESS <= 102: opel (4.0)

| | | | | | COMPACTNESS > 102: saab (2.0)

| | | | | KURTOSIS ABOUT\_MINOR > 185: opel (23.0)

| | | HOLLOWS RATIO > 195

| | | | COMPACTNESS <= 109

| | | | | SKEWNESS ABOUT\_MAJOR <= 67

| | | | | | PR.AXIS ASPECT RATIO <= 58: opel (6.0)

| | | | | | PR.AXIS ASPECT RATIO > 58

| | | | | | | SKEWNESS ABOUT\_MAJOR <= 61: saab (4.0)

| | | | | | | SKEWNESS ABOUT\_MAJOR > 61

| | | | | | | | HOLLOWS RATIO <= 203

| | | | | | | | | DISTANCE CIRCULARITY <= 78: saab (3.0)

| | | | | | | | | DISTANCE CIRCULARITY > 78

| | | | | | | | | | KURTOSIS ABOUT\_MAJOR <= 16

| | | | | | | | | | | HOLLOWS RATIO <= 198: opel (4.0)

| | | | | | | | | | | HOLLOWS RATIO > 198

| | | | | | | | | | | | PR.AXIS ASPECT RATIO <= 59: opel (3.0)

| | | | | | | | | | | | PR.AXIS ASPECT RATIO > 59

| | | | | | | | | | | | | SKEWNESS ABOUT\_MAJOR <= 66

| | | | | | | | | | | | | | HOLLOWS RATIO <= 201

| | | | | | | | | | | | | | | MAX.LENGTH ASPECT RATIO <= 9: saab (3.0)

| | | | | | | | | | | | | | | MAX.LENGTH ASPECT RATIO > 9: opel (2.0)

| | | | | | | | | | | | | | HOLLOWS RATIO > 201: opel (3.0)

| | | | | | | | | | | | | SKEWNESS ABOUT\_MAJOR > 66: saab (8.0/2.0)

| | | | | | | | | | KURTOSIS ABOUT\_MAJOR > 16: opel (12.0)

| | | | | | | | HOLLOWS RATIO > 203

| | | | | | | | | PR.AXIS ASPECT RATIO <= 60: saab (8.0)

| | | | | | | | | PR.AXIS ASPECT RATIO > 60

| | | | | | | | | | KURTOSIS ABOUT\_MINOR <= 193: saab (5.0)

| | | | | | | | | | KURTOSIS ABOUT\_MINOR > 193

| | | | | | | | | | | PR.AXIS ASPECT RATIO <= 63

| | | | | | | | | | | | KURTOSIS ABOUT\_MINOR <= 196

| | | | | | | | | | | | | ELONGATEDNESS <= 33: opel (2.0)

| | | | | | | | | | | | | ELONGATEDNESS > 33: saab (4.0/1.0)

| | | | | | | | | | | | KURTOSIS ABOUT\_MINOR > 196: opel (11.0/1.0)

| | | | | | | | | | | PR.AXIS ASPECT RATIO > 63

| | | | | | | | | | | | MAX.LENGTH ASPECT RATIO <= 10: saab (4.0)

| | | | | | | | | | | | MAX.LENGTH ASPECT RATIO > 10: opel (3.0/1.0)

| | | | | SKEWNESS ABOUT\_MAJOR > 67

| | | | | | COMPACTNESS <= 106

| | | | | | | HOLLOWS RATIO <= 198

| | | | | | | | PR.AXIS RECTANGULARITY <= 24

| | | | | | | | | SKEWNESS ABOUT\_MAJOR <= 72

| | | | | | | | | | KURTOSIS ABOUT\_MINOR <= 187

| | | | | | | | | | | DISTANCE CIRCULARITY <= 98: opel (2.0)

| | | | | | | | | | | DISTANCE CIRCULARITY > 98: saab (7.0)

| | | | | | | | | | KURTOSIS ABOUT\_MINOR > 187

| | | | | | | | | | | SCATTER RATIO <= 204

| | | | | | | | | | | | HOLLOWS RATIO <= 197

| | | | | | | | | | | | | MAX.LENGTH ASPECT RATIO <= 9: saab (5.0)

| | | | | | | | | | | | | MAX.LENGTH ASPECT RATIO > 9

| | | | | | | | | | | | | | CIRCULARITY <= 50: opel (4.0)

| | | | | | | | | | | | | | CIRCULARITY > 50: saab (2.0)

| | | | | | | | | | | | HOLLOWS RATIO > 197

| | | | | | | | | | | | | MAX.LENGTH ASPECT RATIO <= 8: opel (2.0)

| | | | | | | | | | | | | MAX.LENGTH ASPECT RATIO > 8

| | | | | | | | | | | | | | RADIUS RATIO <= 193: saab (2.0)

| | | | | | | | | | | | | | RADIUS RATIO > 193: opel (4.0)

| | | | | | | | | | | SCATTER RATIO > 204: opel (9.0)

| | | | | | | | | SKEWNESS ABOUT\_MAJOR > 72: saab (12.0/1.0)

| | | | | | | | PR.AXIS RECTANGULARITY > 24: opel (7.0)

| | | | | | | HOLLOWS RATIO > 198

| | | | | | | | ELONGATEDNESS <= 34

| | | | | | | | | DISTANCE CIRCULARITY <= 98: opel (3.0)

| | | | | | | | | DISTANCE CIRCULARITY > 98

| | | | | | | | | | COMPACTNESS <= 101

| | | | | | | | | | | SKEWNESS ABOUT\_MINOR <= 3: saab (3.0)

| | | | | | | | | | | SKEWNESS ABOUT\_MINOR > 3: opel (4.0)

| | | | | | | | | | COMPACTNESS > 101: saab (15.0)

| | | | | | | | ELONGATEDNESS > 34: saab (7.0)

| | | | | | COMPACTNESS > 106: saab (24.0/1.0)

| | | | COMPACTNESS > 109: saab (16.0)

| | SCALED VARIANCE\_MINOR > 721: opel (23.0/1.0)

ELONGATEDNESS > 41

| MAX.LENGTH ASPECT RATIO <= 8

| | SCALED VARIANCE\_MINOR <= 305

| | | COMPACTNESS <= 82

| | | | PR.AXIS RECTANGULARITY <= 18

| | | | | COMPACTNESS <= 81: opel (11.0)

| | | | | COMPACTNESS > 81: saab (5.0/1.0)

| | | | PR.AXIS RECTANGULARITY > 18: saab (2.0)

| | | COMPACTNESS > 82

| | | | MAX.LENGTH RECTANGULARITY <= 138

| | | | | PR.AXIS RECTANGULARITY <= 17

| | | | | | SKEWNESS ABOUT\_MINOR <= 18

| | | | | | | ELONGATEDNESS <= 58: van (30.0/3.0)

| | | | | | | ELONGATEDNESS > 58: saab (3.0)

| | | | | | SKEWNESS ABOUT\_MINOR > 18: opel (3.0/1.0)

| | | | | PR.AXIS RECTANGULARITY > 17

| | | | | | PR.AXIS RECTANGULARITY <= 18

| | | | | | | MAX.LENGTH RECTANGULARITY <= 128

| | | | | | | | HOLLOWS RATIO <= 186: saab (6.0)

| | | | | | | | HOLLOWS RATIO > 186

| | | | | | | | | SCALED VARIANCE\_MAJOR <= 164

| | | | | | | | | | MAX.LENGTH RECTANGULARITY <= 124

| | | | | | | | | | | KURTOSIS ABOUT\_MAJOR <= 27: saab (2.0)

| | | | | | | | | | | KURTOSIS ABOUT\_MAJOR > 27: opel (3.0)

| | | | | | | | | | MAX.LENGTH RECTANGULARITY > 124: opel (6.0)

| | | | | | | | | SCALED VARIANCE\_MAJOR > 164: saab (2.0)

| | | | | | | MAX.LENGTH RECTANGULARITY > 128

| | | | | | | | SCALED RADIUS OF GYRATION <= 138: van (19.0/2.0)

| | | | | | | | SCALED RADIUS OF GYRATION > 138

| | | | | | | | | PR.AXIS ASPECT RATIO <= 53: van (2.0)

| | | | | | | | | PR.AXIS ASPECT RATIO > 53

| | | | | | | | | | MAX.LENGTH ASPECT RATIO <= 5

| | | | | | | | | | | COMPACTNESS <= 84: opel (2.0)

| | | | | | | | | | | COMPACTNESS > 84: saab (4.0)

| | | | | | | | | | MAX.LENGTH ASPECT RATIO > 5

| | | | | | | | | | | DISTANCE CIRCULARITY <= 66

| | | | | | | | | | | | SKEWNESS ABOUT\_MINOR <= 4: opel (2.0)

| | | | | | | | | | | | SKEWNESS ABOUT\_MINOR > 4: saab (2.0)

| | | | | | | | | | | DISTANCE CIRCULARITY > 66: opel (5.0)

| | | | | | PR.AXIS RECTANGULARITY > 18: saab (3.0)

| | | | MAX.LENGTH RECTANGULARITY > 138

| | | | | ELONGATEDNESS <= 47

| | | | | | MAX.LENGTH RECTANGULARITY <= 143: saab (3.0/1.0)

| | | | | | MAX.LENGTH RECTANGULARITY > 143: van (4.0)

| | | | | ELONGATEDNESS > 47: van (39.0/1.0)

| | SCALED VARIANCE\_MINOR > 305

| | | DISTANCE CIRCULARITY <= 76

| | | | SKEWNESS ABOUT\_MINOR <= 10

| | | | | SKEWNESS ABOUT\_MAJOR <= 64

| | | | | | CIRCULARITY <= 35: opel (2.0)

| | | | | | CIRCULARITY > 35: saab (2.0)

| | | | | SKEWNESS ABOUT\_MAJOR > 64

| | | | | | SCATTER RATIO <= 143

| | | | | | | DISTANCE CIRCULARITY <= 70: bus (4.0)

| | | | | | | DISTANCE CIRCULARITY > 70: van (2.0)

| | | | | | SCATTER RATIO > 143

| | | | | | | CIRCULARITY <= 41

| | | | | | | | PR.AXIS ASPECT RATIO <= 62: saab (7.0)

| | | | | | | | PR.AXIS ASPECT RATIO > 62

| | | | | | | | | SCALED VARIANCE\_MAJOR <= 180: bus (19.0)

| | | | | | | | | SCALED VARIANCE\_MAJOR > 180

| | | | | | | | | | DISTANCE CIRCULARITY <= 74: saab (2.0)

| | | | | | | | | | DISTANCE CIRCULARITY > 74: bus (2.0)

| | | | | | | CIRCULARITY > 41: bus (97.0)

| | | | SKEWNESS ABOUT\_MINOR > 10

| | | | | PR.AXIS ASPECT RATIO <= 62

| | | | | | PR.AXIS RECTANGULARITY <= 19

| | | | | | | ELONGATEDNESS <= 43: saab (2.0)

| | | | | | | ELONGATEDNESS > 43

| | | | | | | | SCALED VARIANCE\_MAJOR <= 165: saab (2.0)

| | | | | | | | SCALED VARIANCE\_MAJOR > 165

| | | | | | | | | CIRCULARITY <= 42: opel (7.0)

| | | | | | | | | CIRCULARITY > 42

| | | | | | | | | | RADIUS RATIO <= 151: saab (2.0)

| | | | | | | | | | RADIUS RATIO > 151: opel (2.0)

| | | | | | PR.AXIS RECTANGULARITY > 19: opel (2.0)

| | | | | PR.AXIS ASPECT RATIO > 62: bus (3.0)

| | | DISTANCE CIRCULARITY > 76

| | | | PR.AXIS ASPECT RATIO <= 61

| | | | | PR.AXIS RECTANGULARITY <= 19

| | | | | | SCALED RADIUS OF GYRATION <= 132: saab (3.0)

| | | | | | SCALED RADIUS OF GYRATION > 132

| | | | | | | MAX.LENGTH RECTANGULARITY <= 145

| | | | | | | | HOLLOWS RATIO <= 192

| | | | | | | | | SKEWNESS ABOUT\_MINOR <= 8: saab (3.0)

| | | | | | | | | SKEWNESS ABOUT\_MINOR > 8: opel (4.0)

| | | | | | | | HOLLOWS RATIO > 192: opel (10.0)

| | | | | | | MAX.LENGTH RECTANGULARITY > 145: saab (2.0)

| | | | | PR.AXIS RECTANGULARITY > 19: saab (3.0/1.0)

| | | | PR.AXIS ASPECT RATIO > 61

| | | | | SKEWNESS ABOUT\_MINOR <= 5

| | | | | | CIRCULARITY <= 38: opel (2.0)

| | | | | | CIRCULARITY > 38: van (3.0)

| | | | | SKEWNESS ABOUT\_MINOR > 5: saab (3.0)

| MAX.LENGTH ASPECT RATIO > 8

| | HOLLOWS RATIO <= 189: bus (5.0/1.0)

| | HOLLOWS RATIO > 189

| | | SKEWNESS ABOUT\_MAJOR <= 63: saab (4.0/1.0)

| | | SKEWNESS ABOUT\_MAJOR > 63: van (107.0/2.0)

Number of Leaves : 98

Size of the tree : 195

Erros

=== Stratified cross-validation ===

=== Summary ===

Correctly Classified Instances 613 72.4586 %

Incorrectly Classified Instances 233 27.5414 %

Kappa statistic 0.6328

Mean absolute error 0.1415

Root mean squared error 0.3355

Relative absolute error 37.7493 %

Root relative squared error 77.4887 %

Total Number of Instances 846

Matrix

== Confusion Matrix ===

a b c d <-- classified as

130 74 2 6 | a = opel

96 99 6 16 | b = saab

3 4 207 4 | c = bus

6 12 4 177 | d = van