

For normalized Variables :

Attribute Evaluation :

Method : InfoGainAttributeEval

Search : Ranker

Instances: 186

Attributes: 10

1. Attack
2. Precipitation_minmax
3. StationPressure_minmax
4. WindSpeed_minmax
5. Salinity_minmax
6. Turbidity_minmax
7. DissolvedO2_minmax
8. WaterTemp_minmax
9. Turtle_minmax
10. Crablandings_minmax

Evaluation mode: evaluate on all training data

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

Search Method:Attribute ranking.

Attribute Evaluator (supervised, Class (nominal): 1 Attack):

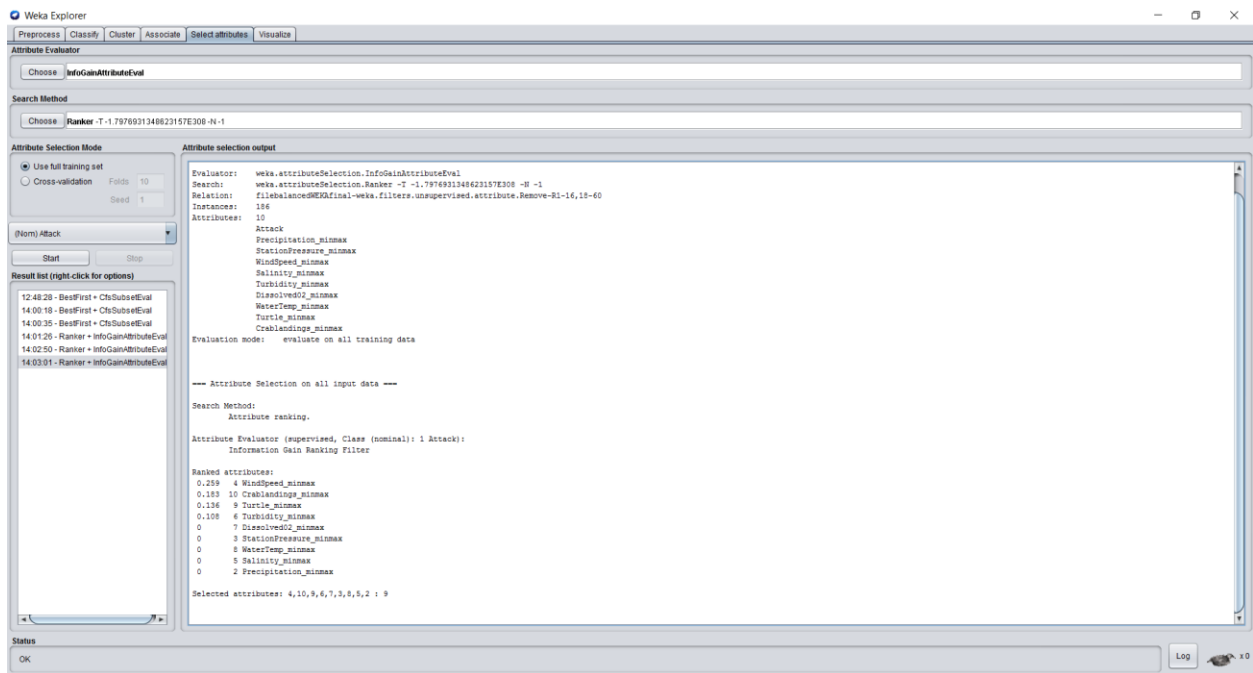
Information Gain Ranking Filter

Ranked attributes:

0.259	4	WindSpeed_minmax
0.183	10	Crablandings_minmax
0.136	9	Turtle_minmax
0.108	6	Turbidity_minmax
0	7	DissolvedO2_minmax
0	3	StationPressure_minmax
0	8	WaterTemp_minmax
0	5	Salinity_minmax
0	2	Precipitation_minmax

Selected attributes: 4,10,9,6,7,3,8,5,2 : 9

Screenshot:



Classification:

=== Run information ===

Scheme: weka.classifiers.trees.J48 -O -U -M 2

Relation: filebalancedWEKAfinal-weka.filters.unsupervised.attribute.Remove-R1,16,18-60

Instances: 186

Attributes: 10

Attack

Precipitation_minmax

StationPressure_minmax

WindSpeed_minmax

Salinity_minmax

Turbidity_minmax

DissolvedO2_minmax

WaterTemp_minmax

Turtle_minmax

Crablandings_minmax

Test mode: evaluate on training data

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

J48 unpruned tree

WindSpeed_minmax <= 0.424837

| Turtle_minmax <= 0.315789

| | WindSpeed_minmax <= 0.137255: No (22.0)

| | WindSpeed_minmax > 0.137255

| | | Precipitation_minmax <= 0.088571

| | | | Turbidity_minmax <= 0.101499

| | | | | Turbidity_minmax <= 0.007427

| | | | | | Turtle_minmax <= 0.062201

| | | | | | | StationPressure_minmax <= 0.877193: Yes (6.0)

| | | | | | | StationPressure_minmax > 0.877193: No (2.0/1.0)

| | | | | | Turtle_minmax > 0.062201: No (4.0)

| | | | | Turbidity_minmax > 0.007427: No (70.0/10.0)

| | | | Turbidity_minmax > 0.101499

| | | | | StationPressure_minmax <= 0.596491: No (2.0/1.0)

| | | | | StationPressure_minmax > 0.596491: Yes (4.0)

| | | Precipitation_minmax > 0.088571: No (16.0)

| Turtle_minmax > 0.315789

| | Salinity_minmax <= 0.728224: Yes (7.0)

| | Salinity_minmax > 0.728224: No (3.0)
WindSpeed_minmax > 0.424837
| Turtle_minmax <= 0.090909: Yes (14.0/6.0)
| Turtle_minmax > 0.090909: Yes (36.0/1.0)

Number of Leaves : 12

Size of the tree : 23

Time taken to build model: 0.01 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances	167	89.7849 %
Incorrectly Classified Instances	19	10.2151 %
Kappa statistic	0.7819	
Mean absolute error	0.1502	
Root mean squared error	0.2741	
Relative absolute error	31.6441 %	
Root relative squared error	56.269 %	
Total Number of Instances	186	

=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
	0.939	0.167	0.899	0.939	0.918	0.783	0.945	0.942	No
	0.833	0.061	0.896	0.833	0.863	0.783	0.945	0.908	Yes
Weighted Avg.	0.898	0.126	0.898	0.898	0.897	0.783	0.945	0.929	

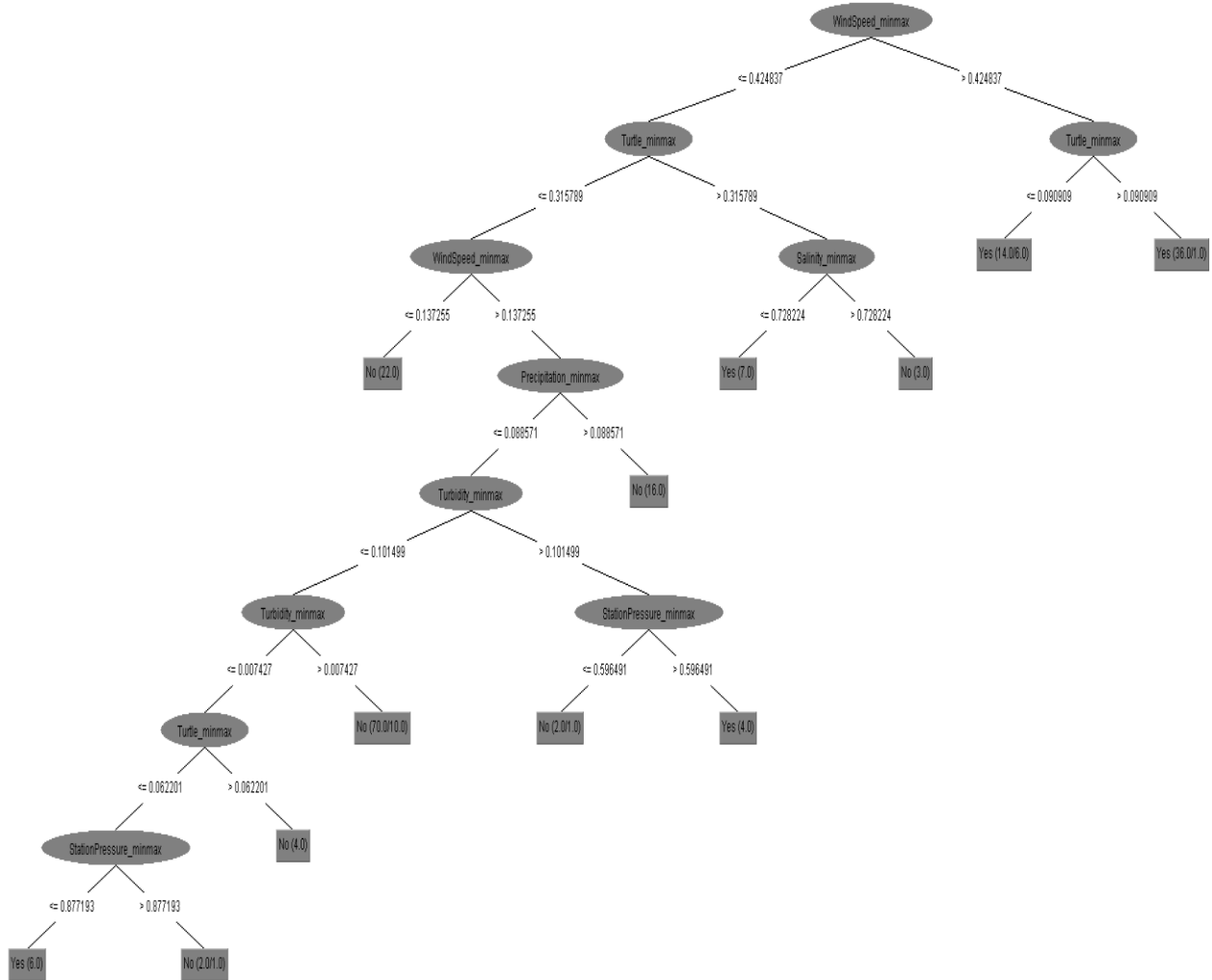
=== Confusion Matrix ===

a b <-- classified as

107 7 | a = No

12 60 | b = Yes

Tree View



Classification using the following attributes :

Predictors: WindSpeed

Turbidity

Turtle activity

Crab landings

Target variable : Attack(yes/no)

Results :

=== Run information ===

Scheme: weka.classifiers.trees.J48 -O -U -M 2

Relation: filebalancedWEKAfinal-weka.filters.unsupervised.attribute.Remove-R1-16,18-60-

weka.filters.unsupervised.attribute.Remove-R2-3,5,7-weka.filters.unsupervised.attribute.Remove-R4

Instances: 186

Attributes: 5

Attack

WindSpeed_minmax

Turbidity_minmax

Turtle_minmax

Crablandings_minmax

Test mode: evaluate on training data

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

J48 unpruned tree

WindSpeed_minmax <= 0.424837

| Turtle_minmax <= 0.315789

| | WindSpeed_minmax <= 0.137255: No (22.0)

| | WindSpeed_minmax > 0.137255

| | | Turbidity_minmax <= 0.101499

| | | | Turbidity_minmax <= 0.007427

| | | | | Turtle_minmax <= 0.062201

| | | | | | Crablandings_minmax <= 0.19493: No (2.0/1.0)

| | | | | | Crablandings_minmax > 0.19493: Yes (6.0)

| | | | | Turtle_minmax > 0.062201: No (5.0)

| | | | Turbidity_minmax > 0.007427: No (84.0/10.0)

| | | Turbidity_minmax > 0.101499

| | | | Crablandings_minmax <= 0.719406: No (2.0)

| | | | Crablandings_minmax > 0.719406: Yes (5.0)

| Turtle_minmax > 0.315789

| | Turtle_minmax <= 0.502392

| | | Turtle_minmax <= 0.344498: Yes (3.0/1.0)

| | | Turtle_minmax > 0.344498: No (2.0)

| | Turtle_minmax > 0.502392: Yes (5.0)

WindSpeed_minmax > 0.424837

| Turtle_minmax <= 0.090909: Yes (14.0/6.0)
| Turtle_minmax > 0.090909: Yes (36.0/1.0)

Number of Leaves : 12

Size of the tree : 23

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances	167	89.7849 %
Incorrectly Classified Instances	19	10.2151 %
Kappa statistic	0.7831	
Mean absolute error	0.1546	
Root mean squared error	0.278	
Relative absolute error	32.5608 %	
Root relative squared error	57.0782 %	
Total Number of Instances	186	

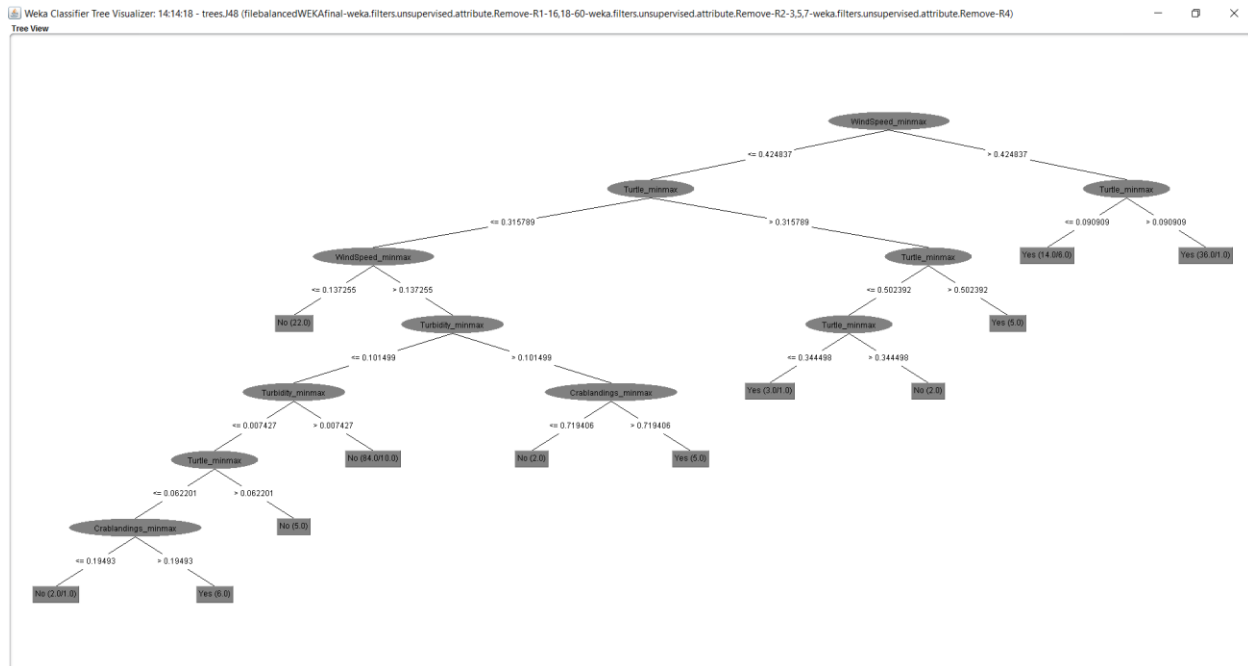
=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
	0.930	0.153	0.906	0.930	0.918	0.784	0.936	0.931	No
	0.847	0.070	0.884	0.847	0.865	0.784	0.936	0.901	Yes
Weighted Avg.	0.898	0.121	0.897	0.898	0.897	0.784	0.936	0.919	

=== Confusion Matrix ===

a b <-- classified as
106 8 | a = No
11 61 | b = Yes

Tree visualization:



Clustering :

Method : K-Means Clustering :

Result:

=== Run information ===

Scheme: weka.clusterers.SimpleKMeans -init 0 -max-candidates 100 -periodic-pruning 10000 -min-density 2.0 -t1 -1.25 -t2 -1.0 -N 2 -A "weka.core.EuclideanDistance -R first-last" -I 500 -num-slots 1 -S 10

Relation: filebalancedWEKAfinal-weka.filters.unsupervised.attribute.Remove-R1-16,18-60-weka.filters.unsupervised.attribute.Remove-R2,5,8-weka.filters.unsupervised.attribute.Remove-R2

Instances: 186

Attributes: 6

Attack

WindSpeed_minmax

Turbidity_minmax

Turtle_minmax

Crablandings_minmax

Ignored:

DissolvedO2_minmax

Test mode: evaluate on training data

=== Clustering model (full training set) ===

kMeans

=====

Number of iterations: 2

Within cluster sum of squared errors: 29.830319899212967

Initial starting points (random):

Cluster 0: No,0.346405,0.020567,0.148325,0.277972

Cluster 1: Yes,0.431373,0.010181,0,0.785839

Missing values globally replaced with mean/mode

Final cluster centroids:

Attribute	Cluster#		
	Full Data (186.0)	0 (114.0)	1 (72.0)
=====			
Attack	No	No	Yes
WindSpeed_minmax	0.3456	0.2574	0.4852
Turbidity_minmax	0.0558	0.0313	0.0946
Turtle_minmax	0.156	0.0905	0.2596
Crablandings_minmax	0.5171	0.463	0.6029

Time taken to build model (full training data) : 0.01 seconds

=== Model and evaluation on training set ===

Clustered Instances

0 114 (61%)

1 72 (39%)