Decision Tree:

=== Run information ===

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

Relation: filebalancedWEKAfinal-weka.filters.unsupervised.attribute.Remove-R1-18,20-39,43,45-49,51-73

Instances: 186

Attributes: 6

       Attack

       salinitydiscretize

       turbiditydiscretize

       temperaturediscretize

       pressurediscretize

       CrabLandingsDisc

Test mode: 10-fold cross-validation

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

J48 unpruned tree

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salinitydiscretize = Medium

| temperaturediscretize = High

| | CrabLandingsDisc = High: Yes (27.0/9.0)

| | CrabLandingsDisc = Low: No (17.0/6.0)

| | CrabLandingsDisc = Medium: No (11.0/5.0)

| temperaturediscretize = Medium: No (14.0/4.0)

| temperaturediscretize = Low: No (1.0)

salinitydiscretize = High

| CrabLandingsDisc = High

| | pressurediscretize = Medium: No (24.0/8.0)

| | pressurediscretize = High: Yes (13.0/6.0)

| | pressurediscretize = Low: No (0.0)

| CrabLandingsDisc = Low: No (35.0/7.0)

| CrabLandingsDisc = Medium: No (41.0/14.0)

salinitydiscretize = Low: Yes (3.0)

Number of Leaves :   11

Size of the tree :   16

Time taken to build model: 0.04 seconds

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

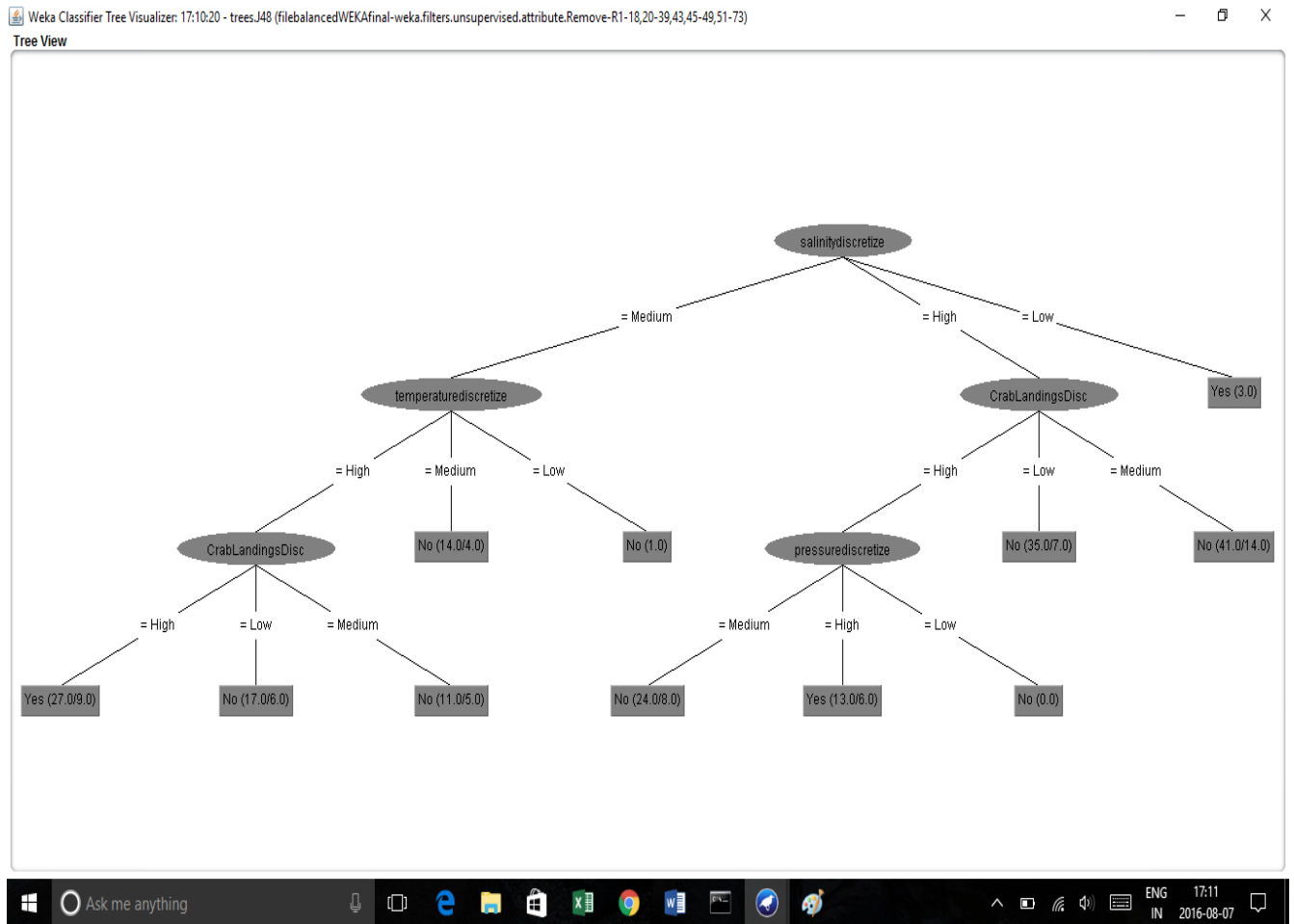		
Correctly Classified Instances	115	61.828 %
Incorrectly Classified Instances	71	38.172 %
Kappa statistic	0.1114	
Mean absolute error	0.4618	
Root mean squared error	0.5131	
Relative absolute error	97.2328 %	
Root relative squared error	105.3173 %	
Total Number of Instances	186	

=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
	0.851	0.750	0.642	0.851	0.732	0.126	0.488	0.590	No
	0.250	0.149	0.514	0.250	0.336	0.126	0.488	0.434	Yes
Weighted Avg.	0.618	0.517	0.593	0.618	0.579	0.126	0.488	0.530	

=== Confusion Matrix ===

 a b   <-- classified as

97 17 | a = No

54 18 | b = Yes

Clusters:

=== 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-R1-18,20-39,43,45-49,51,53-73

Instances: 186

Attributes: 7

       Attack

       salinitydiscretize

       turbiditydiscretize

       temperaturediscretize

       pressurediscretize

       CrabLandingsDisc

       Direction

Test mode: evaluate on training data

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

kMeans

======

Number of iterations: 4

Within cluster sum of squared errors: 402.0

Initial starting points (random):

Cluster 0: No,Medium,Low,High,Medium,Low,SSW

Cluster 1: Yes,High,Low,Medium,Medium,High,SW

Missing values globally replaced with mean/mode

Final cluster centroids:

	Cluster#		
Attribute	Full Data	0	1
	(186.0)	(125.0)	(61.0)
==			
Attack	No	No	Yes
salinitydiscretize	High	High	Medium
turbiditydiscretize	Low	Low	Low
temperaturediscretize	High	High	High
pressurediscretize	Medium	Medium	Medium
CrabLandingsDisc	High	Low	High
Direction	SSW	SSW	SW

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

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

Clustered Instances

0   125 (67%)

1   61 (33%)

Association Rules:

Apriori with Discretized Values - find best rules for Attack = Y, find rules with attributes of interest from previous mining

=== Run information ===

Scheme: weka.associations.Apriori -N 50 -T 0 -C 0.75 -D 0.05 -U 1.0 -M 0.1 -S -1.0 -A -c 1

Relation: Changed File Weka-weka.filters.unsupervised.attribute.Remove-R2-10,12-16,18,22

Instances: 186

Attributes: 7

       Attack

       DissolvedO2discretize

       windspeeddiscretize

       CrabLandingsDisc

       Direction

       MoonPhase3daysextended

       changetemp

=== Associator model (full training set) ===

Apriori

=======

Minimum support: 0.1 (19 instances)

Minimum metric <confidence>: 0.75

Number of cycles performed: 18

Best rules found:

18. CrabLandingsDisc=High Direction=SW MoonPhase3daysextended=Full_New 27 ==> Attack=Yes 21   conf:(0.78)

=== Run information ===

Scheme: weka.associations.Apriori -N 50 -T 0 -C 0.5 -D 0.05 -U 1.0 -M 0.1 -S -1.0 -A -c 1

Relation: Changed File Weka-weka.filters.unsupervised.attribute.Remove-R2-10,12-16,18,22-weka.filters.unsupervised.attribute.Remove-R4

Instances: 186

Attributes: 6

      Attack

      DissolvedO2discretize

      windspeeddiscretize

      Direction

      MoonPhase3daysextended

      changetemp

=== Associator model (full training set) ===

Apriori Algorithm

=======

Minimum support: 0.1 (19 instances)

Minimum metric <confidence>: 0.5

Number of cycles performed: 18

Best rules found:

1. windspeeddiscretize=Medium Direction=SW 37 ==> Attack=Yes 21   conf:(0.57)
2. windspeeddiscretize=Medium Direction=SW changetemp=EQ 37 ==> Attack=Yes 21   conf:(0.57)
3. Direction=SW MoonPhase3daysextended=Full_New 61 ==> Attack=Yes 34   conf:(0.56)
4. Direction=SW MoonPhase3daysextended=Full_New changetemp=EQ 61 ==> Attack=Yes 34   conf:(0.56)
5. DissolvedO2discretize=Medium Direction=SW MoonPhase3daysextended=Full_New 53 ==> Attack=Yes 28   conf:(0.53)
6. DissolvedO2discretize=Medium Direction=SW MoonPhase3daysextended=Full_New changetemp=EQ 53 ==> Attack=Yes 28   conf:(0.53)
7. Direction=SW 85 ==> Attack=Yes 44   conf:(0.52)
8. Direction=SW changetemp=EQ 85 ==> Attack=Yes 44   conf:(0.52)
9. DissolvedO2discretize=Medium Direction=SW 76 ==> Attack=No 38   conf:(0.5)
10. DissolvedO2discretize=Medium Direction=SW 76 ==> Attack=Yes 38   conf:(0.5)

11. DissolvedO2discretize=Medium Direction=SW changetemp=EQ 76 ==> Attack=No 38 conf:(0.5)
12. DissolvedO2discretize=Medium Direction=SW changetemp=EQ 76 ==> Attack=Yes 38 conf:(0.5)