**Problem**

Prediction of Space Shuttle Autolanding

**Naive Bayes Classifier**

Correctly Classified Instances 11 73.3333 %

Incorrectly Classified Instances 4 26.6667 %

Kappa statistic 0.375

Mean absolute error 0.3981

Root mean squared error 0.4564

Relative absolute error 80.9756 %

Root relative squared error 91.1979 %

Total Number of Instances 15

=== Detailed Accuracy By Class ===

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

0.333 0.000 1.000 0.333 0.500 0.480 0.741 0.771 1

1.000 0.667 0.692 1.000 0.818 0.480 0.741 0.742 2

Weighted Avg. 0.733 0.400 0.815 0.733 0.691 0.480 0.741 0.753

=== Confusion Matrix ===

a b <-- classified as

2 4 | a = 1

0 9 | b = 2

**SGD Classsifier**

=== Summary ===

Correctly Classified Instances 8 53.3333 %

Incorrectly Classified Instances 7 46.6667 %

Kappa statistic -0.129

Mean absolute error 0.4667

Root mean squared error 0.6831

Relative absolute error 94.9153 %

Root relative squared error 136.5123 %

Total Number of Instances 15

=== Detailed Accuracy By Class ===

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

0.000 0.111 0.000 0.000 0.000 -0.218 0.444 0.400 1

0.889 1.000 0.571 0.889 0.696 -0.218 0.444 0.575 2

Weighted Avg. 0.533 0.644 0.343 0.533 0.417 -0.218 0.444 0.505

=== Confusion Matrix ===

a b <-- classified as

0 6 | a = 1

1 8 | b = 2

**OneR Classifier**

Correctly Classified Instances 10 66.6667 %

Incorrectly Classified Instances 5 33.3333 %

Kappa statistic 0.3243

Mean absolute error 0.3333

Root mean squared error 0.5774

Relative absolute error 67.7966 %

Root relative squared error 115.3739 %

Total Number of Instances 15

=== Detailed Accuracy By Class ===

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

0.667 0.333 0.571 0.667 0.615 0.327 0.667 0.514 1

0.667 0.333 0.750 0.667 0.706 0.327 0.667 0.700 2

Weighted Avg. 0.667 0.333 0.679 0.667 0.670 0.327 0.667 0.626

=== Confusion Matrix ===

a b <-- classified as

4 2 | a = 1

3 6 | b = 2

**Decision Table Classifier**

Correctly Classified Instances 9 60 %

Incorrectly Classified Instances 6 40 %

Kappa statistic 0.1176

Mean absolute error 0.4756

Root mean squared error 0.5034

Relative absolute error 96.7232 %

Root relative squared error 100.5894 %

Total Number of Instances 15

=== Detailed Accuracy By Class ===

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

0.333 0.222 0.500 0.333 0.400 0.123 0.528 0.498 1

0.778 0.667 0.636 0.778 0.700 0.123 0.528 0.656 2

Weighted Avg. 0.600 0.489 0.582 0.600 0.580 0.123 0.528 0.593

=== Confusion Matrix ===

a b <-- classified as

2 4 | a = 1

2 7 | b = 2

**Lazy.LWL Calssifier**

Correctly Classified Instances 10 66.6667 %

Incorrectly Classified Instances 5 33.3333 %

Kappa statistic 0.3243

Mean absolute error 0.2989

Root mean squared error 0.498

Relative absolute error 60.788 %

Root relative squared error 99.5269 %

Total Number of Instances 15

=== Detailed Accuracy By Class ===

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

0.667 0.333 0.571 0.667 0.615 0.327 0.611 0.642 1

0.667 0.333 0.750 0.667 0.706 0.327 0.611 0.649 2

Weighted Avg. 0.667 0.333 0.679 0.667 0.670 0.327 0.611 0.646

=== Confusion Matrix ===

a b <-- classified as

4 2 | a = 1

3 6 | b = 2

**ROC Curve**

**Comments:**

Among the five classifiers, Lazy.LWL and OneR classifiers plotted the same point and to the best point of ROC curve. Naïve Bayes did have a good result but in Naive,but the percentage of false classified result is slightly higher than the Lazy.LWL.

Therefore, the most suitable classifier for this dataset is Lazy.LWL and OneR among Naïve Bayes, Decision Table and SGD .