**Machine Learning Learning Lab 2**

Interpretation for Confusion Matrix

(True Negative): 0% of the time, something is predicted as failing when it has been withdrawn. One case of Withdrawn (False Positive): one prediction of Withdrawn when it was a failure. Data and statistics Reliability: 0.999 the percentage of accurate forecasts the model produced. This is high and shows that the model usually always predicts the right thing. 95% Confidence Interval (0.9999, 0.99993) The accuracy's 95% confidence interval shows the range within which the genuine accuracy is most likely to fall. 0.9994 for No Information Rate The accuracy rate of the model in predicting the most often occurring class (withdrew) in the data indicates that it would have a 99.94% success rate if it correctly predicted the withdrawn class each time. 0.9196 P-Value [Acc > NIR]

if the model favors one class over another in its predictions. A p-value of 1.0000 signifies that the types of mistakes the model is producing are not significantly different from one another. The sensitivity is 0.0000000. Recall, also known as sensitivity, quantifies the percentage of real positive cases (failures) that the model properly classified as positive. When the value is zero, it indicates that the model was unable to locate any real positive examples. Precision: 0.9994885 Specificity quantifies the percentage of real negative cases (withdrawn) that the model properly classified as negative. This number is high, suggesting that the model does a great job at recognizing withdrawn instances. Pos Pred Value, or positive predictive value, is 0.0000000. This represents the percentage of real positive instances (fail) out of projected positive instances (fail).

The model's failure instance predictions are completely inaccurate when the value is 0. 0.99343491, or Negative Predictive Value This is the percentage of negative cases that were withdrawn (withdrawn) rather than just expected to be negative. When the model's prediction of withdrew instances is high, it's considered very good. 0.0004107 is the prevalence. The percentage of true positive cases (failures) in the dataset is represented by this. Given how low this is, it can be inferred that the dataset has a significant bias in Favor of the dropped class. A rate of detection of 0.0000000. The percentage of real positive cases (failures) that the model correctly predicted as positive is this. This means that the model did not find any true positive examples because it is 0.

0.0005117 is the detection prevalence. This is the percentage of expected failures (positive cases) inside the collection. Equilibrium Precision: 0.4997437 This represents the meaning of both specificity and sensitivity. The balanced accuracy is low due to the low sensitivity and high specificity. Interpretation in General The majority class, the withdrawn class, is exceptionally well-predicted by the model, which contributes to its overall high accuracy. But as the sensitivity of 0 and positive predictive value of 0 show, the model's ability to forecast the failure class is nonexistent. This shows that rather than being useful in detecting the failure class, the model is skewed in favor of projecting the withdrew class.