****True Positive (TP):**** It refers to the number of predictions where the classifier correctly predicts the positive class as positive.

****True Negative (TN):**** It refers to the number of predictions where the classifier correctly predicts the negative class as negative.

****False Positive (FP):**** It refers to the number of predictions where the classifier incorrectly predicts the negative class as positive.

****False Negative (FN):**** It refers to the number of predictions where the classifier incorrectly predicts the positive class as negative.

****Accuracy:**** It gives you the overall accuracy of the model, meaning the fraction of the total samples that were correctly classified by the classifier. To calculate accuracy, use the following formula: ***(TP+TN)/(TP+TN+FP+FN)***.

****Misclassification Rate or** Classification Error**:**** It tells you what fraction of *predictions were incorrect*. You can calculate it using ***(FP+FN)/(TP+TN+FP+FN)*** or ***(1-Accuracy)***.

****Precision:**** It tells you what fraction of *predictions as a positive class were actually positive.* To calculate precision, use the following formula: ***TP/(TP+FP)***.

****Recall or** Sensitivity, True Positive Rate (TPR), Probability of Detection**:**** It tells you what fraction of ***all*** *positive samples were correctly predicted as positive* by the classifier. To calculate Recall, use the following formula: ***TP/(TP+FN)***.

****Specificity or** True Negative Rate (TNR)**:****It tells you what fraction of ***all*** *negative samples are correctly predicted as negative* by the classifier. To calculate specificity, use the following formula: ***TN/(TN+FP)***.

****F1-score:**** It combines precision and recall into a single measure. Mathematically it’s the *harmonic mean of precision and recall*. It can be calculated as follows:

LR 0.8476394849785408

precision recall f1-score support

0 **0.85 0.99 0.91** 376

1 0.73 0.22 0.34 86

2 0.67 0.40 0.50 5

accuracy 0.84 467

macro avg 0.75 0.54 0.58 467

weighted avg 0.83 0.84 0.80 467

Confusion Matrix

[[372 4 0]

[ 66 19 1]

[ 0 3 2]]

**Class 0: TP** = 372 **TN** = (19+1)+(3+2)= 25 **FP** = (4+0) = 4 FN = (66+0) = 66

**Accuracy** = (TP+TN)/(TP+TN+FP+FN) = 0.85 **Precision** = TP/(TP+FP) = 0.99

**Recall** = TP/(TP+FN) = 0.85 **Specificity** = TN/(TN+FP) = 0.86

**F1 Score** = 2 \* Precision \* Recall/(Precision + Recall) = 2TP/(2TP+FP+FN) = 0.91