Confusion matrix

> Better way to evaluate a Classifier's performance.

Count the number of instances of class A are classified as Class B. (times)

For example to know the number of times the Classifier confused "5" with "3" you would look in the 5th row and 3rd col of the confusion matrix

example: (5 and non-5 classifier)

$$\begin{bmatrix} \overset{TN}{53057} & \overset{FP}{1522} \\ \underset{FN}{1325} & \underset{TP}{4096} \end{bmatrix}$$

TN - correctly classified as non-5

FP - wrongly classified as 5

FN - wrongly classified as non-5

TP - correctly classified as 5

Perfect confusion matrix:

$$\begin{bmatrix} \overset{TN}{54579} & \overset{FP}{0} \\ \underset{FN}{0} & \underset{TP}{5421} \end{bmatrix}$$

Precision: $\frac{TP}{TP + FP}$

Recall: $\frac{TP}{TP + FN}$