

Confusion matrix

Actual

	cat	Not cat
cat	cat	Dog
Not cat	cat	Dog

→ predicted

⊕ TP: Algo predicts YES and the actual value is YES

⊕ FP: Algo predicts YES and the actual is NO.

⊕ FN: Algo predicts NO and the actual value is YES

⊕ TN: Algo predicts NO and the actual value is NO.

⊕ Accuracy: The proportion of total predictions that are corrected

$$\text{Accuracy} = \frac{TP + TN}{TP + TN + FP + FN}$$

⊕ Precision: The proportion of positive predictions that are corrected.

$$\text{Precision} = \frac{TP}{TP + FP}$$

Recall: The proportion of actual positives that are correctly predicted.

$$\frac{TP}{TP + FN} = \text{Recall (sensitivity)}.$$

③ F1 Score: The harmonic mean of precision and Recall

$$\frac{\text{Precision} \times \text{Recall}}{\text{Precision} + \text{Recall}}$$

④ Specificity: The proportion of actual negatives that are actually predicted.

$$\frac{TN}{TN + FP}$$