Accuracy, Precision, Recall, Sensitivity, RoC, AUC, PR

Real / Test	Positive	Negative
Positive	True Positive	False Positive
Negative	False Negative	True Negative

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

Real / Test	Positive	Negative
Positive	True Positive	False Positive
Negative	False Negative	True Negative

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

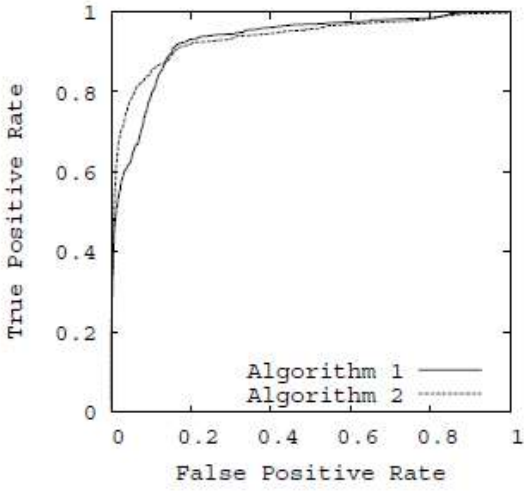
Real / Test	Positive	Negative
Positive	True Positive	False Positive
Negative	False Negative	True Negative

$$Recall = Sensitivity = \frac{TP}{TP + FN}$$

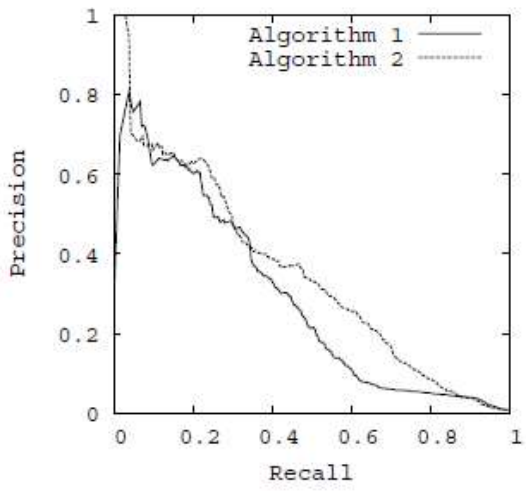
Real / Test	Positive	Negative
Positive	True Positive	False Positive
Negative	False Negative	True Negative

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

$$F1 = 2\frac{Recall * Precision}{Recall + Precision}$$



(a) Comparison in ROC space



(b) Comparison in PR space

RoC >> the relationship between TPR & FPR, the greater TPR and smaller FPR the better, upper left region is better

$$Note: TPR = Sensitivity = \frac{TP}{TP + FN}, \quad FPR = \frac{FP}{FP + TN}$$

AUC value>> Area under curve, the area under the RoC curve, the larger the better

PR curve >> The greater precision and recall the better, which means upper right region is better