

Definitions

$$\text{MCC} = \frac{TP * TN - FP * FN}{\sqrt{(TP+FP) (TP + TN) (FP + FN) (TN + FN)}}$$

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

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

* Uses the following reward and cost values:

$$R1 = \text{Reward for TP} \quad 10$$

$$R2 = \text{Reward for TN} \quad 0.1$$

$$C1 = \text{Cost of FP} \quad 1$$

$$C2 = \text{Cost of FN} \quad 10$$

$$\text{Kappa} = \frac{(\text{totalAccuracy} - \text{randomAccuracy})}{(1 - \text{randomAccuracy})}$$

$$\text{totalAccuracy} = \frac{(TP + TN)}{(TP + TN + FP + FN)}$$

$$\text{randomAccuracy} = \text{referenceLikelihood}(F) * \text{resultLikelihood}(F) + \text{referenceLikelihood}(T) * \text{resultLikelihood}(T)$$

$$\text{randomAccuracy} = \frac{(\text{ActualFalse} * \text{PredictedFalse} + \text{ActualTrue} * \text{PredictedTrue})}{\text{Total} * \text{Total}}$$

$$\text{randomAccuracy} = \frac{(TN + FP) * (TN + FN) + (FN + TP) * (FP + TP)}{\text{Total} * \text{Total}}$$

| | | Predicted Class | |
|--------|---|-----------------|-----|
| | | F | T |
| Actual | F | 800 | 100 |
| | T | 20 | 80 |