



Balanced Accuracy

Accuracy

Real / Actual	Predicted	
	0	1
0	6	2
1	1	1

$$\text{Accuracy} = \frac{\text{Number of correct predictions}}{\text{Total number of predictions}}$$

- Correctly classified = 7
- Total observations = 10
- Accuracy = $7 / 10 * 100 = 70\%$

But the model is not doing a great job on the minority class!!

Recall

Real / Actual

Predicted

	0	1
0	6	2
1	1	1

$$\text{Class 0} = 6 / (6 + 2) = 6 / 8 = 0.75$$

$$\text{Class 1} = 1 / (1 + 1) = 1 / 2 = 0.50$$

- True Positive Rate (Recall or Sensitivity)

✓ $\text{TP rate} = \text{TP} / (\text{TP} + \text{FN})$

The percentage of observations of each class that were correctly classified

Recall

Real / Actual	Predicted	
	0	1
0	6	2
1	1	1

$$\text{Class 0} = 6 / (6 + 2) = 6 / 8 = 0.75$$

$$\text{Class 1} = 1 / (1 + 1) = 1 / 2 = 0.50$$



Accuracy within each class

- True Positive Rate (Recall or Sensitivity)

✓ $\text{TP rate} = \text{TP} / (\text{TP} + \text{FN})$

The percentage of observations of each class that were correctly classified

Balanced accuracy

The balanced accuracy is the average recall obtained in each class

Real / Actual	Predicted		
	0	1	
0	6	2	Class 0 = $6 / (6 + 2) = 6 / 8 = 0.75$
1	1	1	Class 1 = $1 / (1 + 1) = 1 / 2 = 0.50$



Accuracy within each class

$$\text{Balanced accuracy} = (\text{Recall}_0 + \text{Recall}_1) / 2 = (0.75 + 0.5) / 2 = 0.625$$

THANK YOU

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