

RandomForest_Classification

Parameters in Classification:

1.Accuray:

What is percentage of overall inputs to the test set?

The total number of test set=134

What is the percentage of correct classification of both(click(1) ¬ click(0) to totalinput of the test set?

[78 7]

[6 43]2*2

$$\begin{aligned}\text{Accuray} &= \frac{T(\text{Click})+T(\text{notclick})}{T(\text{click})+F(\text{notclick})+ F(\text{click})+T(\text{notclick})} \\ &= \frac{78 + 43}{78 + 7 + 6 + 43} \\ &= \frac{121}{134} = 0.90\end{aligned}$$

2.Recall:it is row-wised

78 7]

[6 43]2*2

1.What is the percentage of correctly classification (click)to totoal sum of input to test set?

$$\begin{aligned}\text{Recall} &= \frac{T(\text{Click})}{T(\text{click})+F(\text{click})} = \frac{78}{78+7} = 0.92\end{aligned}$$

2. What is the percentage of correct classification (notclick) to total sum of input to test set?

$$\text{notclick} = \frac{T(\text{notclick})}{F(\text{notclick}) + T(\text{notclick})} = 43/6 + 43 = 0.88$$

3. Precision:- its Columns-wised

[78 7]

[6 43] 2*2

1. What is the percentage of correct classification (click) and Wrongly Classified as (Click) in test set?

$$\text{Click} = \frac{T(\text{Click})}{T(\text{click}) + F(\text{notclick})} = 78/78 + 6 = 0.92$$

2. What is the percentage of correct classification (notclick) and Wrongly Classified as (notClick) in test set?

$$\text{NotClick} = \frac{T(\text{notclick})}{F(\text{click}) + F(\text{notclick})} = 43/7 + 43 = 0.86$$

4. F1_Measure:

1. What is the over all percentage of (click) in test set?

$$= 2 * \frac{\text{Recall} * \text{precision}}{\text{Recall} + \text{precision}} = 2 * 0.92 * 0.92 / 0.92 + 0.92 = 0.93$$

2.What is the over all percentage of(notclick) in test set?

$$= \frac{2 * \text{Recall} * \text{precision}}{\text{Recall} + \text{precision}} = \frac{2 * 0.88 * 0.86}{0.88 + 0.86} = 0.86$$

5.Macro_Average:

1.Precision:

1.What is the average percentage of(click¬click)correctly and wrongly classified in precision?

$$= \frac{\text{precision}(\text{click}) + \text{precision}(\text{notclick})}{2} = \frac{0.92 + 0.88}{2} = 0.9$$

2.Recall:

1.What is the average percentage of(click)correctly classified in recall?

$$= \frac{\text{recall}(\text{click}) + \text{recall}(\text{notclick})}{2} = \frac{0.92 + 0.88}{2} = 0.90$$

3.F1_Measure:

1.What is the average percentage of f1 measure(overall)?

$$= \frac{F1(\text{click}) + f2(\text{notclick})}{2} = \frac{0.93 + 0.86}{2} = 0.89$$

6. Weighted Average:

1. what is the sum of product of proportion rate(weight)each class in precision?

$$\begin{aligned} &= \text{Precision}(\text{click}) * 85/134 + \text{precision}(\text{notclick}) * 49/134 \\ &= 0.92 * 85/134 + 0.86 * 49/134 = 0.87 \end{aligned}$$

2. what is the sum of product of proportion rate(weight)each class in recall?

$$\begin{aligned} &\text{recall}(\text{click}) * 85/134 + \text{recall}(\text{notclick}) * 49/134 \\ &= 0.92 * 85/134 + 88 * 49/134 = 0.88 \end{aligned}$$

3. what is the sum of product of proportion rate(weight)each class in f1 measure?

$$\begin{aligned} &= F1(\text{click}) * 85/134 + f2(\text{notclick}) * 49/134 \\ &= 0.92 * 85/134 + 88 * 49/134 = 0.88 \end{aligned}$$