Decisiontree_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) &not click(0) to totalinput of the test set?

[76 9]

[8 41]2*2

$$\text{Accuray}=\frac{T(\text{Click})+T(\text{notclick})}{T(\text{click})+F(\text{notclick})+F(\text{click})+T(\text{notclick})}$$

$$=\frac{76+41}{76+9+8+41}$$

$$=\frac{117}{134}=0.87$$

2.Recall:it is row-wised

76 9]

[8 41]2*2

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

$$\text{Recall}=\frac{T(\text{Click})}{T(\text{click})+F(\text{click})}=76/76+9=0.89$$

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

$$\text{notclick} = \frac{T(\text{notclick})}{F(\text{notclick})+T(\text{notclick})}$$

=41/8+41=0.84

3.Precision:- its Columns-wised

[76 9]
[8 41]2*2

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

$$\text{Click} = \frac{T(\text{Click})}{T(\text{click})+F(\text{notclick})} \quad =76/76+8=0.90$$

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

$$\text{NotClick} = \frac{T(\text{notclick})}{F(\text{click})+T(\text{notclick})} \quad =41/9+41=0.82$$

4.F1_Measure:

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

$$=2*\frac{\text{Recall}*\text{precision}}{\text{Recall}+\text{precision}} \quad =2*0.89*0.90/0.89+0.90=0.88$$

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

$$=2*\frac{\text{Recall*precision}}{\text{Recall+precision}} \quad =2*0.83*0.82/0.83+0.82=0.82$$

5.Macro_Average:

1.Precision:

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

$$\frac{\text{precision(click)+precision(notclick)}}{2} =0.90+0.82/2=0.86$$

2.Recall:

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

$$=\frac{\text{recall(click)+recall(notclick)}}{\mathbf{2}} \quad = \ 0.89+0.83/2=0.86$$

3.F1_Measure:

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

$$= \quad \frac{\text{F1(click)+f2(notclick)}}{2} = 0.88+0.82/2=0.85$$

6.Weighted Average:

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

=Precision(click)*85/134 +precision(notclick)*49/134

=0.90*84/134 +0.82*50/134 =0.86

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

recall (click)*85/134 +recall (notclick)*49/134

=0.89*84/134+0.84*50/134=0.86

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

=F1(click)*85/134 +f2(notclick)*49/134

=0.88*84/134+0.82*50/134=0.85