SUPPORT VECTOR MACHINE CLASSIFICATION

CONFUSION MATRIX (Evaluation Metric for Classification Problems)

Dataset: Input – Age, Gender,Estimated salary

Output Labels – Purchased -1,NotPurchased-0

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Predicted** | | |
| **Actual** |  | Purchased | Not Purchased |
| Purchased | **True Positive** (Predicted Purchased as Purchased) | **False Negative** (should be classified as Purchased but predicted as Not purchased) |
| Not Purchased | **False Positive** (should be classified as Not purchased but predicted as purchased) | **True Negative** (Predicted Not Purchased as Not Purchased) |

array([[82, 3],

[26, 23]], dtype=int64)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Precision | Recall | F1-score | support |
| 0 | 0.76 | 0.96 | 0.85 | 85 |
| 1 | 0.88 | 0.47 | 0.61 | 49 |
| accuracy |  |  | 0.78 | 134 |
| Macro Avg | 0.82 | 0.72 | 0.73 | 134 |
| weighted Avg | 0.81 | 0.78 | 0.76 | 134 |

1.What is the overall Percentage of correct classification of both features to the total input of testset

Accuracy=

=(82+23)/(82+23+3+26)

=0.7835

2.What is the Percentage of Correct Classification of Notpurchased to the total input of Notpurchased in testset

Recall(NotPurchased)=(TP)/(TP+FN)

=82/(82+3)

=0.964

3.What is the Percentage of Correct Classification of purchased to the total input of Purchased in test set

Recall( Purchased)=(TN)/(TN+FP)

=23/(23+26)

=0.469

4.What is the Percentage of correct classification of NotPurchased to the correct and wrong Classification of NotPurchased

Precision(NotPurchased)=(TP)/(TP+FP)

=82/(82+26)

=0.759

5.What is the Percentage of correct classification of Purchased to the correct and wrong Classification of Purchased

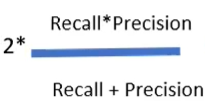
Precision( Purchased)=(TN)/(TN+FN)

=23/(23+3)

=0.884

6.what is the overall performance of NotPurchased?

F1 SCORE

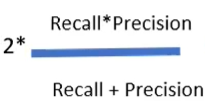


2\*((0.76\*0.96)/(0.76+0.96)) = 2\*(0.7296/1.72)

=0.848

7. what is the overall performance of Purchased?

F1 SCORE



2\*((0.47\*0.88)/(0.47+0.88)) = 2\*(0.4136/1.35)

=0.6127