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([[74, 5],

[ 5, 36]], dtype=int64)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Precision | Recall | F1-score | support |
| 0 | 0.94 | 0.94 | 0.94 | 79 |
| 1 | 0.88 | 0.88 | 0.88 | 41 |
| accuracy |  |  | 0.92 | 120 |
| Macro Avg | 0.91 | 0.91 | 0.91 | 120 |
| weighted Avg | 0.92 | 0.92 | 0.92 | 120 |

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

Accuracy=

=(74+36)/(74+36+5+5)

=0.9167

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

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

=74/(74+5)

=0.936

3.What is the Percentage of Correct Classification of Not purchased to the total input of not Purchased in test set

Recall(Not Purchased)=(TN)/(TN+FP)

=36/(36+5)

=0.878

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

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

=74/(74+5)

=0.936

5.What is the Percentage of correct classification of Not Purchased to the correct and wrong Classification of NotPurchased

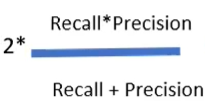
Precision(Not Purchased)=(TN)/(TN+FN)

=36/(36+5)

=0.878

6.what is the overall performance of Apple?

F1 SCORE



2\*((0.88\*0.94)/0.88+0.94) = 2\*(0.83/1.82)

=0.91