**Classification Models**

**SVM - Support Vector Machine(Classifier)**

precision recall f1-score support

0 0.78 0.97 0.86 68

1 0.87 0.41 0.55 32

accuracy 0.79 100

macro avg 0.82 0.69 0.71 100

weighted avg 0.81 0.79 0.76 100

**Questions:**

1. What is the Overall Performance of the SVM Classification model?

Accuracy.

Accuracy of SVM Classifier is 0.79

1. What is the ‘correct classification of Purchase? Sample : ‘1’

Recall of SVM classifier where purchase =1

Recall is 0.41

1. What is the ‘correct classification of Purchase and Non-Purchase? Sample : ‘0’
   1. Recall , 0.97
2. What is the correct and incorrect classification of Purchase? Sample : ‘1’
   1. Precision where purchase =1
   2. Precision is 0.87
3. What is the correct and incorrect classification of Purchase? Sample : ‘0’
   1. Precision where purchase =0
   2. Precision is 0.78
4. What is the F1 score of ‘0’? 0.86
5. What is the F1 score of ‘1’? 0.55
6. What is the weighted average of precision? 0.81
7. What is the weighted average of Recall? 0.79
8. What is the macro average of precision? 0.82
9. What is the macro average of Recall? 0.69

**DT - Decision Tree (Classifier)**

Report:

precision recall f1-score support

0 0.93 0.94 0.93 68

1 0.87 0.84 0.86 32

accuracy 0.91 100

macro avg 0.90 0.89 0.90 100

weighted avg 0.91 0.91 0.91 100

**Questions:**

1. What is the Overall Performance of the Decision Tree Classification model?

Accuracy.

Accuracy of Decision Tree Classifier is 0.91

1. What is the ‘correct classification of Purchase? Sample : ‘1’

Recall of Decision Tree classifier where purchase =1

Recall is 0.84

Recall of Decision Tree classifier where purchase =0

Recall is 0.94

1. What is the ‘correct and incorrect classification of Non-Purchase? Sample : ‘0’
   1. Precision , 0.93
2. What is the correct and incorrect classification of Purchase? Sample : ‘1’
   1. Precision where purchase =1
   2. Precision is 0.87
3. What is the F1 score of ‘Non-Purchase’? 0.93
4. What is the F1 score of ‘Purchase’? 0.86
5. What is the weighted average of precision? 0.91
6. What is the weighted average of Recall? 0.91
7. What is the macro average of precision? 0.90
8. What is the macro average of Recall? 0.89

**RF – Random Forest Classifier**

precision recall f1-score support

0 0.94 0.94 0.94 68

1 0.88 0.88 0.88 32

accuracy 0.92 100

macro avg 0.91 0.91 0.91 100

weighted avg 0.92 0.92 0.92 100

**Questions:**

1. What is the Overall Performance of the Radom Forest Classification model?

Accuracy.

Accuracy of Decision Tree Classifier is 0.92

1. What is the ‘correct classification of Purchase? Sample : ‘1’

Recall of Decision Tree classifier where purchase =1

Recall is 0.88

Recall of Decision Tree classifier where purchase =0

Recall is 0.94

1. What is the ‘correct and incorrect classification of Non-Purchase? Sample : ‘0’
   1. Precision where purchase =1
   2. Precision is : 0.94
2. What is the correct and incorrect classification of Purchase? Sample : ‘1’
   1. Precision where purchase =1
   2. Precision is :0.88
3. What is the F1 score of ‘Non-Purchase’? 0.94
4. What is the F1 score of ‘Purchase’? 0.88
5. What is the weighted average of precision? 0.92
6. What is the weighted average of Recall? 0.92
7. What is the macro average of precision? 0.91
8. What is the macro average of Recall? 0.91