1 Domain- Machine Learning

Learning – Supervised Learning

Regressor or Classification – Classification

2 Our dataset has 25 columns and 400 rows

Classification column is the output column and remaining columns are input columns

3 After Data-Preprocessing the dataset has 28 columns and 400 rows.

4 **SVM**

```
[[51  0]
 [ 1 81]]
              precision    recall  f1-score   support

           0       0.98      1.00      0.99        51
           1       1.00      0.99      0.99        82

    accuracy                           0.99       133
   macro avg       0.99      0.99      0.99       133
weighted avg       0.99      0.99      0.99       133
```

roc_auc_score is 1.0

Random Forest

```
[[50  1]
 [ 1 81]]
              precision    recall  f1-score   support

           0       0.98      0.98      0.98        51
           1       0.99      0.99      0.99        82

    accuracy                           0.98       133
   macro avg       0.98      0.98      0.98       133
weighted avg       0.98      0.98      0.98       133
```

roc_auc_score is 0.99

Decision Tree

```
[[46  5]
 [ 4 78]]
              precision    recall  f1-score   support

           0       0.92      0.90      0.91        51
           1       0.94      0.95      0.95        82

    accuracy                           0.93       133
   macro avg       0.93      0.93      0.93       133
weighted avg       0.93      0.93      0.93       133
```

roc_auc_score is 0.92

Logistic

```
[[51  0]
 [ 1 81]]
              precision    recall  f1-score   support

           0       0.98      1.00      0.99        51
           1       1.00      0.99      0.99        82

    accuracy                           0.99       133
   macro avg       0.99      0.99      0.99       133
weighted avg       0.99      0.99      0.99       133
```

roc_auc_score is 1.0

KNN

```
[[51  0]
 [ 5 77]]
              precision    recall  f1-score   support

           0       0.91      1.00      0.95        51
           1       1.00      0.94      0.97        82

    accuracy                           0.96       133
   macro avg       0.96      0.97      0.96       133
weighted avg       0.97      0.96      0.96       133
```

roc_auc_score is 0.99

5 Since our dataset has unbalanced data, from the various model SVM-Classification has roc_auc_score is 1.0 and f1_score of both 0 and 1 is 0.99