

CLASSIFICATION

Machine Learning - (our data is numeric)

Supervised Learning - (input and output both are Present)

Classification- (output data is Categorical)

Decision Tree Classification

```
cm
```

```
array([[51,  0],  
       [ 3, 79]], dtype=int64)
```

```
from sklearn.metrics import classification_report  
clf_report=classification_report(Y_test,grid_predictions)
```

```
print(clf_report)
```

	precision	recall	f1-score	support
0	0.94	1.00	0.97	51
1	1.00	0.96	0.98	82
accuracy			0.98	133
macro avg	0.97	0.98	0.98	133
weighted avg	0.98	0.98	0.98	133

K-Nearest Neighbour Classification

```
cm
```

```
array([[47,  4],  
       [30, 52]], dtype=int64)
```

```
from sklearn.metrics import classification_report  
clf_report=classification_report(Y_test,grid_predictions)
```

```
print(clf_report)
```

	precision	recall	f1-score	support
0	0.61	0.92	0.73	51
1	0.93	0.63	0.75	82
accuracy			0.74	133
macro avg	0.77	0.78	0.74	133
weighted avg	0.81	0.74	0.75	133

Random Forest Classification

```
cm
```

```
array([[50,  1],  
       [ 1, 81]], dtype=int64)
```

```
from sklearn.metrics import classification_report  
clf_report=classification_report(Y_test,grid_predictions)
```

```
print(clf_report)
```

	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

Logistic Regression Classification

```
cm
```

```
array([[49,  2],  
       [ 0, 82]], dtype=int64)
```

```
from sklearn.metrics import classification_report  
clf_report=classification_report(Y_test,grid_predictions)
```

```
print(clf_report)
```

	precision	recall	f1-score	support
0	1.00	0.96	0.98	51
1	0.98	1.00	0.99	82
accuracy			0.98	133
macro avg	0.99	0.98	0.98	133
weighted avg	0.99	0.98	0.98	133

Random Forest Classification gives 98% Accuracy &

Recall,Precision also 98%