In [14]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.ensemble import RandomForestClassifier
```

In [15]:

```
bankdata = pd.read_csv("C:/Users/Deep/Desktop/bill_authentication.csv")
```

In [16]:

```
bankdata.shape
```

Out[16]:

```
(1372, 5)
```

In [17]:

```
bankdata.head(10)
```

Out[17]:

	Variance	Skewness	Curtosis	Entropy	Class
0	3.62160	8.6661	-2.80730	-0.44699	0
1	4.54590	8.1674	-2.45860	-1.46210	0
2	3.86600	-2.6383	1.92420	0.10645	0
3	3.45660	9.5228	-4.01120	-3.59440	0
4	0.32924	-4.4552	4.57180	-0.98880	0
5	4.36840	9.6718	-3.96060	-3.16250	0
6	3.59120	3.0129	0.72888	0.56421	0
7	2.09220	-6.8100	8.46360	-0.60216	0
8	3.20320	5.7588	-0.75345	-0.61251	0
9	1.53560	9.1772	-2.27180	-0.73535	0

In [18]:

```
X = bankdata.drop('Class', axis=1)
y = bankdata['Class']
```

In [19]:

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.20)
```

In [20]:

```
forest = RandomForestClassifier()
forest.fit(X_train, y_train)
```

Out[20]:

```
RandomForestClassifier(bootstrap=True, ccp_alpha=0.0, class_weight=None,
                       criterion='gini', max_depth=None, max_features='auto',
                       max_leaf_nodes=None, max_samples=None,
                       min_impurity_decrease=0.0, min_impurity_split=None,
                       min_samples_leaf=1, min_samples_split=2,
                       min_weight_fraction_leaf=0.0, n_estimators=100,
                       n_jobs=None, oob_score=False, random_state=None,
                       verbose=0, warm_start=False)
```

In [21]:

```
y_pred = forest.predict(X_test)
```

In [22]:

```
forest.score(X_test, y_test)
```

Out[22]:

```
0.9927272727272727
```

In [23]:

```
from sklearn.metrics import classification_report, confusion_matrix
print(confusion_matrix(y_test,y_pred))
print(classification_report(y_test,y_pred))
```

```
[[145   1]
 [  1 128]]
              precision    recall  f1-score   support

           0       0.99      0.99      0.99       146
           1       0.99      0.99      0.99       129

    accuracy                           0.99       275
   macro avg       0.99      0.99      0.99       275
weighted avg       0.99      0.99      0.99       275
```