MACHINE LEARNING FOR DATA SCIENCE

LAB-ASSESMENT-2

NAME: R. SURYA

REGNO:19MDT0023

1.) There are two directories Data Folder and Data set description in the following link:

https://archive.ics.uci.edu/ml/datasets/banknote+authentication

Download the dataset from the above link and store it locally on your machine

PROGRAM:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.metrics import classification_report, confusion_matrix
data = pd.read_csv("D:\\data_banknote_authentication.csv")
#split dataset
x=data.iloc[:,[0,1,2,3]].values
y=data.iloc[:,-1].values
#train test split
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)
#model building
from sklearn.svm import SVC
svclassifier = SVC(kernel='linear')
svclassifier.fit(x_train, y_train)
#Prediction
y_pred = svclassifier.predict(x_test)
#Accuracy
print(confusion_matrix(y_test,y_pred))
print(classification_report(y_test,y_pred))
```

#next model

```
svclassifier1 = SVC(kernel='linear', C = 1.0)
svclassifier1.fit(x_train, y_train)
y_pred1 = svclassifier1.predict(x_test)
svclassifier2 = SVC(kernel='poly', degree=8)
svclassifier2.fit(x_train, y_train)
y_pred2 = svclassifier2.predict(x_test)
```

#Accuracy

```
print(confusion_matrix(y_test,y_pred2))
print(classification_report(y_test,y_pred2))
```

OUTPUT:

#model1 output

```
[[161   2]
 [  2  110]]
              precision    recall  f1-score   support

           0       0.99      0.99      0.99       163
           1       0.98      0.98      0.98       112

    accuracy                           0.99       275
   macro avg       0.98      0.98      0.98       275
weighted avg       0.99      0.99      0.99       275
```

#model2 output

```
[[155   8]
 [  0  112]]
              precision    recall  f1-score   support
```

0	1.00	0.95	0.97	163
1	0.93	1.00	0.97	112
accuracy			0.97	275
macro avg	0.97	0.98	0.97	275
weighted avg	0.97	0.97	0.97	275