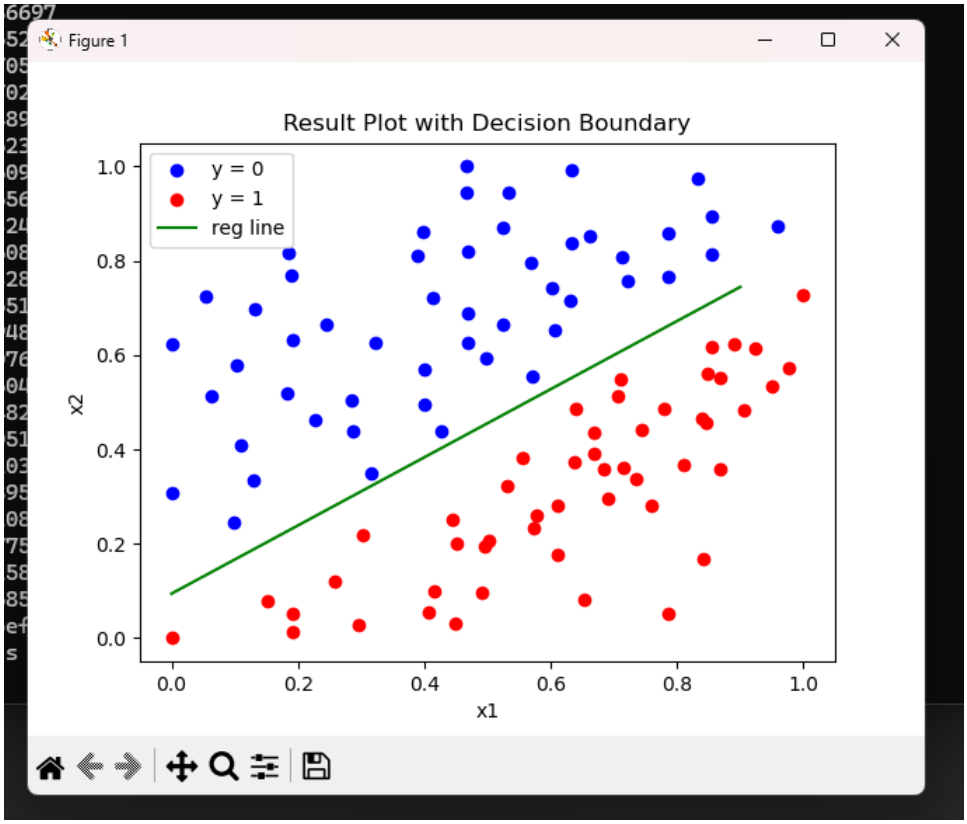
# ASSIGNMENT 09

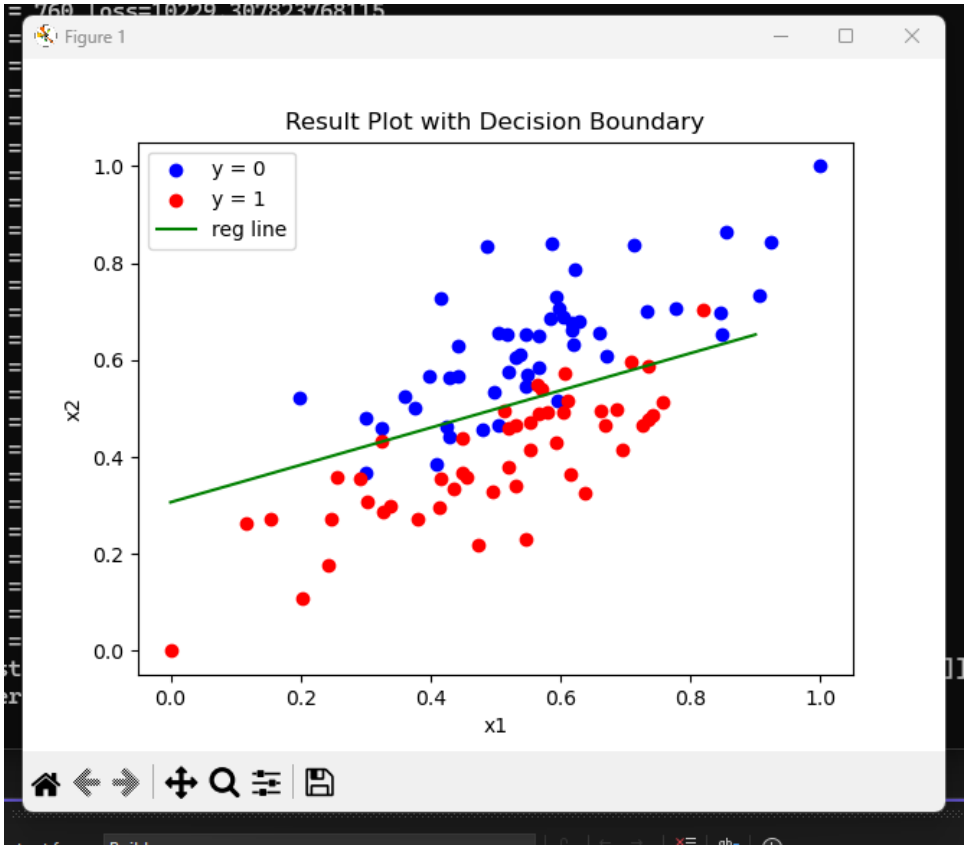
## LogisticReg.py - LOGISTIC REGRESSION OUTPUT (Dataset.csv)

```
iter = 980 loss=19568.521111581656
iter = 990 loss=19634.6715058545
Logistic Regression Model coefficients: [[  1.39193949  10.6715818  -14.77208225]]
Number of correct predictions =  100.0%
```



**LogisticReg.py - LOGISTIC REGRESSION OUTPUT (Random dataset)**

```
iter = 980 loss=10866.899667731688
iter = 990 loss=10893.809697148277
Logistic Regression Model coefficients: [[  4.6006752   5.7674587 -15.0063307]]
Number of correct predictions =  87.0%
Press any key to continue . . .
```




**LogisticSkLearn.py - LOGISTIC REGRESSION OUTPUT (Random dataset)**

```
C:\Windows\system32\cmd.e
Number of correct predictions =  87.0%
Accuracy SKL= 0.87
[5.71139124] [[ 1.5793474  -2.58895463]]
Press any key to continue . . .
```

## SVM OUTPUT

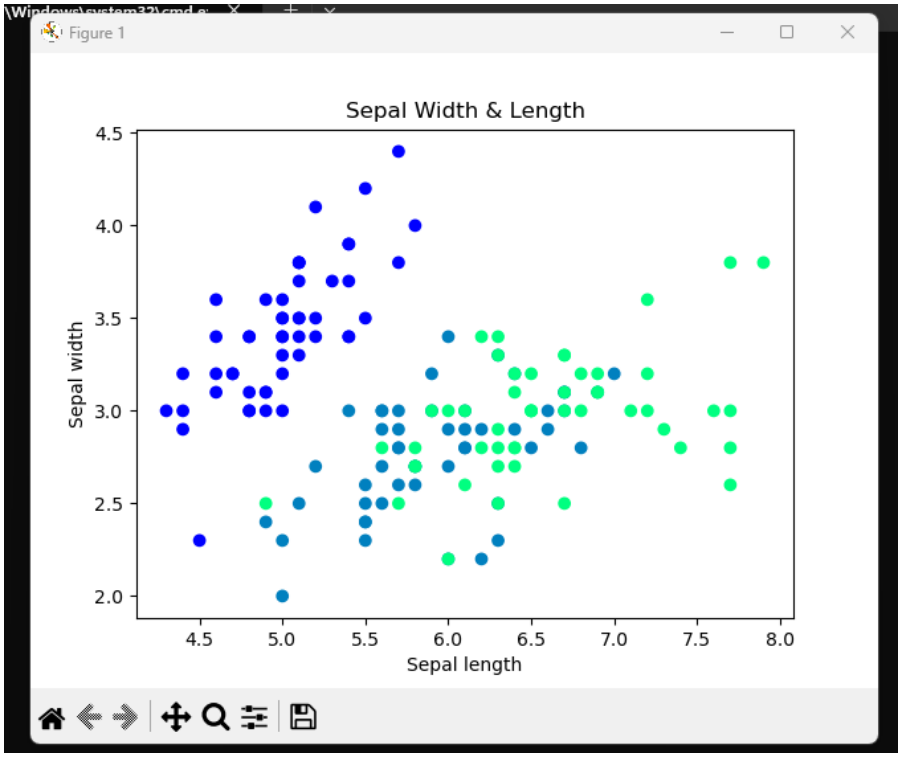


Figure 1
Sepal Width & Length
Sepal width
Sepal length
4.5
4.0
3.5
3.0
2.5
2.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0

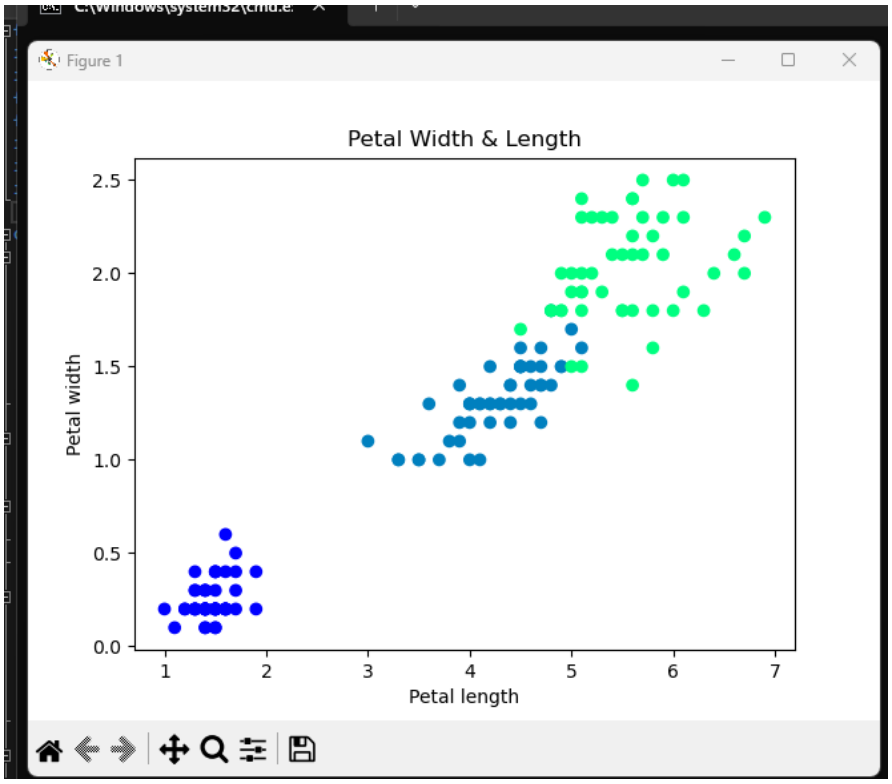
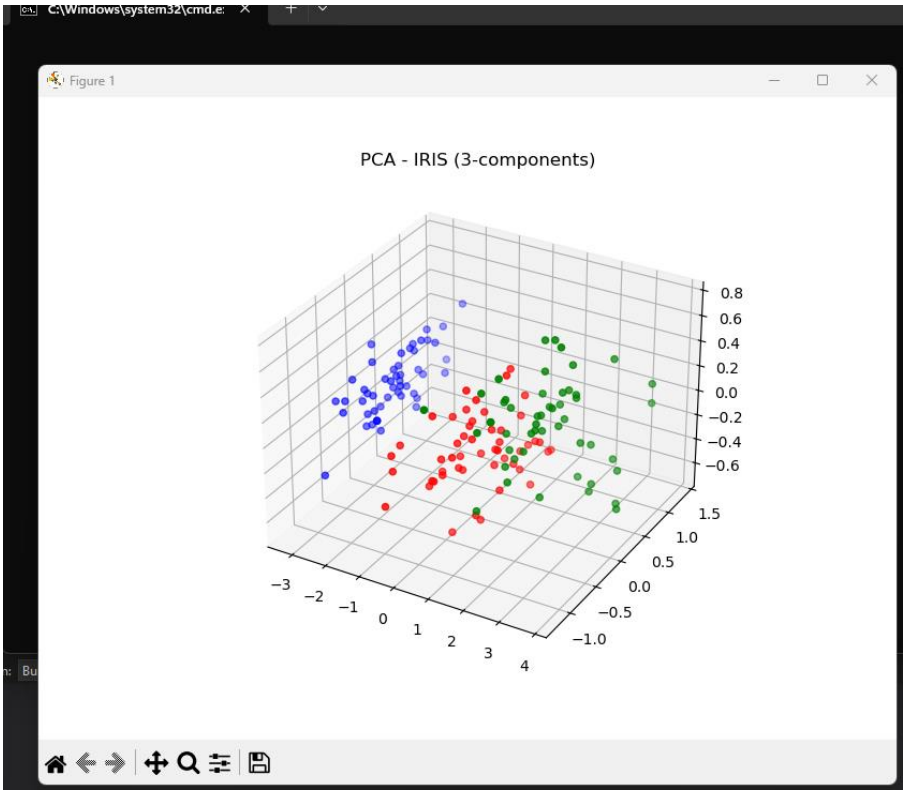


Figure 1
Petal Width & Length
Petal width
Petal length
2.5
2.0
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7


C:\Windows\system32\cmd.e
Figure 1
PCA - IRIS (3-components)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
1.5
1.0
0.5
0.0
−0.5
−1.0
−3
−2
−1
0
1
2
3
4

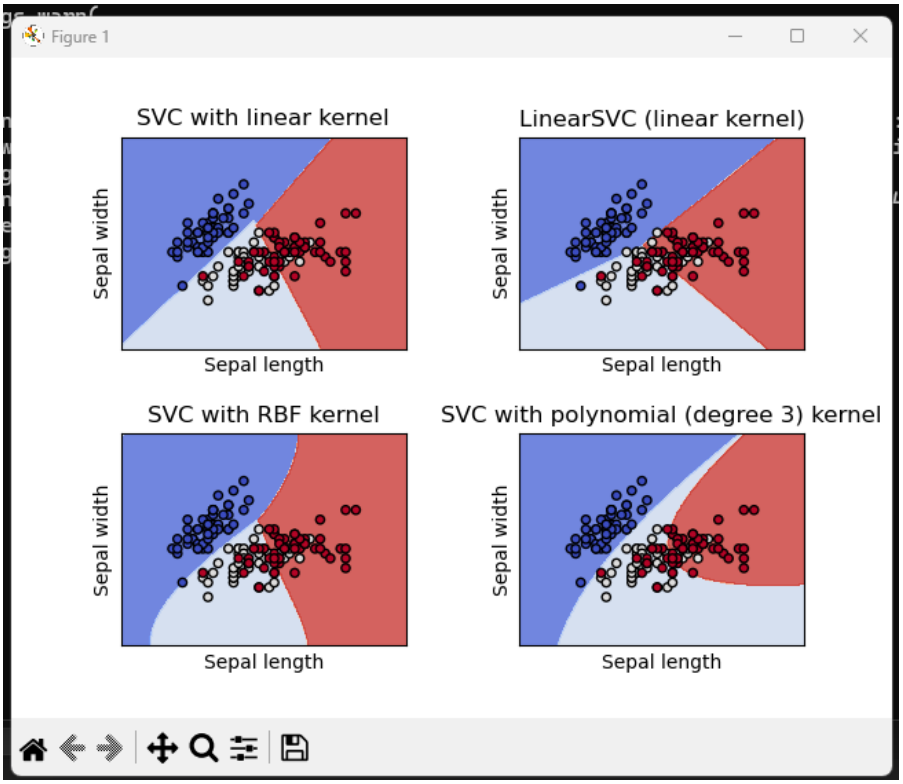
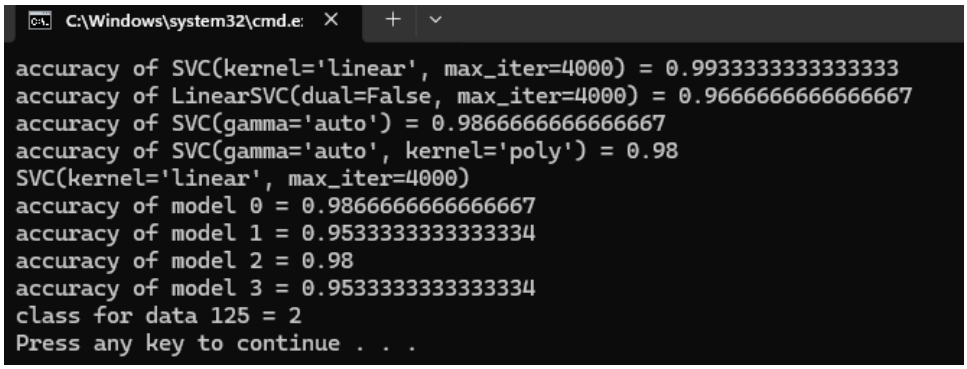
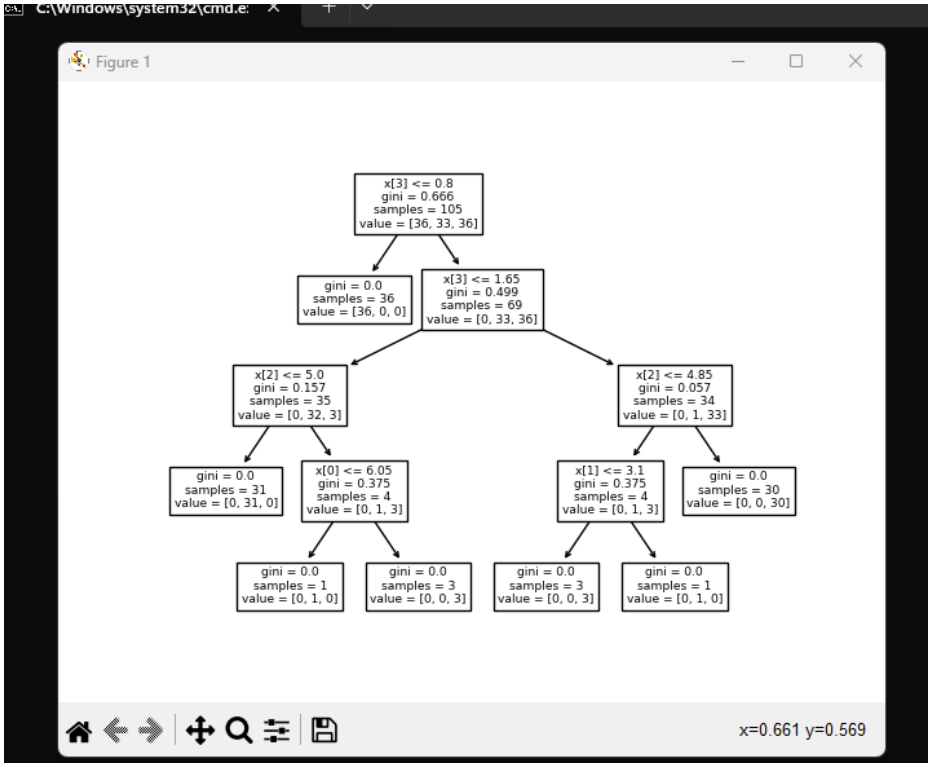
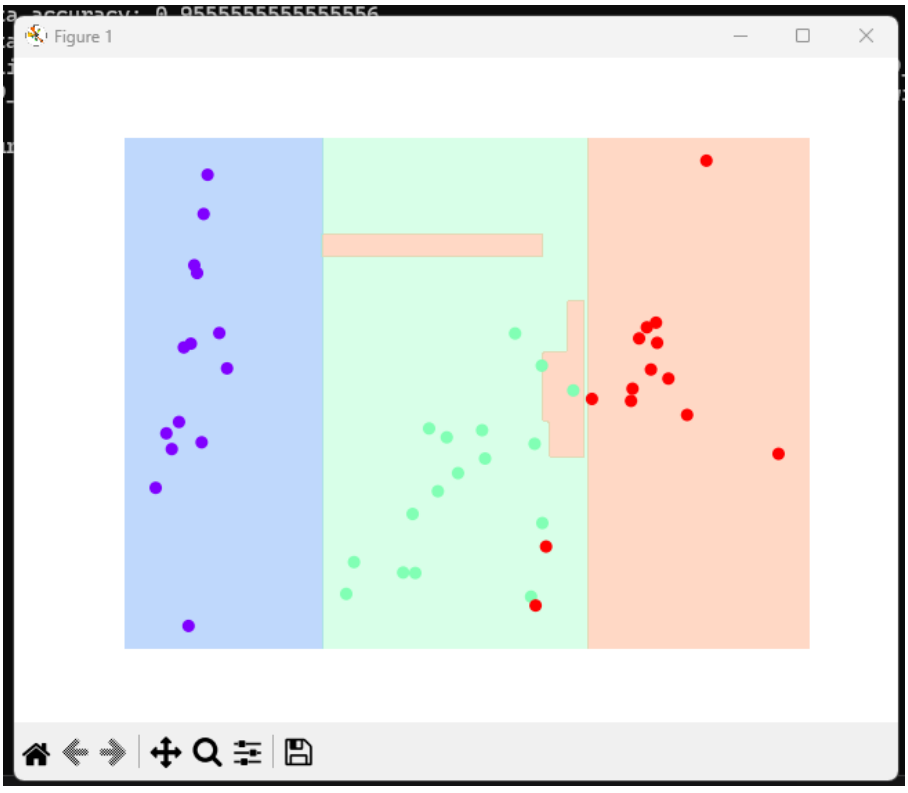


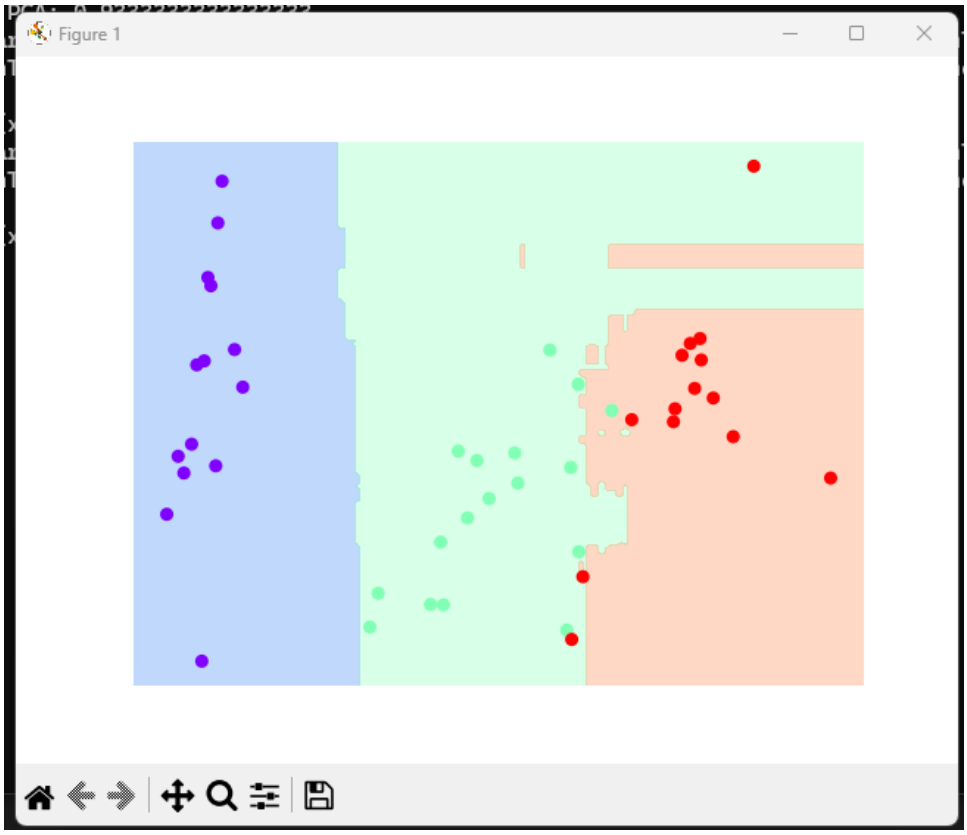
Figure 1
SVC with linear kernel
LinearSVC (linear kernel)
SVC with RBF kernel
SVC with polynomial (degree 3) kernel
Sepal width
Sepal length


C:\Windows\system32\cmd.e:
accuracy of SVC(kernel='linear', max_iter=4000) = 0.9933333333333333
accuracy of LinearSVC(dual=False, max_iter=4000) = 0.9666666666666667
accuracy of SVC(gamma='auto') = 0.9866666666666667
accuracy of SVC(gamma='auto', kernel='poly') = 0.98
SVC(kernel='linear', max_iter=4000)
accuracy of model 0 = 0.9866666666666667
accuracy of model 1 = 0.9533333333333334
accuracy of model 2 = 0.98
accuracy of model 3 = 0.9533333333333334
class for data 125 = 2
Press any key to continue . . .

## DECISION TREES AND RANDOM FOREST OUTPUT






```
C:\Windows\system32\cmd.e:
Train data accuracy: 1.0
Test data accuracy: 0.9555555555555556
Test data accuracy after PCA: 0.9333333333333333
Test data accuracy after Random Forest: 0.9333333333333333
Press any key to continue . . .
```