

## Part 1

```
# Decision Tree Classifier
dclf = DecisionTreeClassifier()
dclf.fit(X_train, y_train)
# print(tree.plot_tree(dclf))
dclfPrediction_1 = (dclf.predict(X_test)).round()
dclf.fit(X_train_2, y_train_2)
# print(tree.plot_tree(dclf))
dclfPrediction_2 = (dclf.predict(X_test_2)).round()

actual = np.concatenate([y_test, y_test_2]) # type: ignore
predicted = (np.concatenate([dclfPrediction_1, dclfPrediction_2])).round()

print("*****DTC*****")
print(f"\nAccurace score: " + str(accuracy_score(actual, predicted)))
print(f"\nConfusion matrix:\n " + str(confusion_matrix(actual, predicted)))
print(f"\nFeature names:", names[0:4])
```

[70] ✓ 0.3s Python

```
*****DTC*****
Accurace score: 0.9266666666666666
Confusion matrix:
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Feature names: ['sepal-length', 'sepal-width', 'petal-length', 'petalwidth']
```

## Part 2:

Variance explained by First component = 72.96244541329985  
Variance explained by Second component = 95.81320720000164  
Variance explained by Third component = 99.48212908928451  
Variance explained by Fourth component = 99.99999999999999  
Eigenvalue = [4.22824171 0.24267075 0.0782095 0.02383509]  
Eigenvectors = [[ 0.36138659 -0.08452251 0.85667061 0.3582892 ]  
[ 0.65658877 0.73016143 -0.17337266 -0.07548102]  
[-0.58202985 0.59791083 0.07623608 0.54583143]  
[-0.31548719 0.3197231 0.47983899 -0.75365743]]  
Pov= 0.9246187232017271

```
print('Accuracy= ', accuracy_score(expected, y_pred))
print('Confusion matrix= \n', confusion_matrix(expected, y_pred))
```

✓ 0.3s

```
Accuracy= 0.92
Confusion matrix=
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

## Part 3: Simulated Annealing

```
data2_B = pd.DataFrame(data= np.c_[col1])

new_features_8 = pd.concat([df, col1], axis=1)
print('Shape of data =', new_features_8.shape)

print('Total 8 features:', new_features_8.head())
```

[82] ✓ 0.4s Python

... Shape of data = (150, 8)  
Total 8 features:    sepal length (cm)    sepal width (cm)    petal length (cm)    petal width (cm) \

0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2

  

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)
0	-2.264703	0.480027	-0.127706	-0.024168
1	-2.080961	-0.674134	-0.234609	-0.103007
2	-2.364229	-0.341908	0.044201	-0.028377
3	-2.299384	-0.597395	0.091290	0.065956
4	-2.389842	0.646835	0.015738	0.035923

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.1277541660137893

Status:Accepted

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm)			
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

Pr[accept]= 1.0

Random uniform: 0.8359716064687146

Status:Accepted

	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm) \
0	0.2	-0.024168	3.5	
0.480027				
1	0.2	-0.103007	3.0	
-0.674134				
2	0.2	-0.028377	3.2	
-0.341908				

```
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
```

```
      sepal length (cm)  sepal length (cm)
0          5.1          -2.264703
1          4.9          -2.080961
2          4.7          -2.364229
3          4.6          -2.299384
4          5.0          -2.389842
final shape (150, 10)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.7597559562512424

Status:Accepted

```
Features  sepal width (cm)  sepal width (cm)  petal length
(cm)  petal length (cm)  \
0          3.5          0.480027          1.4
-0.127706
1          3.0          -0.674134          1.4
-0.234609
2          3.2          -0.341908          1.3
0.044201
3          3.1          -0.597395          1.5
0.091290
4          3.6          0.646835          1.4
0.015738
```

```
      sepal length (cm)  sepal length (cm)  sepal length (cm)
sepal length (cm)
0          5.1          -2.264703          5.1
-2.264703
1          4.9          -2.080961          4.9
-2.080961
2          4.7          -2.364229          4.7
-2.364229
```

```
3          4.6      -2.299384      4.6
-2.299384
4          5.0      -2.389842      5.0
-2.389842
final shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal width (cm)  sepal width (cm)  sepal length
(cm)  sepal length (cm)  \
0          3.5          0.480027          5.1
-2.264703
1          3.0          -0.674134          4.9
-2.080961
2          3.2          -0.341908          4.7
-2.364229
3          3.1          -0.597395          4.6
-2.299384
4          3.6          0.646835          5.0
-2.389842
```

```
      petal width (cm)  petal width (cm)  petal width (cm)  petal
width (cm)
0          0.2          -0.024168          0.2
-0.024168
1          0.2          -0.103007          0.2
-0.103007
2          0.2          -0.028377          0.2
-0.028377
3          0.2          0.065956          0.2
0.065956
4          0.2          0.035923          0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
```

```

[ 0 45  5]
[ 0 10 40]]
Pr[accept]= 0.9432780711167889
Random uniform: 0.5320194695574249
Status:Accepted
Features  petal width (cm)  petal width (cm)  petal length
(cm)  petal length (cm)  \
0          0.2          -0.024168          1.4
-0.127706
1          0.2          -0.103007          1.4
-0.234609
2          0.2          -0.028377          1.3
0.044201
3          0.2          0.065956          1.5
0.091290
4          0.2          0.035923          1.4
0.015738

      sepal width (cm)  sepal width (cm)  sepal length (cm)
sepal length (cm)
0          3.5          0.480027          5.1
-2.264703
1          3.0          -0.674134          4.9
-2.080961
2          3.2          -0.341908          4.7
-2.364229
3          3.1          -0.597395          4.6
-2.299384
4          3.6          0.646835          5.0
-2.389842
final shape (150, 8)

*****
Accuracy= 0.9
Confusion Matrix
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
Pr[accept]= 1.0
Random uniform: 0.6560881352745376
Status:Accepted
Features  petal length (cm)  petal length (cm)  petal width
(cm)  petal width (cm)  \

```

0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm)			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			
final shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	petal length (cm)
petal length (cm)			
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal width (cm)
petal length (cm)	petal width (cm)	\	
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
petal width (cm)				
0	0.2	-0.024168	3.5	
0.480027				
1	0.2	-0.103007	3.0	
-0.674134				
2	0.2	-0.028377	3.2	
-0.341908				



```
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

```
Features  petal length (cm)  petal length (cm)  petal length
(cm)  petal length (cm)  \
0          1.4          -0.127706          1.4
-0.127706
1          1.4          -0.234609          1.4
-0.234609
2          1.3          0.044201          1.3
0.044201
3          1.5          0.091290          1.5
0.091290
4          1.4          0.015738          1.4
0.015738
```

```
sepal length (cm)  sepal length (cm)  petal width (cm)
petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923
```

```
sepal length (cm)  sepal length (cm)
0          5.1          -2.264703
1          4.9          -2.080961
2          4.7          -2.364229
3          4.6          -2.299384
```

4 5.0 -2.389842  
shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  8 42]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)	petal length (cm)
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0      5.1      -2.264703      0.2
-0.024168
1      4.9      -2.080961      0.2
-0.103007
2      4.7      -2.364229      0.2
-0.028377
3      4.6      -2.299384      0.2
0.065956
4      5.0      -2.389842      0.2
0.035923
```

```
      petal length (cm)  petal length (cm)  sepal width (cm)
sepal width (cm)
0      1.4      -0.127706      3.5
0.480027
1      1.4      -0.234609      3.0
-0.674134
2      1.3      0.044201      3.2
-0.341908
3      1.5      0.091290      3.1
-0.597395
4      1.4      0.015738      3.6
0.646835
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

```
Features  petal length (cm)  petal length (cm)  sepal length
(cm)  sepal length (cm)  \
```

0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal length (cm)	petal length (cm)
0	5.1	-2.264703	1.4	
-0.127706				
1	4.9	-2.080961	1.4	
-0.234609				
2	4.7	-2.364229	1.3	
0.044201				
3	4.6	-2.299384	1.5	
0.091290				
4	5.0	-2.389842	1.4	
0.015738				

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

	sepal length (cm)	sepal length (cm)	petal length (cm)
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm)			

```

0          5.1      -2.264703      0.2
-0.024168
1          4.9      -2.080961      0.2
-0.103007
2          4.7      -2.364229      0.2
-0.028377
3          4.6      -2.299384      0.2
0.065956
4          5.0      -2.389842      0.2
0.035923
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]

```

Status:Improved

```

Features  petal width (cm)  petal width (cm)  petal length
(cm)  petal length (cm)  \
0          0.2      -0.024168      1.4
-0.127706
1          0.2      -0.103007      1.4
-0.234609
2          0.2      -0.028377      1.3
0.044201
3          0.2      0.065956      1.5
0.091290
4          0.2      0.035923      1.4
0.015738

```

```

    sepal width (cm)  sepal width (cm)  sepal width (cm)  sepal
width (cm)  \
0          3.5      0.480027      3.5
0.480027
1          3.0      -0.674134      3.0
-0.674134
2          3.2      -0.341908      3.2
-0.341908
3          3.1      -0.597395      3.1
-0.597395
4          3.6      0.646835      3.6
0.646835

```

	petal width (cm)	petal width (cm)
0	0.2	-0.024168
1	0.2	-0.103007
2	0.2	-0.028377
3	0.2	0.065956
4	0.2	0.035923

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2
-0.024168			
1	3.0	-0.674134	0.2
-0.103007			
2	3.2	-0.341908	0.2
-0.028377			
3	3.1	-0.597395	0.2
0.065956			
4	3.6	0.646835	0.2
0.035923			

petal length (cm)	petal length (cm)
0	1.4
	-0.127706

```

1          1.4          -0.234609
2          1.3           0.044201
3          1.5           0.091290
4          1.4           0.015738
shape (150, 10)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```

[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]

```

Status:Improved

```

Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923

```

```

      sepal width (cm)  sepal width (cm)  petal length (cm)
petal length (cm)  \
0          3.5          0.480027          1.4
-0.127706
1          3.0          -0.674134          1.4
-0.234609
2          3.2          -0.341908          1.3
      0.044201
3          3.1          -0.597395          1.5
      0.091290
4          3.6          0.646835          1.4
      0.015738

```

```

      petal width (cm)  petal width (cm)
0          0.2          -0.024168
1          0.2          -0.103007
2          0.2          -0.028377
3          0.2          0.065956

```



```
4          0.2          0.035923
shape (150, 10)
```

```
*****
```

```
Accuracy= 0.9133333333333333
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

```
Status:Improved
```

```
Features  petal width (cm)  petal width (cm)  sepal length
(cm)  sepal length (cm)  \
0          0.2          -0.024168          5.1
-2.264703
1          0.2          -0.103007          4.9
-2.080961
2          0.2          -0.028377          4.7
-2.364229
3          0.2          0.065956          4.6
-2.299384
4          0.2          0.035923          5.0
-2.389842
```

```
      sepal width (cm)  sepal width (cm)  petal width (cm)  petal
width (cm)
0          3.5          0.480027          0.2
-0.024168
1          3.0          -0.674134          0.2
-0.103007
2          3.2          -0.341908          0.2
-0.028377
3          3.1          -0.597395          0.2
0.065956
4          3.6          0.646835          0.2
0.035923
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.9
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

```
Pr[accept]= 1.0
```

Random uniform: 0.5286211996330776

Status:Accepted

Features    petal width (cm)    petal width (cm)    sepal length  
(cm)    sepal length (cm)    \

0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

petal length (cm)    petal length (cm)    sepal length (cm)  
sepal length (cm)

0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features    sepal length (cm)    sepal length (cm)    petal width  
(cm)    petal width (cm)    \

0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			

3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	petal length (cm)
petal length (cm) \			
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2
-0.024168			

```

1          3.0      -0.674134          0.2
-0.103007
2          3.2      -0.341908          0.2
-0.028377
3          3.1      -0.597395          0.2
0.065956
4          3.6       0.646835          0.2
0.035923
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]

```

Status:Improved

```

Features  sepal length (cm)  sepal length (cm)  petal length
(cm)  petal length (cm)  \
0          5.1      -2.264703          1.4
-0.127706
1          4.9      -2.080961          1.4
-0.234609
2          4.7      -2.364229          1.3
0.044201
3          4.6      -2.299384          1.5
0.091290
4          5.0      -2.389842          1.4
0.015738

```

```

    petal length (cm)  petal length (cm)  petal width (cm)
petal width (cm)  \
0          1.4      -0.127706          0.2
-0.024168
1          1.4      -0.234609          0.2
-0.103007
2          1.3          0.044201          0.2
-0.028377
3          1.5          0.091290          0.2
0.065956
4          1.4          0.015738          0.2
0.035923

```

```

    petal width (cm)  petal width (cm)

```

```

0          0.2      -0.024168
1          0.2      -0.103007
2          0.2      -0.028377
3          0.2      0.065956
4          0.2      0.035923

```

```
shape (150, 10)
```

```
*****
```

```
Accuracy= 0.9133333333333333
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

```
Status:Improved
```

```

Features  petal width (cm)  petal width (cm)  petal length
(cm)  petal length (cm)  \
0          0.2      -0.024168          1.4
-0.127706
1          0.2      -0.103007          1.4
-0.234609
2          0.2      -0.028377          1.3
0.044201
3          0.2      0.065956          1.5
0.091290
4          0.2      0.035923          1.4
0.015738

```

```

      sepal length (cm)  sepal length (cm)  petal width (cm)
petal width (cm)
0          5.1      -2.264703          0.2
-0.024168
1          4.9      -2.080961          0.2
-0.103007
2          4.7      -2.364229          0.2
-0.028377
3          4.6      -2.299384          0.2
0.065956
4          5.0      -2.389842          0.2
0.035923
shape (150, 8)

```

```
*****
```

```
Accuracy= 0.9133333333333333
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal width (cm)  sepal width (cm)  sepal length
(cm)  sepal length (cm)  \
0          3.5          0.480027          5.1
-2.264703
1          3.0         -0.674134          4.9
-2.080961
2          3.2         -0.341908          4.7
-2.364229
3          3.1         -0.597395          4.6
-2.299384
4          3.6          0.646835          5.0
-2.389842
```

```
      petal width (cm)  petal width (cm)  petal length (cm)
petal length (cm)
0          0.2         -0.024168          1.4
-0.127706
1          0.2         -0.103007          1.4
-0.234609
2          0.2         -0.028377          1.3
      0.044201
3          0.2          0.065956          1.5
      0.091290
4          0.2          0.035923          1.4
      0.015738
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

```
Features  sepal length (cm)  sepal length (cm)  petal length
(cm)  petal length (cm)  \
0          5.1         -2.264703          1.4
-0.127706
1          4.9         -2.080961          1.4
-0.234609
```

2	4.7	-2.364229	1.3
	0.044201		
3	4.6	-2.299384	1.5
	0.091290		
4	5.0	-2.389842	1.4
	0.015738		

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
	-0.024168			
1	3.0	-0.674134	0.2	
	-0.103007			
2	3.2	-0.341908	0.2	
	-0.028377			
3	3.1	-0.597395	0.2	
	0.065956			
4	3.6	0.646835	0.2	
	0.035923			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	petal width (cm)
petal width (cm) \			
0	0.2	-0.024168	0.2
	-0.024168		
1	0.2	-0.103007	0.2
	-0.103007		
2	0.2	-0.028377	0.2
	-0.028377		
3	0.2	0.065956	0.2
	0.065956		
4	0.2	0.035923	0.2
	0.035923		

	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm) \			

0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				



```

1          3.0      -0.674134          0.2
-0.103007
2          3.2      -0.341908          0.2
-0.028377
3          3.1      -0.597395          0.2
0.065956
4          3.6       0.646835          0.2
0.035923
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```

[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]

```

Pr[accept]= 1.0

Random uniform: 0.04605375260645406

Status:Accepted

```

Features  petal length (cm)  petal length (cm)  petal length
(cm)  petal length (cm)  \
0          1.4      -0.127706          1.4
-0.127706
1          1.4      -0.234609          1.4
-0.234609
2          1.3          0.044201          1.3
0.044201
3          1.5          0.091290          1.5
0.091290
4          1.4          0.015738          1.4
0.015738

```

```

    petal width (cm)  petal width (cm)  petal width (cm)  petal
width (cm)
0          0.2      -0.024168          0.2
-0.024168
1          0.2      -0.103007          0.2
-0.103007
2          0.2      -0.028377          0.2
-0.028377
3          0.2       0.065956          0.2
0.065956
4          0.2       0.035923          0.2
0.035923

```

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features    sepal width (cm)    sepal width (cm)    petal width (cm)  
petal width (cm)    \

0	3.5	0.480027	0.2
-0.024168			
1	3.0	-0.674134	0.2
-0.103007			
2	3.2	-0.341908	0.2
-0.028377			
3	3.1	-0.597395	0.2
0.065956			
4	3.6	0.646835	0.2
0.035923			

petal width (cm)    petal width (cm)    petal length (cm)  
petal length (cm)

0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm)			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			

4 0.2 0.035923 3.6  
0.646835

	sepal length (cm)	sepal length (cm)	petal length (cm)
petal length (cm)			
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.07681915639551151

Status:Accepted

Features	sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm) \			
0	5.1	-2.264703	5.1
-2.264703			
1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168	3.5
0.480027			

```

1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
final shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```

[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]

```

Status:Improved

Features sepal width (cm) sepal width (cm) petal width (cm)  
petal width (cm) \

```

0          3.5          0.480027          0.2
-0.024168
1          3.0          -0.674134          0.2
-0.103007
2          3.2          -0.341908          0.2
-0.028377
3          3.1          -0.597395          0.2
0.065956
4          3.6          0.646835          0.2
0.035923

```

sepal width (cm) sepal width (cm) petal width (cm) petal  
width (cm)

```

0          3.5          0.480027          0.2
-0.024168
1          3.0          -0.674134          0.2
-0.103007
2          3.2          -0.341908          0.2
-0.028377
3          3.1          -0.597395          0.2
0.065956
4          3.6          0.646835          0.2
0.035923
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

```
Features  sepal length (cm)  sepal length (cm)  sepal length
(cm)  sepal length (cm)  \
0      5.1      -2.264703      5.1
-2.264703
1      4.9      -2.080961      4.9
-2.080961
2      4.7      -2.364229      4.7
-2.364229
3      4.6      -2.299384      4.6
-2.299384
4      5.0      -2.389842      5.0
-2.389842
```

```
      petal width (cm)  petal width (cm)  petal width (cm)  petal
width (cm)
0      0.2      -0.024168      0.2
-0.024168
1      0.2      -0.103007      0.2
-0.103007
2      0.2      -0.028377      0.2
-0.028377
3      0.2      0.065956      0.2
0.065956
4      0.2      0.035923      0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal width (cm)  sepal width (cm)  petal length
(cm)  petal length (cm)  \
```

0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal width (cm)
sepal length (cm)			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal length (cm)	petal length (cm)	petal width (cm)
petal width (cm)			
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168	3.5	
0.480027				
1	0.2	-0.103007	3.0	
-0.674134				
2	0.2	-0.028377	3.2	
-0.341908				



```
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  8 42]]
```

Status:Improved

Features petal length (cm) petal length (cm) petal length  
(cm) petal length (cm) \

```
0          1.4          -0.127706          1.4
-0.127706
```

```
1          1.4          -0.234609          1.4
-0.234609
```

```
2          1.3          0.044201          1.3
0.044201
```

```
3          1.5          0.091290          1.5
0.091290
```

```
4          1.4          0.015738          1.4
0.015738
```

petal width (cm) petal width (cm) petal width (cm) petal  
width (cm)

```
0          0.2          -0.024168          0.2
-0.024168
```

```
1          0.2          -0.103007          0.2
-0.103007
```

```
2          0.2          -0.028377          0.2
-0.028377
```

```
3          0.2          0.065956          0.2
0.065956
```

```
4          0.2          0.035923          0.2
0.035923
```

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
```

```

[ 0 48  2]
[ 0 11 39]]
Status:Improved
Features  sepal width (cm)  sepal width (cm)  sepal length
(cm)  sepal length (cm)  \
0          3.5          0.480027          5.1
-2.264703
1          3.0         -0.674134          4.9
-2.080961
2          3.2         -0.341908          4.7
-2.364229
3          3.1         -0.597395          4.6
-2.299384
4          3.6          0.646835          5.0
-2.389842

```

```

    petal length (cm)  petal length (cm)  sepal width (cm)
sepal width (cm)  \
0          1.4         -0.127706          3.5
0.480027
1          1.4         -0.234609          3.0
-0.674134
2          1.3           0.044201          3.2
-0.341908
3          1.5           0.091290          3.1
-0.597395
4          1.4           0.015738          3.6
0.646835

```

```

    petal length (cm)  petal length (cm)
0          1.4         -0.127706
1          1.4         -0.234609
2          1.3           0.044201
3          1.5           0.091290
4          1.4           0.015738
shape (150, 10)

```

\*\*\*\*\*

```

Accuracy= 0.92
Confusion Matrix
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
Status:Improved

```

Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm)			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
sepal width (cm) \			
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			

4 5.0 -2.389842 3.6  
0.646835

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm)			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm) \			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

	sepal width (cm)	sepal width (cm)	petal length (cm)
petal length (cm)			
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			

```

2          3.2          -0.341908          1.3
    0.044201
3          3.1          -0.597395          1.5
    0.091290
4          3.6          0.646835          1.4
    0.015738
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]

```

Status:Improved

```

Features  petal length (cm)  petal length (cm)  petal length
(cm)  petal length (cm)  \
0          1.4          -0.127706          1.4
-0.127706
1          1.4          -0.234609          1.4
-0.234609
2          1.3          0.044201          1.3
    0.044201
3          1.5          0.091290          1.5
    0.091290
4          1.4          0.015738          1.4
    0.015738

```

```

    sepal length (cm)  sepal length (cm)  petal width (cm)
petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923

```

```

    petal width (cm)  petal width (cm)
0          0.2          -0.024168
1          0.2          -0.103007

```

```
2          0.2      -0.028377
3          0.2      0.065956
4          0.2      0.035923
shape (150, 10)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
```

```
[ 0  8 42]]
Status:Improved
Features  petal length (cm)  petal length (cm)  sepal width
(cm)  sepal width (cm)  \
0          1.4          -0.127706          3.5
0.480027
1          1.4          -0.234609          3.0
-0.674134
2          1.3           0.044201          3.2
-0.341908
3          1.5           0.091290          3.1
-0.597395
4          1.4           0.015738          3.6
0.646835
```

```
      sepal length (cm)  sepal length (cm)  sepal length (cm)
sepal length (cm)
0          5.1          -2.264703          5.1
-2.264703
1          4.9          -2.080961          4.9
-2.080961
2          4.7          -2.364229          4.7
-2.364229
3          4.6          -2.299384          4.6
-2.299384
4          5.0          -2.389842          5.0
-2.389842
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

```
Features  petal length (cm)  petal length (cm)  petal width
(cm)  petal width (cm)  \
0          1.4          -0.127706          0.2
-0.024168
1          1.4          -0.234609          0.2
-0.103007
2          1.3           0.044201          0.2
-0.028377
```

3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm) \			
0	5.1	-2.264703	5.1
-2.264703			
1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm) \			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			



4                    3.6                    0.646835                    5.0  
-2.389842

	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal width (cm)
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168		3.5
0.480027				
1	0.2	-0.103007		3.0
-0.674134				
2	0.2	-0.028377		3.2
-0.341908				
3	0.2	0.065956		3.1
-0.597395				
4	0.2	0.035923		3.6
0.646835				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)	sepal width (cm) \
0	5.1	-2.264703		3.5
0.480027				
1	4.9	-2.080961		3.0
-0.674134				
2	4.7	-2.364229		3.2
-0.341908				
3	4.6	-2.299384		3.1
-0.597395				
4	5.0	-2.389842		3.6
0.646835				

	sepal length (cm)	sepal length (cm)	petal length (cm)	petal length (cm) \
0	5.1	-2.264703		1.4
-0.127706				
1	4.9	-2.080961		1.4
-0.234609				
2	4.7	-2.364229		1.3
0.044201				
3	4.6	-2.299384		1.5
0.091290				

4                    5.0                    -2.389842                    1.4  
0.015738

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.9621949409856263

Status:Accepted

Features	petal length (cm)	petal length (cm)	petal width (cm)
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

sepal width (cm)	sepal width (cm)	sepal width (cm)	sepal width (cm)
0	3.5	0.480027	3.5
0.480027			
1	3.0	-0.674134	3.0
-0.674134			
2	3.2	-0.341908	3.2
-0.341908			
3	3.1	-0.597395	3.1
-0.597395			

```
4          3.6          0.646835          3.6
0.646835
```

```
    petal length (cm)  petal length (cm)
0          1.4        -0.127706
1          1.4        -0.234609
2          1.3          0.044201
3          1.5          0.091290
4          1.4          0.015738
final shape (150, 10)
```

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

```
Features  sepal width (cm)  sepal width (cm)  sepal length
(cm)  sepal length (cm)  \
0          3.5          0.480027          5.1
-2.264703
1          3.0         -0.674134          4.9
-2.080961
2          3.2         -0.341908          4.7
-2.364229
3          3.1         -0.597395          4.6
-2.299384
4          3.6          0.646835          5.0
-2.389842
```

```
    petal length (cm)  petal length (cm)  petal length (cm)
petal length (cm)
0          1.4        -0.127706          1.4
-0.127706
1          1.4        -0.234609          1.4
-0.234609
2          1.3          0.044201          1.3
    0.044201
3          1.5          0.091290          1.5
    0.091290
4          1.4          0.015738          1.4
    0.015738
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal width (cm)
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.48306553509788397

Status:Accepted

Features    petal width (cm)    petal width (cm)    sepal width (cm)  
sepal width (cm)    \

0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

petal length (cm)    petal length (cm)    sepal length (cm)  
sepal length (cm)

0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features    petal length (cm)    petal length (cm)    sepal length  
(cm)    sepal length (cm)    \

0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm)			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm) \			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm) \			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm)			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			



```
3          4.6      -2.299384      0.2
0.065956
4          5.0      -2.389842      0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  8 42]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

sepal length (cm)	sepal length (cm)	sepal width (cm)
0	5.1	-2.264703
0.480027		
1	4.9	-2.080961
-0.674134		
2	4.7	-2.364229
-0.341908		
3	4.6	-2.299384
-0.597395		
4	5.0	-2.389842
0.646835		

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
```

```

[ 0 45  5]
[ 0 10 40]]
Pr[accept]= 1.0
Random uniform: 0.15028471557145595
Status:Accepted
Features  petal length (cm)  petal length (cm)  petal width
(cm)  petal width (cm)  \
0          1.4          -0.127706          0.2
-0.024168
1          1.4          -0.234609          0.2
-0.103007
2          1.3           0.044201          0.2
-0.028377
3          1.5           0.091290          0.2
0.065956
4          1.4           0.015738          0.2
0.035923

```

```

      sepal length (cm)  sepal length (cm)  petal width (cm)
petal width (cm)
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923
final shape (150, 8)

```

\*\*\*\*\*

```

Accuracy= 0.92
Confusion Matrix
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
Status:Improved
Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168

```

1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)	petal length (cm)
petal length (cm)			
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
sepal width (cm) \			
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm)			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm) \			
0	5.1	-2.264703	5.1
-2.264703			
1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			

```
4          5.0          -2.389842          5.0
-2.389842
```

```
    petal length (cm)  petal length (cm)
0          1.4        -0.127706
1          1.4        -0.234609
2          1.3          0.044201
3          1.5          0.091290
4          1.4          0.015738
shape (150, 10)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

```
Features  petal length (cm)  petal length (cm)  sepal length
(cm)  sepal length (cm)  \
0          1.4        -0.127706          5.1
-2.264703
1          1.4        -0.234609          4.9
-2.080961
2          1.3          0.044201          4.7
-2.364229
3          1.5          0.091290          4.6
-2.299384
4          1.4          0.015738          5.0
-2.389842
```

```
    petal width (cm)  petal width (cm)  sepal width (cm)  sepal
width (cm)
0          0.2        -0.024168          3.5
0.480027
1          0.2        -0.103007          3.0
-0.674134
2          0.2        -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal width (cm)
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
----------	-------------------	-------------------	------------------

0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	petal length (cm)	petal length (cm)	petal length (cm)
petal length (cm) \			
0	1.4	-0.127706	1.4
-0.127706			
1	1.4	-0.234609	1.4
-0.234609			
2	1.3	0.044201	1.3
0.044201			
3	1.5	0.091290	1.5
0.091290			
4	1.4	0.015738	1.4
0.015738			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal width (cm)
petal length (cm) \			
0	1.4	-0.127706	3.5
0.480027			

1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168		3.5
0.480027				
1	0.2	-0.103007		3.0
-0.674134				
2	0.2	-0.028377		3.2
-0.341908				
3	0.2	0.065956		3.1
-0.597395				
4	0.2	0.035923		3.6
0.646835				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			



	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168		3.5
0.480027				
1	0.2	-0.103007		3.0
-0.674134				
2	0.2	-0.028377		3.2
-0.341908				
3	0.2	0.065956		3.1
-0.597395				
4	0.2	0.035923		3.6
0.646835				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal length (cm)	petal length (cm)	petal width (cm)
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			

```
4          1.4          0.015738          0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

```
Features  petal width (cm)  petal width (cm)  sepal width (cm)
sepal width (cm)  \
0          0.2          -0.024168          3.5
0.480027
1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
```

```
      sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)
0          5.1          -2.264703          1.4
-0.127706
1          4.9          -2.080961          1.4
-0.234609
2          4.7          -2.364229          1.3
0.044201
3          4.6          -2.299384          1.5
0.091290
4          5.0          -2.389842          1.4
0.015738
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

```
Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923
```

```
    petal length (cm)  petal length (cm)  sepal length (cm)
sepal length (cm)  \
0          1.4          -0.127706          5.1
-2.264703
1          1.4          -0.234609          4.9
-2.080961
2          1.3          0.044201          4.7
-2.364229
3          1.5          0.091290          4.6
-2.299384
4          1.4          0.015738          5.0
-2.389842
```

```
    petal length (cm)  petal length (cm)
0          1.4          -0.127706
1          1.4          -0.234609
2          1.3          0.044201
3          1.5          0.091290
4          1.4          0.015738
```

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

```
Features  petal width (cm)  petal width (cm)  sepal width (cm)
sepal width (cm)  \
```

0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm) \			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

	sepal width (cm)	sepal width (cm)	sepal width (cm)	sepal width (cm)
0	3.5	0.480027		3.5
0.480027				
1	3.0	-0.674134		3.0
-0.674134				
2	3.2	-0.341908		3.2
-0.341908				
3	3.1	-0.597395		3.1
-0.597395				
4	3.6	0.646835		3.6
0.646835				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

	petal width (cm)	petal width (cm)	sepal width (cm)
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			

```
3          4.6      -2.299384      0.2
0.065956
4          5.0      -2.389842      0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal length (cm)  sepal length (cm)  sepal width
(cm)  sepal width (cm)  \
0          5.1      -2.264703      3.5
0.480027
1          4.9      -2.080961      3.0
-0.674134
2          4.7      -2.364229      3.2
-0.341908
3          4.6      -2.299384      3.1
-0.597395
4          5.0      -2.389842      3.6
0.646835
```

```
    sepal length (cm)  sepal length (cm)  sepal width (cm)
sepal width (cm)
0          5.1      -2.264703      3.5
0.480027
1          4.9      -2.080961      3.0
-0.674134
2          4.7      -2.364229      3.2
-0.341908
3          4.6      -2.299384      3.1
-0.597395
4          5.0      -2.389842      3.6
0.646835
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
```

```

[ 0 47  3]
[ 0  9 41]]
Status:Improved
Features  petal width (cm)  petal width (cm)  sepal width (cm)
sepal width (cm)  \
0                0.2          -0.024168          3.5
0.480027
1                0.2          -0.103007          3.0
-0.674134
2                0.2          -0.028377          3.2
-0.341908
3                0.2          0.065956          3.1
-0.597395
4                0.2          0.035923          3.6
0.646835

```

```

      sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)
0                5.1          -2.264703          1.4
-0.127706
1                4.9          -2.080961          1.4
-0.234609
2                4.7          -2.364229          1.3
      0.044201
3                4.6          -2.299384          1.5
      0.091290
4                5.0          -2.389842          1.4
      0.015738
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```

[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]

```

Status:Improved

```

Features  petal length (cm)  petal length (cm)  petal width
(cm)  petal width (cm)  \
0                1.4          -0.127706          0.2
-0.024168
1                1.4          -0.234609          0.2
-0.103007

```

2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	sepal width (cm)	sepal width (cm)	sepal width (cm)	sepal width (cm)
0	3.5	0.480027	3.5	
0.480027				
1	3.0	-0.674134	3.0	
-0.674134				
2	3.2	-0.341908	3.2	
-0.341908				
3	3.1	-0.597395	3.1	
-0.597395				
4	3.6	0.646835	3.6	
0.646835				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm)		



0	5.1	-2.264703	5.1
-2.264703			
1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal width (cm)
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features   petal length (cm)   petal length (cm)   petal length  
(cm)   petal length (cm)   \

0	1.4	-0.127706	1.4
-0.127706			
1	1.4	-0.234609	1.4
-0.234609			
2	1.3	0.044201	1.3
0.044201			
3	1.5	0.091290	1.5
0.091290			
4	1.4	0.015738	1.4
0.015738			

petal width (cm)   petal width (cm)   sepal width (cm)   sepal  
width (cm)   \

0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

sepal length (cm)   sepal length (cm)

0	5.1	-2.264703
1	4.9	-2.080961
2	4.7	-2.364229
3	4.6	-2.299384
4	5.0	-2.389842

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features petal length (cm) petal length (cm) sepal length  
(cm) sepal length (cm) \

0 1.4 -0.127706 5.1  
-2.264703

1 1.4 -0.234609 4.9  
-2.080961

2 1.3 0.044201 4.7  
-2.364229

3 1.5 0.091290 4.6  
-2.299384

4 1.4 0.015738 5.0  
-2.389842

petal width (cm) petal width (cm) petal width (cm) petal  
width (cm)

0 0.2 -0.024168 0.2  
-0.024168

1 0.2 -0.103007 0.2  
-0.103007

2 0.2 -0.028377 0.2  
-0.028377

3 0.2 0.065956 0.2  
0.065956

4 0.2 0.035923 0.2  
0.035923

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features petal width (cm) petal width (cm) sepal length  
(cm) sepal length (cm) \

0 0.2 -0.024168 5.1  
-2.264703

1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	petal length (cm)	petal length (cm)	sepal width (cm)
sepal width (cm)			
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm) \			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
0	0.2	-0.024168		0.2
				-0.024168
1	0.2	-0.103007		0.2
				-0.103007
2	0.2	-0.028377		0.2
				-0.028377
3	0.2	0.065956		0.2
				0.065956
4	0.2	0.035923		0.2
				0.035923

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

	petal width (cm)	petal width (cm)	sepal width (cm)
0	0.2	-0.024168	3.5
			0.480027
1	0.2	-0.103007	3.0
			-0.674134
2	0.2	-0.028377	3.2
			-0.341908
3	0.2	0.065956	3.1
			-0.597395
4	0.2	0.035923	3.6
			0.646835

	sepal length (cm)	sepal length (cm)	petal length (cm)
			petal length (cm)

```

0          5.1      -2.264703      1.4
-0.127706
1          4.9      -2.080961      1.4
-0.234609
2          4.7      -2.364229      1.3
      0.044201
3          4.6      -2.299384      1.5
      0.091290
4          5.0      -2.389842      1.4
      0.015738
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```

[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]

```

Status:Improved

```

Features  sepal width (cm)  sepal width (cm)  petal length
(cm)  petal length (cm)  \
0          3.5      0.480027      1.4
-0.127706
1          3.0      -0.674134      1.4
-0.234609
2          3.2      -0.341908      1.3
      0.044201
3          3.1      -0.597395      1.5
      0.091290
4          3.6      0.646835      1.4
      0.015738

```

```

      sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)  \
0          5.1      -2.264703      1.4
-0.127706
1          4.9      -2.080961      1.4
-0.234609
2          4.7      -2.364229      1.3
      0.044201
3          4.6      -2.299384      1.5
      0.091290
4          5.0      -2.389842      1.4
      0.015738

```

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
0	0.2	-0.024168	0.2
-0.024168			
1	0.2	-0.103007	0.2
-0.103007			
2	0.2	-0.028377	0.2
-0.028377			
3	0.2	0.065956	0.2
0.065956			
4	0.2	0.035923	0.2
0.035923			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027

```
1          3.0      -0.674134
2          3.2      -0.341908
3          3.1      -0.597395
4          3.6       0.646835
```

```
shape (150, 10)
```

```
*****
```

```
Accuracy= 0.9266666666666666
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

```
Status:Improved
```

```
Features  petal width (cm)  petal width (cm)  sepal length
(cm)  sepal length (cm)  \
0          0.2      -0.024168              5.1
-2.264703
1          0.2      -0.103007              4.9
-2.080961
2          0.2      -0.028377              4.7
-2.364229
3          0.2       0.065956              4.6
-2.299384
4          0.2       0.035923              5.0
-2.389842
```

```
      sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)
0          5.1      -2.264703              1.4
-0.127706
1          4.9      -2.080961              1.4
-0.234609
2          4.7      -2.364229              1.3
      0.044201
3          4.6      -2.299384              1.5
      0.091290
4          5.0      -2.389842              1.4
      0.015738
```

```
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.9133333333333333
```

```
Confusion Matrix
```

```
[[50  0  0]
```



```

[ 0 47  3]
[ 0 10 40]]
Status:Improved
Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923

```

```

      petal length (cm)  petal length (cm)  petal width (cm)
petal width (cm)  \
0          1.4          -0.127706          0.2
-0.024168
1          1.4          -0.234609          0.2
-0.103007
2          1.3           0.044201          0.2
-0.028377
3          1.5           0.091290          0.2
0.065956
4          1.4           0.015738          0.2
0.035923

```

```

      petal length (cm)  petal length (cm)
0          1.4          -0.127706
1          1.4          -0.234609
2          1.3           0.044201
3          1.5           0.091290
4          1.4           0.015738
shape (150, 10)

```

```

*****
Accuracy= 0.9133333333333333
Confusion Matrix
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
Status:Improved

```

Features	sepal width (cm)	sepal width (cm)	petal width (cm)
petal width (cm) \			
0	3.5	0.480027	0.2
-0.024168			
1	3.0	-0.674134	0.2
-0.103007			
2	3.2	-0.341908	0.2
-0.028377			
3	3.1	-0.597395	0.2
0.065956			
4	3.6	0.646835	0.2
0.035923			

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm) \			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

	sepal length (cm)	sepal length (cm)
0	5.1	-2.264703
1	4.9	-2.080961
2	4.7	-2.364229
3	4.6	-2.299384
4	5.0	-2.389842

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm) \			

0	5.1	-2.264703	5.1
-2.264703			
1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	petal length (cm)
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

	sepal length (cm)	sepal length (cm)	petal length (cm)
petal length (cm)			
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal width (cm)
petal length (cm)			
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm)			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			

```
3          4.6      -2.299384      0.2
0.065956
4          5.0      -2.389842      0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.6841915595333996

Status:Accepted

Features petal length (cm) petal length (cm) sepal width  
(cm) sepal width (cm) \

```
0          1.4      -0.127706      3.5
0.480027
1          1.4      -0.234609      3.0
-0.674134
2          1.3          0.044201      3.2
-0.341908
3          1.5          0.091290      3.1
-0.597395
4          1.4          0.015738      3.6
0.646835
```

petal width (cm) petal width (cm) sepal width (cm) sepal  
width (cm)

```
0          0.2      -0.024168      3.5
0.480027
1          0.2      -0.103007      3.0
-0.674134
2          0.2      -0.028377      3.2
-0.341908
3          0.2          0.065956      3.1
-0.597395
4          0.2          0.035923      3.6
0.646835
```

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features    sepal length (cm)    sepal length (cm)    petal width  
(cm)    petal width (cm)    \

```
0                    5.1           -2.264703                    0.2
-0.024168
1                    4.9           -2.080961                    0.2
-0.103007
2                    4.7           -2.364229                    0.2
-0.028377
3                    4.6           -2.299384                    0.2
0.065956
4                    5.0           -2.389842                    0.2
0.035923
```

          sepal width (cm)    sepal width (cm)    petal width (cm)    petal  
width (cm)

```
0                    3.5           0.480027                    0.2
-0.024168
1                    3.0           -0.674134                    0.2
-0.103007
2                    3.2           -0.341908                    0.2
-0.028377
3                    3.1           -0.597395                    0.2
0.065956
4                    3.6           0.646835                    0.2
0.035923
```

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features    petal length (cm)    petal length (cm)    sepal length  
(cm)    sepal length (cm)    \

```
0                    1.4           -0.127706                    5.1
-2.264703
```

1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

	sepal length (cm)	sepal length (cm)
0	5.1	-2.264703
1	4.9	-2.080961
2	4.7	-2.364229
3	4.6	-2.299384
4	5.0	-2.389842

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

Status:Improved

	sepal length (cm)	sepal length (cm)	sepal width (cm)
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			

2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	petal length (cm)
petal length (cm)			



```

0          3.5          0.480027          1.4
-0.127706
1          3.0          -0.674134          1.4
-0.234609
2          3.2          -0.341908          1.3
      0.044201
3          3.1          -0.597395          1.5
      0.091290
4          3.6          0.646835          1.4
      0.015738
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]

```

Status:Improved

```

Features  sepal width (cm)  sepal width (cm)  sepal width (cm)
sepal width (cm) \
0          3.5          0.480027          3.5
0.480027
1          3.0          -0.674134          3.0
-0.674134
2          3.2          -0.341908          3.2
-0.341908
3          3.1          -0.597395          3.1
-0.597395
4          3.6          0.646835          3.6
0.646835

```

```

      petal width (cm)  petal width (cm)  sepal length (cm)
sepal length (cm)
0          0.2          -0.024168          5.1
-2.264703
1          0.2          -0.103007          4.9
-2.080961
2          0.2          -0.028377          4.7
-2.364229
3          0.2          0.065956          4.6
-2.299384
4          0.2          0.035923          5.0
-2.389842

```

```
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.92
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

```
Status:Improved
```

```
Features  petal length (cm)  petal length (cm)  sepal length
(cm)  sepal length (cm)  \
0          1.4          -0.127706          5.1
-2.264703
1          1.4          -0.234609          4.9
-2.080961
2          1.3           0.044201          4.7
-2.364229
3          1.5           0.091290          4.6
-2.299384
4          1.4           0.015738          5.0
-2.389842
```

```
      sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)
0          5.1          -2.264703          1.4
-0.127706
1          4.9          -2.080961          1.4
-0.234609
2          4.7          -2.364229          1.3
0.044201
3          4.6          -2.299384          1.5
0.091290
4          5.0          -2.389842          1.4
0.015738
```

```
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.9066666666666666
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

```
Status:Improved
```

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm)			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal width (cm)
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			

4 1.4 0.015738 3.6  
0.646835

	petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
0	0.2	-0.024168		0.2
-0.024168				
1	0.2	-0.103007		0.2
-0.103007				
2	0.2	-0.028377		0.2
-0.028377				
3	0.2	0.065956		0.2
0.065956				
4	0.2	0.035923		0.2
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm)			
0	5.1	-2.264703	5.1
-2.264703			
1	4.9	-2.080961	4.9
-2.080961			

2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.1277541660137893

Status:Accepted

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

Pr[accept]= 1.0

Random uniform: 0.8359716064687146

Status:Accepted

Features petal width (cm) petal width (cm) sepal width (cm)

sepal width (cm) \

0	0.2	-0.024168	3.5
---	-----	-----------	-----

0.480027

1	0.2	-0.103007	3.0
---	-----	-----------	-----

-0.674134

2	0.2	-0.028377	3.2
---	-----	-----------	-----

-0.341908

3	0.2	0.065956	3.1
---	-----	----------	-----

-0.597395

4	0.2	0.035923	3.6
---	-----	----------	-----

0.646835

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm) \
--	------------------	------------------	------------------	--------------------

0	0.2	-0.024168	3.5
---	-----	-----------	-----

0.480027

1	0.2	-0.103007	3.0
---	-----	-----------	-----

-0.674134

2	0.2	-0.028377	3.2
---	-----	-----------	-----

-0.341908

3	0.2	0.065956	3.1
---	-----	----------	-----

-0.597395

4	0.2	0.035923	3.6
---	-----	----------	-----

0.646835

	sepal length (cm)	sepal length (cm)
--	-------------------	-------------------

0	5.1	-2.264703
---	-----	-----------

1	4.9	-2.080961
---	-----	-----------

2	4.7	-2.364229
---	-----	-----------

3	4.6	-2.299384
---	-----	-----------

4	5.0	-2.389842
---	-----	-----------

final shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.7597559562512424

Status:Accepted

Features    sepal width (cm)    sepal width (cm)    petal length  
(cm)    petal length (cm)    \

0                    3.5            0.480027                    1.4  
-0.127706

1                    3.0            -0.674134                    1.4  
-0.234609

2                    3.2            -0.341908                    1.3  
0.044201

3                    3.1            -0.597395                    1.5  
0.091290

4                    3.6            0.646835                    1.4  
0.015738

          sepal length (cm)    sepal length (cm)    sepal length (cm)  
sepal length (cm)

0                    5.1            -2.264703                    5.1  
-2.264703

1                    4.9            -2.080961                    4.9  
-2.080961

2                    4.7            -2.364229                    4.7  
-2.364229

3                    4.6            -2.299384                    4.6  
-2.299384

4                    5.0            -2.389842                    5.0  
-2.389842

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
0	0.2	-0.024168		0.2
-0.024168				
1	0.2	-0.103007		0.2
-0.103007				
2	0.2	-0.028377		0.2
-0.028377				
3	0.2	0.065956		0.2
0.065956				
4	0.2	0.035923		0.2
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 0.9432780711167889

Random uniform: 0.5320194695574249

Status:Accepted

Features	petal width (cm)	petal width (cm)	petal length (cm)
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			



3	0.2	0.065956	1.5
	0.091290		
4	0.2	0.035923	1.4
	0.015738		

	sepal width (cm)	sepal width (cm)	sepal length (cm)
	sepal length (cm)		
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			
final shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.6560881352745376

Status:Accepted

Features	petal length (cm)	petal length (cm)	petal width
(cm)	petal width (cm)	\	
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm)			

```

0          5.1      -2.264703      0.2
-0.024168
1          4.9      -2.080961      0.2
-0.103007
2          4.7      -2.364229      0.2
-0.028377
3          4.6      -2.299384      0.2
0.065956
4          5.0      -2.389842      0.2
0.035923
final shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]

```

Status:Improved

```

Features  petal width (cm)  petal width (cm)  sepal width (cm)
sepal width (cm) \
0          0.2      -0.024168      3.5
0.480027
1          0.2      -0.103007      3.0
-0.674134
2          0.2      -0.028377      3.2
-0.341908
3          0.2      0.065956      3.1
-0.597395
4          0.2      0.035923      3.6
0.646835

```

```

      sepal width (cm)  sepal width (cm)  petal length (cm)
petal length (cm)
0          3.5      0.480027      1.4
-0.127706
1          3.0      -0.674134      1.4
-0.234609
2          3.2      -0.341908      1.3
      0.044201
3          3.1      -0.597395      1.5
      0.091290
4          3.6      0.646835      1.4
      0.015738

```

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

Features    petal length (cm)    petal length (cm)    petal width  
(cm)    petal width (cm)    \

0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

petal width (cm)    petal width (cm)    sepal width (cm)    sepal  
width (cm)

0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal length (cm)
0	1.4	-0.127706	1.4
1	1.4	-0.234609	1.4
2	1.3	0.044201	1.3
3	1.5	0.091290	1.5
4	1.4	0.015738	1.4

sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703
1	4.9	-2.080961
2	4.7	-2.364229
3	4.6	-2.299384
4	5.0	-2.389842

sepal length (cm)	sepal length (cm)
0	5.1
1	4.9
2	4.7
3	4.6
4	5.0

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  8 42]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
1	4.9	-2.080961	0.2
2	4.7	-2.364229	0.2
3	4.6	-2.299384	0.2
4	5.0	-2.389842	0.2

0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)	petal length (cm)
petal length (cm) \			
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			

1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal length (cm)	petal length (cm)	sepal width (cm)
sepal width (cm)			
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal length (cm)
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			

4 5.0 -2.389842 0.2  
0.035923

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal length (cm)
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

shape (150, 8)



\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features    petal width (cm)    petal width (cm)    petal length  
(cm)    petal length (cm)    \

```
0                    0.2           -0.024168                    1.4
-0.127706
1                    0.2           -0.103007                    1.4
-0.234609
2                    0.2           -0.028377                    1.3
                  0.044201
3                    0.2           0.065956                    1.5
                  0.091290
4                    0.2           0.035923                    1.4
                  0.015738
```

          sepal width (cm)    sepal width (cm)    sepal width (cm)    sepal  
width (cm)    \

```
0                    3.5           0.480027                    3.5
0.480027
1                    3.0           -0.674134                    3.0
-0.674134
2                    3.2           -0.341908                    3.2
-0.341908
3                    3.1           -0.597395                    3.1
-0.597395
4                    3.6           0.646835                    3.6
0.646835
```

          petal width (cm)    petal width (cm)

```
0                    0.2           -0.024168
1                    0.2           -0.103007
2                    0.2           -0.028377
3                    0.2           0.065956
4                    0.2           0.035923
```

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2
-0.024168			
1	3.0	-0.674134	0.2
-0.103007			
2	3.2	-0.341908	0.2
-0.028377			
3	3.1	-0.597395	0.2
0.065956			
4	3.6	0.646835	0.2
0.035923			

petal length (cm)	petal length (cm)
0	1.4
-0.127706	
1	1.4
-0.234609	
2	1.3
0.044201	
3	1.5
0.091290	
4	1.4
0.015738	

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]]
```

```

[ 0  9 41]]
Status:Improved
Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923

```

```

      sepal width (cm)  sepal width (cm)  petal length (cm)
petal length (cm)  \
0          3.5          0.480027          1.4
-0.127706
1          3.0          -0.674134          1.4
-0.234609
2          3.2          -0.341908          1.3
      0.044201
3          3.1          -0.597395          1.5
      0.091290
4          3.6          0.646835          1.4
      0.015738

```

```

      petal width (cm)  petal width (cm)
0          0.2          -0.024168
1          0.2          -0.103007
2          0.2          -0.028377
3          0.2          0.065956
4          0.2          0.035923
shape (150, 10)

```

```

*****
Accuracy=  0.9133333333333333
Confusion Matrix
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
Status:Improved

```

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.5286211996330776

Status:Accepted

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			

3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm)			
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			
final shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm) \			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			

```

1          0.2      -0.103007          4.9
-2.080961
2          0.2      -0.028377          4.7
-2.364229
3          0.2      0.065956           4.6
-2.299384
4          0.2      0.035923           5.0
-2.389842
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```

[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]

```

Status:Improved

```

Features  sepal width (cm)  sepal width (cm)  petal length
(cm)  petal length (cm)  \
0          3.5          0.480027          1.4
-0.127706
1          3.0         -0.674134          1.4
-0.234609
2          3.2         -0.341908          1.3
0.044201
3          3.1         -0.597395          1.5
0.091290
4          3.6          0.646835          1.4
0.015738

```

```

      sepal width (cm)  sepal width (cm)  petal width (cm)  petal
width (cm)
0          3.5          0.480027          0.2
-0.024168
1          3.0         -0.674134          0.2
-0.103007
2          3.2         -0.341908          0.2
-0.028377
3          3.1         -0.597395          0.2
0.065956
4          3.6          0.646835          0.2
0.035923
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal length (cm)
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

	petal length (cm)	petal length (cm)	petal width (cm)
petal width (cm) \			
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	petal width (cm)	petal width (cm)
0	0.2	-0.024168
1	0.2	-0.103007
2	0.2	-0.028377
3	0.2	0.065956
4	0.2	0.035923

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

```
Features  petal width (cm)  petal width (cm)  petal length
(cm)  petal length (cm)  \
0      0.2      -0.024168      1.4
-0.127706
1      0.2      -0.103007      1.4
-0.234609
2      0.2      -0.028377      1.3
0.044201
3      0.2      0.065956      1.5
0.091290
4      0.2      0.035923      1.4
0.015738
```

```
      sepal length (cm)  sepal length (cm)  petal width (cm)
petal width (cm)
0      5.1      -2.264703      0.2
-0.024168
1      4.9      -2.080961      0.2
-0.103007
2      4.7      -2.364229      0.2
-0.028377
3      4.6      -2.299384      0.2
0.065956
4      5.0      -2.389842      0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal width (cm)  sepal width (cm)  sepal length
(cm)  sepal length (cm)  \
0      3.5      0.480027      5.1
-2.264703
1      3.0      -0.674134      4.9
-2.080961
```



2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm)			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal length (cm)
petal length (cm) \			
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
------------------	------------------	------------------	------------------

0	3.5	0.480027	0.2
-0.024168			
1	3.0	-0.674134	0.2
-0.103007			
2	3.2	-0.341908	0.2
-0.028377			
3	3.1	-0.597395	0.2
0.065956			
4	3.6	0.646835	0.2
0.035923			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	petal width (cm)
petal width (cm) \			
0	0.2	-0.024168	0.2
-0.024168			
1	0.2	-0.103007	0.2
-0.103007			
2	0.2	-0.028377	0.2
-0.028377			
3	0.2	0.065956	0.2
0.065956			
4	0.2	0.035923	0.2
0.035923			

	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm) \			
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

```

Accuracy= 0.9
Confusion Matrix
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
Pr[accept]= 1.0
Random uniform: 0.04605375260645406
Status:Accepted
Features  petal length (cm)  petal length (cm)  petal length
(cm)  petal length (cm)  \
0      1.4      -0.127706      1.4
-0.127706
1      1.4      -0.234609      1.4
-0.234609
2      1.3      0.044201      1.3
0.044201
3      1.5      0.091290      1.5
0.091290
4      1.4      0.015738      1.4
0.015738

      petal width (cm)  petal width (cm)  petal width (cm)  petal
width (cm)
0      0.2      -0.024168      0.2
-0.024168
1      0.2      -0.103007      0.2
-0.103007
2      0.2      -0.028377      0.2
-0.028377
3      0.2      0.065956      0.2
0.065956
4      0.2      0.035923      0.2
0.035923
final shape (150, 8)

```

```

*****
Accuracy= 0.9133333333333333
Confusion Matrix
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
Status:Improved
Features  sepal width (cm)  sepal width (cm)  petal width (cm)
petal width (cm)  \

```

0	3.5	0.480027	0.2
-0.024168			
1	3.0	-0.674134	0.2
-0.103007			
2	3.2	-0.341908	0.2
-0.028377			
3	3.1	-0.597395	0.2
0.065956			
4	3.6	0.646835	0.2
0.035923			

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm)			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
sepal width (cm) \			
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	petal length (cm)
petal length (cm)			
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			

```

3          4.6          -2.299384          1.5
    0.091290
4          5.0          -2.389842          1.4
    0.015738
shape (150, 8)

```

\*\*\*\*\*

```

Accuracy= 0.9
Confusion Matrix
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
Pr[accept]= 1.0
Random uniform: 0.07681915639551151
Status:Accepted
Features  sepal length (cm)  sepal length (cm)  sepal length
(cm)  sepal length (cm)  \
0          5.1          -2.264703          5.1
-2.264703
1          4.9          -2.080961          4.9
-2.080961
2          4.7          -2.364229          4.7
-2.364229
3          4.6          -2.299384          4.6
-2.299384
4          5.0          -2.389842          5.0
-2.389842

```

```

    petal width (cm)  petal width (cm)  sepal width (cm)  sepal
width (cm)
0          0.2          -0.024168          3.5
0.480027
1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
final shape (150, 8)

```

\*\*\*\*\*

```

Accuracy= 0.9133333333333333

```

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

Features    sepal width (cm)    sepal width (cm)    petal width (cm)

petal width (cm)    \

```
0                    3.5            0.480027                    0.2
-0.024168
1                    3.0            -0.674134                    0.2
-0.103007
2                    3.2            -0.341908                    0.2
-0.028377
3                    3.1            -0.597395                    0.2
0.065956
4                    3.6            0.646835                    0.2
0.035923
```

          sepal width (cm)    sepal width (cm)    petal width (cm)    petal  
width (cm)

```
0                    3.5            0.480027                    0.2
-0.024168
1                    3.0            -0.674134                    0.2
-0.103007
2                    3.2            -0.341908                    0.2
-0.028377
3                    3.1            -0.597395                    0.2
0.065956
4                    3.6            0.646835                    0.2
0.035923
```

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features    sepal length (cm)    sepal length (cm)    sepal length  
(cm)    sepal length (cm)    \

```
0                    5.1            -2.264703                    5.1
-2.264703
```



1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

	petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
0	0.2	-0.024168	0.2	
-0.024168				
1	0.2	-0.103007	0.2	
-0.103007				
2	0.2	-0.028377	0.2	
-0.028377				
3	0.2	0.065956	0.2	
0.065956				
4	0.2	0.035923	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

	sepal width (cm)	sepal width (cm)	petal length (cm)
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal width (cm)
sepal length (cm)			
petal width (cm)			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal length (cm)	petal length (cm)	petal width (cm)
petal width (cm)			
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			

```
4          1.4          0.015738          0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

```
Features  petal length (cm)  petal length (cm)  sepal length
(cm)  sepal length (cm)  \
0          1.4          -0.127706          5.1
-2.264703
1          1.4          -0.234609          4.9
-2.080961
2          1.3          0.044201          4.7
-2.364229
3          1.5          0.091290          4.6
-2.299384
4          1.4          0.015738          5.0
-2.389842
```

```
      petal width (cm)  petal width (cm)  sepal width (cm)  sepal
width (cm)
0          0.2          -0.024168          3.5
0.480027
1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  8 42]]
```

Status:Improved

```
Features  petal length (cm)  petal length (cm)  petal length
(cm)  petal length (cm)  \
0      1.4      -0.127706      1.4
-0.127706
1      1.4      -0.234609      1.4
-0.234609
2      1.3      0.044201      1.3
0.044201
3      1.5      0.091290      1.5
0.091290
4      1.4      0.015738      1.4
0.015738
```

```
      petal width (cm)  petal width (cm)  petal width (cm)  petal
width (cm)
0      0.2      -0.024168      0.2
-0.024168
1      0.2      -0.103007      0.2
-0.103007
2      0.2      -0.028377      0.2
-0.028377
3      0.2      0.065956      0.2
0.065956
4      0.2      0.035923      0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

```
Features  sepal width (cm)  sepal width (cm)  sepal length
(cm)  sepal length (cm)  \
0      3.5      0.480027      5.1
-2.264703
1      3.0      -0.674134      4.9
-2.080961
2      3.2      -0.341908      4.7
-2.364229
```

3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal length (cm)	petal length (cm)	sepal width (cm)
sepal width (cm) \			
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			

4 0.2 0.035923 3.6  
0.646835

	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm)			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
sepal width (cm) \			
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm)			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			

```

2          0.2          -0.028377          1.3
    0.044201
3          0.2          0.065956          1.5
    0.091290
4          0.2          0.035923          1.4
    0.015738
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```

[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]

```

Status:Improved

```

Features  petal width (cm)  petal width (cm)  petal length
(cm)  petal length (cm)  \
0          0.2          -0.024168          1.4
-0.127706
1          0.2          -0.103007          1.4
-0.234609
2          0.2          -0.028377          1.3
    0.044201
3          0.2          0.065956          1.5
    0.091290
4          0.2          0.035923          1.4
    0.015738

```

```

    sepal width (cm)  sepal width (cm)  petal length (cm)
petal length (cm)
0          3.5          0.480027          1.4
-0.127706
1          3.0          -0.674134          1.4
-0.234609
2          3.2          -0.341908          1.3
    0.044201
3          3.1          -0.597395          1.5
    0.091290
4          3.6          0.646835          1.4
    0.015738
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal length (cm)
0	1.4	-0.127706	1.4
-0.127706			
1	1.4	-0.234609	1.4
-0.234609			
2	1.3	0.044201	1.3
0.044201			
3	1.5	0.091290	1.5
0.091290			
4	1.4	0.015738	1.4
0.015738			

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal width (cm)	petal width (cm)
0	0.2	-0.024168
1	0.2	-0.103007
2	0.2	-0.028377
3	0.2	0.065956
4	0.2	0.035923

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
```



```

[ 0  9 41]]
Status:Improved
Features  sepal width (cm)  sepal width (cm)  sepal length
(cm)  sepal length (cm)  \
0          3.5          0.480027          5.1
-2.264703
1          3.0         -0.674134          4.9
-2.080961
2          3.2         -0.341908          4.7
-2.364229
3          3.1         -0.597395          4.6
-2.299384
4          3.6          0.646835          5.0
-2.389842

```

```

    petal width (cm)  petal width (cm)  sepal length (cm)
sepal length (cm)
0          0.2         -0.024168          5.1
-2.264703
1          0.2         -0.103007          4.9
-2.080961
2          0.2         -0.028377          4.7
-2.364229
3          0.2          0.065956          4.6
-2.299384
4          0.2          0.035923          5.0
-2.389842
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 47  3]
 [ 0  8 42]]

```

Status:Improved

```

Features  petal length (cm)  petal length (cm)  sepal width
(cm)  sepal width (cm)  \
0          1.4         -0.127706          3.5
0.480027
1          1.4         -0.234609          3.0
-0.674134
2          1.3          0.044201          3.2
-0.341908

```

3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm)		
0	5.1	-2.264703
-2.264703		5.1
1	4.9	-2.080961
-2.080961		4.9
2	4.7	-2.364229
-2.364229		4.7
3	4.6	-2.299384
-2.299384		4.6
4	5.0	-2.389842
-2.389842		5.0
shape (150, 8)		

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal width (cm)
petal width (cm)	\		
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm)	\	
0	5.1	-2.264703
-2.264703		5.1

1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			
3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length
(cm)	sepal length (cm)	\	
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm)	\		
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			

2	1.3	0.044201	4.7
	-2.364229		
3	1.5	0.091290	4.6
	-2.299384		
4	1.4	0.015738	5.0
	-2.389842		

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal width (cm)
0	1.4	-0.127706	0.2
		-0.024168	
1	1.4	-0.234609	0.2
		-0.103007	
2	1.3	0.044201	0.2
		-0.028377	
3	1.5	0.091290	0.2
		0.065956	
4	1.4	0.015738	0.2
		0.035923	

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168	3.5	0.480027
1	0.2	-0.103007	3.0	-0.674134
2	0.2	-0.028377	3.2	-0.341908

```

3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```

[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]

```

Status:Improved

```

Features  sepal length (cm)  sepal length (cm)  sepal width
(cm)  sepal width (cm)  \
0          5.1          -2.264703          3.5
0.480027
1          4.9          -2.080961          3.0
-0.674134
2          4.7          -2.364229          3.2
-0.341908
3          4.6          -2.299384          3.1
-0.597395
4          5.0          -2.389842          3.6
0.646835

```

```

      sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)  \
0          5.1          -2.264703          1.4
-0.127706
1          4.9          -2.080961          1.4
-0.234609
2          4.7          -2.364229          1.3
      0.044201
3          4.6          -2.299384          1.5
      0.091290
4          5.0          -2.389842          1.4
      0.015738

```

```

      petal length (cm)  petal length (cm)
0          1.4          -0.127706
1          1.4          -0.234609
2          1.3          0.044201
3          1.5          0.091290

```

4 1.4 0.015738  
shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.9621949409856263

Status:Accepted

Features petal length (cm) petal length (cm) petal width  
(cm) petal width (cm) \

0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

sepal width (cm) sepal width (cm) sepal width (cm) sepal  
width (cm) \

0	3.5	0.480027	3.5
0.480027			
1	3.0	-0.674134	3.0
-0.674134			
2	3.2	-0.341908	3.2
-0.341908			
3	3.1	-0.597395	3.1
-0.597395			
4	3.6	0.646835	3.6
0.646835			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

final shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

Features    sepal width (cm)    sepal width (cm)    sepal length  
(cm)    sepal length (cm)    \

0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

petal length (cm)    petal length (cm)    petal length (cm)  
petal length (cm)

0	1.4	-0.127706	1.4
-0.127706			
1	1.4	-0.234609	1.4
-0.234609			
2	1.3	0.044201	1.3
0.044201			
3	1.5	0.091290	1.5
0.091290			
4	1.4	0.015738	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal width (cm)
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.48306553509788397

Status:Accepted



Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm)			
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm) \			
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			

4 1.4 0.015738 5.0  
-2.389842

	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm)			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm) \			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			

```
2          0.2      -0.028377      4.7
-2.364229
3          0.2      0.065956      4.6
-2.299384
4          0.2      0.035923      5.0
-2.389842
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

```
Features  petal width (cm)  petal width (cm)  petal length
(cm)  petal length (cm)  \
0          0.2      -0.024168      1.4
-0.127706
1          0.2      -0.103007      1.4
-0.234609
2          0.2      -0.028377      1.3
0.044201
3          0.2      0.065956      1.5
0.091290
4          0.2      0.035923      1.4
0.015738
```

```
      sepal length (cm)  sepal length (cm)  petal width (cm)
petal width (cm)
0          5.1      -2.264703      0.2
-0.024168
1          4.9      -2.080961      0.2
-0.103007
2          4.7      -2.364229      0.2
-0.028377
3          4.6      -2.299384      0.2
0.065956
4          5.0      -2.389842      0.2
0.035923
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  8 42]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal length (cm)	sepal length (cm)	sepal width (cm)
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.15028471557145595

Status:Accepted

Features	petal length (cm)	petal length (cm)	petal width (cm)
(cm)	petal width (cm)	\	

0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm)			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			
final shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	petal width (cm)
petal width (cm) \			
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)	petal length (cm)
petal length (cm)			
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
sepal width (cm) \			
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm)			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			

```

3          3.1          -0.597395          4.6
-2.299384
4          3.6          0.646835          5.0
-2.389842
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```

[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]

```

Status:Improved

```

Features  petal width (cm)  petal width (cm)  sepal width (cm)
sepal width (cm)  \
0          0.2          -0.024168          3.5
0.480027
1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835

```

```

      sepal length (cm)  sepal length (cm)  sepal length (cm)
sepal length (cm)  \
0          5.1          -2.264703          5.1
-2.264703
1          4.9          -2.080961          4.9
-2.080961
2          4.7          -2.364229          4.7
-2.364229
3          4.6          -2.299384          4.6
-2.299384
4          5.0          -2.389842          5.0
-2.389842

```

```

      petal length (cm)  petal length (cm)
0          1.4          -0.127706
1          1.4          -0.234609
2          1.3          0.044201
3          1.5          0.091290

```

```
4          1.4          0.015738
shape (150, 10)
```

```
*****
```

```
Accuracy= 0.9133333333333333
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

```
Status:Improved
```

```
Features  petal length (cm)  petal length (cm)  sepal length
(cm)  sepal length (cm)  \
0          1.4          -0.127706          5.1
-2.264703
1          1.4          -0.234609          4.9
-2.080961
2          1.3          0.044201          4.7
-2.364229
3          1.5          0.091290          4.6
-2.299384
4          1.4          0.015738          5.0
-2.389842
```

```
      petal width (cm)  petal width (cm)  sepal width (cm)  sepal
width (cm)
0          0.2          -0.024168          3.5
0.480027
1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.9066666666666666
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

```
Status:Improved
```



Features	petal length (cm)	petal length (cm)	sepal width (cm)
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			

4 5.0 -2.389842 3.6  
0.646835

	petal length (cm)	petal length (cm)	petal length (cm)
0	1.4	-0.127706	1.4
1	1.4	-0.234609	1.4
2	1.3	0.044201	1.3
3	1.5	0.091290	1.5
4	1.4	0.015738	1.4

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal width (cm)
0	1.4	-0.127706	3.5
1	1.4	-0.234609	3.0
2	1.3	0.044201	3.2
3	1.5	0.091290	3.1
4	1.4	0.015738	3.6

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168		3.5
0.480027				
1	0.2	-0.103007		3.0
-0.674134				
2	0.2	-0.028377		3.2
-0.341908				
3	0.2	0.065956		3.1
-0.597395				
4	0.2	0.035923		3.6
0.646835				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)	sepal length (cm)
0	1.4	-0.127706		5.1
-2.264703				
1	1.4	-0.234609		4.9
-2.080961				
2	1.3	0.044201		4.7
-2.364229				
3	1.5	0.091290		4.6
-2.299384				
4	1.4	0.015738		5.0
-2.389842				

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168		3.5
0.480027				
1	0.2	-0.103007		3.0
-0.674134				
2	0.2	-0.028377		3.2
-0.341908				
3	0.2	0.065956		3.1
-0.597395				

```
4          0.2          0.035923          3.6
0.646835
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.9133333333333333
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

```
Status:Improved
```

```
Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923
```

```
    petal length (cm)  petal length (cm)  petal width (cm)
petal width (cm)
0          1.4          -0.127706          0.2
-0.024168
1          1.4          -0.234609          0.2
-0.103007
2          1.3           0.044201          0.2
-0.028377
3          1.5           0.091290          0.2
0.065956
4          1.4           0.015738          0.2
0.035923
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.92
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

Features    petal width (cm)    petal width (cm)    sepal width (cm)  
sepal width (cm)    \

0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

sepal length (cm)    sepal length (cm)    petal length (cm)  
petal length (cm)

0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features    sepal length (cm)    sepal length (cm)    petal width  
(cm)    petal width (cm)    \

0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			

3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal length (cm)	petal length (cm)	sepal length (cm)
sepal length (cm) \			
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			

4 0.2 0.035923 3.6  
0.646835

	petal width (cm)	petal width (cm)	sepal length (cm)
sepal length (cm)			
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm) \			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

	sepal width (cm)	sepal width (cm)	sepal width (cm)	sepal width (cm)
0	3.5	0.480027		3.5
0.480027				
1	3.0	-0.674134		3.0
-0.674134				

```

2          3.2          -0.341908          3.2
-0.341908
3          3.1          -0.597395          3.1
-0.597395
4          3.6          0.646835          3.6
0.646835
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]

```

Status:Improved

Features petal width (cm) petal width (cm) sepal width (cm)

sepal width (cm) \

```

0          0.2          -0.024168          3.5
0.480027
1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835

```

sepal length (cm) sepal length (cm) petal width (cm)

petal width (cm)

```

0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923

```

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92



Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal length (cm)  sepal length (cm)  sepal width
(cm)  sepal width (cm)  \
0          5.1          -2.264703          3.5
0.480027
1          4.9          -2.080961          3.0
-0.674134
2          4.7          -2.364229          3.2
-0.341908
3          4.6          -2.299384          3.1
-0.597395
4          5.0          -2.389842          3.6
0.646835
```

```
      sepal length (cm)  sepal length (cm)  sepal width (cm)
sepal width (cm)
0          5.1          -2.264703          3.5
0.480027
1          4.9          -2.080961          3.0
-0.674134
2          4.7          -2.364229          3.2
-0.341908
3          4.6          -2.299384          3.1
-0.597395
4          5.0          -2.389842          3.6
0.646835
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

Status:Improved

```
Features  petal width (cm)  petal width (cm)  sepal width (cm)
sepal width (cm)  \
0          0.2          -0.024168          3.5
0.480027
```

1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	petal length (cm)
petal length (cm)			
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  8 42]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal width (cm)
petal width (cm) \			
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

sepal width (cm)	sepal width (cm)	sepal width (cm)	sepal width (cm)
0	3.5	0.480027	3.5
0.480027			
1	3.0	-0.674134	3.0
-0.674134			
2	3.2	-0.341908	3.2
-0.341908			
3	3.1	-0.597395	3.1
-0.597395			
4	3.6	0.646835	3.6
0.646835			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

sepal length (cm)	sepal length (cm)	sepal length (cm)
sepal length (cm)		
0	5.1	-2.264703
-2.264703		
1	4.9	-2.080961
-2.080961		
2	4.7	-2.364229
-2.364229		
3	4.6	-2.299384
-2.299384		

```
4          5.0      -2.389842      5.0
-2.389842
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

```
Features  petal length (cm)  petal length (cm)  petal width
(cm)  petal width (cm)  \
0          1.4      -0.127706      0.2
-0.024168
1          1.4      -0.234609      0.2
-0.103007
2          1.3          0.044201      0.2
-0.028377
3          1.5          0.091290      0.2
0.065956
4          1.4          0.015738      0.2
0.035923
```

```
      petal length (cm)  petal length (cm)  sepal length (cm)
sepal length (cm)
0          1.4      -0.127706      5.1
-2.264703
1          1.4      -0.234609      4.9
-2.080961
2          1.3          0.044201      4.7
-2.364229
3          1.5          0.091290      4.6
-2.299384
4          1.4          0.015738      5.0
-2.389842
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	petal length (cm)
0	1.4	-0.127706	1.4
-0.127706			
1	1.4	-0.234609	1.4
-0.234609			
2	1.3	0.044201	1.3
0.044201			
3	1.5	0.091290	1.5
0.091290			
4	1.4	0.015738	1.4
0.015738			

	petal width (cm)	petal width (cm)	sepal width (cm)	sepal width (cm)
0	0.2	-0.024168		3.5
0.480027				
1	0.2	-0.103007		3.0
-0.674134				
2	0.2	-0.028377		3.2
-0.341908				
3	0.2	0.065956	3.1	
-0.597395				
4	0.2	0.035923	3.6	
0.646835				

	sepal length (cm)	sepal length (cm)
0	5.1	-2.264703
1	4.9	-2.080961
2	4.7	-2.364229
3	4.6	-2.299384
4	5.0	-2.389842

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
(cm)	sepal length (cm)	\	

0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
0	0.2	-0.024168	0.2	
-0.024168				
1	0.2	-0.103007	0.2	
-0.103007				
2	0.2	-0.028377	0.2	
-0.028377				
3	0.2	0.065956	0.2	
0.065956				
4	0.2	0.035923	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			
3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	petal length (cm)	petal length (cm)	sepal width (cm)
sepal width (cm)			
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	sepal length (cm)
sepal length (cm) \			
0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
width (cm) \			
0	0.2	-0.024168	0.2
-0.024168			
1	0.2	-0.103007	0.2
-0.103007			
2	0.2	-0.028377	0.2
-0.028377			

3	0.2	0.065956	0.2
0.065956			
4	0.2	0.035923	0.2
0.035923			

	sepal width (cm)	sepal width (cm)
0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

	petal width (cm)	petal width (cm)	sepal width (cm)
sepal width (cm) \			
0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

	sepal length (cm)	sepal length (cm)	petal length (cm)
petal length (cm)			
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			



```
4          5.0          -2.389842          1.4
0.015738
shape (150, 8)
```

```
*****
```

```
Accuracy= 0.92
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 47  3]
 [ 0  9 41]]
```

```
Status:Improved
```

```
Features  sepal width (cm)  sepal width (cm)  petal length
(cm)  petal length (cm)  \
0          3.5          0.480027          1.4
-0.127706
1          3.0          -0.674134          1.4
-0.234609
2          3.2          -0.341908          1.3
0.044201
3          3.1          -0.597395          1.5
0.091290
4          3.6          0.646835          1.4
0.015738
```

```
sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)  \
0          5.1          -2.264703          1.4
-0.127706
1          4.9          -2.080961          1.4
-0.234609
2          4.7          -2.364229          1.3
0.044201
3          4.6          -2.299384          1.5
0.091290
4          5.0          -2.389842          1.4
0.015738
```

```
sepal width (cm)  sepal width (cm)
0          3.5          0.480027
1          3.0          -0.674134
2          3.2          -0.341908
3          3.1          -0.597395
4          3.6          0.646835
shape (150, 10)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features    sepal width (cm)    sepal width (cm)    sepal length  
(cm)    sepal length (cm)    \

0	3.5	0.480027	5.1
-2.264703			
1	3.0	-0.674134	4.9
-2.080961			
2	3.2	-0.341908	4.7
-2.364229			
3	3.1	-0.597395	4.6
-2.299384			
4	3.6	0.646835	5.0
-2.389842			

petal width (cm)    petal width (cm)    petal width (cm)    petal  
width (cm)    \

0	0.2	-0.024168	0.2
-0.024168			
1	0.2	-0.103007	0.2
-0.103007			
2	0.2	-0.028377	0.2
-0.028377			
3	0.2	0.065956	0.2
0.065956			
4	0.2	0.035923	0.2
0.035923			

sepal width (cm)    sepal width (cm)

0	3.5	0.480027
1	3.0	-0.674134
2	3.2	-0.341908
3	3.1	-0.597395
4	3.6	0.646835

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Status:Improved

```
Features  petal width (cm)  petal width (cm)  sepal length
(cm)  sepal length (cm)  \
0      0.2      -0.024168      5.1
-2.264703
1      0.2      -0.103007      4.9
-2.080961
2      0.2      -0.028377      4.7
-2.364229
3      0.2      0.065956      4.6
-2.299384
4      0.2      0.035923      5.0
-2.389842
```

```
      sepal length (cm)  sepal length (cm)  petal length (cm)
petal length (cm)
0      5.1      -2.264703      1.4
-0.127706
1      4.9      -2.080961      1.4
-0.234609
2      4.7      -2.364229      1.3
0.044201
3      4.6      -2.299384      1.5
0.091290
4      5.0      -2.389842      1.4
0.015738
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

```
Features  sepal length (cm)  sepal length (cm)  petal width
(cm)  petal width (cm)  \
0      5.1      -2.264703      0.2
-0.024168
```

1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	petal length (cm)	petal length (cm)	petal width (cm)
petal width (cm) \			
0	1.4	-0.127706	0.2
-0.024168			
1	1.4	-0.234609	0.2
-0.103007			
2	1.3	0.044201	0.2
-0.028377			
3	1.5	0.091290	0.2
0.065956			
4	1.4	0.015738	0.2
0.035923			

	petal length (cm)	petal length (cm)
0	1.4	-0.127706
1	1.4	-0.234609
2	1.3	0.044201
3	1.5	0.091290
4	1.4	0.015738

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 10 40]]
```

Status:Improved

	sepal width (cm)	sepal width (cm)	petal width (cm)
petal width (cm) \			
0	3.5	0.480027	0.2
-0.024168			
1	3.0	-0.674134	0.2
-0.103007			

2	3.2	-0.341908	0.2
-0.028377			
3	3.1	-0.597395	0.2
0.065956			
4	3.6	0.646835	0.2
0.035923			

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm) \			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			

	sepal length (cm)	sepal length (cm)
0	5.1	-2.264703
1	4.9	-2.080961
2	4.7	-2.364229
3	4.6	-2.299384
4	5.0	-2.389842

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal length (cm)
(cm) sepal length (cm) \			
0	5.1	-2.264703	5.1
-2.264703			
1	4.9	-2.080961	4.9
-2.080961			
2	4.7	-2.364229	4.7
-2.364229			

3	4.6	-2.299384	4.6
-2.299384			
4	5.0	-2.389842	5.0
-2.389842			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	sepal width (cm)	sepal width (cm)	petal length (cm)
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			
4	3.6	0.646835	1.4
0.015738			

	sepal length (cm)	sepal length (cm)	petal length (cm)
0	5.1	-2.264703	1.4
-0.127706			

```

1          4.9          -2.080961          1.4
-0.234609
2          4.7          -2.364229          1.3
    0.044201
3          4.6          -2.299384          1.5
    0.091290
4          5.0          -2.389842          1.4
    0.015738
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]

```

Status:Improved

```

Features  petal length (cm)  petal length (cm)  petal width
(cm)  petal width (cm)  \
0          1.4          -0.127706          0.2
-0.024168
1          1.4          -0.234609          0.2
-0.103007
2          1.3          0.044201          0.2
-0.028377
3          1.5          0.091290          0.2
0.065956
4          1.4          0.015738          0.2
0.035923

```

```

    sepal length (cm)  sepal length (cm)  petal width (cm)
petal width (cm)
0          5.1          -2.264703          0.2
-0.024168
1          4.9          -2.080961          0.2
-0.103007
2          4.7          -2.364229          0.2
-0.028377
3          4.6          -2.299384          0.2
0.065956
4          5.0          -2.389842          0.2
0.035923
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0 10 40]]
```

Pr[accept]= 1.0

Random uniform: 0.6841915595333996

Status:Accepted

Features    petal length (cm)    petal length (cm)    sepal width  
(cm)    sepal width (cm)    \

0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

petal width (cm)    petal width (cm)    sepal width (cm)    sepal  
width (cm)

0	0.2	-0.024168	3.5
0.480027			
1	0.2	-0.103007	3.0
-0.674134			
2	0.2	-0.028377	3.2
-0.341908			
3	0.2	0.065956	3.1
-0.597395			
4	0.2	0.035923	3.6
0.646835			

final shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved



Features	sepal length (cm)	sepal length (cm)	petal width (cm)
0	5.1	-2.264703	0.2
-0.024168			
1	4.9	-2.080961	0.2
-0.103007			
2	4.7	-2.364229	0.2
-0.028377			
3	4.6	-2.299384	0.2
0.065956			
4	5.0	-2.389842	0.2
0.035923			

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027		0.2
-0.024168				
1	3.0	-0.674134		0.2
-0.103007				
2	3.2	-0.341908		0.2
-0.028377				
3	3.1	-0.597395		0.2
0.065956				
4	3.6	0.646835		0.2
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 49  1]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			

4                    1.4                    0.015738                    5.0  
-2.389842

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm) \
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

	sepal length (cm)	sepal length (cm)
0	5.1	-2.264703
1	4.9	-2.080961
2	4.7	-2.364229
3	4.6	-2.299384
4	5.0	-2.389842

shape (150, 10)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 46  4]
 [ 0  9 41]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)	sepal width (cm) \
0	5.1	-2.264703	3.5	
0.480027				
1	4.9	-2.080961	3.0	
-0.674134				
2	4.7	-2.364229	3.2	
-0.341908				
3	4.6	-2.299384	3.1	
-0.597395				
4	5.0	-2.389842	3.6	
0.646835				

	sepal width (cm)	sepal width (cm)	petal width (cm)	petal width (cm)
0	3.5	0.480027	0.2	
-0.024168				
1	3.0	-0.674134	0.2	
-0.103007				
2	3.2	-0.341908	0.2	
-0.028377				
3	3.1	-0.597395	0.2	
0.065956				
4	3.6	0.646835	0.2	
0.035923				

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features	sepal length (cm)	sepal length (cm)	sepal width (cm)
0	5.1	-2.264703	3.5
0.480027			
1	4.9	-2.080961	3.0
-0.674134			
2	4.7	-2.364229	3.2
-0.341908			
3	4.6	-2.299384	3.1
-0.597395			
4	5.0	-2.389842	3.6
0.646835			

	sepal width (cm)	sepal width (cm)	petal length (cm)
0	3.5	0.480027	1.4
-0.127706			
1	3.0	-0.674134	1.4
-0.234609			
2	3.2	-0.341908	1.3
0.044201			
3	3.1	-0.597395	1.5
0.091290			

```
4          3.6          0.646835          1.4
0.015738
shape (150, 8)
```

\*\*\*\*\*

Accuracy= 0.9133333333333333

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 11 39]]
```

Status:Improved

Features sepal width (cm) sepal width (cm) sepal width (cm)

sepal width (cm) \

```
0          3.5          0.480027          3.5
0.480027
1          3.0          -0.674134          3.0
-0.674134
2          3.2          -0.341908          3.2
-0.341908
3          3.1          -0.597395          3.1
-0.597395
4          3.6          0.646835          3.6
0.646835
```

petal width (cm) petal width (cm) sepal length (cm)

sepal length (cm)

```
0          0.2          -0.024168          5.1
-2.264703
1          0.2          -0.103007          4.9
-2.080961
2          0.2          -0.028377          4.7
-2.364229
3          0.2          0.065956          4.6
-2.299384
4          0.2          0.035923          5.0
-2.389842
```

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.92

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0 10 40]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal length (cm)
0	1.4	-0.127706	5.1
-2.264703			
1	1.4	-0.234609	4.9
-2.080961			
2	1.3	0.044201	4.7
-2.364229			
3	1.5	0.091290	4.6
-2.299384			
4	1.4	0.015738	5.0
-2.389842			

	sepal length (cm)	sepal length (cm)	petal length (cm)
petal length (cm)			
0	5.1	-2.264703	1.4
-0.127706			
1	4.9	-2.080961	1.4
-0.234609			
2	4.7	-2.364229	1.3
0.044201			
3	4.6	-2.299384	1.5
0.091290			
4	5.0	-2.389842	1.4
0.015738			

shape (150, 8)

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 45  5]
 [ 0  9 41]]
```

Status:Improved

Features	petal width (cm)	petal width (cm)	sepal length (cm)
0	0.2	-0.024168	5.1
-2.264703			
1	0.2	-0.103007	4.9
-2.080961			
2	0.2	-0.028377	4.7
-2.364229			

3	0.2	0.065956	4.6
-2.299384			
4	0.2	0.035923	5.0
-2.389842			

	petal width (cm)	petal width (cm)	petal length (cm)
petal length (cm)			
0	0.2	-0.024168	1.4
-0.127706			
1	0.2	-0.103007	1.4
-0.234609			
2	0.2	-0.028377	1.3
0.044201			
3	0.2	0.065956	1.5
0.091290			
4	0.2	0.035923	1.4
0.015738			
shape (150, 8)			

\*\*\*\*\*

Accuracy= 0.9066666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 47  3]
 [ 0 11 39]]
```

Status:Improved

Features	petal length (cm)	petal length (cm)	sepal width (cm)
sepal width (cm) \			
0	1.4	-0.127706	3.5
0.480027			
1	1.4	-0.234609	3.0
-0.674134			
2	1.3	0.044201	3.2
-0.341908			
3	1.5	0.091290	3.1
-0.597395			
4	1.4	0.015738	3.6
0.646835			

	petal width (cm)	petal width (cm)	petal width (cm)	petal width (cm)
0	0.2	-0.024168		0.2
-0.024168				

```

1          0.2          -0.103007          0.2
-0.103007
2          0.2          -0.028377          0.2
-0.028377
3          0.2          0.065956          0.2
0.065956
4          0.2          0.035923          0.2
0.035923
shape (150, 8)

```

\*\*\*\*\*

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Status:Improved

```

Features  petal width (cm)  petal width (cm)  sepal width (cm)
sepal width (cm) \
0          0.2          -0.024168          3.5
0.480027
1          0.2          -0.103007          3.0
-0.674134
2          0.2          -0.028377          3.2
-0.341908
3          0.2          0.065956          3.1
-0.597395
4          0.2          0.035923          3.6
0.646835

```

```

      sepal length (cm)  sepal length (cm)  sepal length (cm)
sepal length (cm)
0          5.1          -2.264703          5.1
-2.264703
1          4.9          -2.080961          4.9
-2.080961
2          4.7          -2.364229          4.7
-2.364229
3          4.6          -2.299384          4.6
-2.299384
4          5.0          -2.389842          5.0
-2.389842
shape (150, 8)

```

```

Accuracy= 0.9266666666666666
Confusion Matrix
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 5)
Features      lambda1      lambda2      lambda3      lambda4
sepal-width
36879  0.091361 -0.181192  0.128978  0.229960          3.0
31609 -0.110196 -2.654073 -0.046790 -0.013761          3.6
37957  1.440151 -0.046988  0.163630  0.235770          3.4
29877 -2.203833  0.009216 -0.153029 -0.049372          3.5
24356 -2.218451 -0.728676 -0.230911 -0.002425          3.3
final shape (150, 5)

```

```

Accuracy= 0.9266666666666666
Confusion Matrix
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 3)
Features      lambda1      lambda2      lambda3
30  -2.140122 -0.504541 -0.075008
114  1.467645 -0.442272  1.003870
35  -2.207809 -0.206107 -0.225442
78   0.664800 -0.225928  0.085864
10  -2.166310  1.043691 -0.268681
final shape (150, 3)

```

```

Accuracy= 0.9266666666666666
Confusion Matrix
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 4)
Features      lambda1      lambda2      lambda3      lambda4
64 -0.033355 -0.439003  0.194933 -0.109048
43 -1.964448  0.472327  0.309601 -0.177093
59  0.011426 -1.034018  0.538899  0.028461
88  0.069588 -0.219503  0.291579  0.147145
14 -2.198741  1.860057 -0.472901 -0.194732
final shape (150, 4)

```

```

Accuracy= 0.9266666666666666

```



Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

Features	lambda1	lambda2	lambda3	lambda4	
sepal-length					
38264	2.751873	0.800409	-0.582309	0.101384	5.8
39168	1.602679	-0.421700	0.023186	-0.058332	5.7
24932	-2.207588	1.483609	-0.005344	-0.188817	5.2
13001	1.048728	0.522052	-0.395786	-0.037209	5.8
15925	0.367018	-1.561503	0.986893	0.133124	5.0

final shape (150, 5)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 3)

Features	lambda1	lambda2	lambda3
137	1.346292	0.422431	0.180875
37	-2.527332	0.592293	0.019436
52	1.240979	0.616298	-0.554007
146	1.564580	-0.896687	-0.026371
21	-2.207013	0.924121	0.159865

final shape (150, 3)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

Features	lambda1_x	lambda2	lambda3	lambda4	
lambda1_y					
27696	-2.109975	-0.460202	-0.170275	-0.029023	0.227717
15106	1.844569	0.870421	1.005401	0.049250	0.367018
33983	1.256509	-0.077256	-0.727155	-0.039689	1.061095
38697	2.302439	0.420066	-0.651706	0.238041	1.521170
27693	-2.109975	-0.460202	-0.170275	-0.029023	-0.362183

final shape (150, 5)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

Features	lambda1	lambda2	lambda4	petal-width
21557	2.040558	0.867521	-0.045187	1.8
14009	-0.362183	-2.019238	-0.019571	1.4
33495	0.632858	-0.416388	0.274220	0.3
21902	1.564580	-0.896687	-0.220192	0.2
43453	1.852045	0.676128	-0.195195	1.8

final shape (150, 4)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

Features	lambda1	lambda2	lambda3	lambda4	petal-length
5584	-2.527332	0.592293	0.019436	0.136505	1.5
7714	0.731337	0.594615	-0.094122	-0.004904	3.6
17092	1.260115	-1.162260	0.580249	-0.099157	5.1
30267	0.731337	0.594615	-0.094122	-0.004904	6.7
6594	-1.964448	0.472327	0.309601	-0.177093	5.7

final shape (150, 5)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

Features	lambda1	lambda2	lambda3	lambda4
146	1.564580	-0.896687	-0.026371	-0.220192
90	0.279078	-1.120029	0.094488	0.270657
24	-2.227163	0.137254	0.117994	0.270140
110	1.364175	0.692756	0.284612	-0.107860
126	1.175104	-0.316394	0.129938	-0.125420

final shape (150, 4)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

Features	lambda2	lambda3	lambda4	petal-length
26000	0.085559	0.034489	-0.151141	4.7
23604	0.223148	-0.088695	0.024612	4.6
24851	2.686284	0.030527	-0.050534	5.1
39467	-1.162260	0.580249	-0.099157	1.4
14233	-0.855730	0.130890	0.107402	5.1

final shape (150, 4)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

Features	lambda1	lambda2	lambda3	lambda4	
sepal-length					
33828	0.874274	0.250793	-0.472579	-0.101716	6.0
32824	1.225094	-1.622244	-0.482304	-0.225900	6.7
9295	0.440693	-0.063295	0.205074	-0.040126	6.7
13273	0.069588	-0.219503	0.291579	0.147145	6.1
34397	-0.040259	-1.058719	-0.319573	-0.064788	4.6

final shape (150, 5)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

Features	lambda1	lambda2_x	lambda3	lambda4	
lambda2_y					
5683	-2.527332	0.592293	0.019436	0.136505	-0.292923
32616	0.158810	-0.792096	-0.302037	0.205298	-0.196312
11640	1.358405	0.331312	-0.260827	-0.066828	-1.120029
41233	1.700734	1.013922	0.298451	0.061644	-0.292923
42870	2.798770	0.856803	-0.542906	-0.295881	0.910467

final shape (150, 5)

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1    lambda2    lambda3    lambda4_x
lambda4_y
2541  -2.207588  1.483609 -0.005344  -0.188817  -0.469697
28317 -2.429633 -0.904180  0.193255   0.009738   0.273807
22195  1.521170  0.269069  0.180178  -0.119171  -0.389257
1263   -2.334640 -1.115328  0.145077   0.026859   0.164807
15043  1.844569  0.870421  1.005401   0.049250  -0.177093
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 5)

```

Features          lambda1    lambda2    lambda3    lambda4_x
lambda4_y
21102  2.014810  0.613886  0.428333  -0.247538  -0.059184
36262  0.624570  0.024923 -0.020481   0.147686  -0.146415
24650 -2.198741  1.860057 -0.472901  -0.194732  -0.034834
9731   -0.033355 -0.439003  0.194933  -0.109048   0.211676
41647  1.020951  0.064346  0.337716   0.008654   0.019861
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 5)

```

Features          lambda1    lambda2    lambda3    lambda4
petal-length
44092  2.040558  0.867521  0.338144 -0.045187      5.1
19572  2.435954  0.259284 -0.727816  0.017923      4.9
3476   -1.818670  0.085559  0.034489 -0.151141      1.6
10151  0.158810 -0.792096 -0.302037  0.205298      5.1
18235  0.977981 -0.571764  0.828127 -0.027756      4.5
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

Features	lambda1	lambda2	lambda3	lambda4
80	0.130795	-1.562272	-0.149983	0.009403
115	1.590077	0.676245	0.638429	-0.191863
12	-2.218451	-0.728676	-0.230911	-0.002425
131	2.304928	2.626323	-0.493474	0.211676
116	1.471431	0.255622	0.037431	0.155330

final shape (150, 4)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

Features	lambda1	lambda3	lambda4	petal-width
21266	1.901784	0.130075	-0.469697	1.8
38935	2.259777	0.397552	-0.104839	1.6
5237	-2.109975	-0.170275	-0.029023	1.8
21783	1.870503	0.256274	-0.389257	0.2
8635	-0.487323	0.249265	0.040520	1.6

final shape (150, 4)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

Features	lambda1	lambda2	lambda3_x	lambda4	lambda3_y
4061	-2.168577	0.527150	-0.206816	-0.010275	0.093759
8219	1.075475	-0.208421	-0.398256	-0.104737	-0.267537
38870	2.259777	1.921010	0.397552	-0.104839	-0.421293
26272	-1.951846	-0.625619	-0.305641	-0.043562	0.332179
2985	-2.343369	1.127849	0.132630	0.037756	-0.542906

final shape (150, 5)

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 4)
Features      lambda1      lambda2      lambda3      lambda4
49 -2.203833  0.009216 -0.153029 -0.049372
64 -0.033355 -0.439003  0.194933 -0.109048
53  0.407483 -1.754404 -0.023102 -0.065769
36 -2.045146  0.661558 -0.484537 -0.196359
48 -2.229447  0.997960 -0.181493  0.014928
final shape (150, 4)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

```

Dataset shape= (150, 5)
Features      lambda1_x      lambda2      lambda3      lambda4
lambda1_y
41002  1.333232 -0.481811 -0.005428 -0.139959  1.240979
26076 -1.818670  0.085559  0.034489 -0.151141  1.175104
6219  -1.858122 -2.337415 -0.204234 -0.289864  0.164918
27955 -2.045146  0.661558 -0.484537 -0.196359  0.388687
43620  2.014810  0.613886  0.428333 -0.247538  2.037716
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

```

Dataset shape= (150, 5)
Features      lambda1      lambda2      lambda3      lambda4
sepal-length
841  -2.075631  1.489178  0.026968 -0.006608  6.1
21501  2.040558  0.867521  0.338144 -0.045187  6.4
19403  1.863648  0.562291 -0.715634  0.208215  5.5
35072  1.061095 -0.633843  0.105311  0.183968  7.7
30316  1.240979  0.616298 -0.554007 -0.009423  5.4
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1_x    lambda2    lambda3    lambda4
lambda1_y
3846   -1.951846 -0.625619 -0.305641 -0.043562    0.227717
18839   1.954327  1.007778 -0.419985  0.218338    0.283477
21923   1.564580 -0.896687 -0.026371 -0.220192   -1.818670
31084  -0.487323 -1.852429  0.249265  0.040520   -2.109975
228    -2.080961 -0.674134 -0.234609 -0.103007    0.664800
final shape (150, 5)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

```
Features          lambda1    lambda2    lambda3_x    lambda4
lambda3_y
2234   -2.198741  1.860057  -0.472901 -0.194732   -0.164724
16354   2.259777  1.921010   0.397552 -0.104839    0.015738
44547   1.564580 -0.896687  -0.026371 -0.220192    0.180178
7531    1.101781  0.862972  -0.684586 -0.034834   -0.270467
9742   -0.033355 -0.439003   0.194933 -0.109048    0.530160
final shape (150, 5)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

```
Features          lambda1    lambda2    lambda3    lambda4
86    1.048728  0.522052 -0.395786 -0.037209
137   1.346292  0.422431  0.180875  0.215421
58    0.927902  0.032226 -0.596169  0.029880
127   1.020951  0.064346  0.337716  0.008654
136   1.576256  1.068581  0.945854 -0.035606
final shape (150, 4)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1    lambda2    lambda3    lambda4
petal-length
27275 -1.831595   0.423695 -0.270467 -0.239870          6.0
15335  2.205267   0.562010 -0.202914 -0.059184          1.2
43982  2.040558   0.867521  0.338144 -0.045187          1.5
14582  0.576388 -0.154874 -0.271650  0.019861          1.5
36473 -0.362183 -2.019238  0.105821 -0.019571          1.7
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 5)

```

Features          lambda1_x    lambda2    lambda3    lambda4
lambda1_y
17093  1.260115 -1.162260  0.580249 -0.099157  2.040558
29849 -2.229447  0.997960 -0.181493  0.014928  0.960656
28278 -2.429633 -0.904180  0.193255  0.009738  0.664800
28571 -2.286475  0.441715  0.034895 -0.106983  0.476287
13478  0.283477 -1.329325  0.089410 -0.008906  1.788350
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 5)

```

Features          lambda1    lambda2    lambda3    lambda4
petal-length
18688  1.700734  1.013922  0.298451  0.061644          4.1
10872  1.234178 -0.933326 -0.368412  0.009945          4.9
651    -2.389842  0.646835  0.015738  0.035923          4.5
31116 -0.487323 -1.852429  0.249265  0.040520          4.5
27108 -2.140122 -0.504541 -0.075008  0.048189          5.8
final shape (150, 5)

```

Accuracy= 0.9266666666666666



Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 3)

Features	lambda1	lambda3	lambda4
21	-2.207013	0.159865	-0.059597
17	-2.190350	-0.044215	-0.093090
132	1.862703	0.354149	-0.100010
8	-2.334640	0.145077	0.026859
78	0.664800	0.085864	0.036440

final shape (150, 3)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 3)

Features	lambda2	lambda3	lambda4
145	0.386966	0.256274	-0.389257
79	-1.058719	-0.319573	-0.064788
141	0.689575	0.130075	-0.469697
96	-0.384920	0.156213	0.132606
91	0.024923	-0.020481	0.147686

final shape (150, 3)

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

Features	lambda1_x	lambda2	lambda3	lambda4	
lambda1_y					
40136	2.426329	2.556661	-0.127881	0.273807	1.048728
21900	1.564580	-0.896687	-0.026371	-0.220192	-2.264703
13911	0.336530	-0.988404	-0.199390	-0.006531	1.602679
345	-2.364229	-0.341908	0.044201	-0.028377	-2.069744
31782	0.440693	-0.063295	0.205074	-0.040126	1.862703

final shape (150, 5)

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1  lambda2_x  lambda3  lambda4
lambda2_y
11723  0.664800  -0.225928  0.085864  0.036440  0.085559
23480 -2.444029   0.047644  0.335470  0.036776 -1.562272
31492  0.011426  -1.034018  0.538899  0.028461 -0.698870
16397  2.259777   1.921010  0.397552 -0.104839 -0.386247
11880 -0.040259  -1.058719 -0.319573 -0.064788 -0.504541
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 4)

```

Features          lambda2  lambda3_x  lambda4  lambda3_y
28499  0.268879  -0.175884 -0.007047   0.528249
13599 -1.120029   0.094488  0.270657   0.091879
26104  0.137254   0.117994  0.270140   0.015738
38151  0.295045   0.395628  0.016298  -0.094122
22880 -0.341908   0.044201 -0.028377  -0.149983
final shape (150, 4)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 5)

```

Features          lambda1  lambda2  lambda3  lambda4
sepal-length
28935 -2.553638 -0.479101  0.305766  0.066601      7.7
41121  1.700734  1.013922  0.298451  0.061644      5.1
41467  1.175104 -0.316394  0.129938 -0.125420      5.8
7502   1.101781  0.862972 -0.684586 -0.034834      4.7
5197  -2.109975 -0.460202 -0.170275 -0.029023      6.2
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1_x    lambda2    lambda3    lambda4
lambda1_y
16086    2.302439    0.420066 -0.651706    0.238041    -2.045146
27772    -2.207809 -0.206107 -0.225442 -0.168908    -2.774345
28526    -2.286475    0.441715    0.034895 -0.106983    -2.051151
32828     1.225094 -1.622244 -0.482304 -0.225900     1.788350
32345     0.875407    0.509064 -0.503511 -0.104944     0.091361
final shape (150, 5)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 3)

```
Features          lambda1    lambda3    lambda4
106    0.367018    0.986893    0.133124
15     -2.262215    0.030527 -0.050534
5      -2.075631    0.026968 -0.006608
80     0.130795 -0.149983    0.009403
84     0.223979    0.665250    0.254828
final shape (150, 3)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

```
Features          lambda1    lambda2    lambda3    lambda4
65    0.875407    0.509064 -0.503511 -0.104944
87    1.044531 -1.382989 -0.688296 -0.136836
91    0.624570    0.024923 -0.020481    0.147686
94    0.288586 -0.855730    0.130890    0.107402
83    1.061095 -0.633843    0.105311    0.183968
final shape (150, 4)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
```

```

[ 0 48  2]
[ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1  lambda2_x  lambda3  lambda4
lambda2_y
27123 -2.140122  -0.504541 -0.075008  0.048189  -0.481811
6193  -1.858122  -2.337415 -0.204234 -0.289864   0.472327
41816  1.788350  -0.187361  0.270658 -0.031088   0.255622
41780  1.788350  -0.187361  0.270658 -0.031088  -1.562272
31652  0.440693  -0.063295  0.205074 -0.040126  -0.341908
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

```

Dataset shape= (150, 4)
Features          lambda1  lambda2  lambda3  lambda4
127  1.020951  0.064346  0.337716  0.008654
86   1.048728  0.522052 -0.395786 -0.037209
30  -2.140122 -0.504541 -0.075008  0.048189
133  1.114148 -0.292923 -0.183488  0.186344
126  1.175104 -0.316394  0.129938 -0.125420
final shape (150, 4)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

```

Dataset shape= (150, 3)
Features          lambda2  lambda3  lambda4
145  0.386966  0.256274 -0.389257
115  0.676245  0.638429 -0.191863
5    1.489178  0.026968 -0.006608
10   1.043691 -0.268681 -0.016731
42  -0.479101  0.305766  0.066601
final shape (150, 3)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]

```

```

[ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1    lambda2    lambda3    lambda4
sepal-width
23102 -2.389842   0.646835   0.015738   0.035923       3.2
27504 -2.446177   2.150728  -0.082668   0.048214       2.8
1455  -2.184328  -0.469014  -0.253766   0.039899       3.0
14906  0.256731  -0.598852   0.091879   0.058622       3.3
33020  0.737683   0.396572   0.616526   0.083284       3.4
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 5)

```

Features          lambda1    lambda2    lambda3    lambda4
petal-length
25773 -2.207013   0.924121   0.159865  -0.059597       4.9
21080  2.014810   0.613886   0.428333  -0.247538       3.8
30763  0.388687  -0.593284   0.124192   0.240831       1.1
10881  1.234178  -0.933326  -0.368412   0.009945       3.7
43998  2.040558   0.867521   0.338144  -0.045187       1.5
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

Dataset shape= (150, 3)

```

Features          lambda1    lambda3    lambda4
86    1.048728  -0.395786  -0.037209
0     -2.264703  -0.127706  -0.024168
111    1.602679   0.023186  -0.058332
70     0.737683   0.616526   0.083284
128    1.788350   0.270658  -0.031088
final shape (150, 3)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]

```

```

[ 0  9 41]]
Dataset shape= (150, 5)
Features          lambda1  lambda2_x  lambda3  lambda4
lambda2_y
34650  0.023453  -1.572476 -0.241552  0.032772  0.480027
3452   -1.818670   0.085559  0.034489 -0.151141 -0.341908
21191  1.901784   0.689575  0.130075 -0.469697 -2.337415
23959 -2.184328  -0.469014 -0.253766  0.039899  1.921010
17243  1.467645  -0.442272  1.003870 -0.275659  0.867521
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

```

Dataset shape= (150, 5)
Features          lambda1  lambda2  lambda3  lambda4
sepal-width
19860  1.862703 -0.178549  0.354149 -0.100010  2.0
21958  1.564580 -0.896687 -0.026371 -0.220192  2.9
461    -2.299384 -0.597395  0.091290  0.065956  3.4
39781  1.590077  0.676245  0.638429 -0.191863  3.4
15452  1.440151 -0.046988  0.163630  0.235770  3.2
final shape (150, 5)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]

```

```

Dataset shape= (150, 4)
Features          lambda1  lambda2_x  lambda4  lambda2_y
21444  1.157882 -0.698870  0.040521  1.049169
11504  1.256509 -0.077256 -0.039689  0.295045
36252  0.624570  0.024923  0.147686  0.562010
22524 -2.264703  0.480027 -0.024168  0.137254
2300   -2.262215  2.686284 -0.050534  0.862972
final shape (150, 4)

```

Accuracy= 0.9266666666666666

Confusion Matrix

```

[[50  0  0]
 [ 0 48  2]

```

```
[ 0  9 41]]
Dataset shape= (150, 4)
Features          lambda1  lambda2_x  lambda3  lambda2_y
33571  0.632858  -0.416388 -0.291896  -0.571764
26104 -2.227163   0.137254  0.117994   0.646835
21917  1.564580  -0.896687 -0.026371   0.488838
23767 -2.334640  -1.115328  0.145077  -0.792096
28522 -2.286475   0.441715  0.034895   0.458344
final shape (150, 4)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 5)

```
Features          lambda1  lambda2_x  lambda3  lambda4
lambda2_y
27595 -2.446177   2.150728 -0.082668  0.048214   0.386966
42513  1.114148  -0.292923 -0.183488  0.186344  -0.186225
38135  1.867812   0.295045  0.395628  0.016298  -0.206107
28242 -2.429633  -0.904180  0.193255  0.009738  -0.479101
30839  0.388687  -0.593284  0.124192  0.240831  -1.329325
final shape (150, 5)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

Dataset shape= (150, 4)

```
Features          lambda1  lambda3  lambda4_x  lambda4_y
13920  0.336530 -0.199390  -0.006531  -0.167951
35184  0.223979  0.665250   0.254828   0.254828
20135  1.202473 -0.164724   0.489483  -0.168908
8479   0.746530  0.148969   0.077370  -0.064788
1533   -2.166310 -0.268681  -0.016731   0.048214
final shape (150, 4)
```

Accuracy= 0.9266666666666666

Confusion Matrix

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

```
Dataset shape= (150, 5)
Features          lambda1    lambda2    lambda3    lambda4
petal-width
13985 -0.362183 -2.019238  0.105821 -0.019571      0.2
27628 -2.109975 -0.460202 -0.170275 -0.029023      0.2
33164  0.476287 -0.417320 -0.264952 -0.113568      0.2
16027  0.367018 -1.561503  0.986893  0.133124      1.8
33170  0.476287 -0.417320 -0.264952 -0.113568      0.2
final shape (150, 5)
```

```
Accuracy= 0.9266666666666666
```

```
Confusion Matrix
```

```
[[50  0  0]
 [ 0 48  2]
 [ 0  9 41]]
```

```
Dataset shape= (150, 5)
Features          lambda1_x    lambda2    lambda3    lambda4
lambda1_y
7517 1.101781  0.862972 -0.684586 -0.034834 -2.190350
5714  -2.429633 -0.904180  0.193255  0.009738 -2.198741
20032  1.114148 -0.292923 -0.183488  0.186344  0.241538
33707  0.702661 -0.063412 -0.446027 -0.043458  2.302439
27043 -2.140122 -0.504541 -0.075008  0.048189 -1.964448
final shape (150, 5)
```