```
In [3]: import numpy as np
        import matplotlib.pyplot as plt
        import pandas as pd
```

```
In [4]: dataset = pd.read_csv('https://raw.githubusercontent.com/mk-gurucharan/Classificati

        X=dataset.iloc[:,:4].values
        y = dataset['species'].values
        print(dataset.head(5))
```

```
   sepal_length  sepal_width  petal_length  petal_width species
0           5.1          3.5           1.4          0.2  setosa
1           4.9          3.0           1.4          0.2  setosa
2           4.7          3.2           1.3          0.2  setosa
3           4.6          3.1           1.5          0.2  setosa
4           5.0          3.6           1.4          0.2  setosa
```

```
In [6]: from sklearn.model_selection import train_test_split
        X_train, X_test, y_train, y_test =train_test_split(X, y, test_size = 0.2)
```

```
In [8]: from sklearn.preprocessing import StandardScaler
        sc = StandardScaler()
        X_train = sc.fit_transform(X_train)
        X_test = sc.transform(X_test)
```

```
In [9]: from sklearn.naive_bayes import GaussianNB
        classifier = GaussianNB()
        classifier.fit(X_train, y_train)
```

```
Out[9]: ▾ GaussianNB

        GaussianNB()
```

```
In [10]: y_pred = classifier.predict(X_test)
```

```
In [12]: from sklearn.metrics import confusion_matrix
         cm =confusion_matrix(y_test, y_pred)
         from sklearn.metrics import accuracy_score
         print("Accuracy : ", accuracy_score(y_test,y_pred))
         print(cm)
```

```
Accuracy :  0.9666666666666667
[[ 9  0  0]
 [ 0 12  0]
 [ 0  1  8]]
```

```
In [13]: df = pd.DataFrame({'Real Values':y_test, 'Predicted Values':y_pred})
         print(df)
```

```
   Real Values Predicted Values
0   versicolor       versicolor
1    virginica        virginica
2   versicolor       versicolor
3    virginica        virginica
4    virginica       versicolor
5       setosa           setosa
6   versicolor       versicolor
7       setosa           setosa
8   versicolor       versicolor
9    virginica        virginica
10      setosa           setosa
11      setosa           setosa
12   virginica        virginica
13      setosa           setosa
14   virginica        virginica
15  versicolor       versicolor
16  versicolor       versicolor
17      setosa           setosa
18   virginica        virginica
19   virginica        virginica
20  versicolor       versicolor
21  versicolor       versicolor
22  versicolor       versicolor
23  versicolor       versicolor
24   virginica        virginica
25  versicolor       versicolor
26      setosa           setosa
27      setosa           setosa
28  versicolor       versicolor
29      setosa           setosa
```

```
In [14]: from sklearn.metrics import precision_score, recall_score, accuracy_score
```

```
In [16]: m=accuracy_score(y_test, y_pred)
         print("error rate:-",1-m)
```

```
error rate:- 0.033333333333333326
```

```
In [17]: print('Precision:',precision_score(y_test,y_pred,average='micro'))
```

```
Precision: 0.9666666666666667
```

```
In [18]: print("Recall Score:",recall_score(y_test,y_pred,average='micro'))
```

```
Recall Score: 0.9666666666666667
```