```
In [ ]:   import numpy as np
          import matplotlib.pyplot as plt
          import pandas as pd
          ds = pd.read_csv("iris.csv")

          x = ds.iloc[:,:4].values
          y=ds['Species'].values
          ds.head(5)
```

Out[ ]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

```
In [ ]:   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)
```

Feature Scaling

```
In [ ]:   from sklearn.preprocessing import StandardScaler as ss
          sc = ss()
          x_train = sc.fit_transform(x_train)
          x_test = sc.transform(x_test)
```

Training the Naive Bayes Classification model on the Training Set

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

Out[ ]:   GaussianNB()

Predicting the Test set results

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

Out[ ]:   array(['Iris-virginica', 'Iris-setosa', 'Iris-versicolor', 'Iris-setosa',
                 'Iris-setosa', 'Iris-virginica', 'Iris-setosa', 'Iris-setosa',
                 'Iris-versicolor', 'Iris-setosa', 'Iris-virginica', 'Iris-setosa',
                 'Iris-setosa', 'Iris-setosa', 'Iris-versicolor', 'Iris-versicolor',
                 'Iris-virginica', 'Iris-virginica', 'Iris-versicolor',
                 'Iris-virginica', 'Iris-setosa', 'Iris-versicolor',
                 'Iris-virginica', 'Iris-virginica', 'Iris-virginica',
                 'Iris-setosa', 'Iris-setosa', 'Iris-setosa', 'Iris-versicolor',
                 'Iris-virginica'], dtype='<U15')

Confusion Matrix and Accuracy

In [ ]:
```python
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))
cm
```

Out[ ]:
```
Accuracy :  1.0
array([[13,  0,  0],
       [ 0,  7,  0],
       [ 0,  0, 10]], dtype=int64)
```

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

Out[ ]:

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