In [23]:
```
import pandas as pd
```

In [24]:
```
path="https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data"
```

In [25]:
```
headernames = ['sepal-length', 'sepal-width', 'petal-length', 'petal-width','clas
```

In [26]:
```
data=pd.read_csv(path,names=headernames)
data
```

Out[26]:

	sepal-length	sepal-width	petal-length	petal-width	class
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	Iris-virginica
146	6.3	2.5	5.0	1.9	Iris-virginica
147	6.5	3.0	5.2	2.0	Iris-virginica
148	6.2	3.4	5.4	2.3	Iris-virginica
149	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 5 columns

In [32]:
```
x=data.drop(['class'],axis=1)
y=data['class']
```

In [33]:
```
x
```

Out[33]:

	sepal-length	sepal-width	petal-length	petal-width
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
...	...	...	...	...
145	6.7	3.0	5.2	2.3
146	6.3	2.5	5.0	1.9
147	6.5	3.0	5.2	2.0
148	6.2	3.4	5.4	2.3
149	5.9	3.0	5.1	1.8

150 rows × 4 columns

In [34]:
```
y
```

Out[34]:
```
0          Iris-setosa
1          Iris-setosa
2          Iris-setosa
3          Iris-setosa
4          Iris-setosa
             ...
145    Iris-virginica
146    Iris-virginica
147    Iris-virginica
148    Iris-virginica
149    Iris-virginica
Name: class, Length: 150, dtype: object
```

In [38]:
```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
```

In [39]:
```
from sklearn.naive_bayes import GaussianNB
model=GaussianNB()
```

In [40]:
```
model.fit(x_train,y_train)
```

Out[40]:
```
GaussianNB()
```

In [41]:
```
model.score(x_test,y_test)
```

Out[41]:
```
0.9777777777777777
```

In [42]:
```
x_test[0:10]
```

Out[42]:

	sepal-length	sepal-width	petal-length	petal-width
114	5.8	2.8	5.1	2.4
45	4.8	3.0	1.4	0.3
102	7.1	3.0	5.9	2.1
144	6.7	3.3	5.7	2.5
99	5.7	2.8	4.1	1.3
147	6.5	3.0	5.2	2.0
0	5.1	3.5	1.4	0.2
39	5.1	3.4	1.5	0.2
107	7.3	2.9	6.3	1.8
17	5.1	3.5	1.4	0.3

In [43]:
```
y_test[0:10]
```

Out[43]:
```
114     Iris-virginica
45         Iris-setosa
102     Iris-virginica
144     Iris-virginica
99     Iris-versicolor
147     Iris-virginica
0          Iris-setosa
39         Iris-setosa
107     Iris-virginica
17         Iris-setosa
Name: class, dtype: object
```

In [44]:
```
model.predict(x_test[0:10])
```

Out[44]:
```
array(['Iris-virginica', 'Iris-setosa', 'Iris-virginica',
       'Iris-virginica', 'Iris-versicolor', 'Iris-virginica',
       'Iris-setosa', 'Iris-setosa', 'Iris-virginica', 'Iris-setosa'],
      dtype='<U15')
```

In [45]:
```
model.predict_proba(x_test[:10])
```

Out[45]:
```
array([[1.07285041e-177, 2.66233016e-006, 9.99997338e-001],
       [1.00000000e+000, 5.86244098e-020, 1.75168182e-024],
       [4.95750689e-206, 2.28452306e-007, 9.99999772e-001],
       [2.07096360e-221, 5.17217383e-010, 9.99999999e-001],
       [1.25593696e-069, 9.99801485e-001, 1.98515367e-004],
       [1.08082406e-156, 8.56079583e-004, 9.99143920e-001],
       [1.00000000e+000, 7.99623133e-022, 7.07295737e-026],
       [1.00000000e+000, 7.79402492e-021, 4.30056665e-025],
       [1.26094192e-213, 6.38057950e-007, 9.99999362e-001],
       [1.00000000e+000, 1.34929271e-020, 7.54972439e-025]])
```

In [49]:
```
from sklearn.model_selection import cross_val_score
a=cross_val_score(GaussianNB(),x_train,y_train,cv=3)
```

In [50]:
```
a.mean()
```

Out[50]:
```
0.9619047619047619
```

In [ ]:
```

```