step-1

Import libraries

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

Step-2

Import DataSet

```
df=sns.load_dataset("iris")
df.head()
```

	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

Step-3

Selecting Input &Output

```
#selecting input and output
X=df.iloc[:,:-1]
y=df.iloc[:,-1:]
```

Step-4

Fit Data

```
from sklearn.naive_bayes import GaussianNB
model=GaussianNB().fit(X,y)
model
```

```
/usr/local/lib/python3.10/dist-packages/sklearn/utils/validation.py:1143: DataConv
  y = column_or_1d(y, warn=True)
▾ GaussianNB
GaussianNB()
```

```
# train test split and checking accuracy
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,random_state=0)
```

```
# Training the model on training data
from sklearn.naive_bayes import GaussianNB
model=GaussianNB().fit(X_train, y_train)
model
```

```
/usr/local/lib/python3.10/dist-packages/sklearn/utils/validation.py:1143: DataConv
  y = column_or_1d(y, warn=True)
▾ GaussianNB
GaussianNB()
```

```
# making predictions on testing data
y_pred=model.predict(X_test)
y_pred
```

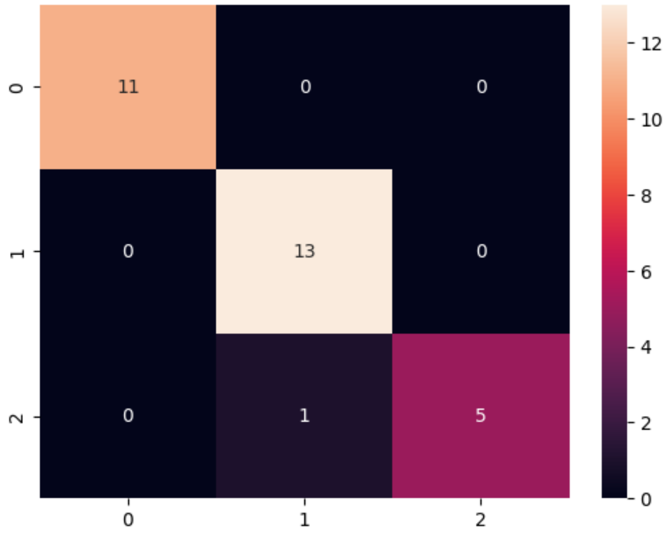
```
    array(['virginica', 'versicolor', 'setosa', 'virginica', 'setosa',
           'virginica', 'setosa', 'versicolor', 'versicolor', 'versicolor',
           'versicolor', 'versicolor', 'versicolor', 'versicolor',
           'versicolor', 'setosa', 'versicolor', 'versicolor', 'setosa',
           'setosa', 'virginica', 'versicolor', 'setosa', 'setosa',
           'virginica', 'setosa', 'setosa', 'versicolor', 'versicolor',
           'setosa'], dtype='<U10')
```

```
from sklearn.metrics import accuracy_score
score=accuracy_score(y_test, y_pred)
print("Naive bayes model accuracy is", score*100)
```

```
    Naive bayes model accuracy is 96.66666666666667
```

```
from sklearn.metrics import confusion_matrix
cm=confusion_matrix(y_test, y_pred)
sns.heatmap(cm,annot=True)
```

```
    <Axes: >
```



0
1
2
11
0
0
0
13
0
0
1
5
0
1
2
12
10
8
6
4
2
0