

▼ Import libraries

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

▼ 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

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

```
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 prediction 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')
```

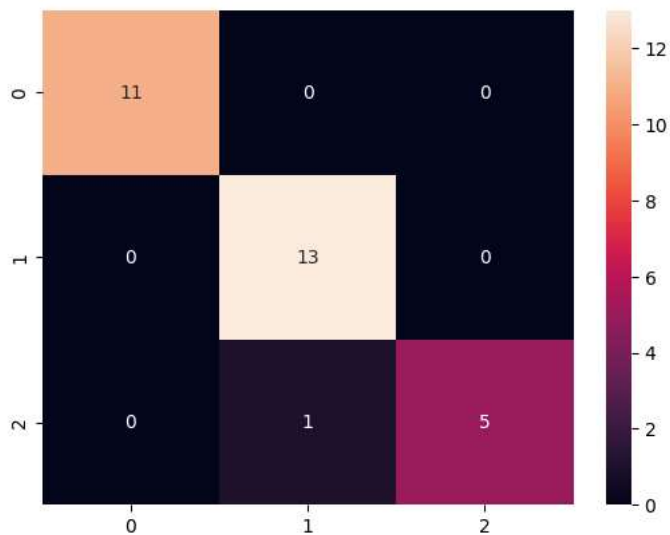
```
from sklearn.metrics import accuracy_score
score= accuracy_score(Y_test, Y_pred)
```

```
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: >



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