

In []:

```

1  '''
2
3  sklearn library contains so many modules and built in ready made features.
4
5  load_iris dataset is already preprocessed and transformed into standard form and ready
6
7  no need to use pandas or numpy calculations
8  or standardscaler to transform data
9
10 we are all set to go directly to our practical.
11
12 Naive Bayes classifier uses conditional probability
13
14  $P(A|B) = (P(B|A) \times P(A)) / P(B)$ 
15
16 Posterior = ( Prior x Likelihood ) / Evidence
17
18 '''

```

In [1]:

```

1 from sklearn.datasets import load_iris
2
3 X,y = load_iris(return_X_y=True) # splitting input and output

```

In [34]:

```

1 from sklearn.model_selection import train_test_split
2
3 xtrain,xtest,ytrain,ytest = train_test_split(X,y,test_size=0.3,random_state=0)
4 # splitting training and testing data into 70% for training and 30% for testing

```

In [35]:

```

1 from sklearn.naive_bayes import GaussianNB # for continous values in gaussian distribution
2                                             # i.e normal distribution
3 clf = GaussianNB()
4
5 clf.fit(xtrain,ytrain)

```

Out[35]:

GaussianNB()

In [36]:

```

1 ypred = clf.predict(xtest)
2
3 ypred

```

Out[36]:

```

array([2, 1, 0, 2, 0, 2, 0, 1, 1, 1, 2, 1, 1, 1, 1, 0, 1, 1, 0, 0, 2, 1,
       0, 0, 2, 0, 0, 1, 1, 0, 2, 1, 0, 2, 2, 1, 0, 1, 1, 1, 2, 0, 2, 0,
       0])

```

In [37]:

```
1 ypred = clf.predict(xtest)
```

In [38]:

```
1 ypred
```

Out[38]:

```
array([2, 1, 0, 2, 0, 2, 0, 1, 1, 1, 2, 1, 1, 1, 1, 0, 1, 1, 0, 0, 2, 1,
       0, 0, 2, 0, 0, 1, 1, 0, 2, 1, 0, 2, 2, 1, 0, 1, 1, 1, 2, 0, 2, 0,
       0])
```

In [39]:

```
1 from sklearn.metrics import confusion_matrix
2
3 cm = confusion_matrix(ytest,ypred)
4 cm
```

Out[39]:

```
array([[16,  0,  0],
       [ 0, 18,  0],
       [ 0,  0, 11]], dtype=int64)
```

In [40]:

```
1 from sklearn.metrics import accuracy_score
2
3 ac = accuracy_score(ytest,ypred)
4 ac = ac*100
5 ac
```

Out[40]:

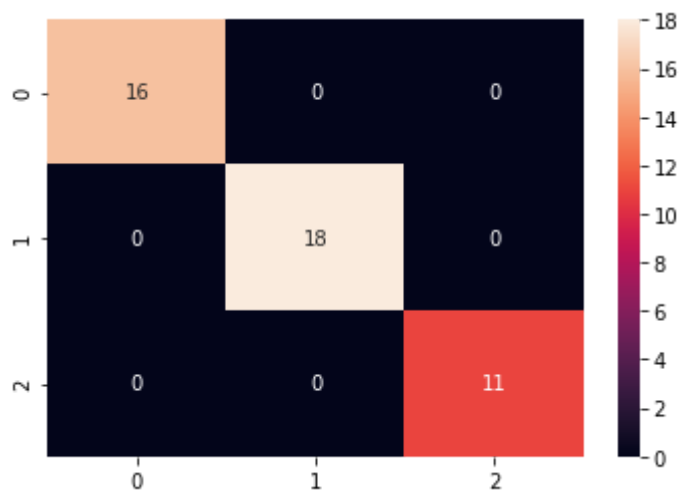
```
100.0
```

In [41]:

```
1 import seaborn as sns
2 sns.heatmap(cm,annot=True)
```

Out[41]:

<matplotlib.axes._subplots.AxesSubplot at 0x1fcc48c9310>



In []:

1