

```
In [2]: #objective 1 : create an Adaboost classifier to predict the iris dataset class  
# Setp 1 : Load the iris dataset  
from sklearn import datasets  
iris=datasets.load_iris()
```

```
In [3]: iris
```

```
[6.3, 2.9, 5.6, 1.8],  
[6.5, 3. , 5.8, 2.2],  
[7.6, 3. , 6.6, 2.1],  
[4.9, 2.5, 4.5, 1.7],  
[7.3, 2.9, 6.3, 1.8],  
[6.7, 2.5, 5.8, 1.8],  
[7.2, 3.6, 6.1, 2.5],  
[6.5, 3.2, 5.1, 2. ],  
[6.4, 2.7, 5.3, 1.9],  
[6.8, 3. , 5.5, 2.1],  
[5.7, 2.5, 5. , 2. ],  
[5.8, 2.8, 5.1, 2.4],  
[6.4, 3.2, 5.3, 2.3],  
[6.5, 3. , 5.5, 1.8],  
[7.7, 3.8, 6.7, 2.2],  
[7.7, 2.6, 6.9, 2.3],  
[6. , 2.2, 5. , 1.5],  
[6.9, 3.2, 5.7, 2.3],  
[5.6, 2.8, 4.9, 2. ],  
[7.7, 2.8, 6.7, 2.1]
```

```
In [4]: #check the data type  
print(type(iris))
```

```
<class 'sklearn.utils.Bunch'>
```

```
In [5]: #prepare the data  
x=iris.data  
y=iris.target
```

In [6]: x

```
[7.4, 2.8, 5.1, 1.5],
[7.9, 3.8, 6.4, 2. ],
[6.4, 2.8, 5.6, 2.2],
[6.3, 2.8, 5.1, 1.5],
[6.1, 2.6, 5.6, 1.4],
[7.7, 3. , 6.1, 2.3],
[6.3, 3.4, 5.6, 2.4],
[6.4, 3.1, 5.5, 1.8],
[6. , 3. , 4.8, 1.8],
[6.9, 3.1, 5.4, 2.1],
[6.7, 3.1, 5.6, 2.4],
[6.9, 3.1, 5.1, 2.3],
[5.8, 2.7, 5.1, 1.9],
[6.8, 3.2, 5.9, 2.3],
[6.7, 3.3, 5.7, 2.5],
[6.7, 3. , 5.2, 2.3],
[6.3, 2.5, 5. , 1.9],
[6.5, 3. , 5.2, 2. ],
[6.2, 3.4, 5.4, 2.3],
[5.9, 3. , 5.1, 1.8]])
```

In [7]: y

```
Out[7]: array([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,
2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,
2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2])
```

```
In [10]: #split the data into training and test dataset
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=.3,random_state=45)
x_train.shape
```

Out[10]: (105, 4)

In [11]: x_test.shape

Out[11]: (45, 4)

In [12]: x.shape

Out[12]: (150, 4)

```
In [18]: # build the classifier
from sklearn.ensemble import AdaBoostClassifier
clf=AdaBoostClassifier(n_estimators=1000,learning_rate=1,random_state=45)

#train the classifier
model=clf.fit(x_train,y_train)

#test the model
y_pred=clf.predict(x_test)
```

```
In [19]: #compute the accuracy and print the confusionmatrix
from sklearn.metrics import accuracy_score,confusion_matrix
print("Accuracy:",accuracy_score(y_test,y_pred))
```

Accuracy: 0.9111111111111111

```
In [21]: print(confusion_matrix(y_test,y_pred))
```

```
[[17  0  0]
 [ 0 13  0]
 [ 0  4 11]]
```

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In [ ]:
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