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Roll No: 03
Sub: Advanced Machine Learning
Practical No: 03

****Aim: Adaboost**

In [1]:
```
import pandas as pd
from sklearn.ensemble import AdaBoostClassifier
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score
from sklearn.metrics import confusion_matrix
```

In [2]:
```
# read the dataset
df = pd.read_csv("C://Users//Niharika//Downloads//apples_and_oranges (1).csv")

# get the locations
X = df.iloc[:, :-1]
y = df.iloc[:, -1]
```

In [3]:
```
df.head()
```

Out[3]:

	Weight	Size	Class
0	69	4.39	orange
1	69	4.21	orange
2	65	4.09	orange
3	72	5.85	apple
4	67	4.70	orange

In [4]:
```
X.head()
```

Out[4]:

	Weight	Size
0	69	4.39
1	69	4.21
2	65	4.09
3	72	5.85
4	67	4.70

In [5]:
```
y.head()
```

Out[5]:
```
0    orange
1    orange
2    orange
3     apple
4    orange
Name: Class, dtype: object
```

In [6]:
```
# split the dataset
seed = 1
X_train, X_test, Y_train, Y_test = train_test_split(
    X, y, test_size=0.2, random_state=seed)
```

****Initializing Adaboost classifier and fitting the training data**

In [7]:
```
adaboost = AdaBoostClassifier(n_estimators=100, base_estimator= None,learning_rate=1, random_state = 1)
adaboost.fit(X_train,Y_train)
```

Out[7]:
```
AdaBoostClassifier(learning_rate=1, n_estimators=100, random_state=1)
```

In [8]:
```
#Predicting the classes for test set
Y_pred = adaboost.predict(X_test)
```

In [9]:
```
cm = confusion_matrix(Y_test,Y_pred)
accuracy = float(cm.diagonal().sum())/len(Y_test)
print("\nAccuracy Of AdaBoost For The Given Dataset : ", accuracy)
```

```
Accuracy Of AdaBoost For The Given Dataset :  1.0
```

In [ ]: