import libraries

```
In [2]: import pandas as pd
        import numpy as np
        from sklearn import datasets
        from sklearn.model_selection import train_test_split
        from sklearn import metrics
        from sklearn.ensemble import AdaBoostClassifier
```

load data

```
In [5]: iris = datasets.load_iris()
```

```
In [11]: iris.feature_names
```

```
Out[11]: ['sepal length (cm)',
          'sepal width (cm)',
          'petal length (cm)',
          'petal width (cm)']
```

```
In [13]: X = iris.data
         y = iris.target
```

```
In [18]: iris_df = pd.DataFrame(X)
         iris_df.columns = iris.feature_names
         iris_df['species'] = iris.target
         iris_df.head()
```

Out[18]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	species
0	5.1	3.5	1.4	0.2	0
1	4.9	3.0	1.4	0.2	0
2	4.7	3.2	1.3	0.2	0
3	4.6	3.1	1.5	0.2	0
4	5.0	3.6	1.4	0.2	0

```
In [15]: X.shape
```

Out[15]: (150, 4)

```
In [16]: y
```

Out[16]: 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, 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, 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 [23]: # split the data in training and testing set

         X_train, X_test, y_train,y_test = train_test_split(X,y, test_size = 0.30, random_state = 42)
```

```
In [24]: print("X_train shape : " , X_train.shape)
         print("X_test shape : " , X_test.shape)
         print("y_train shape : " , y_train.shape)
         print("y_test shape : " , y_test.shape)

         X_train shape :  (105, 4)
         X_test shape :  (45, 4)
         y_train shape :  (105,)
         y_test shape :  (45,)
```

```
In [39]: # create adaboost classifier

         ad = AdaBoostClassifier(n_estimators = 10,learning_rate=1)

         model = ad.fit(X_train,y_train)
         y_pred = model.predict(X_test)
         y_pred
```

```
Out[39]: array([1, 0, 2, 1, 1, 0, 1, 2, 1, 1, 2, 0, 0, 0, 0, 1, 2, 1, 1, 2, 0, 2,
                0, 2, 2, 2, 2, 2, 0, 0, 0, 0, 1, 0, 0, 2, 1, 0, 0, 0, 2, 1, 1, 0,
                0])
```

```
In [40]: # accuracy

         acc = metrics.accuracy_score(y_test,y_pred)
         print(acc)

         1.0
```

```
In [ ]:
```

```
In [29]: # perfom same operation using different model for classification
```

```
In [32]: from sklearn.svm import SVC

         svc = SVC(probability = True,kernel = 'linear')
```

```
In [37]:  # create adaboost classifier

          ad1 = AdaBoostClassifier(n_estimators = 10,base_estimator = svc, learning_rate=1)

          model1 = ad1.fit(X_train,y_train)
          y_pred1 = model1.predict(X_test)
          y_pred1
```

Out[37]: array([1, 0, 2, 1, 1, 0, 1, 2, 2, 1, 2, 0, 0, 0, 0, 1, 2, 1, 1, 2, 0, 2,
               0, 2, 2, 2, 2, 2, 0, 0, 0, 0, 1, 0, 0, 2, 1, 0, 0, 0, 2, 1, 1, 0,
               0])

```
In [38]:  # accuracy

          acc1 = metrics.accuracy_score(y_test,y_pred1)
          print(acc1)
```

0.9777777777777777

In [ ]: