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Roll : PE29

Sub : IMLA (Panel 2)

Lab assi 1

```
import pandas as pd
import numpy as np
```

```
from sklearn.datasets import load_iris

data = load_iris()
ds = pd.DataFrame(data.data, columns=data.feature_names)
ds.head()
```

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

```
x = ds.data
y = ds.target
print(x)
print(y)
```

```
     sepal length (cm)  sepal width (cm)  petal length (cm)  petal width (cm)
0                  5.1               3.5                1.4               0.2
1                  4.9               3.0                1.4               0.2
2                  4.7               3.2                1.3               0.2
3                  4.6               3.1                1.5               0.2
4                  5.0               3.6                1.4               0.2
..                 ...               ...                ...               ...
145                6.7               3.0                5.2               2.3
146                6.3               2.5                5.0               1.9
147                6.5               3.0                5.2               2.0
148                6.2               3.4                5.4               2.3
149                5.9               3.0                5.1               1.8
```

```
[150 rows x 4 columns]
0      0
1      0
2      0
3      0
4      0
      ..
145    2
146    2
147    2
148    2
149    2
Name: target, Length: 150, dtype: int32
```

```
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)
```

```
from sklearn.tree import DecisionTreeClassifier
clf = DecisionTreeClassifier()
clf.fit(x_train, y_train)
```

```
DecisionTreeClassifier()
```

```
y_pred = clf.predict(x_test)
```

```
from sklearn.metrics import confusion_matrix
confusion_matrix(y_test,y_pred)
```

```
array([[12,  0,  0],
       [ 0,  8,  1],
       [ 0,  0,  9]], dtype=int64)
```

```
from sklearn.metrics import accuracy_score
print(accuracy_score(y_test, y_pred))
```

```
0.9666666666666667
```