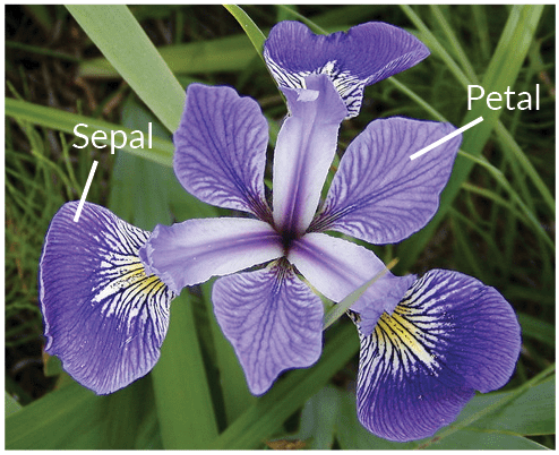
Application 2

Supervised Machine Learning

Iris Dataset

In this application we are using Iris data set which contains information about the flowers under Iris family.

There are three types of flowers in this family as



Iris Versicolor

Iris Setosa

Iris Virginica

This data set contains 4 Features as Sepal length, Sepal width, petal length and petal width.
This data set contains 150 records as

Dataset Order	Sepal length	Sepal width	Petal length	Petal width	Species
1	5.1	3.5	1.4	0.2	*I. setosa*
2	4.9	3.0	1.4	0.2	*I. setosa*
3	4.7	3.2	1.3	0.2	*I. setosa*
4	4.6	3.1	1.5	0.2	*I. setosa*
5	5.0	3.6	1.4	0.3	*I. setosa*
6	5.4	3.9	1.7	0.4	*I. setosa*
7	4.6	3.4	1.4	0.3	*I. setosa*
8	5.0	3.4	1.5	0.2	*I. setosa*
9	4.4	2.9	1.4	0.2	*I. setosa*
10	4.9	3.1	1.5	0.1	*I. setosa*
11	5.4	3.7	1.5	0.2	*I. setosa*
12	4.8	3.4	1.6	0.2	*I. setosa*
13	4.8	3.0	1.4	0.1	*I. setosa*
14	4.3	3.0	1.1	0.1	*I. setosa*
15	5.8	4.0	1.2	0.2	*I. setosa*
16	5.7	4.4	1.5	0.4	*I. setosa*
17	5.4	3.9	1.3	0.4	*I. setosa*
18	5.1	3.5	1.4	0.3	*I. setosa*
19	5.7	3.8	1.7	0.3	*I. setosa*
20	5.1	3.8	1.5	0.3	*I. setosa*
21	5.4	3.4	1.7	0.2	*I. setosa*
22	5.1	3.7	1.5	0.4	*I. setosa*
23	4.6	3.6	1.0	0.2	*I. setosa*
24	5.1	3.3	1.7	0.5	*I. setosa*
25	4.8	3.4	1.9	0.2	*I. setosa*
26	5.0	3.0	1.6	0.2	*I. setosa*
27	5.0	3.4	1.6	0.4	*I. setosa*
28	5.2	3.5	1.5	0.2	*I. setosa*

Consider below characteristics of Machine Learning Application :

Classifier :	**Decision Tree**
DataSet :	**Iris Dataset**
Features :	**Sepal Width, Sepal Length, Petal Width, Petal Length**
Labels :	**Versicolor, Setosa , Virginica**
Training Dataset :	**150 Entries**
Testing Dataset :	**-**

Consider below application which loads Iris dataset and display all records and labels of that data set

```
1  from sklearn.datasets import load_iris
2
3  iris = load_iris()
4
5  print("Feature names of iris data set")
6  print(iris.feature_names)
7
8  print("Target names of iris data set")
9  print(iris.target_names)
10
11 print("First 10 elemets from iris data set")
12
13 for i in range(len(iris.target)):
14     print("ID: %d, Label %s, Feature : %s" % (i,iris.data[i],iris.target[i]))
15
```

Output of above application

```
iris — -bash — 51×20
(base) MacBook-Pro-de-MARVELLOUS:iris marvellous$ p
ython3 iris.py
Feature names of iris data set
['sepal length (cm)', 'sepal width (cm)', 'petal le
ngth (cm)', 'petal width (cm)']
Target names of iris data set
['setosa' 'versicolor' 'virginica']
First 10 elemets from iris data set
ID: 0, Label [5.1 3.5 1.4 0.2], Feature : 0
ID: 1, Label [4.9 3.  1.4 0.2], Feature : 0
ID: 2, Label [4.7 3.2 1.3 0.2], Feature : 0
ID: 3, Label [4.6 3.1 1.5 0.2], Feature : 0
ID: 4, Label [5.  3.6 1.4 0.2], Feature : 0
ID: 5, Label [5.4 3.9 1.7 0.4], Feature : 0
ID: 6, Label [4.6 3.4 1.4 0.3], Feature : 0
ID: 7, Label [5.  3.4 1.5 0.2], Feature : 0
ID: 8, Label [4.4 2.9 1.4 0.2], Feature : 0
ID: 9, Label [4.9 3.1 1.5 0.1], Feature : 0
ID: 10, Label [5.4 3.7 1.5 0.2], Feature : 0
ID: 11, Label [4.8 3.4 1.6 0.2], Feature : 0
```