```
from sklearn.datasets import load_iris
from sklearn.tree import DecisionTreeClassifier
from sklearn.model_selection import train_test_split
from sklearn import metrics
import pandas as pd
```

```
df = pd.read_csv('/content/iris.csv')
```

```
df
```

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	virginica
146	6.3	2.5	5.0	1.9	virginica
147	6.5	3.0	5.2	2.0	virginica
148	6.2	3.4	5.4	2.3	virginica
149	5.9	3.0	5.1	1.8	virginica

150 rows × 5 columns

```
df.head(5)
```

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

```
x=df.iloc[:,:4]
```

x

	sepal_length	sepal_width	petal_length	petal_width
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 × 4 columns

```
y= df.iloc[:,-1]
```

```
y
```

```
0         setosa
1         setosa
2         setosa
3         setosa
4         setosa
          ...
145    virginica
146    virginica
147    virginica
148    virginica
149    virginica
Name: species, Length: 150, dtype: object
```

```
dt = DecisionTreeClassifier()
```

```
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.3,random_state= 14)
```

```
dt.fit(x_train,y_train)
```

```
DecisionTreeClassifier()
```

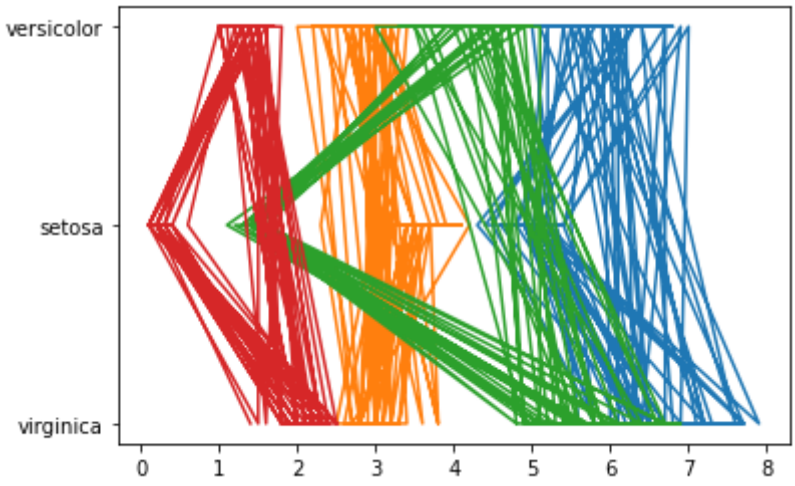
```
y_pred = dt.predict(x_test)
```

```
print("Accuracy is : ",metrics.accuracy_score(y_test,y_pred))
```

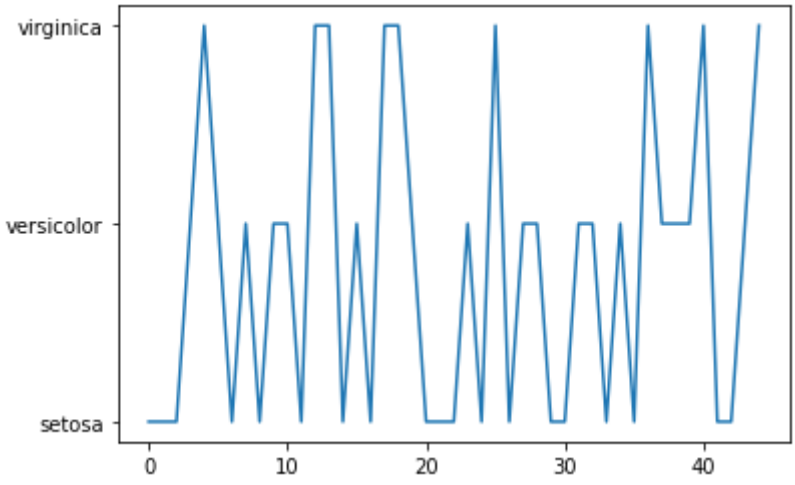
```
Accuracy is :  0.9555555555555556
```

```
import matplotlib.pyplot as plt
```

```
plt.plot(x_train,y_train)
plt.show()
```

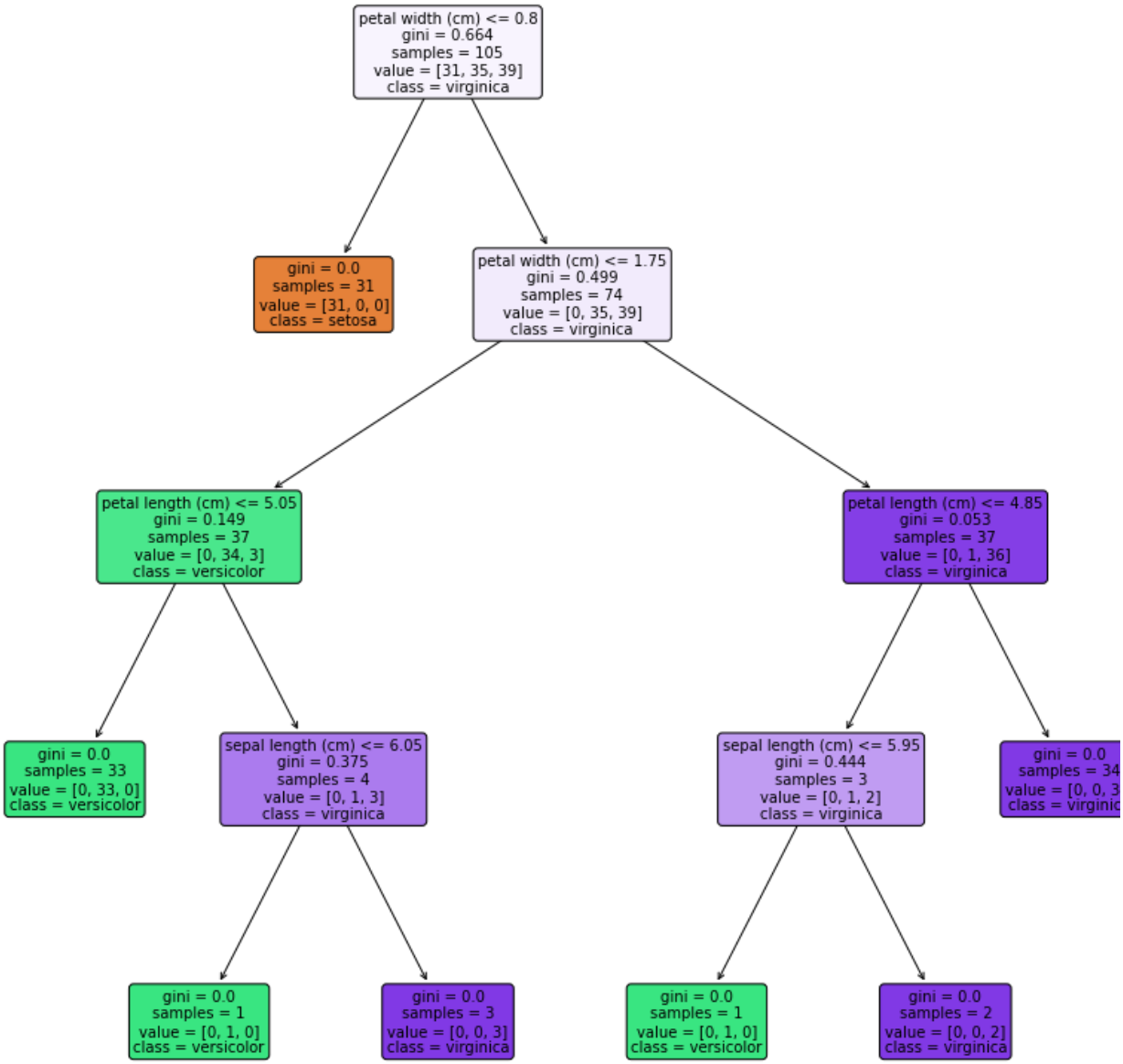



```
plt.plot(y_pred)
plt.show()
```




```
from sklearn import tree
from sklearn.tree import plot_tree
```

```
plt.figure(figsize=(15,15))
tree.plot_tree(dt,fontsize=10,filled=True,rounded=True,class_names=iris.target_names,featu
plt.show()
```


petal width (cm) <= 0.8
gini = 0.664
samples = 105
value = [31, 35, 39]
class = virginica
gini = 0.0
samples = 31
value = [31, 0, 0]
class = setosa
petal width (cm) <= 1.75
gini = 0.499
samples = 74
value = [0, 35, 39]
class = virginica
petal length (cm) <= 5.05
gini = 0.149
samples = 37
value = [0, 34, 3]
class = versicolor
petal length (cm) <= 4.85
gini = 0.053
samples = 37
value = [0, 1, 36]
class = virginica
gini = 0.0
samples = 33
value = [0, 33, 0]
class = versicolor
sepal length (cm) <= 6.05
gini = 0.375
samples = 4
value = [0, 1, 3]
class = virginica
sepal length (cm) <= 5.95
gini = 0.444
samples = 3
value = [0, 1, 2]
class = virginica
gini = 0.0
samples = 34
value = [0, 0, 3
class = virginic
gini = 0.0
samples = 1
value = [0, 1, 0]
class = versicolor
gini = 0.0
samples = 3
value = [0, 0, 3]
class = virginica
gini = 0.0
samples = 1
value = [0, 1, 0]
class = versicolor
gini = 0.0
samples = 2
value = [0, 0, 2]
class = virginica

✓ 1s completed at 3:23 PM