In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier,plot_tree
```

In [2]:
```
a=pd.read_csv('iris.csv')
a
```

Out[2]:

	sepal.length	sepal.width	petal.length	petal.width	variety
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

In [3]:
```
X=a.drop('variety',axis=1)
X
```

Out[3]:

	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

In [4]:
```
Y=a['variety']
```

In [5]:
```
Y
```

Out[5]:
```
0         Setosa
1         Setosa
2         Setosa
3         Setosa
4         Setosa
          ...
145    Virginica
146    Virginica
147    Virginica
148    Virginica
149    Virginica
Name: variety, Length: 150, dtype: object
```

In [6]:
```
X_train,X_test,Y_train,Y_test=train_test_split(X,Y,test_size=0.2,random_state=
model=DecisionTreeClassifier(random_state=42)
model.fit(X_train,Y_train)
```

Out[6]:

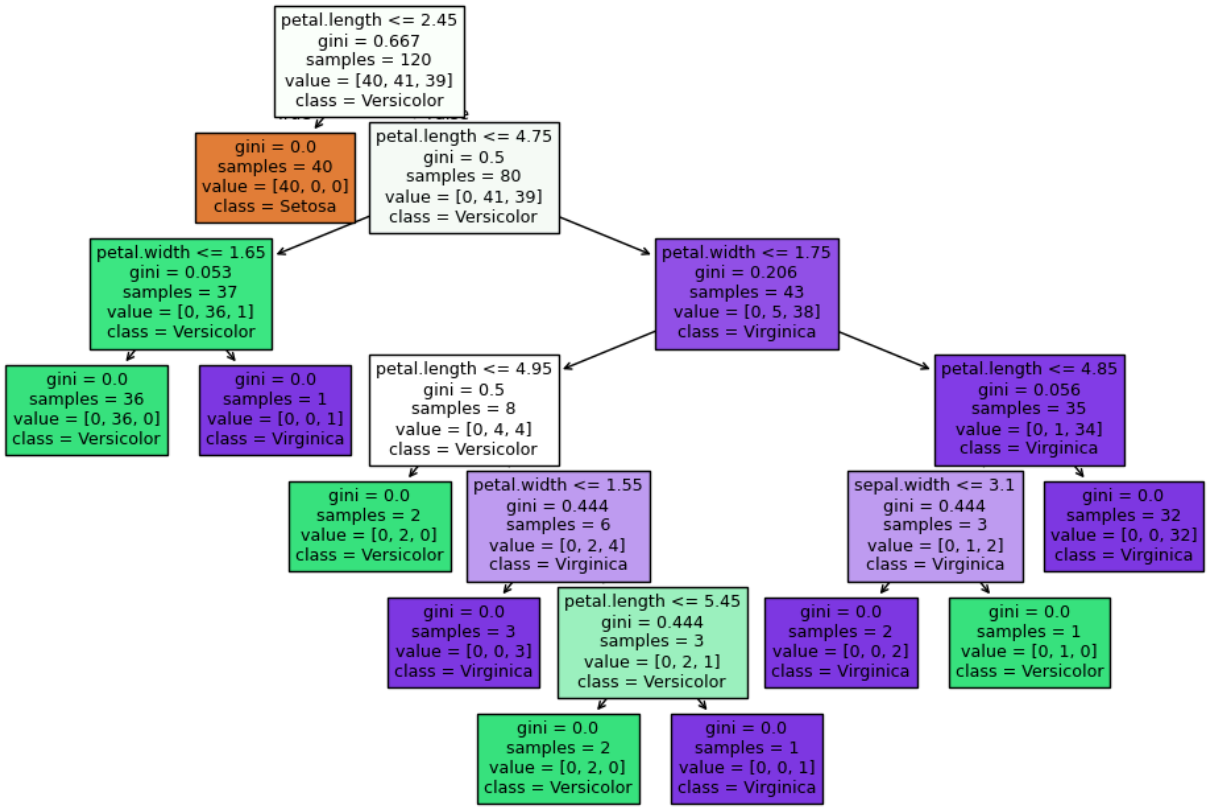
DecisionTreeClassifier

Parameters

criterion	'gini'
splitter	'best'
max_depth	None
min_samples_split	2
min_samples_leaf	1
min_weight_fraction_leaf	0.0
max_features	None
random_state	42
max_leaf_nodes	None
min_impurity_decrease	0.0
class_weight	None
ccp_alpha	0.0
monotonic_cst	None

In [10]:

```
plt.figure(figsize=(12,8))
plot_tree(model,feature_names=X.columns,class_names=model.classes_,filled=True
plt.show()
```


petal.length <= 2.45
gini = 0.667
samples = 120
value = [40, 41, 39]
class = Versicolor
gini = 0.0
samples = 40
value = [40, 0, 0]
class = Setosa
petal.length <= 4.75
gini = 0.5
samples = 80
value = [0, 41, 39]
class = Versicolor
petal.width <= 1.65
gini = 0.053
samples = 37
value = [0, 36, 1]
class = Versicolor
petal.width <= 1.75
gini = 0.206
samples = 43
value = [0, 5, 38]
class = Virginica
gini = 0.0
samples = 36
value = [0, 36, 0]
class = Versicolor
gini = 0.0
samples = 1
value = [0, 0, 1]
class = Virginica
petal.length <= 4.95
gini = 0.5
samples = 8
value = [0, 4, 4]
class = Versicolor
petal.length <= 4.85
gini = 0.056
samples = 35
value = [0, 1, 34]
class = Virginica
gini = 0.0
samples = 2
value = [0, 2, 0]
class = Versicolor
petal.width <= 1.55
gini = 0.444
samples = 6
value = [0, 2, 4]
class = Virginica
sepal.width <= 3.1
gini = 0.444
samples = 3
value = [0, 1, 2]
class = Virginica
gini = 0.0
samples = 32
value = [0, 0, 32]
class = Virginica
gini = 0.0
samples = 3
value = [0, 0, 3]
class = Virginica
petal.length <= 5.45
gini = 0.444
samples = 3
value = [0, 2, 1]
class = Versicolor
gini = 0.0
samples = 2
value = [0, 0, 2]
class = Virginica
gini = 0.0
samples = 1
value = [0, 1, 0]
class = Versicolor
gini = 0.0
samples = 2
value = [0, 2, 0]
class = Versicolor
gini = 0.0
samples = 1
value = [0, 0, 1]
class = Virginica

In [ ]: