To create decision tree classifier and visualize it graphically

In [9]:

```
import pandas as pd
```

In [10]:

```
import matplotlib.pyplot as plt
%matplotlib inline
```

In [11]:

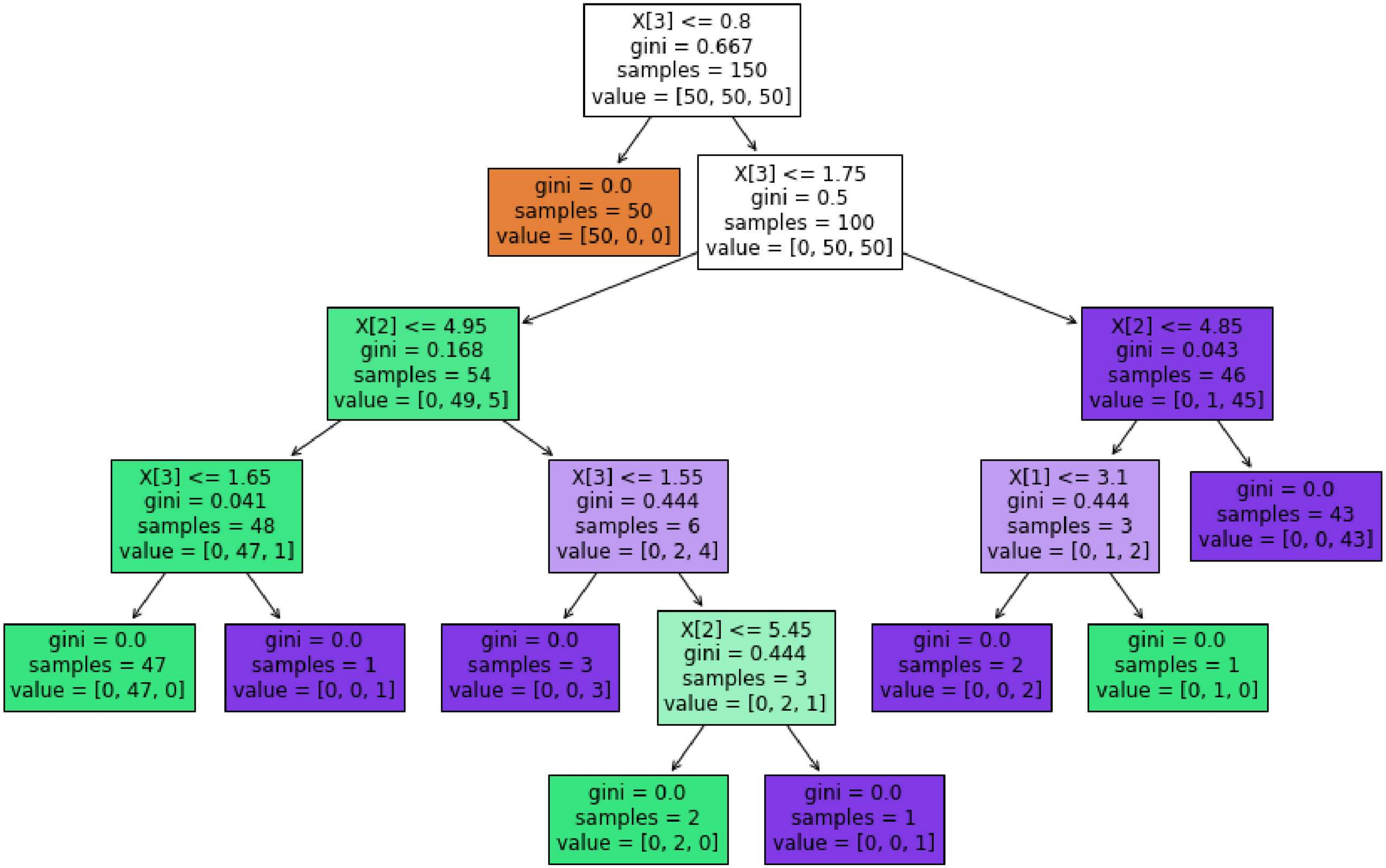
```
from sklearn.datasets import load_iris
from sklearn import tree

clf = tree.DecisionTreeClassifier(random_state=0)
iris = load_iris()

clf = clf.fit(iris.data, iris.target)
```

In [12]:
```
plt.figure(figsize=(15,10))
tree.plot_tree(clf,filled=True)
```

Out[12]:
```
[Text(418.5, 498.3, 'X[3] <= 0.8\ngini = 0.667\nsamples = 150\nvalue = [50, 50, 50]'),
 Text(354.11538461538464, 407.70000000000005, 'gini = 0.0\nsamples = 50\nvalue = [50, 0, 0]'),
 Text(482.8846153846154, 407.70000000000005, 'X[3] <= 1.75\ngini = 0.5\nsamples = 100\nvalue = [0, 50, 50]'),
 Text(257.53846153846155, 317.1, 'X[2] <= 4.95\ngini = 0.168\nsamples = 54\nvalue = [0, 49, 5]'),
 Text(128.76923076923077, 226.5, 'X[3] <= 1.65\ngini = 0.041\nsamples = 48\nvalue = [0, 47, 1]'),
 Text(64.38461538461539, 135.89999999999998, 'gini = 0.0\nsamples = 47\nvalue = [0, 47, 0]'),
 Text(193.15384615384616, 135.89999999999998, 'gini = 0.0\nsamples = 1\nvalue = [0, 0, 1]'),
 Text(386.3076923076923, 226.5, 'X[3] <= 1.55\ngini = 0.444\nsamples = 6\nvalue = [0, 2, 4]'),
 Text(321.9230769230769, 135.89999999999998, 'gini = 0.0\nsamples = 3\nvalue = [0, 0, 3]'),
 Text(450.69230769230774, 135.89999999999998, 'X[2] <= 5.45\ngini = 0.444\nsamples = 3\nvalue = [0, 2, 1]'),
 Text(386.3076923076923, 45.29999999999955, 'gini = 0.0\nsamples = 2\nvalue = [0, 2, 0]'),
 Text(515.0769230769231, 45.29999999999955, 'gini = 0.0\nsamples = 1\nvalue = [0, 0, 1]'),
 Text(708.2307692307693, 317.1, 'X[2] <= 4.85\ngini = 0.043\nsamples = 46\nvalue = [0, 1, 45]'),
 Text(643.8461538461538, 226.5, 'X[1] <= 3.1\ngini = 0.444\nsamples = 3\nvalue = [0, 1, 2]'),
 Text(579.4615384615385, 135.89999999999998, 'gini = 0.0\nsamples = 2\nvalue = [0, 0, 2]'),
 Text(708.2307692307693, 135.89999999999998, 'gini = 0.0\nsamples = 1\nvalue = [0, 1, 0]'),
 Text(772.6153846153846, 226.5, 'gini = 0.0\nsamples = 43\nvalue = [0, 0, 43]')]
```


X[3] <= 0.8
gini = 0.667
samples = 150
value = [50, 50, 50]
gini = 0.0
samples = 50
value = [50, 0, 0]
X[3] <= 1.75
gini = 0.5
samples = 100
value = [0, 50, 50]
X[2] <= 4.95
gini = 0.168
samples = 54
value = [0, 49, 5]
X[2] <= 4.85
gini = 0.043
samples = 46
value = [0, 1, 45]
X[3] <= 1.65
gini = 0.041
samples = 48
value = [0, 47, 1]
X[3] <= 1.55
gini = 0.444
samples = 6
value = [0, 2, 4]
X[1] <= 3.1
gini = 0.444
samples = 3
value = [0, 1, 2]
gini = 0.0
samples = 43
value = [0, 0, 43]
gini = 0.0
samples = 47
value = [0, 47, 0]
gini = 0.0
samples = 1
value = [0, 0, 1]
gini = 0.0
samples = 3
value = [0, 0, 3]
X[2] <= 5.45
gini = 0.444
samples = 3
value = [0, 2, 1]
gini = 0.0
samples = 2
value = [0, 0, 2]
gini = 0.0
samples = 1
value = [0, 1, 0]
gini = 0.0
samples = 2
value = [0, 2, 0]
gini = 0.0
samples = 1
value = [0, 0, 1]

In [13]:

```
print(tree.export_text(clf))
```

```
|--- feature_3 <= 0.80
|   |--- class: 0
|--- feature_3 >  0.80
|   |--- feature_3 <= 1.75
|   |   |--- feature_2 <= 4.95
|   |   |   |--- feature_3 <= 1.65
|   |   |   |   |--- class: 1
|   |   |   |--- feature_3 >  1.65
|   |   |   |   |--- class: 2
|   |   |--- feature_2 >  4.95
|   |   |   |--- feature_3 <= 1.55
|   |   |   |   |--- class: 2
|   |   |   |--- feature_3 >  1.55
|   |   |   |   |--- feature_2 <= 5.45
|   |   |   |   |   |--- class: 1
|   |   |   |   |--- feature_2 >  5.45
|   |   |   |   |   |--- class: 2
|   |--- feature_3 >  1.75
|   |   |--- feature_2 <= 4.85
|   |   |   |--- feature_1 <= 3.10
|   |   |   |   |--- class: 2
|   |   |   |--- feature_1 >  3.10
|   |   |   |   |--- class: 1
|   |   |--- feature_2 >  4.85
|   |   |   |--- class: 2
```

In [ ]:

```

```