In [1]:
```
import pandas as pd
```

In [2]:
```
df=pd.read_csv('C:\\Users\\NODE28\\Downloads\play_tennis.csv')
```

In [3]:
```
df
```

Out[3]:

	day	outlook	temp	humidity	wind	play
0	D1	Sunny	Hot	High	Weak	No
1	D2	Sunny	Hot	High	Strong	No
2	D3	Overcast	Hot	High	Weak	Yes
3	D4	Rain	Mild	High	Weak	Yes
4	D5	Rain	Cool	Normal	Weak	Yes
5	D6	Rain	Cool	Normal	Strong	No
6	D7	Overcast	Cool	Normal	Strong	Yes
7	D8	Sunny	Mild	High	Weak	No
8	D9	Sunny	Cool	Normal	Weak	Yes
9	D10	Rain	Mild	Normal	Weak	Yes
10	D11	Sunny	Mild	Normal	Strong	Yes
11	D12	Overcast	Mild	High	Strong	Yes
12	D13	Overcast	Hot	Normal	Weak	Yes
13	D14	Rain	Mild	High	Strong	No

In [4]:
```
df.describe()
```

Out[4]:

	day	outlook	temp	humidity	wind	play
count	14	14	14	14	14	14
unique	14	3	3	2	2	2
top	D1	Sunny	Mild	High	Weak	Yes
freq	1	5	6	7	8	9

In [6]:
```
df.shape
```

Out[6]:
```
(14, 6)
```

In [10]:
```
from sklearn.preprocessing import LabelEncoder
Le = LabelEncoder()

df['outlook'] = Le.fit_transform(df['outlook'])
df['temp'] = Le.fit_transform(df['temp'])
df['humidity'] = Le.fit_transform(df['humidity'])
df['wind'] = Le.fit_transform(df['wind'])
df['play'] = Le.fit_transform(df['play'])
```

In [11]:
```
df
```

Out[11]:

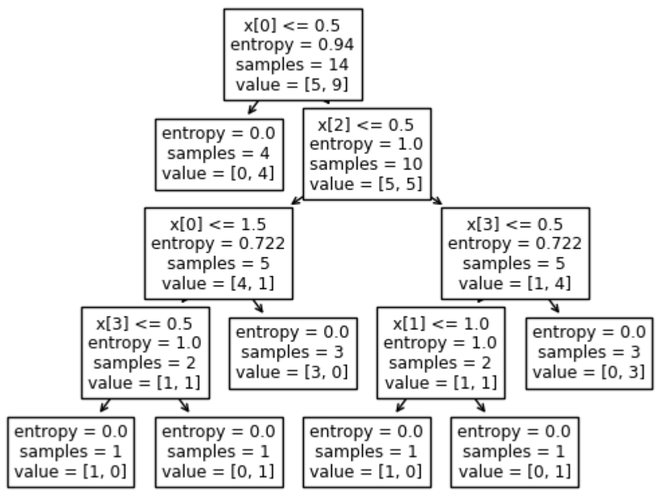
	day	outlook	temp	humidity	wind	play
0	D1	2	1	0	1	0
1	D2	2	1	0	0	0
2	D3	0	1	0	1	1
3	D4	1	2	0	1	1
4	D5	1	0	1	1	1
5	D6	1	0	1	0	0
6	D7	0	0	1	0	1
7	D8	2	2	0	1	0
8	D9	2	0	1	1	1
9	D10	1	2	1	1	1
10	D11	2	2	1	0	1
11	D12	0	2	0	0	1
12	D13	0	1	1	1	1
13	D14	1	2	0	0	0

In [14]:
```
y = df['play']
X = df.drop(['play','day'],axis=1)
```

In [15]:
```
from sklearn import tree
clf = tree.DecisionTreeClassifier(criterion='entropy')
clf = clf.fit(X,y)
tree.plot_tree(clf)
```

```
Matplotlib is building the font cache; this may take a moment.
```

Out[15]:
```
[Text(0.4444444444444444, 0.9, 'x[0] <= 0.5\nentropy = 0.94\nsamples = 14\nvalue = [5, 9]'),
 Text(0.3333333333333333, 0.7, 'entropy = 0.0\nsamples = 4\nvalue = [0, 4]'),
 Text(0.5555555555555556, 0.7, 'x[2] <= 0.5\nentropy = 1.0\nsamples = 10\nvalue = [5, 5]'),
 Text(0.3333333333333333, 0.5, 'x[0] <= 1.5\nentropy = 0.722\nsamples = 5\nvalue = [4, 1]'),
 Text(0.2222222222222222, 0.3, 'x[3] <= 0.5\nentropy = 1.0\nsamples = 2\nvalue = [1, 1]'),
 Text(0.1111111111111111, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [1, 0]'),
 Text(0.3333333333333333, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [0, 1]'),
 Text(0.4444444444444444, 0.3, 'entropy = 0.0\nsamples = 3\nvalue = [3, 0]'),
 Text(0.7777777777777778, 0.5, 'x[3] <= 0.5\nentropy = 0.722\nsamples = 5\nvalue = [1, 4]'),
 Text(0.6666666666666666, 0.3, 'x[1] <= 1.0\nentropy = 1.0\nsamples = 2\nvalue = [1, 1]'),
 Text(0.5555555555555556, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [1, 0]'),
 Text(0.7777777777777778, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [0, 1]'),
 Text(0.8888888888888888, 0.3, 'entropy = 0.0\nsamples = 3\nvalue = [0, 3]')]
```


x[0] <= 0.5
entropy = 0.94
samples = 14
value = [5, 9]
entropy = 0.0
samples = 4
value = [0, 4]
x[2] <= 0.5
entropy = 1.0
samples = 10
value = [5, 5]
x[0] <= 1.5
entropy = 0.722
samples = 5
value = [4, 1]
x[3] <= 0.5
entropy = 0.722
samples = 5
value = [1, 4]
x[3] <= 0.5
entropy = 1.0
samples = 2
value = [1, 1]
entropy = 0.0
samples = 3
value = [3, 0]
x[1] <= 1.0
entropy = 1.0
samples = 2
value = [1, 1]
entropy = 0.0
samples = 3
value = [0, 3]
entropy = 0.0
samples = 1
value = [1, 0]
entropy = 0.0
samples = 1
value = [0, 1]
entropy = 0.0
samples = 1
value = [1, 0]
entropy = 0.0
samples = 1
value = [0, 1]

In [ ]: