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In [1]: import pandas as pd
        from sklearn.tree import DecisionTreeClassifier
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In [2]: df = pd.read_csv('PlayTennis.csv')
        df
```

```
Out[2]:
```

	outlook	temp	humidity	windy	play
0	Rainy	hot	high	False	no
1	Rainy	hot	high	True	no
2	overcast	hot	high	False	yes
3	Sunny	mild	high	False	yes
4	Sunny	cool	normal	False	yes
5	Sunny	cool	normal	True	no
6	overcast	cool	normal	True	yes
7	Rainy	mild	high	False	no
8	Rainy	cool	normal	False	yes
9	Sunny	mild	normal	False	yes
10	Rainy	mild	normal	True	yes
11	overcast	mild	high	True	yes
12	overcast	hot	normal	False	yes
13	Sunny	mild	high	True	no

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In [3]: from sklearn.preprocessing import LabelEncoder
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In [4]: le = LabelEncoder()
        df = df.apply(le.fit_transform)
```

```
In [5]: x = df[['outlook', 'temp', 'humidity', 'windy']]
```

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In [7]: y = df.iloc[:, -1].values.reshape(-1,1)
y
```

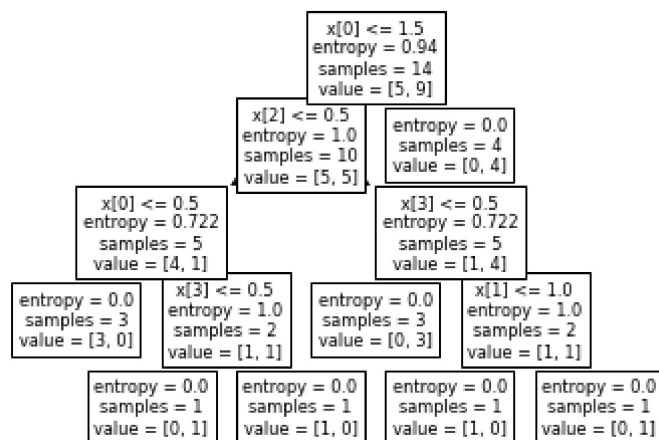
```
Out[7]: array([[0],
               [0],
               [1],
               [1],
               [1],
               [0],
               [1],
               [0],
               [1],
               [1],
               [1],
               [1],
               [1],
               [0]])
```

```
In [8]: dt = DecisionTreeClassifier(criterion='entropy')
dt.fit(x,y)
```

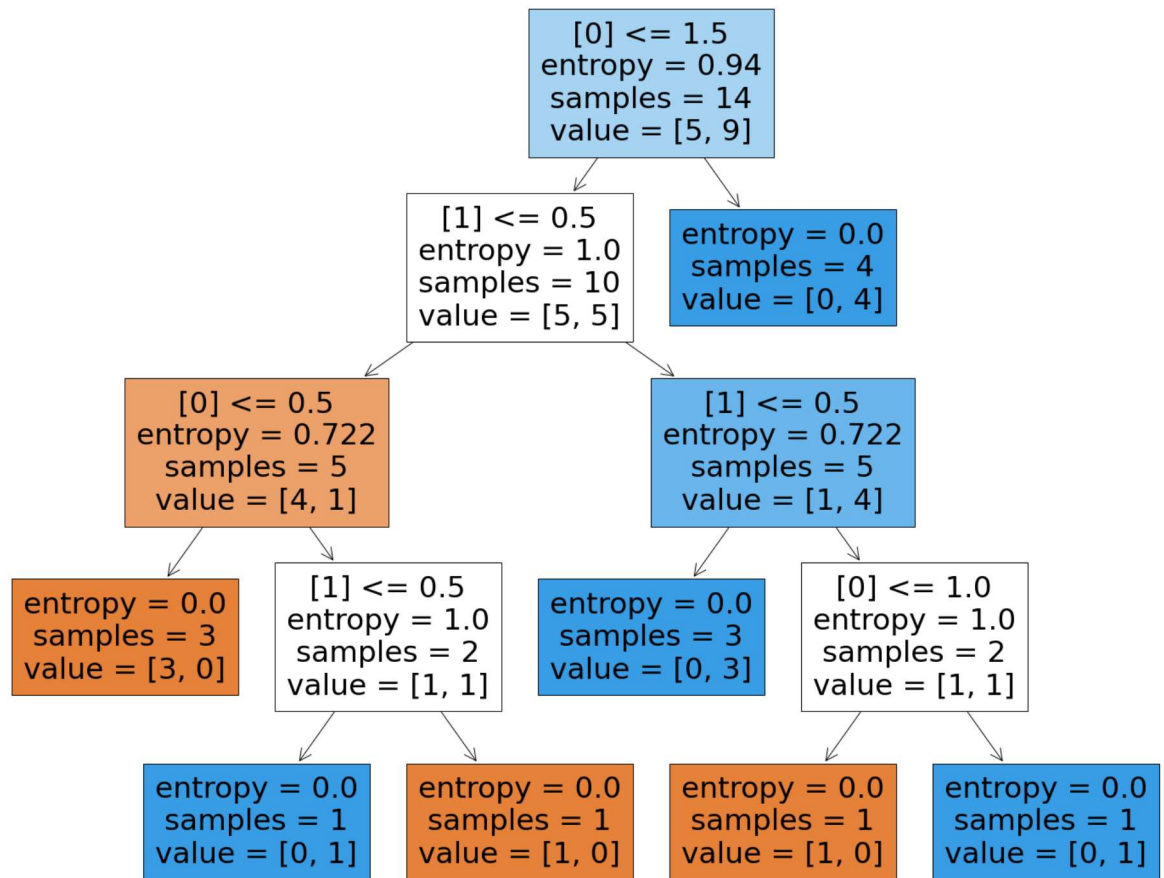
```
Out[8]: DecisionTreeClassifier
DecisionTreeClassifier(criterion='entropy')
```

```
In [9]: from sklearn import tree
tree.plot_tree(dt)
```

```
Out[9]: [Text(0.5555555555555556, 0.9, 'x[0] <= 1.5\nentropy = 0.94\nsamples = 14\nvalue = [5, 9]'),
Text(0.44444444444444444, 0.7, 'x[2] <= 0.5\nentropy = 1.0\nsamples = 10\nvalue = [5, 5]'),
Text(0.22222222222222222, 0.5, 'x[0] <= 0.5\nentropy = 0.722\nsamples = 5\nvalue = [4, 1]'),
Text(0.11111111111111111, 0.3, 'entropy = 0.0\nsamples = 3\nvalue = [3, 0]'),
Text(0.33333333333333333, 0.3, 'x[3] <= 0.5\nentropy = 1.0\nsamples = 2\nvalue = [1, 1]'),
Text(0.22222222222222222, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [0, 1]'),
Text(0.44444444444444444, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [1, 0]'),
Text(0.66666666666666666, 0.5, 'x[3] <= 0.5\nentropy = 0.722\nsamples = 5\nvalue = [1, 4]'),
Text(0.5555555555555556, 0.3, 'entropy = 0.0\nsamples = 3\nvalue = [0, 3]'),
Text(0.7777777777777778, 0.3, 'x[1] <= 1.0\nentropy = 1.0\nsamples = 2\nvalue = [1, 1]'),
Text(0.66666666666666666, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [1, 0]'),
Text(0.8888888888888888, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [0, 1]'),
Text(0.66666666666666666, 0.7, 'entropy = 0.0\nsamples = 4\nvalue = [0, 4]')]
```



```
In [10]: from matplotlib import pyplot as plt
fig = plt.figure(figsize=(25,20))
_ = tree.plot_tree(dt, filled=True, feature_names=y)
```



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In [ ]:
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