In [4]:

```
import pandas as pd
from sklearn.tree import DecisionTreeClassifier
```

In [7]:

```
df = pd.read_excel('PlayTennis.xlsx')
df
```

Out[7]:

	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

In [8]:

```
from sklearn.preprocessing import LabelEncoder
```

In [9]:

```
le = LabelEncoder()
df = df.apply(le.fit_transform)
```

In [10]:

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

In [11]:

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

In [12]:

```
y
```

Out[12]:

```
array([[0],
       [0],
       [1],
       [1],
       [1],
       [0],
       [1],
       [0],
       [1],
       [1],
       [1],
       [1],
       [1],
       [0]])
```

In [13]:

```
dt = DecisionTreeClassifier(criterion='entropy')
dt.fit(x,y)
```

Out[13]:

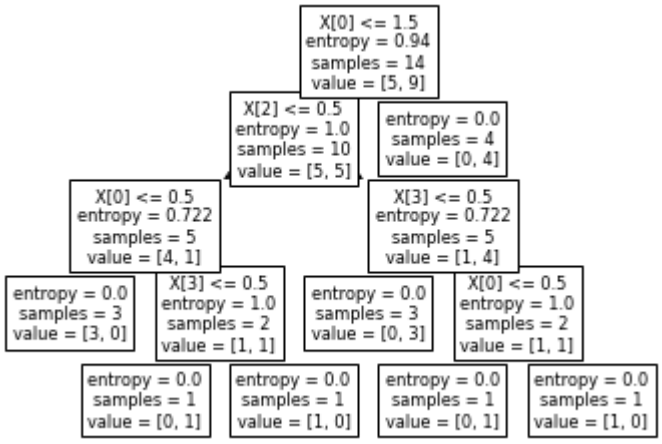
```
DecisionTreeClassifier(criterion='entropy')
```

In [14]:

```
from sklearn import tree
tree.plot_tree(dt)
```

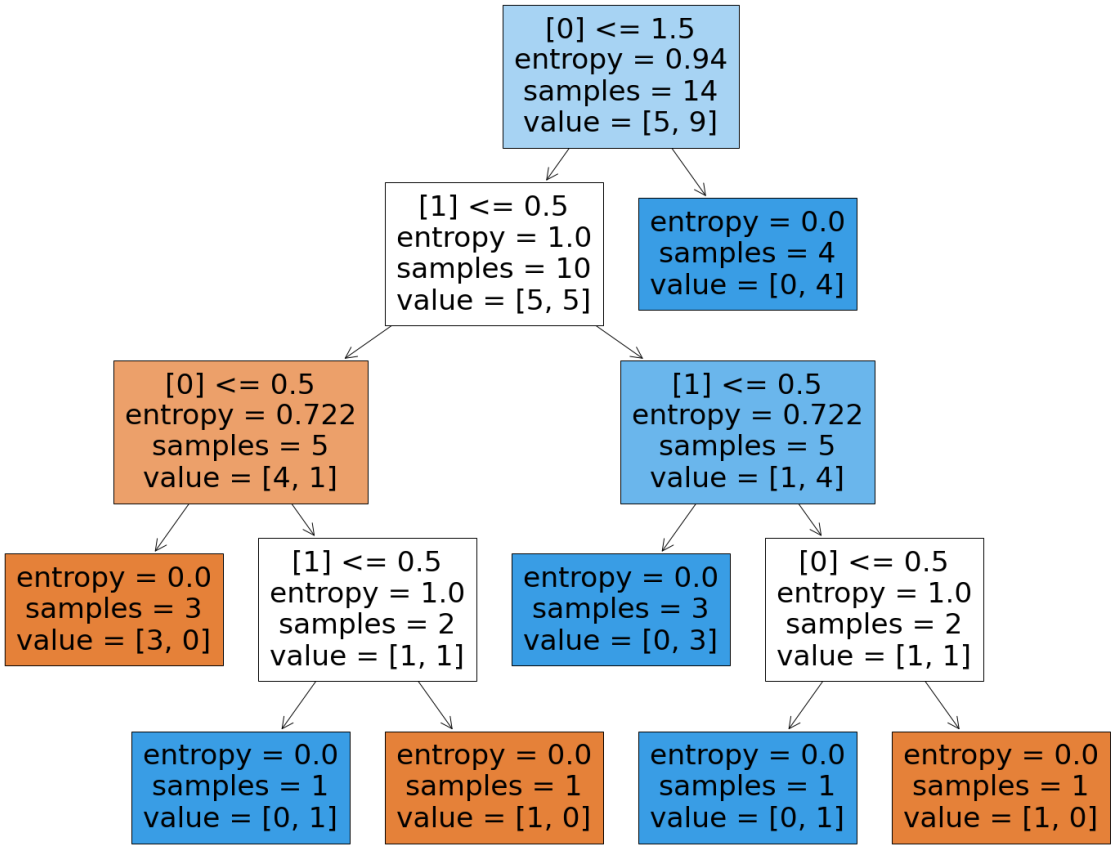
Out[14]:

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



In [15]:

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



In [ ]: