

In [ ]: A)

```
In [91]: import pandas as pd
import sklearn
from sklearn.tree import DecisionTreeClassifier
from sklearn import tree
```

```
In [80]: ds=pd.DataFrame({'sore_throat':[1,0,1,1,0,0,0,1,0,1], 'fever':[1,0,1,0,1,0,0,0,1,1],
ds.to_csv('file1.csv',index=0)
```

```
In [81]: da=pd.read_csv('file1.csv')
da
```

```
Out[81]:
```

	sore_throat	fever	swollen_glands	congestion	headache	diagnosis
0	1	1	1	1	1	Strep_Throat
1	0	0	0	1	1	Allergy
2	1	1	0	1	0	Cold
3	1	0	1	0	0	Strep_Throat
4	0	1	0	1	0	Cold
5	0	0	0	1	0	Allergy
6	0	0	1	0	0	Strep_Throat
7	1	0	0	1	1	Allergy
8	0	1	0	1	1	Cold
9	1	1	0	1	1	Cold

```
In [86]: X = da.drop(columns=('diagnosis'))
X
```

Out[86]:

	sore_throat	fever	swollen_glands	congestion	headache
0	1	1	1	1	1
1	0	0	0	1	1
2	1	1	0	1	0
3	1	0	1	0	0
4	0	1	0	1	0
5	0	0	0	1	0
6	0	0	1	0	0
7	1	0	0	1	1
8	0	1	0	1	1
9	1	1	0	1	1

In [88]: `Y = da['diagnosis']`  
`Y`

Out[88]:

0	Strep_Throat
1	Allergy
2	Cold
3	Strep_Throat
4	Cold
5	Allergy
6	Strep_Throat
7	Allergy
8	Cold
9	Cold

Name: diagnosis, dtype: object

In [89]: `model = DecisionTreeClassifier()`

In [90]: `model.fit(X,Y)`

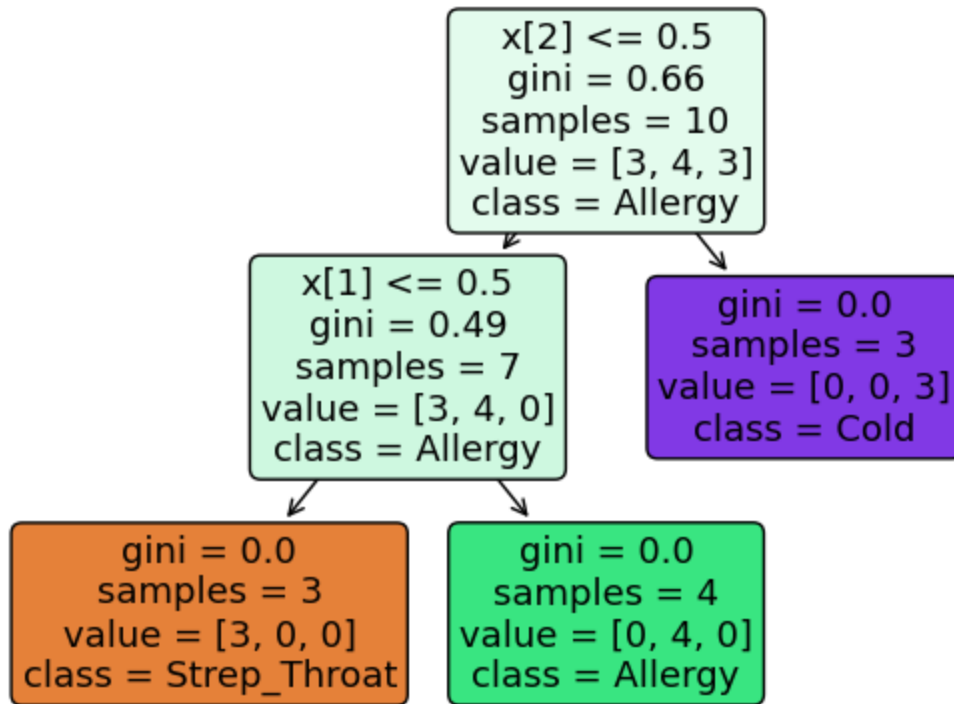
Out[90]:

▾ DecisionTreeClassifier  
 DecisionTreeClassifier()

In [93]: `tree.plot_tree(model, filled=True, class_names=Y, rounded=True)`

Out[93]:

```
[Text(0.6, 0.8333333333333334, 'x[2] <= 0.5\ngini = 0.66\nsamples = 10\nvalue =
[3, 4, 3]\nclass = Allergy'),
 Text(0.4, 0.5, 'x[1] <= 0.5\ngini = 0.49\nsamples = 7\nvalue = [3, 4, 0]\nclass =
Allergy'),
 Text(0.2, 0.16666666666666666, 'gini = 0.0\nsamples = 3\nvalue = [3, 0, 0]\nclass
= Strep_Throat'),
 Text(0.6, 0.16666666666666666, 'gini = 0.0\nsamples = 4\nvalue = [0, 4, 0]\nclass
= Allergy'),
 Text(0.8, 0.5, 'gini = 0.0\nsamples = 3\nvalue = [0, 0, 3]\nclass = Cold')]
```



In [95]: `pred = model.predict([[0,0,1,0,0]])`

C:\Users\Admin\AppData\Local\Programs\Python\Python311\Lib\site-packages\sklearn\base.py:409: UserWarning: X does not have valid feature names, but DecisionTreeClassifier was fitted with feature names  
warnings.warn(

In [96]: `print(pred)`

`['Strep_Throat']`

In [ ]: