


```
# !pip install sklearn
import pandas as pd
from sklearn.metrics import mean_squared_error
from sklearn.cluster import KMeans
from sklearn.model_selection import train_test_split as split
import matplotlib.pyplot as plt
```

In [6]:

```
feature_names = ['Fever', 'Cough', 'BreathingIssue']
X = [ [0,0,0], [1,1,1], [1,1,0],
      [1,0,1], [1,1,1], [0,1,0],
      [1,0,1], [0,1,1], [1,1,0],
      [0,1,0],[0,1,1],[0,1,1],[1,1,0] ]
```

In [8]:

```
Y = ['NO', 'YES', 'NO', 'YES',
     'YES', 'NO', 'YES', 'YES',
     'YES', 'NO', 'YES', 'NO', 'NO']
```

```
labels_unique = list(set(Y))
```

In [10]:

```
df = pd.DataFrame(data = X,columns = feature_names)
df['target']=Y
```

In [11]:

```
df
```

Out[11]:

	Fever	Cough	BreathingIssue	target
0	0	0	0	NO
1	1	1	1	YES
2	1	1	0	NO
3	1	0	1	YES
4	1	1	1	YES
5	0	1	0	NO
6	1	0	1	YES

	Fever	Cough	BreathingIssue	target
7	0	1	1	YES
8	1	1	0	YES
9	0	1	0	NO
10	0	1	1	YES
11	0	1	1	NO
12	1	1	0	NO

In [16]:

```
from sklearn.tree import DecisionTreeClassifier as Dtc
```

In [19]:

```
Dc = Dtc(max_depth = 4)
Dc.fit(X,Y)
```

Out[19]:

```
DecisionTreeClassifier(max_depth=4)
```

**In a Jupyter environment, please rerun this cell to show the HTML representation or trust the notebook.
On GitHub, the HTML representation is unable to render, please try loading this page with nbviewer.org.**

DecisionTreeClassifier

```
DecisionTreeClassifier(max_depth=4)
```

In [20]:

```
Dc.predict([[1,1,0]])
```

Out[20]:

```
array(['NO'], dtype='<U3')
```

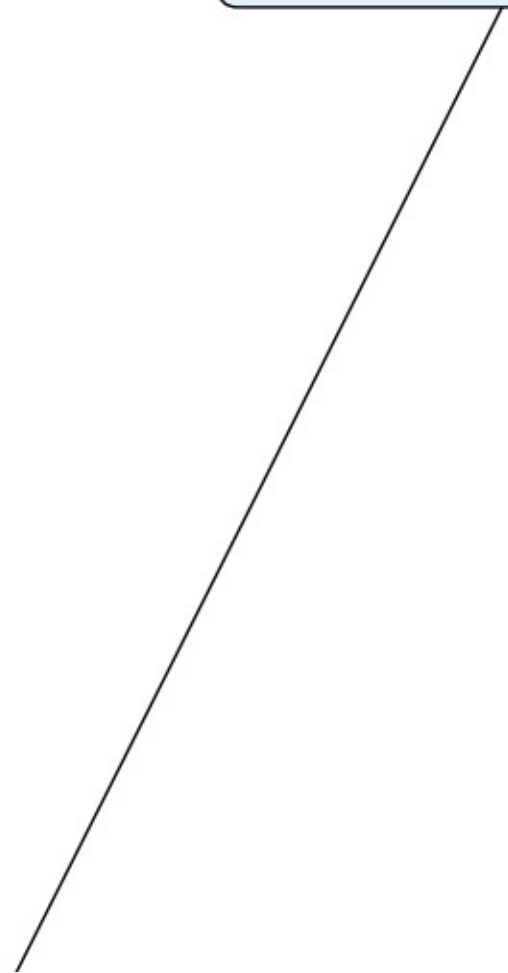
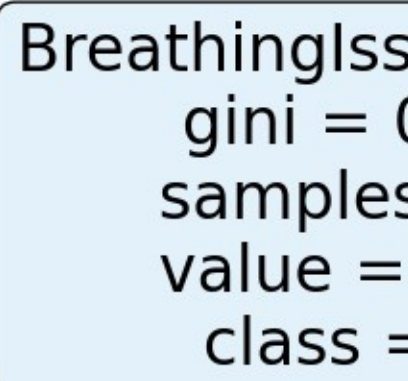
In [27]:

```
from sklearn.tree import plot_tree as Pt
plt.figure(figsize=(20,30))
Pt(Dc,fontsize = 24,rounded=True,filled=True,class_names = labels_unique,feature_names =
feature_names)
```

Out[27]:

```
[Text(0.5, 0.8333333333333334, 'BreathingIssue <= 0.5\ngini = 0.497\nsamples = 13\nvalue =  
[6, 7]\nnclass = NO'),  
Text(0.25, 0.5, 'Fever <= 0.5\ngini = 0.278\nsamples = 6\nvalue = [5, 1]\nnclass = YES'),  
Text(0.125, 0.16666666666666666, 'gini = 0.0\nsamples = 3\nvalue = [3, 0]\nnclass = YES'),  
Text(0.375, 0.16666666666666666, 'gini = 0.444\nsamples = 3\nvalue = [2, 1]\nnclass =  
YES'),  
Text(0.75, 0.5, 'Fever <= 0.5\ngini = 0.245\nsamples = 7\nvalue = [1, 6]\nnclass = NO'),  
Text(0.625, 0.16666666666666666, 'gini = 0.444\nsamples = 3\nvalue = [1, 2]\nnclass =  
NO'),  
Text(0.875, 0.16666666666666666, 'gini = 0.0\nsamples = 4\nvalue = [0, 4]\nnclass = NO')]
```

BreathingIsS
gini = 0
samples
value =
class =



In []: