```
import numpy as np
import pandas as pd
from sklearn.preprocessing import LabelEncoder
from sklearn.tree import DecisionTreeClassifier
from sklearn.tree import export_graphviz
from IPython.display import Image


data = pd.read_csv("/DecisionTreeData.csv")
data
```

	Id	Age	Income	Gender	Marital Status	Buys
0	1	<21	High	Male	Single	No
1	2	<21	High	Male	Married	No
2	3	21 - 35	High	Male	Single	Yes
3	4	>35	Medium	Male	Single	Yes
4	5	>35	Low	Female	Single	Yes
5	6	>35	Low	Female	Married	No
6	7	21 - 35	Low	Female	Married	Yes
7	8	<21	Medium	Male	Single	No
8	9	<21	Low	Female	Married	Yes
9	10	>35	Medium	Female	Single	Yes
10	11	<21	Medium	Female	Married	Yes
11	12	21 - 35	Medium	Male	Married	Yes
12	13	21 - 35	High	Female	Single	Yes
13	14	>35	Medium	Male	Married	No

```
le=LabelEncoder();
x=data.iloc[:,:-1]
x=x.apply(le.fit_transform)
print("Age:",list( zip(data.iloc[:,0], x.iloc[:,0])))
print("\nIncome:",list( zip(data.iloc[:,1], x.iloc[:,1])))
print("\nGender:",list( zip(data.iloc[:,2], x.iloc[:,2])))
print("\nmaritialStatus:",list( zip(data.iloc[:,3], x.iloc[:,3])))
```

```
Age: [(1, 0), (2, 1), (3, 2), (4, 3), (5, 4), (6, 5), (7, 6), (8, 7), (9, 8), (10, 9)

Income: [('<21', 1), ('<21', 1), ('21 - 35', 0), ('>35', 2), ('>35', 2), ('>35', 2),

Gender: [('High', 0), ('High', 0), ('High', 0), ('Medium', 3), ('Low', 1), ('Low', 1)

maritialStatus: [('Male', 1), ('Male', 1), ('Male', 1), ('Male', 1), ('Female', 0), (
```

```
x
```

	Id	Age	Income	Gender	Marital Status
0	0	1	0	1	1
1	1	1	0	1	0
2	2	0	0	1	1
3	3	2	3	1	1
4	4	2	1	0	1
5	5	2	1	0	0
6	6	0	1	0	0
7	7	1	3	1	1
8	8	1	2	0	0
9	9	2	3	0	1
10	10	1	3	0	0
11	11	0	3	1	0
12	12	0	0	0	1
13	13	2	3	1	0

```
y=data.iloc[:,-1]
y
```

```
0      No
1      No
2     Yes
3     Yes
4     Yes
5      No
6     Yes
7      No
8     Yes
9     Yes
10    Yes
11    Yes
12    Yes
13     No
Name: Buys, dtype: object
```

```
dt=DecisionTreeClassifier()
dt.fit(x,y)
```

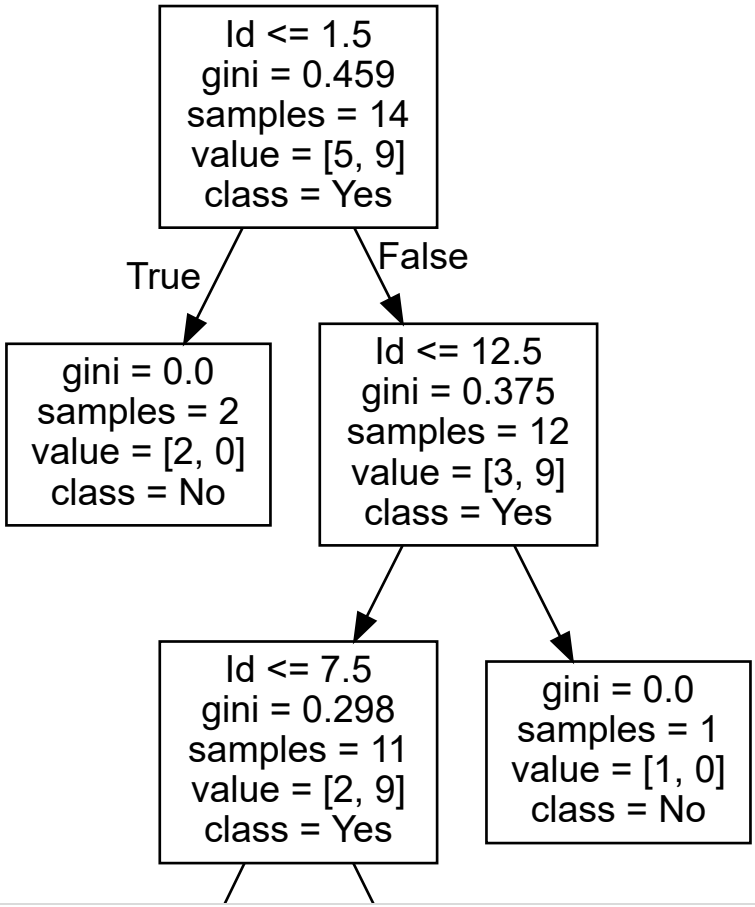
```
DecisionTreeClassifier()
```

```
#[Age < 21, Income = Low,Gender = Female, Marital Status = Married]
query=np.array([1,1,0,0])
```

```
export_graphviz(dt,out_file="data.dot",feature_names=x.columns,class_names=["No","Yes"])
```

```
from graphviz import Source
from sklearn.tree import export_graphviz
```

```
Source.from_file("data.dot")
```



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