In [1]:
```
import numpy as np
import pandas as pd
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
```

In [2]:
```
df=pd.read_csv(r"C:\Users\Sudheer\AppData\Local\Microsoft\Windows\INetCache\IE
df
```

Out[2]:

	Home Owner	Marital Status	Annual Income	Defaulted Borrower
0	Yes	Single	125	No
1	No	Married	100	No
2	No	Single	70	No
3	Yes	Married	120	No
4	No	Divorced	95	Yes
5	No	Married	60	No
6	Yes	Divorced	220	No
7	No	Single	85	Yes
8	No	Married	75	No
9	No	Single	90	Yes

In [3]:
```
df['Marital Status'].value_counts()
df['Annual Income'].value_counts()
```

Out[3]:
```
Annual Income
125    1
100    1
70     1
120    1
95     1
60     1
220    1
85     1
75     1
90     1
Name: count, dtype: int64
```

In [4]:
```
convert={"Home Owner":{"Yes":1,"No":0}}
df=df.replace(convert)
df
```

Out[4]:

	Home Owner	Marital Status	Annual Income	Defaulted Borrower
0	1	Single	125	No
1	0	Married	100	No
2	0	Single	70	No
3	1	Married	120	No
4	0	Divorced	95	Yes
5	0	Married	60	No
6	1	Divorced	220	No
7	0	Single	85	Yes
8	0	Married	75	No
9	0	Single	90	Yes

In [5]:
```
convert={"Marital Status":{"Single":1,"Married":2,"Divorced":3}}
df=df.replace(convert)
df
```

Out[5]:

	Home Owner	Marital Status	Annual Income	Defaulted Borrower
0	1	1	125	No
1	0	2	100	No
2	0	1	70	No
3	1	2	120	No
4	0	3	95	Yes
5	0	2	60	No
6	1	3	220	No
7	0	1	85	Yes
8	0	2	75	No
9	0	1	90	Yes

In [6]:
```
convert={"Defaulted Borrower":{"Yes":1,"No":0}}
df=df.replace(convert)
df
```

Out[6]:

	Home Owner	Marital Status	Annual Income	Defaulted Borrower
0	1	1	125	0
1	0	2	100	0
2	0	1	70	0
3	1	2	120	0
4	0	3	95	1
5	0	2	60	0
6	1	3	220	0
7	0	1	85	1
8	0	2	75	0
9	0	1	90	1

In [7]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 4 columns):
 #   Column              Non-Null Count  Dtype
---  ------              --------------  -----
 0   Home Owner          10 non-null     int64
 1   Marital Status      10 non-null     int64
 2   Annual Income       10 non-null     int64
 3   Defaulted Borrower  10 non-null     int64
dtypes: int64(4)
memory usage: 448.0 bytes
```

In [8]:
```
x=["Home Owner","Marital Status"]
y=["0","1"]
all_inputs=df[x]
all_classes=df["Annual Income"]
```

In [9]:
```
(x_train,x_test,y_train,y_test)=train_test_split(all_inputs,all_classes,test_s
```

In [10]:
```
clf=DecisionTreeClassifier(random_state=0)
```

In [11]:
```
clf.fit(x_train,y_train)
```

Out[11]:
```
DecisionTreeClassifier(random_state=0)
```

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.

In [12]:
```
score=clf.score(x_test,y_test)
print(score)
```

```
0.0
```

In [13]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 4 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
 0   Home Owner         10 non-null     int64
 1   Marital Status     10 non-null     int64
 2   Annual Income      10 non-null     int64
 3   Defaulted Borrower 10 non-null     int64
dtypes: int64(4)
memory usage: 448.0 bytes
```

In [ ]:
```
```