```
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:\venky\Downloads\loan1.csv")
        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.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     object
 1   Marital Status     10 non-null     object
 2   Annual Income      10 non-null     int64
 3   Defaulted Borrower  10 non-null    object
dtypes: int64(1), object(3)
memory usage: 452.0+ bytes
```

In [4]: `df['Marital Status'].value_counts()`
`df['Annual Income'].value_counts()`

Out[4]:
```
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 [5]:
```python
convert={"Home Owner":{"Yes":1,"No":0}}
df=df.replace(convert)
df
```

Out[5]:

	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 [6]:
```python
convert={"Marital Status":{"Single":1,"Married":2,"Divorced":3}}
df=df.replace(convert)
df
```

Out[6]:

	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 [7]:
```python
x=["Home Owner","Marital Status","Annual Income"]
y=["Yes","No"]
all_inputs=df[x]
all_classes=df["Defaulted Borrower"]
```

In [15]:
```python
(x_train,x_test,y_train,y_test)=train_test_split(all_inputs,all_classes,test_size=0.3)
```

In [16]:
```python
clf=DecisionTreeClassifier(random_state=0)
```

In [17]:
```python
clf.fit(x_train,y_train)
```

Out[17]:
```
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 [18]:
```python
score=clf.score(x_test,y_test)
print(score)
```

0.6666666666666666

In [ ]: