

In [1]:

```

1 import numpy as np
2 import pandas as pd
3 import seaborn as sns
4 from sklearn.model_selection import train_test_split
5 from sklearn.tree import DecisionTreeClassifier

```

In [2]:

```

1 df=pd.read_csv(r'C:\Users\HP\Downloads\loan1.csv')
2 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]:

```
1 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]:

```
1 df['Marital Status'].value_counts()
```

Out[4]:

```

Marital Status
Single      4
Married     4
Divorced    2
Name: count, dtype: int64

```

In [5]:

```
1 df['Annual Income'].value_counts()
```

Out[5]:

```
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 [6]:

```
1 Convert={"Home Owner"}
```

In [7]:

```
1 Convert={"Home Owner":{"Yes":1,"No":0}}
2 df=df.replace(Convert)
3 df
```

Out[7]:

	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 [8]:

```

1 Convert={"Marital Status":{"Single":1,"Married":2,"Divorced":3}}
2 df=df.replace(Convert)
3 df

```

Out[8]:

	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 [10]:

```

1 x=["Home Owner","Marital Status","Annual Income"]
2 y=["Yes","No"]
3 all_inputs=df[x]
4 all_classes=df["Defaulted Borrower"]

```

In [12]:

```

1 (x_train,x_test,y_train,y_test)=train_test_split(all_inputs,all_classes,train_size=0.

```

In [13]:

```

1 clf=DecisionTreeClassifier(random_state=0)

```

In [14]:

```

1 clf.fit(x_train,y_train)

```

Out[14]:

DecisionTreeClassifier(random_state=0)

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In [16]:

```

1 score=clf.score(x_test,y_test)
2 print(score)

```

0.5

In []:

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