Decision Tree

Aim:

To implement Decision Tree

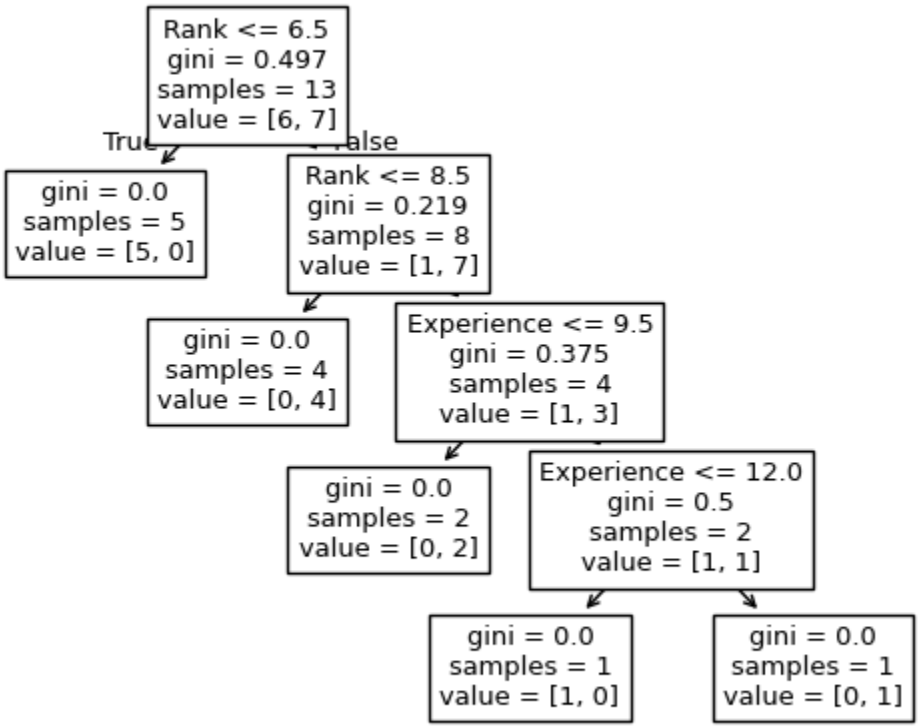
Code:

```
import sys
import matplotlib
matplotlib.use('Agg')

import pandas
from sklearn import tree
from sklearn.tree import DecisionTreeClassifier
import matplotlib.pyplot as plt

df = pandas.read_csv("data.csv")

d = {'UK': 0, 'USA': 1, 'N': 2}
df['Nationality'] = df['Nationality'].map(d)
d = {'YES': 1, 'NO': 0}
df['Go'] = df['Go'].map(d)

features = ['Age', 'Experience', 'Rank', 'Nationality']

X = df[features]
y = df['Go']

dtree = DecisionTreeClassifier()
dtree = dtree.fit(X, y)

tree.plot_tree(dtree, feature_names=features)

#Two  lines to make our compiler able to draw:
plt.savefig(sys.stdout.buffer)
sys.stdout.flush()
```

data.csv:

```
Age,Experience,Rank,Nationality,Go
36,10,9,UK,NO
42,12,4,USA,NO
23,4,6,N,NO
52,4,4,USA,NO
43,21,8,USA,YES
44,14,5,UK,NO
66,3,7,N,YES
35,14,9,UK,YES
52,13,7,N,YES
35,5,9,N,YES
24,3,5,USA,NO
18,3,7,UK,YES
45,9,9,UK,YES
```

Output:



Result:

Decision tree implemented successfully.