Decision tree

Aim:

To classify the social Network dataset using decision tree analysis.

Program

```
from google.colab import drive
drive.mount("/content/gdrive")
import pandas as pd
import numpy as np.
import matplotlib.pyplot as plt
dataset = pd.read_csv('/content/gdrive/
          MyDrive/Social-Network
                -Ads.csv')
x = dataset.iloc[:, [2,3]].values
y = dataset.iloc[:, -1].values.
from sklearn.model_selection
          import train_test_split
x_train, x_test, y_train, y_test =
     train_test_split(x, y, test_
       size = 0.25, random_state=0)
from sklearn.preprocessing import
  StandardScaler.
  sc = StandardScaler().
x_train = sc.fit_transform(x_train)
x_test = sc.transform(x_test)
from sklearn.tree import DecisionTree
       classifier
Classifier = DecisionTreeClassifier
              (criterion='entropy',
  random_state=0).
```

```
classifier.fit(x_train, y_train)
y_pred = classifier.predict(x_test).
from sklearn.metrics import confusion_matrix
cm = confusion_matrix(y_test, y_pred)
print(cm).
from matplotlib.colors import listed color map.
x_set, y_set = x_train, y_train
x1, x2 = np.meshgrid(np.arange(start = x_set
                     [:,0].min()-1,
Step : x_set[:,0].max()+1, step = 0.01
np.arange(start = x_set[:,1].min()-1,
Step = x_set[:,1].max()+1, step = 0.01))
plt.contour(x1, x2, classifier.predict(np.
                                    ravel().
array([x1.ravel(), x2.ravel()]).T).
reshap(x1.shape), alpha = 0.75, cmap =
    Listed color map(('red', 'green')))
plt.xlim(x1.min(), x1.max())
plt.ylim(x2.min(), x2.max())
for i, v in enumerate(np.unique(y_set)):
plt.scatter(x_set[y_set == j,0],
    x_set[y_set == j,1], c = listed
    color map
    (('red', 'green'))(i), label = j)
plt.title('Decision tree classification
                (Training Set)')
plt.xlabel('Age')
plt.ylabel('purchase')
plt.legend()
plt.show().
```