Decision Tree Classification

Aim:

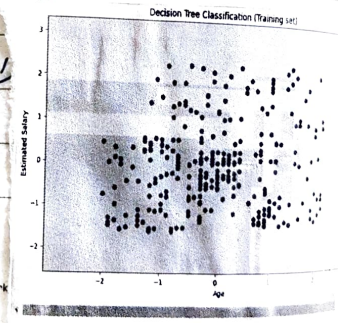
To classify the Social Network dataset using Decision tree analysis

Code:

```
from google.colab import drive
drive.mount("/content/drive")

import pandas as pd
import numpy as np
import Matplotlib.pyplot as plt
dataset = pd.read_csv('/content/gdrive/My Drive/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 DecisionTreeClassifier
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.colours import ListedColormap
X_set, y_set = x_train, y_train
X1, X2 = np.meshgrid(np.arange
        (start = X_set[:,0].min()
, stop = X_set[:,0].max()+1, step=0.01),
        np.arange(start = X_set[:,1].min()
, stop = X_set[:,1].max()+1, step=0.01)
plt.contourf(X1, X2, classifier.predict
    (np.array([X1.ravel(), X2.ravel()]).T),
        reshape(X1.shape), alpha = 0.75, cmap = ListedColormap(('red','green'))
plt.xlim(X1.min(), X1.max())
plt.ylim(X2.min(), X2.max())
for i,j in enumerate(np.unique(y_set)):
plt.scatter(X_set[y_set == j,0], X_set[y_set == j,1], c = ListedColormap
    (('red', 'green'))(i), label = j)
plt.title('Decision Tree Classification
        (Training set)')
plt.xlabel('Age')
plt.ylabel('Purchased')
plt.legend()
plt.show()
```




```
[ ] import os
print(os.listdir('/content/gdrive/My Drive'))
dataset = pd.read_csv('/content/gdrive/My Drive/Colab Datasets/Social_Network
from google.colab import files
uploaded = files.upload()
import pandas as pd
dataset = pd.read_csv('Social_Network_Ads.csv')

# Step 2a: Mount Google Drive
from google.colab import drive
drive.mount("/content/gdrive")
```

```
['Classroom', 'learnathon details.zip', 'DAA assignment 1.pdf', 'oops assignment 1.pdf', 'Batch_2_Data Dash Finals.pdf', 'colab notebooks
     No file chosen    Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.
Saving Social_Network_Ads.csv to Social_Network_Ads (2).csv
Drive already mounted at /content/gdrive; to attempt to forcibly remount, call drive.mount("/content/gdrive", force_remount=True).
```

Result: Thus we classified Social network dataset using decision tree analysis.