EX.NO : 11a

DECISION TREE CLASSIFICATION

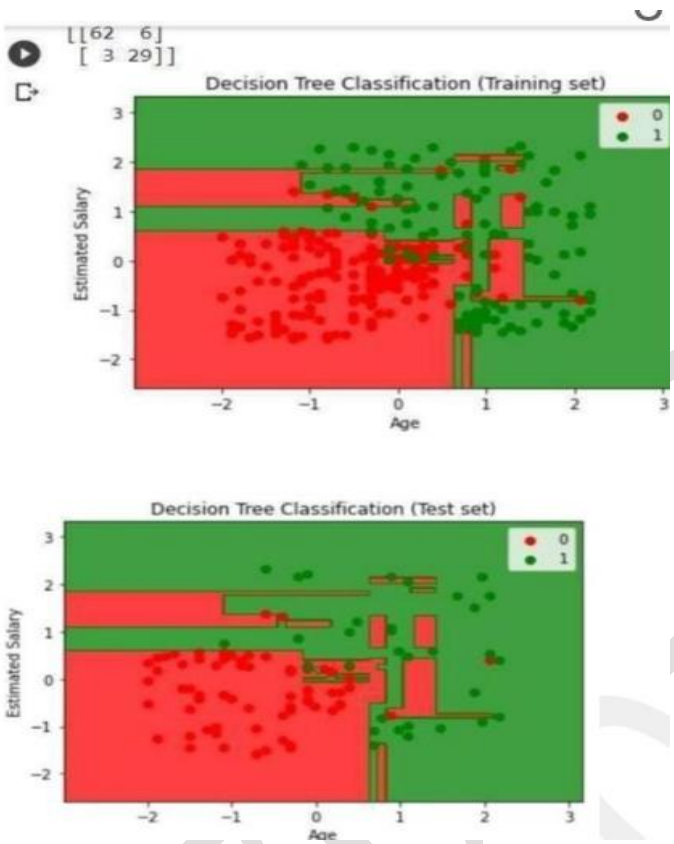
AIM:
To classify the Social Network dataset using Decision tree analysis

Source Code :

```
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/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.colors import ListedColormap
X_set, y_set = X_train, y_train
```

```
X1, X2 = np.meshgrid(np.arange(start = X_set[:, 0].min() -
 1, stop = X_set[:, 0].max() + 1, step =0.01), np.arange(start = X_set[:, 1].min() -
 1, 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), al
pha = 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('Purchase')
plt.legend()
plt.show()
```

OUTPUT :



Thus the python code is implemented successfully and the output is verified.