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EX: 9. Decision Tree classification
Date :

Aim :
To classify the social network dataset using Decision tree analysis

code :

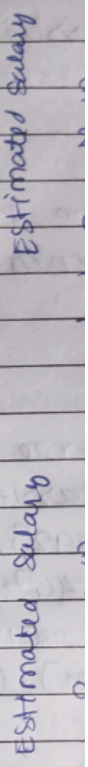
```
from google.colab import drive
drive.mount ("/content/gdrive")
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
dataset = ped.read_csv('/content/gdrive/
mydrive/social_Network_Ads.csv')
x= dataset.iloc[:, [2,3]].values
y= dataset.iloc[:,-1].values
from sklearn.model_selection 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 standard
                                    scaler
sc= standardscaler()
x_train= sc.fit_transform(x_train)
x_test= sc.transform(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. arrange(start=
x_set [:, 0]. min() - 1.stop= x_set[:,0].max
+1, step= 0.01), np. arrange (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), alpha= 0.75, cmap= Listed colormap((
'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= Listed colormap('red',
'green') (i). label= j)
    plt. title ('Decision Tree classification
(training set)')
    plt. xlabel ('Age');
    plt. ylabel ('purchase')
    plt. legend()
plt. show() .
```

Output:



Result:

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_set[:,0].max
t=X_set[:,1]
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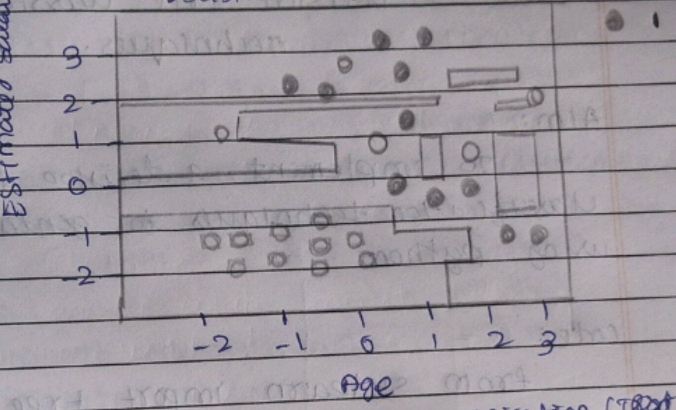
edict(np
).reshape(X1
colormap((
nique(y_set)
,0],X_set
('red',
assification
```

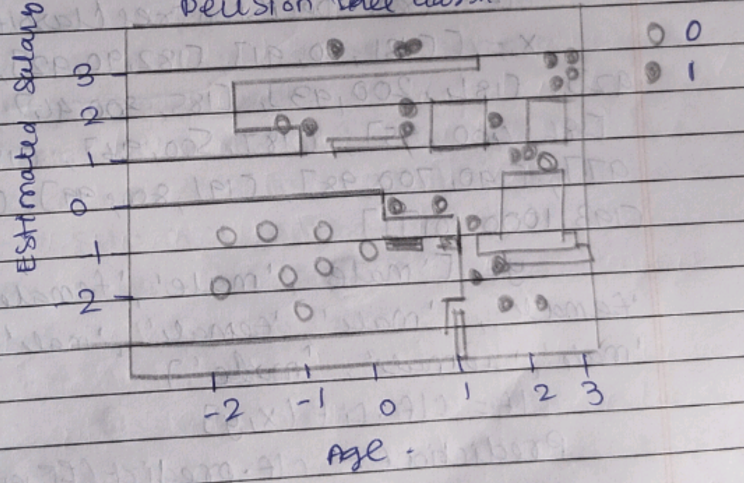
Output:

(Training set)

Decision Tree classification



Decision Tree classification (Test set)



Result:

The program for decision tree classification is successfully executed and the output is verified.