

ExNo: 12

Date:

## DECISION TREE (CLASSIFICATION)

Aim:

To classify the social network datasets using decision tree analysis

Program:

```
from google.colab import drive
drive.mount('1Content19drive')

import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

dataset = pd.read_csv('1Content19drive/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)
```

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```

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().reshape(X1.shape), X2.ravel().reshape(X2.shape)]).T), 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, s=50)
plt.title('Decision Tree Classification (Training Set)')
plt.xlabel('Age')
plt.ylabel('Purchase')
plt.legend()
plt.show()

```

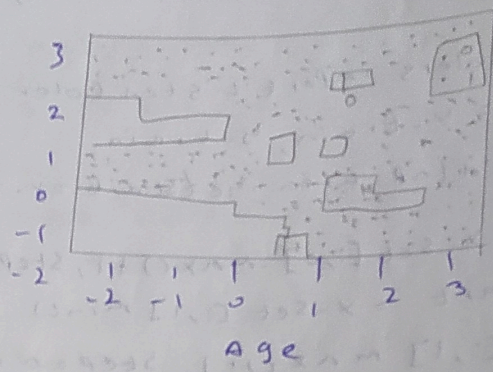


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Outputs

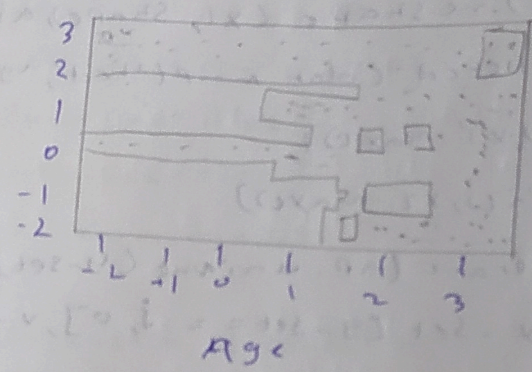
# Decision Tree Classification Training Set

Estimate Salary



# Decision Tree Classification Test Set

Estimate Salary



Result: The Program is Successfully executed and the Output is verified

