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/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 StandardScale
sc = StandardScalar()
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)
```

```python
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, step = X_set[:,0].max()+1, step=0.01), np.
arrange(start = X_set[:,1].min()-
1, step = 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('Purchase')
    plt.legend()
plt.show()
```
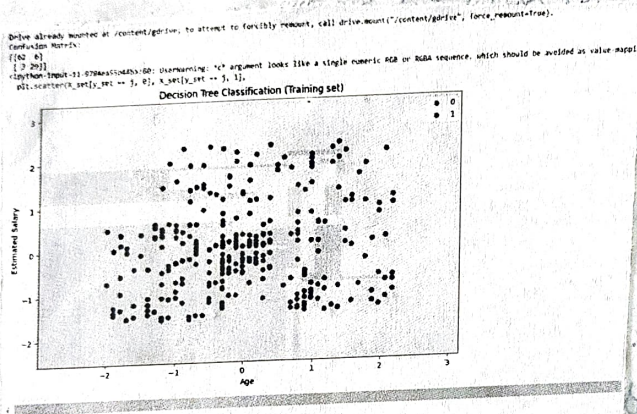
```
[ ]  import os
     print(os.listdir('/content/gdrive/My Drive'))
     dataset = pd.read_csv('/content/gdrive/My Drive/Colab Datasets/Social_Network_Ads.csv')
     from google.colab import files
     uploaded = files.upload()
     import pandas as pd
     dataset = pd.read_csv('Social_Network_Ads.csv')

     # 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', 'Batch_

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).

Drive already mounted at /content/gdrive; to attempt to forcibly remount, call drive.mount("/content/gdrive", force_remount=True).
Confusion Matrix:
[[62 6]
 [3 29]]
<ipython-input-11-078bea55ad5b>:60: UserWarning: 'c' argument looks like a single numeric RGB or RGBA sequence, which should be avoided as value-mappi-
plt.scatter(x_set[y_set == j, 0], x_set[y_set == j, 1],

Decision Tree Classification (Training set)

Result

Thus social network dataset using decision tree analysis is implemented and executed successfully