**Ex-5 Decision Trees Classification**

**Python program:**

import numpy as num

import matplotlib.pyplot as plt

import pandas as pd

from sklearn.tree import DecisionTreeClassifier

from sklearn.model\_selection import train\_test\_split

from sklearn import metrics

data=pd.read\_csv('decision.csv')

colnames=['RID','age','income','student','credit','buy\_computer']

features=['age','income','credit']

x=data[features].values

y=data.buy\_computer

xtr,xte,ytr,yte=train\_test\_split(x,y,test\_size=0.3,random\_state=0)

clf=DecisionTreeClassifier(criterion="entropy",max\_depth=3)

clf=clf.fit(xtr,ytr)

ypre=clf.predict(xte)

**#confusion matrix**

from sklearn.metrics import classification\_report,confusion\_matrix

cm=confusion\_matrix(y,clf.predict(x))

print("Confusion Matrix")

print(cm)

print("Classification Report")

print(classification\_report(y,clf.predict(x)))

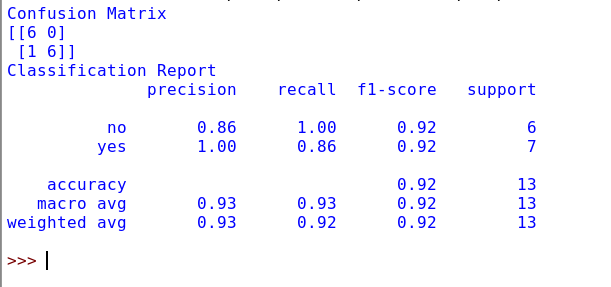
from sklearn import tree

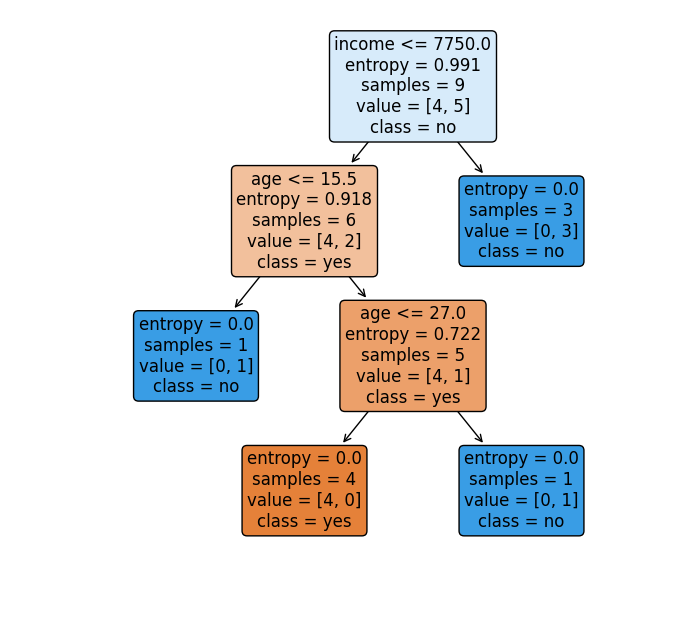
plt.figure(figsize=(7,7),facecolor='w')

a=tree.plot\_tree(clf,rounded=True,feature\_names=features,class\_names=y,filled=True,fontsize=12)

plt.show()

**Output:**



**Output figure:**