**Practical No: 07**

**Aim: Implement Decision Tree Classifier**

**Code:**

import pandas as pd

from sklearn.tree import DecisionTreeClassifier

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

from sklearn import metrics

from matplotlib import pyplot as plt

from sklearn import tree

col\_names = ['Reservation', 'Raining', 'BadService','Saturday','Result']

hoteldata = pd.read\_csv("dtree.csv", header=None, names=col\_names)

feature\_cols = ['Reservation', 'Raining', 'BadService','Saturday']

X = hoteldata[feature\_cols]

y = hoteldata.Result

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y,test\_size=0.3, random\_state=1)

print(hoteldata)

print("x train data: ", X\_train)

print("y train data: ",y\_train)

print("x test data: ", X\_test)

print("y test data: ",y\_test)

clf = DecisionTreeClassifier(criterion="entropy", max\_depth=5)

clf = clf.fit(X\_train,y\_train)

y\_pred = clf.predict(X\_test)

print("ytest = ", X\_test)

print("ypred = ", y\_pred)

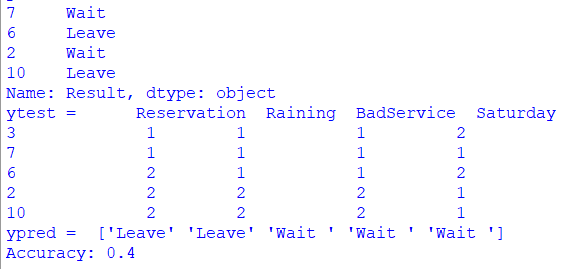
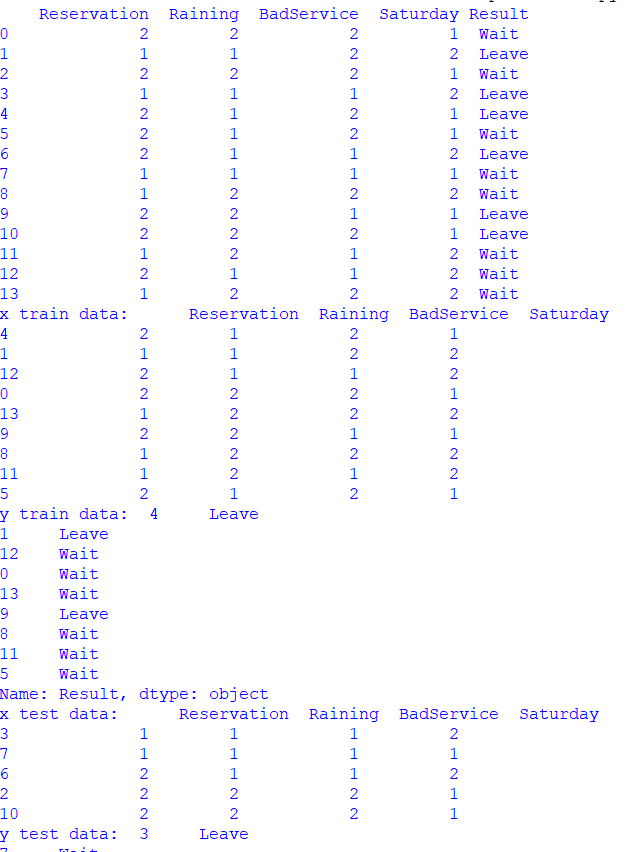
print("Accuracy:",metrics.accuracy\_score(y\_test, y\_pred))

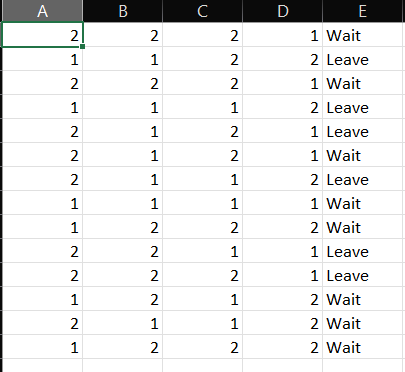
fig = plt.figure(figsize=(25,20))

t = tree.plot\_tree(clf,feature\_names=feature\_cols,class\_names=['Leave','Wait'],filled=True)

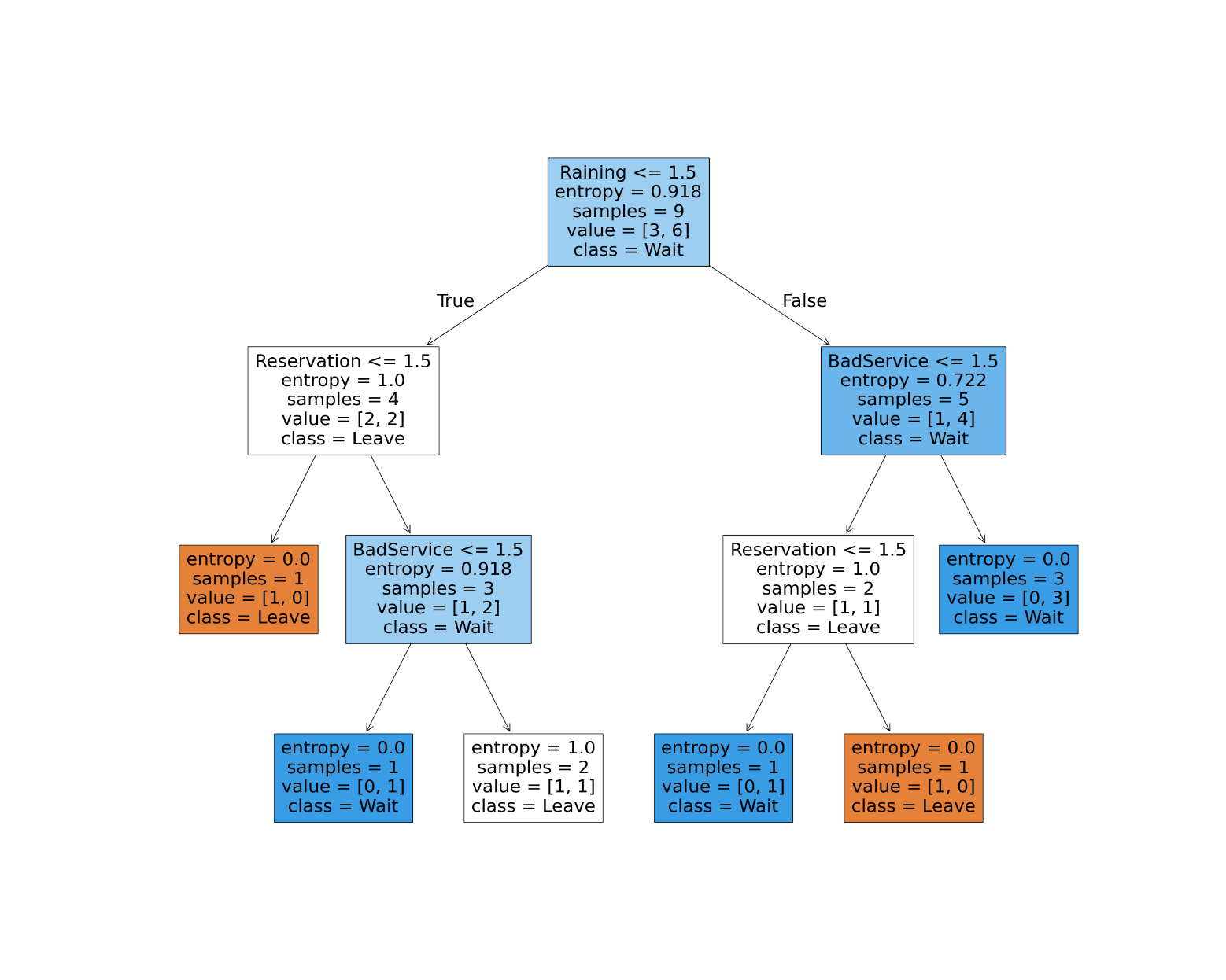
fig.savefig("decistion\_tree.png")

**Output:**



**dtree.csv**

**dtree.png**

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**Note:** Save the excel file in .csv Extension ,Save the .py and .csv file in same folder.