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# predict decision choice using CART and calculate prediction accuracy and weightage of features


import numpy as np

import pandas as pd

from sklearn.tree import DecisionTreeClassifier

from sklearn.preprocessing import LabelEncoder

from sklearn.model_selection import train_test_split


dataset=pd.read_csv('/Users/saurav/Desktop/Research works/my_work/decisionCART.csv')

dataset=pd.DataFrame(data=dataset.iloc[:,0:5].values,columns=["temperature","humidity","rainfall","wi
nd","decision"])

print("data")


print(dataset)


dataset_encoded=dataset.iloc[:,0:5]

le=LabelEncoder()

for i in dataset_encoded:

   dataset_encoded[i]=le.fit_transform(dataset_encoded[i])

print("Encoded data")


print(dataset_encoded)









#Feature Set

X=dataset_encoded.iloc[:,0:4]
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#Label Set

y=dataset_encoded.iloc[:,4]

X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.3)

model=DecisionTreeClassifier(criterion='gini')

model.fit(X_train,y_train)

print("Prediction accuracy")

print(model.score(X_test, y_test))

print("weightage of features")

print(model.feature_importances_)

print("Sample prediction")

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if model.predict([[0,1,0,1]])==1:
    print("yes you can go")
else:
    print("no you should not go")
```