

Course Code : BMM 723

Course Name : Artificial Neural Network for Biomedical Engineering

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Program : Masters

Homework : 1

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1. Decision tree algorithm for classification :

A dataset of a shopping mall was analyzed for classification where the gender, age, income status, marital status and buying status from the shopping mall was analyzed using jupyter python language.

Code

import pandas as pd

import numpy as np

dataset=pd.read\_csv("mallcustomerdiscount.csv.csv")

dataset

X= dataset.iloc[:,:-1]

X

y= dataset.iloc[:,5]

y

from sklearn.preprocessing import LabelEncoder

labelencoder\_X = LabelEncoder()

X= X.apply(LabelEncoder().fit\_transform)

X

from sklearn.tree import DecisionTreeClassifier

regressor = DecisionTreeClassifier()

regressor.fit=(X.iloc[:,1:5], y)

X\_in = np.array([1,1,0,0])

y\_pred = regressor.predict([X\_in])

y\_pred

from sklearn.externals.six import StringIO

from IPython.display import Image

from sklearn. tree import export\_graphviz

import pydotplus

dot\_data= StringIO()

export\_graphviz(regressor, out\_file= dot\_data, filled = True, rounded = Ture, special\_characters = True)

export\_graphviz(regressor, out\_file= dot\_data, filled = True, rounded = Ture, special\_characters = True)

graph= pydotplus.graph\_from\_dot\_data(dot\_data.getvalue())

graph.white\_png('tree.png')

1. Random forest algorithm for classification :

A dataset of a titanic train dataset was investigated applying random forest algorithm.

About passengers survive or not calculation classification using random forest algorithm.

Code :

pwd  
import pandas as pd

import numpy as np

import matpotlib as mpl

import matpotlib.pylot as plt

dataset=pd.read\_csv("train.csv")

dataset

dataset.head(5)

NAs= pd.concat([dataset.isnull().sum()], axis=1, keys=["dataset"])

NAs[NAs.sum(axis=1)>0]

dataset["Age"]= dataset["Age"].fillna(dataset["Age"].mean())

dataset["Embarked"]= dataset["Embarked"].fillna(dataset["Embarked"].mode()[0])

dataset["Cabin"]= dataset["Cabin"].fillna(dataset["Embarked"].mode()[0])

dataset["Pclass"]= dataset["Pclass"].apply(str)

for col in dataset.dtypes[dataset.dtypes=="object"].index:

for\_dummy= dataset.pop(col)

dataset= pd.concat([dataset,pd.get\_dummies(for\_dummy,prefix=col)],axis=1)

dataset.head()

labels = dataset.pop("Survived")

from sklearn

from sklearn.ensemble import RandomForestClassifier

Unfortunately, The code is not yet completed. Therefore, The desired output was yet to be pended for further research study. I will try to solve these in my next study.