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15BCE0517

L7+L8

MULTI LAYER PERCEPTRON

DATASET:

|  |  |
| --- | --- |
| |  | | --- | | **Blood Transfusion Service Center Data Set** | |

Given is the variable name, variable type, the measurement unit and a brief description. The "Blood Transfusion Service Center" is a classification problem. The order of this listing corresponds to the order of numerals along the rows of the database.   
  
R (Recency - months since last donation),   
F (Frequency - total number of donation),   
M (Monetary - total blood donated in c.c.),   
T (Time - months since first donation), and   
a binary variable representing whether he/she donated blood in March 2007 (1 stand for donating blood; 0 stands for not donating blood).

CODE:

import numpy as np

import pandas as pd

from sklearn.preprocessing import StandardScaler

from sklearn.neural\_network import MLPClassifier

from sklearn.metrics import confusion\_matrix

from sklearn.cross\_validation import train\_test\_split

from sklearn.metrics import accuracy\_score

from sklearn.metrics import classification\_report

balance\_data = pd.read\_csv('https://archive.ics.uci.edu/ml/machine-learning-databases/blood-transfusion/transfusion.data',

sep= ',', header = 0 )

print ("Dataset Lenght: ", len(balance\_data))

print ("Dataset Shape: ", balance\_data.shape)

print ("Dataset: ",balance\_data.head())

X = balance\_data.values[:, 0:4]

Y = balance\_data.values[:, 4]

X\_train, X\_test, y\_train, y\_test = train\_test\_split(

X, Y, test\_size = 0.3, random\_state = 100)

mlp = MLPClassifier(hidden\_layer\_sizes=(13,13,13),max\_iter=1750)

mlp.fit(X\_train,y\_train)

predictions = mlp.predict(X\_test)

print(confusion\_matrix(y\_test,predictions))

print(classification\_report(y\_test,predictions))

**OUTPUT:**

Dataset Lenght: 748

Dataset Shape: (748, 5)

Dataset: Recency (months) Frequency (times) Monetary (c.c. blood) Time (months) \

0 2 50 12500 98

1 0 13 3250 28

2 1 16 4000 35

3 2 20 5000 45

4 1 24 6000 77

whether he/she donated blood in March 2007

0 1

1 1

2 1

3 1

4 0

[[138 31]

[ 29 27]]

precision recall f1-score support

0 0.83 0.82 0.82 169

1 0.47 0.48 0.47 56

avg / total 0.74 0.73 0.73 225

screenshot:

