# Import sklearn neural network

import os

import pandas as pd

import numpy as np

import sklearn as SKLearn

from sklearn.neural\_network import MLPClassifier

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

from sklearn.model\_selection import cross\_val\_score

#

os.chdir('c:\CS Project\Code')

# import my goalkeeper code

import Goalkeepers as GK

# data = GK

data=GK.dataGK

data

# define overvalued as difference between value and predicted value ‘predsOLS;

data['Over/undervalued']=np.where(data['value']-data['predsOLS']>0, 'Overvalued', 'Undervalued')

data

#create training set for goalkeeper data

yGK = data['Over/undervalued']

XGK = data[['age','psxg\_gk','games\_starts','passes\_pct\_launched\_gk','pct\_goal\_kicks\_launched','isPremierLeague','isLaLiga','isLigue1','clean\_sheets','saves']]

XGK\_train, XGK\_test, yGK\_train, yGK\_test = train\_test\_split(XGK,yGK,test\_size=0.2)

#applying MLPC neural network

net=MLPClassifier(hidden\_layer\_sizes=(100,),activation='logistic')

#apply netsolver ibfgs algorithm

netsolver='lbfgs'

#maximum iterations of 1000

net.max\_iter=1000

#apply XGK fit and test prediction

net.fit(XGK\_test,yGK\_test)

ytest\_predict=net.predict(XGK)

trueorfalse=np.where(np.array(yGK)==ytest\_predict,'T','F')

#output is the % value of true vs false

outcome=len(trueorfalse[trueorfalse=='T'])/len(trueorfalse)\*100

outcome=format(outcome, '.2f')

outcome=str(outcome)

print('There are ' + outcome + '%' + ' correct classifications')



Graphical user interface, text, application, email

Description automatically generated