import numpy as np

import xlrd

# 读数据并求熵

path = u'######文件名． xlsx'

hn, nc = 1, 1

# hn 为表头行数， nc 为表头列数

sheetname = u'Sheet3'

def readexcel(hn, nc):

data = xlrd.open\_workbook(path)

table = data.sheets\_by\_name(sheetname)

nrows = table.nrows

data = []

for i in range(hn, nrows):

data.append(table.row\_values(0)[nc:])

return np.array(data)

def entropy(data0):

# 返回每个样本的指数

# 样本数，指标个数

n, m = np.shape(data0)

# 一行一个样本，一列一个指标＃下面是归一化

maxium = np.max(data0, axis=0)

minium = np.min(data0, axis=0)

data = (data0 - minium) \* 1.0 / (maxium - minium) # 计算第 j 项指标，第个样本占该指标的比重

sumzb = np.sum(data, axis=0)

data = data / sumzb

# 对In0处理

a = data \* 1.0

a[np.where(data == 0)] = 0.0001

# ＃计算每个指标的熵

e = (-1.0 / np.log(n)) \* np.sum(data \* np.log(a), axis=0)

# 计算权重

w = (1 - e) / np.sum(1 - e)

recodes = np.sum(data0 \* w, axis=1)

return recodes

data = readexcel(hn, nc)

grades = entropy(data)