G. H. Raisoni College Of Engineering And Management, Wagholi Pune				
<u>2021- 2022</u>				
Group B :-Assignment no :- 1				
Department	CE [SUMMER 2022 (Online)]			
Term / Section	III/B	Date Of submission		08-10-2021
Subject Name /Code	Python for Data Science / UCSP204			
Roll No.	SCOB77	Name	<u>Pratham Rajkumar pitty</u>	
Registration Number	2020AC0E1100107			

Group B:> Experiment No = (8) MINEY [] Aims write A python program to creat a 20 numpy array of 6 Soccer team players with their [height (meters), weight (kg)]

by restraping an in numpy array.

(i) Find out the average height

(II) Medium height

(11) Standard deviation on height
(11) Standard deviation on height
(12) Colculate the bmi and pring the bmis
(12) Colculate two appropriate by checking the bmis
(12) Create two appropriate by checking the bmis

(a) AxxI: 6mi>25

Axx 2: 6mi < 25 and print both the arrays

Theory:>

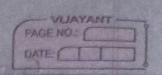
Numpy is a python library used

For working with arrays.

It also has Functions For working in domain of linear algebra, fourier transform and motoriles

Numpy was created in 2005 by Travis & Oliphants. It is on open-source project and YOU CON USE it Freely. Numpy Stands for Numerical values.

In Python we have lists that serve that purpose of arrays, but they are slow to process. Numpy aims to provide an array Object that is up to So times Faster than tradition python lists. The arrary object in Numpy is called adarray, it provides a



lot of supposting functions that make working with ndorry very easy. Arrays are very frequent Used in data Science, where speed and & resources are very important 110

Numpy assays ase Stored at one continuous Place in memory unlike lists, so processes can This is The resion reason why numpy is faster than lists. Also it is optimized to work with latest CPU axchitectures.

Install it wing commond Pip (:1 Used) OSEX Nome) pip install numpy

once numpy is installed, impost it in your import numpy adding the import keyword:

we can create a son numpy adapty by using the array () Function To core ate an odgranys, we can pass a list, tuple or any array-like object into the array, method, and it will be converted into on addressy A dimention in assay is one level of assay depth (nested assays). The state of the s

20-Array 1 An array that has 1-0 arrays as its elements is called a 2-0 assay. Array indexing is the same as accessing an areay element you can access an assay

element by referring to its index numbers. The indexes in Number arrays Start with o meaning that the first element has indexed, and the second has index I etc. To acress elements from 2-0 arrays we can use comme separated integers resprenting the dimension and the index of the element. A={1,2,3,4}, B=[5,6], C=[7,8] T=[[1,2,3,4], [5,6], [7,8]] Numpy array Rashaping Restraping means Changing the Stape of an average is the number of elementer of a dimension By restraping we can add or remove dimensions or change number of elements in each dimension. E70 - 14(117) 40015199 2 convert the following 1-0 growy with 12 elements into az-n growy. The outermost dimension will have 4 addays , each with 3 e import numpy as AP

array [1,2,3,4,5,6,7,8,9,10,11,12]) Point (newaxx)

Group B Assignment 1 program code

```
import numpy as np
print("*******************************")
print("SCOB77_Pratham pitty_Group B Assignment 1")
print("*********************************")
print("heig.(m) weig.(kg)")
playerdetails = [1.7, 78.4, 1.8, 70.5,2.1, 84.5, 1.7, 75.2, 1.9, 75.1, 1.6, 68.8]
soccer = np.array(playerdetails)
np_soccer = soccer.reshape(6,2)
print (np_soccer)
# Print out the shape of np soccer
print("\nHear i have reshaped it in ")
print(np soccer.shape)
print("\n----")
#Printing the average of Heights
avg = np.mean(np_soccer[:,0])
print("Average of Heights: " + str(avg))
print("\n----")
# Print median height.
med = np.median(np_soccer[:,0])
print("Median height: " + str(med))
print("\n-----")
# Print out the standard deviation on height.
stddev = np.std(np soccer[:,0])
```

```
print("Standard Deviation on height: " + str(stddev))
#Calculating BMI
np_height = np_soccer[:,0]
np_weight = np_soccer[:,1]
bmi = np_weight/np_height**2
print ("BMI value of players is:- ")
print(bmi)
print("\n----")
arr_overweight = bmi[bmi>25]
print ("Overweight players")
print (arr_overweight)
print("\n----")
arr_normal = bmi[bmi<=25]
print ("players with NORMAL BMI values")
print (arr_normal)
print("\n----")
```

