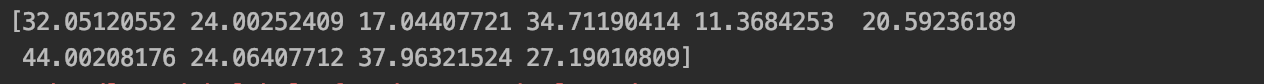
**Data Science Lab 1**

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**Example Numpy :**

import numpy as np  
import random  
bmiArray= np.arange(100,dtype = float).reshape(10,10)  
  
BMISet = []  
BMI = []  
weight = []  
height = []  
count = 0  
for i in range(0,100):  
 weight.append(random.uniform(40.0,90.0))  
 height.append((random.randrange(140,200)))  
 BMI.append(weight[i] / ((height[i]/100)\*\*2))  
 BMISet.append(BMI[i])  
  
for i in range (0,len(BMISet),10):  
 bmiArray[int(i/10)] = BMISet[i:i+10]  
  
print(bmiArray[0])

**Screenshot :**

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**Bar chat :**

import numpyExample  
import numpy as np  
import math  
from matplotlib import pyplot as plt  
data = numpyExample.BMI  
tempvalue = [0,0,0,0]  
  
for i in range(0,100):  
 if data[i]< 18.5:  
 tempvalue[0]+=1  
 elif data[i] >= 18.5 and data[i] < 25:  
 tempvalue[1]+=1  
 elif data[i]>=25 and data[i]<30:  
 tempvalue[2]+=1  
 elif data[i]>=30:  
 tempvalue[3]+=1  
category = ['Underweight','Helathy', 'Overweight','Obese']  
x = np.arange(4)  
plt.bar(category,tempvalue)  
plt.legend()  
plt.xticks(x,category)  
plt.show()

**ScreenShot :**

**스크린샷이(가) 표시된 사진

자동 생성된 설명**

**Histogram :**

import numpyExample  
from matplotlib import pyplot as plt  
data = numpyExample.BMI  
plt.hist(data,bins=4)  
plt.xticks([min(data), 18.5, 25, 30, max(data)])  
plt.yticks([0,5,10,15,20,25,30,35,40,45])  
plt.xlabel('BMI')  
plt.ylabel('Number of people')  
  
plt.show()

**ScreenShot :**

**스크린샷이(가) 표시된 사진

자동 생성된 설명**

**Pie Chart :**

import numpyExample  
from matplotlib import pyplot as plt  
data = numpyExample.BMI  
wtData = numpyExample.weight  
htData = numpyExample.height  
totaldata = []  
wtvalue = [0,0,0,0]  
category = ['Underwegiht','Helathy', 'Overweight','Obese']  
  
for i in range(0,100):  
 totaldata.append([data[i],wtData[i]])  
  
for i in range(0,10):  
 if totaldata[i][0]< 18.5:  
 wtvalue[0]+=1  
 elif totaldata[i][0] >= 18.5 and totaldata[i][0] < 25:  
 wtvalue[1]+=1  
 elif totaldata[i][0]>=25 and totaldata[i][0]<30:  
 wtvalue[2]+=1  
 elif totaldata[i][0]>=30:  
 wtvalue[3]+=1  
  
plt.pie(wtvalue,labels=category,autopct='%1.2f%%')  
plt.show()

**ScreenShot :**

**스크린샷이(가) 표시된 사진

자동 생성된 설명**

**Scatter Plot :**

import numpyExample  
from matplotlib import pyplot as plt  
data = numpyExample.BMI  
wtData = numpyExample.weight  
htData = numpyExample.height  
  
  
category = ['Underweight','Helathy', 'Overweight','Obese']  
  
plt.scatter(wtData,htData,color = 'r')  
plt.xlabel('Weight')  
plt.ylabel('Height')  
plt.show()

**ScreenShot :358**

**스크린샷이(가) 표시된 사진

자동 생성된 설명**