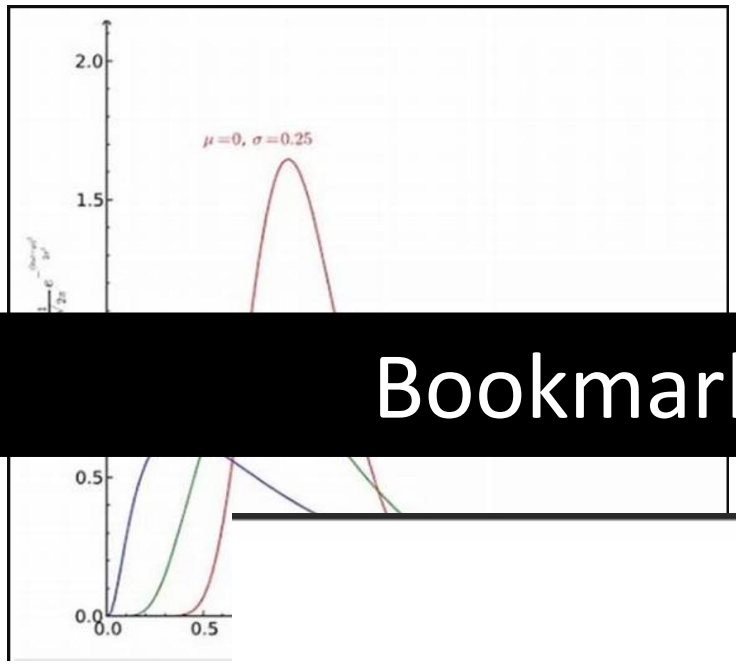

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Bookmarks in Python

LONDON METROPOLITAN UNIVERSITY

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Fundamentals of Computing

CS4051

Contents

Introduction

My proyect work asking to the user for the notes of a course (group of numbers) and when the user end to input the notes appear a menu with eight options with different option that I will explain bellow on the follow sections.

Methodology:

I design and develop my proyect hierarchical, but relation between each other, because without the first layer the others layer cannot works. While I was working on the draft of this proyect I was thinking In what part build first, to start have some basic results, other important think for me was which editor use to facility my learning and speed app my coding, I try with Jupiter, anaconda, Linux terminal, and finally I found Visual Studio, that was easy to have, instal and manage, also the editor have a familiar environment, options, differentiation of key words, functions, variables, that help me a lot.

Implementation

First Layer:

I encapsulate the numbers input for the user on the variable numberlist and after I put a conditional While to keep run the loop asking and end until the user input a 0

On the loop I append the numbers stored in the variable numberlist into a list called list10, once the loop stops, I print the length of the list and the numbers stored on the list. [4]

```
print("You should add your marks for this course")#message
#to interact with the user

numberlist = 1000000#to inisializate the variable with a number differ
#than 0 and start the loop while
#we decide to do with a while in order to make to put many numbers as
while numberlist != 0 or len(list10)<2:#the loop will work until the u

        try:#to verify that the condition of the loop is working
            #to comprobe if there is minimum 2 numbers to work with
            numberlist=int(input("Please bring your " +str(i)+" mark f
            i+=1#we are using to identify the number of the data in ea
            if numberlist != 0:#To do not include the 0 on the list
                list10.append(numberlist)#to store the user's data in
            #raise Exception("Only Integers are allowed")
        except:# this sent a message of error when we put something
        #different than a number
            print("There is the error exception, Try again please")



print("Thanks by")# to communicate the user that he end or exit of thi

print("You in " + str(len(list10)) + " marks, those are: ")#to numerat
print(list10)# to show the list of number stored on the list10
```

Figure 1. First layer

Also, I like to explain the different verifications of error that I have implemented in my code to make work in the correct way

In my while loop there is a statement that indicate that the input number have to be different of cero and also the length of the list have to be mayor than 2 as well, so I can verify that before that the user end the loop minimum is input two numbers, like that can be executed the options of the menu if not the loop is going to keep asking for a number,

As well I code a try and exception in case that the user tries to do an input different than a number.

In the last I put an if conditional to verify that al the numbers of the list are not 0.

```
You should add your marks for this course
Please bring your 1 mark10
Please bring your 2 mark20
Please bring your 3 mark50
Please bring your 4 mark40
Please bring your 5 mark30
Please bring your 6 mark10
Please bring your 7 mark0
Thanks by
You in 6 marks, those are:
```

Figure 2. Result

Second Layer:

Here I create all the functions necessary to make work all the option of the menu:

1)**Mean function**- Is working on the list10 of the marks- In summary is the sum of the numbers stored in the list10 divided by the length of the list10 and after return the result of this math operation.

```
77  def Mean(list10):
78      #list10.sort()#for the mean we do not need to order
79      S=sum(list10)#to contain the sum of the numbers of the list
80      N=len(list10)#to contain the length of the numbers of the list
81      print("Mean:")#To make more visual the result of the mean for the
82      return S/N #To return the result of the mean function dividing
83      #the sum and the lenght of the numbers
```

Figure 3. Mean function

```
Option1 done
Mean:
26.666666666666668
```

Figure 4. Result

2)**Median Function**-Is working on the list10, but the Math operation to do depends on the length of the list, because should be different if is par or impar, I calculate this making the module of the length and the result is controlled for an If conditional.

So, if the Module is 1 that means that the length is impar then it is calculate where is the middle position of the list10 and return the number stored in this position

If the Module is 0 means that is par so the operation will be calculated the mean of the two numbers on the middle position of the array and return the result of this math operation

```
90  def Median(list10):
91      list10.sort() #To order first the list10 before make any operatio
92      M=len(list10) #to contain the length of the numbers of the list
93
94      if M%2==1: #IMPAR
95          #if to verify if the module of the length is par or inpar
96
97          print("Median: Impar") #To make more visual the result
98
99          return list10[M//2] #To return the result of the median funct
100         #return list10[M//2]
101
102     else:       # PAR
103         a=list10[M//2-1]# here we are dividing the leng between 2 and
104         #is going to bring a integer number,and is going to bring the
105         b=list10[M//2]# here we are dividing the leng between 2 and
106         #is going to bring a integer number,and is going to bring the
107         print("Median: Par") #To make more visual the result
108
109         return ((a+b)/2) #To return the result of the mean function
```

Figure 5.Median function

```
Remember that the list is sort before the maths operation are done
[10, 10, 20, 30, 40, 50]
Median: Par
25.0
```

Figure 6. Result

3)**Mode Function**- This function is to find the number that is repeated more times on the list, for that I create a loop for, to run the list10 and the variable frequencyNumber to sum one each time that appear a number, if one of those appear again the frequencyNumber is increment [4]

```
123  #to declare a method or function Mode that is going to work with the li
124  def mode(list10):
125      list10.sort() #To order first the list10 before making any operatio
126
127      frequencyNumber=0 #is going to keep the number of repetitions of a
128      counter=2         #is used to compare with frequencyNumber
129      index=0           #container of the number
130
131
132      for a in list10: #to run the numbers of the list10
133          frequencyNumber=list10.count(a) #contain the number of the repe
134
135          if (frequencyNumber>=counter): #If frequency is mayor than 1
136              counter=frequencyNumber #to store the number of repetitions
137              index=a #to contain the mode
138      if len(set(list10)) == len(list10) : #With set I eliminate the repe
139          #after I take the length and make a comparison with the real le
140          return "There is no mode" #so if the length is equal, return a
141      else:
142          print ("the mode is: " ) #if not show a message to head the mod
143          return index #To return the result of the mode function.
```

Figure 7.Mode function

```
Option3 done
We have 2 times 10.
Mode:
10
```

Figure 8. Result

4)**In Function**-Is used to ask for more marks one by one each entrance, the functionality is very similar to the description of input marks of the first layer, the result is assigned after the position of the last entrance on the first layer

```
52  def In(list10): #to declare a method or function that is going to work
53
54      numberlist=1000000#To declarate the variable numberlist with a dif
55      #number of cero and start the loop while
56      while numberlist != 0 :#while the variable do not have a value 0 i
57
58          try:#to verificate if the user bring the correct number
59              #here I am asking for more numbers to add on the list10
60              numberlist=int(input("Please bring more marks for this cou
61              #i+=1
62              if numberlist != 0:#I am avoiding the value 0 out of our a
63                  list10.append(numberlist)#Here i am store the numbers
64          #Exception("Only Integers are allowed")
65          except:#If catch an exception it is going to comback to the lo
66              print("There is the error exception, Try again please")# t
67
68
69
70      print("You in " + str(len(list10)) + " marks, those are: ")# to sh
71      #print(list10)
72      return list10 #returning the final values of the list
```

Figure 9. In function

```
Tell me wich option would you like to chose4
Option4 done
Please bring more marks for this course 23432
Please bring more marks for this course 456365
Please bring more marks for this course 700000
Please bring more marks for this course 4000
Please bring more marks for this course 0
You input 10 marks, those are:
[10, 10, 20, 30, 40, 50, 23432, 456365, 700000, 4000]
```

Figure 10. Result

5)**Skewness**- Here we will used different math operations like the mean of all the numbers, the median and the standard deviation and finally calculate the skewness, encapsulate in a variable, and return the result.

```
159    def skewness(list10):
160        #1)Mean
161        mn = Mean(list10)#first we retrieve the result of the function me
162        print ("The mean is"+str(mn)) #To make verify errors//after clear
163
164        #2)STD
165        N=len(list10) #Is the len of the list
166        num = 0# to initialize the variable num
167
168        for i in range(len(list10)): #to run for every number of the list
169        #    num=(int(((i-mn)**2)/(N-1)))+num
170            num += ((list10[i]-mn)**2)/N #to igualate each number of the
171            print(num) #To make more visual the result
172        STD=num**0.5 #calculation to obtain the standar deviation
173
174        print("The STD is") #To make more visual the result
175        print(STD)#To make more visual the result
176        #3)Median
177        me = Median(list10) #first we retrieve the result of the function
178        #4)Skewness
179        SK=(((3*(mn-me))/STD)) #calculation to obtain the Skewness
180        print("The skewness is:") #To make more visual the result
181        return SK
```

Figure 11. Skewness function

```
The skewness is:
1.5021849156389302
```

Figure 12. Result

6) **NumberList**- In this function I am asking again for more marks, in case that the user like to put some more number, but all in one line separate instead of one by one, I use the same variable to store the input of the numbers after I stored a variable, splitting by the coma

After I run the list with a for loop and each number is append on the list10 and return the numbers of the list.

```
148    def NumberList(list10):
149        numberlist = input("Please add more marks in one line separate by
150        numbers = numberlist.split(",")#It is to store the input of numbe
151        for i in range(len(numbers)): #to run through the list numbers
152            list10.append(int(numbers[i]))#To store the numbers of the loo
153
154        return list10 #to return the result of this function.
155
```

Figure 13. NumberList function

```
Option6 done
Please add more marks in one line separate by commas 1,2,3,etc n/900,567,345
[10, 10, 10, 20, 30, 50, 4000, 23432, 456365, 700000, 1, 900, 567, 345]
```

Figure 14. Result

7) **ReadFile**-with this function the user can use the number stored on a file of the computer and append on the list10, so when the file is open and read the content is stored in the variable numberlist, after that the content of this variable is appended in the list10, also we have a comprobation of error so if the file is found and open is going to do the process descripted before if not is going to bring a message of error.

```
def ReadFile():
    try: #To catch any error in case that the file do not exist or the
        with open('MyFile.txt') as file: #to open the file
            numberlist =int(file.read()) #to read the content of the
            #it is retrieving those numbers in the numberlist variable
            numbers = numberlist.split(",") #It is to store the input
        for i in range(len(numbers)):#to run through the list numbers
            list10.append(int(numbers[i]))#To store the numbers of the

        print("You in " + str(len(list10)) + " marks, those are: ")#
        return list10 #to return the result of this function.

    except FileNotFoundError: #Error statement in case that the file
        print("ERROR, The file was no foun, try again please") # mess
```

Figure 15. ReadFile function

Third Layer:

Here I will be descripting how I developed the menu:

First, I print the option, to bring a description of the different process to choose for the users

```
205   def menu(): #declaration of the function for the menu
206       print ("1) Print the Mean") #First option of the menu
207       print ("2) Print the Median") #Second option of the menu
208       print ("3) Print the Mode") #Thirth option of the menu
209       print ("4) Ingresar again all the numbers") #Fourth option of the
210       print ("5) Print the Skewness") #Fifth option of the menu
211       print ("6) More name Plane option, separate by coma") #Sixth optic
212       print ("7) Read the number from a file") #seventh option of the me
213       print ("8) EXIT") #Last option of the menu
214
215   menu() #close of the declaration options
```

Figure 16.Third Layer

```
Please bring your 6 mark0
Thanks by
You in 5 marks, those are:
[10, 20, 30, 40, 50]
1) Print the Mean
2) Print the Median
3) Print the Mode
4) Ingresar again all the numbers
5) Print the Skewness
6) More name Plane option, separate by coma
7) Read the number from a file
8) EXIT
Tell me wich option would you like to chose
```

Figure 17. Menu

Here I am setting the options to work accord each case with a conditional if or elif, calling the adequate function for each function, also I put a while loop to keep asking for chose an option until press 8 that will be the end option of the loop.

```
216  option= int(input("Tell me wich option would you like to chose"))
217  #This option is going to capture the input number that the user want t
218
219  while option != 8 : #A loop to run through the option's case
220      #Here if we press 8 it is going to exit of the loop
221
222      if option == 1 : #conditional if the option is 1
223          print("Option1 done")#To make more visual the result
224          print(Mean(list10)) #To call the function Mean on the list10 a
225
226      elif option ==2 : #conditional if the option is 2
227          print("Option2 done") #To make more visual the result
228          print(Median(list10)) #To call the function Median on the list
229
230      elif option ==3 : #conditional if the option is 3
231          print("Option3 done") #To make more visual the result
232          print(mode(list10)) #To call the function mode on the list10 a
233
234      elif option ==4 : #conditional if the option is 4
235          print("Option4 done") #To make more visual the result
236          print(In(list10)) #To call the function In on the list10 and p
237
238      elif option ==5 : #conditional if the option is 5
239          print("Option5 done") #To make more visual the result
240          print(skewness(list10)) #To call the function skewness on the
242      elif option ==6 : #conditional if the option is 6
243          print("Option6 done") #To make more visual the result
244          print(NumberList(list10)) #To call the function NumberList on
245
246      elif option ==7 : #conditional if the option is 7
247          print("Option7 done") #To make more visual the result
248          print(ReadFile(list10)) #To call the function ReadFile on the
249
250      menu()#*******Ask for those two1 sentence
251      option= int(input("Tell me wich option would you like to chose"))
252
253  print("Thanks, Good bye") #quit sentence
```

Figure 18. Options

Testing

Correct data types: It cannot be input a datatype different than a number or an empty statement**,** because is going to keep asking for a number.

```
Please bring more marks for this course 787
Please bring more marks for this course
There is the error exception, try again please
Please bring more marks for this course yeeee
There is the error exception, try again please
Please bring more marks for this course '
There is the error exception, try again please
Please bring more marks for this course /
There is the error exception, try again please
Please bring more marks for this course
```

This is the correct way to add the marks.

```
You should add your marks for this course, press 0 to end
Please bring your 1 mark
10
Please bring your 2 mark
20
Please bring your 3 mark
30
Please bring your 4 mark
2453
Please bring your 5 mark
0
Thanks, now chose an option of the Menu please.
You in 4 marks, those are:
[10, 20, 30, 2453]
1) Print the Mean
2) Print the Median
3) Print the Mode
4) Input again more numbers
5) Print the Skewness
6) More numbers, plane option, separate by coma
7) Read the number from a file
8) EXIT
Tell me which option would you like to choose
```

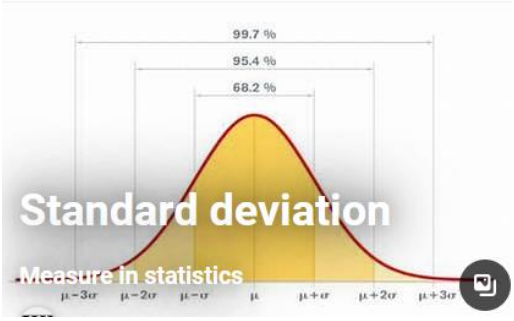
Conclusion

On the first steps I used what I learned on the workshop classes, for the input and for basic functions like open read a file, but for do the skewness, median and mode I made my investigations about how to obtain results and make the menu as well

I think the most difficult part was make the skewness calculation, because have a lot of maths operations that I was not sure how to express in python like do the square root , so was nice to learn and see results on my way to end this proyect.

Literature review

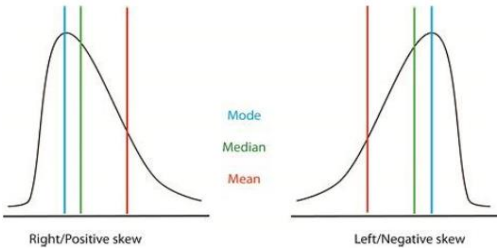
The standard deviation [1]



Formula	Explanation
$\sigma = \sqrt{\frac{\sum (X-\mu)^2}{N}}$	• σ = population standard deviation • $\sum$ = sum of... • X = each value • μ = population mean • N = number of values in the population

Figure 19

Skewness [2]



$$\text{skewness} = 3 \times \frac{(\text{Mean} - \text{Median})}{\text{Standard deviation}}$$

Figure 20

Mean, Median, Mode [3]

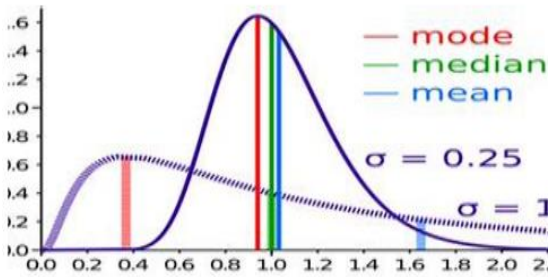


Figure 21

Population mean formula	Explanation
$\bar{X} = \frac{\sum X}{N}$	• $\bar{X}$ = population mean • $\sum X$ = sum of each value in the population • N = number of values in the population

Calculating the middle position

Formula	Calculation
$\frac{(n+1)}{2}$	$n = 5$ $\frac{(5+1)}{2} = 3$

References

[1] How to Calculate Standard Deviation (Guide) | Calculator & Examples (scribbr.com)

[2] Skewness | Definition, Examples & Formula (scribbr.com)

[3] How to Find the Mean | Definition, Examples & Calculator (scribbr.com)

https://lms.netacad.com/

Wes McKinney 2022, *Python for Data Analysis*, vol Third edition, pag 62, O'Reilly Media, Sebastopol, CA, viewed 9 May 2024, <https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=nlebk&AN=3360238&authtype=shib&site=ehost-live>.

Program Run from the terminal

I run from the CMD after I fix the Path for python

```
C:\Users\aryes>python
Python 3.12.3 (tags/v3.12.3:f6650f9, Apr  9 2024, 14:05:25) [MSC v.1938 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
KeyboardInterrupt
>>> quit()

C:\Users\aryes>python --version
Python 3.12.3

C:\Users\aryes>
```

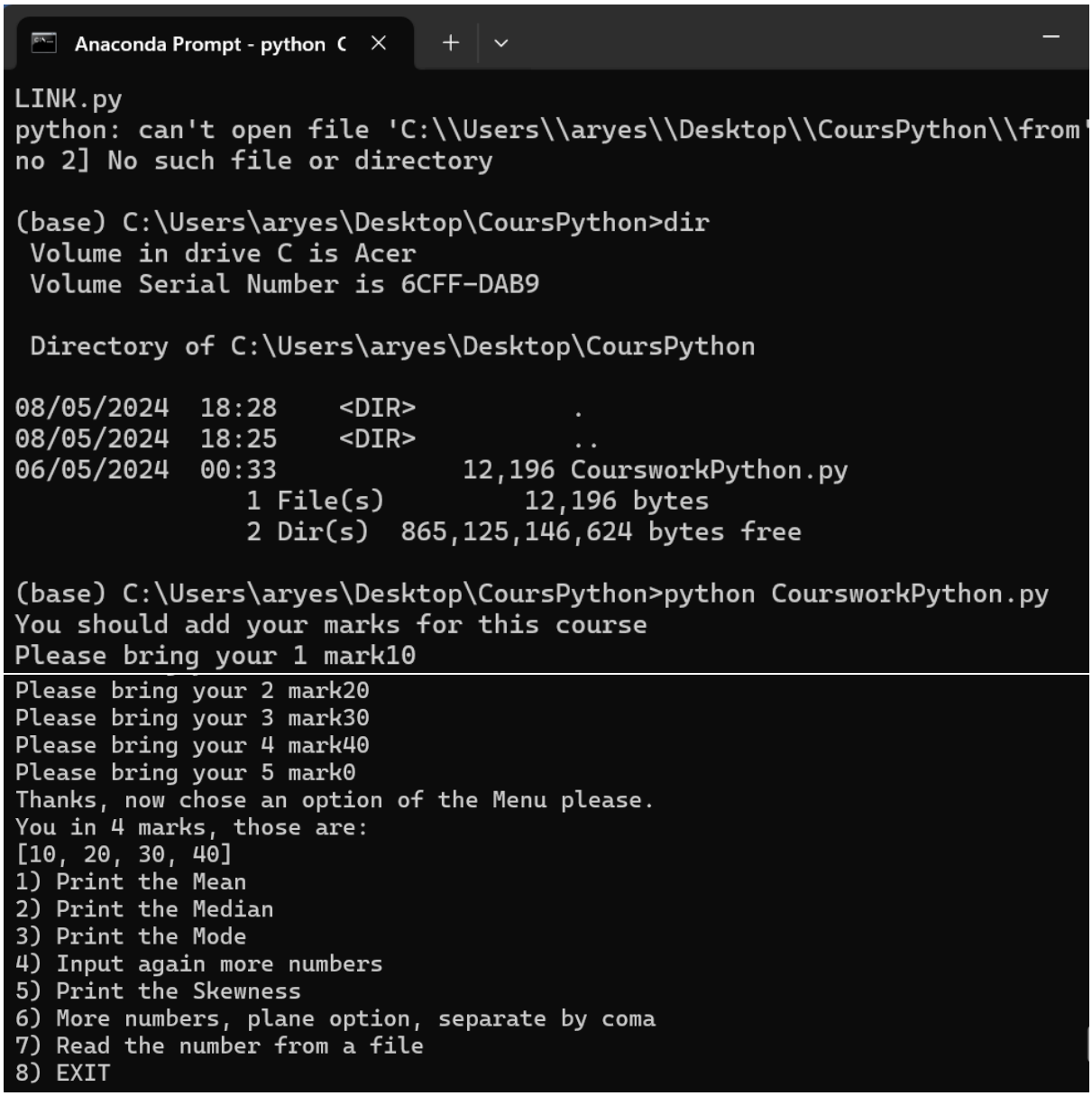
After I ubicate on the file where is my python program and run my program

```
 Directory of C:\Users\aryes\Desktop\CoursPython

08/05/2024  18:28    <DIR>          .
08/05/2024  18:33    <DIR>          ..
06/05/2024  00:33            12,196 CoursworkPython.py
               1 File(s)         12,196 bytes
               2 Dir(s)  865,009,623,040 bytes free

C:\Users\aryes\Desktop\CoursPython>python CoursworkPython.py
You should add your marks for this course
Please bring your 1 mark10
Please bring your 2 mark20
Please bring your 3 mark30
Please bring your 4 mark0
Thanks, now chose an option of the Menu please.
You in 3 marks, those are:
[10, 20, 30]
1) Print the Mean
2) Print the Median
3) Print the Mode
4) Input again more numbers
5) Print the Skewness
6) More numbers, plane option, separate by coma
```

I will implement this part from the terminal of anaconda as well because there are many different forms to run the program form a terminal.



Appendix

```
#from tarfile import LENGTH_LINK

#Declaration of the list and variables
#########
list10=[] #This is my list or container to store the numbers of the user
numberlist=0 #this is my variable to contain the numbers input for the user
i=1#counter for the for loop
a=0#variable for the median function in case that the module is par
b=0#variable for the median function in case that the module is par
M=0#variable to contain the lean for the median function
N=0#variable to contain the lean for the mean function
S=0#variable to contain the sum for the mean function
me=0#variable to contain the median for the skewness function
mn=0#variable to contain the median for the skewness function
SK=0#variable to contain the result of the skewness function
STD=0#variable to contain the STD for my skewness function


#Storing the User's data
#########
#for i in range(int(AmountNumbers)): //Was a possibility if we know the amount
of numbers to input
print("You should add your marks for this course")#message
#to interact with the user

numberlist = 1000000#to initialize the variable with a number different
#than 0 and start the loop while
#we decide to do with a while to make to put many numbers as the user want
while numberlist != 0 or len(list10)<2:#the loop will work until the user mark
0

        try:#to verify that the condition of the loop is working
            #to verify if there is minimum 2 numbers to work with
            numberlist=int(input("Please bring your " +str(i)+" mark"))
            i+=1#we are using to identify the number of the data in each input
of the user
            if numberlist != 0:#To do not include the 0 on the list
                list10.append(numberlist)#to store the user's data in the
list10
            #Raise Exception("Only Integers are allowed")
        except:# this sent a message of error when we put something
        #different than a number
            print("There is the error exception, Try again please")
```

```
print("Thanks, now chose an option of the Menu please. ")# to communicate the
user that he or exit of this part of the program

print("You in " + str(len(list10)) + " marks, those are: ")#to numerate the
inputs of the user
print(list10)# to show the list of number stored on the list10


#Declaration of functions
#########
############################
def In(list10): #to declare a method or function that is going to work with
the list10

    numberlist=1000000#To declarate the variable numberlist with a different
    #Number of cero and start the loop while
    while numberlist != 0 :#while the variable does not have a value 0 it will
be asking for more numbers

        try:#Verification if the user brings the correct number
            #Here I am asking for more numbers to add on the list10
            numberlist=int(input("Please bring more marks for this course "))
            #i+=1
            if numberlist != 0:#I am avoiding the value 0 out of our array, to
avoid errors
                list10.append(numberlist)#Here i am store the numbers in our
list10
        #Exception("Only Integers are allowed")
        except:#If catch an exception it is going to come back to the loop
while to ask again for more numbers
            print("There is the error exception, try again please")# to
communicate the user that there is an error



    print("You input " + str(len(list10)) + " marks, those are: ")# to show
the length of the list
    #print(list10)
    return list10 #returning the final values of the list
    #with the old numbers and the new numbers for this function


########################
#to declare a method or function Mean that is going to work with the list10
def Mean(list10):
    #list10.sort()#for the mean we do not need to order
    S=sum(list10)#to contain the sum of the numbers of the list
    N=len(list10)#to contain the length of the numbers of the list
```

```
    print("Mean:")#To make more visual the result of the mean for the user
    return S/N #To return the result of the mean function dividing
    #the sum and the lenght of the numbers

#print(Mean(list10))#To check results(please do not activate)


########################
#to declare a method or function Median that is going to work with the list10
def Median(list10):
    print("Remember that the list is sort before the maths operation are
done")
    list10.sort() #To order first the list10 before is make any operation
    print(list10)
    M=len(list10) #to contain the length of the numbers of the list

    if M%2==1: #IMPAR
        #if conditional to verify if the module of the length is par or impar

        print("Median: Impar") #To make more visual the result

        return list10[M//2] #To return the result of the median function
        #return list10[M//2]

    else:      # PAR
        a=list10[M//2-1]# here we are dividing the length between 2 and
        #is going to bring an integer number, and is going to bring the middle
position of the list menus 1
        b=list10[M//2]# here we are dividing the length between 2 and
        #is going to bring an integer number, and is going to bring the middle
position of the list
        print("Median: Par") #To make more visual the result

        return ((a+b)/2) #To return the result of the mean function
        #in this option we are working with a par length of the list#
        #it is doing the mean of the two numbers of the middle's position

#print(median(list10))#To check results(please do not activate)


########################
#to declare a method or function Mode that is going to work with the list10
def mode(list10):
    list10.sort() #To order first the list10 before making any operation

    frequencyNumber=0 #is going to keep the number of repetitions of a number
    counter=2         #is used to compare with frequencyNumber
    index=0           #container of the number
```

```
    for a in list10: #to run the numbers of the list10
        frequencyNumber=list10.count(a) #contain the number of the repetition
of the number

        if (frequencyNumber>=counter): #If frequency is mayor than 1
            counter=frequencyNumber #to store the number of repetitions
            index=a #to contain the mode
    if len(set(list10)) == len(list10) :
        return "There is no mode"
    else:
        print ("the mode is: " )
        return index

#print(mode(list10))#To check results(please do not activate)


########################
#This function Median is to add more numbers in the list, but in horizontal
#and separate by comas
def NumberList(list10):
    numberlist = input("Please add more marks in one line separate by commas
1,2,3,etc \n")# here we are asking for more numbers to input in a plain format
separate by comas
    numbers = numberlist.split(",")#It is to store the input of numberlist in
a new list called number
    for i in range(len(numbers)): #to run through the list numbers
        list10.append(int(numbers[i]))#To store the numbers of the loop on the
original list10

    return list10 #to return the result of this function.


##############################
#to declare a method or function skewness that is going to work with the
list10
def skewness(list10):
    #1)Mean
    mn = Mean(list10)#first we retrieve the result of the function mean in the
variable mn
    print (str(mn)) #To make verify errors//after clear

    #2)STD
    N=len(list10) #Is the len of the list
    num = 0# to initialize the variable num

    for i in range(len(list10)): #to run for every number of the list10
    #    num=(int(((i-mn)**2)/(N-1)))+num
```

```
        num += ((list10[i]-mn)**2)/N #to equalize each number of the list110
to the mean with and after the square
        #print(num) #To make more visual the result
    STD=num**0.5 #calculation to obtain the standar deviation

    print("The STD is") #To make more visual the result
    print(STD)#To make more visual the result
    #3)Median
    me = Median(list10) #first we retrieve the result of the function median
in the variable me
    print("The Median is")
    print(me)
    #4)Skewness
    SK=(((3*(mn-me))/STD)) #calculation to obtain the Skewness
    print("The skewness is:") #To make more visual the result
    return SK


################################
#function to function input more numbers separate by coma, from a file stored
in our PC hard disk that is going to work with the list10
#********To check************
def ReadFile():
    try: #To catch any error in case that the file does not exist, or the name
or path are wrong
        with open('MyFile.txt') as file: #to open the file
            numberlist =int(file.read()) #to read the content of the file,
also we close the file here as well, is not necessary write more code
            #it is retrieving those numbers in the numberlist variable
            numbers = numberlist.split(",") #It is to store the input of
numberlist in a new list called number
        for i in range(len(numbers)):#to run through the list numbers
            list10.append(int(numbers[i]))#To store the numbers of the loop on
the original list10

        print("You in " + str(len(list10)) + " marks, those are: ")# to show
the length of the list
        return list10 #to return the result of this function.

    except FileNotFoundError: #Error statement in case that the file is not
found
        print(""ERROR, the file was not found, try again please"
") # message of error in case that the file is not found


#Menu to choose which function the user want to use
#########
################################
```

```
def menu(): #declaration of the function for the menu
    print ("1) Print the Mean") #First option of the menu
    print ("2) Print the Median") #Second option of the menu
    print ("3) Print the Mode") #Thirth option of the menu
    print ("4) Input again more numbers") #Fourth option of the menu
    print ("5) Print the Skewness") #Fifth option of the menu
    print ("6) More numbers, plane option, separate by coma") #Sixth option of
the menu
    print ("7) Read the number from a file") #seventh option of the menu
    print ("8) EXIT") #Last option of the menu

menu() #close of the declaration options
option= int(input("Tell me which option would you like to choose"))
#This option is going to capture the input number that the user wants to work

while option != 8 : #A loop to run through the option's case
    #Here if we press 8 it is going to exit of the loop

    if option == 1 : #conditional if the option is 1
        print("Option1 done")#To make more visual the result
        print(Mean(list10)) #To call the function Mean on the list10 and print
the result

    elif option ==2 : #conditional if the option is 2
        print("Option2 done") #To make more visual the result
        print(Median(list10)) #To call the function Median on the list10 and
print the result

    elif option ==3 : #conditional if the option is 3
        print("Option3 done") #To make more visual the result
        print(mode(list10)) #To call the function mode on the list10 and print
the result

    elif option ==4 : #conditional if the option is 4
        print("Option4 done") #To make more visual the result
        print(In(list10)) #To call the function “In” on the list10 and print
the result

    elif option ==5 : #conditional if the option is 5
        print("Option5 done") #To make more visual the result
        print(skewness(list10)) #To call the function skewness on the list10
and print the result

    elif option ==6 : #conditional if the option is 6
        print("Option6 done") #To make more visual the result
        print(NumberList(list10)) #To call the function NumberList on the
list10 and print the result
```

```
    elif option ==7 : #conditional if the option is 7
        print("Option7 done") #To make more visual the result
        print(ReadFile(list10)) #To call the function ReadFile on the list10
and print the result

    menu()#*******Ask for those more options.
    option= int(input("Tell me which option would you like to choose")) #This
line is to come back to the menu again

print("Thanks, Goodbye") #quit sentence
```