

Task 9 - Beginner Control Structures - While Loop

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Libraries

```
In [1]: 1 import math
```

Question 1

Compulsory Task 1

Follow these steps:

- Create a new file called **even.py**.
- Write a program that asks the user to enter a number.
- Make use of the *while loop* repetition structure so the program prints out all the even numbers from 1 up to (and possibly including) the number given by the user.

Solution 2

```
In [61]: 1 # "user_number" variable will store int value
2 # input() built function has been used for taking input from user
3 user_number = int(input("\nEnter your number:"))
4 # number is declared zero
5 # initial vlaue of number is zero
6 number = 2
7 # while loop only iterate even number
8 while number <= user_number:
9     # every iteration 2 will be added
10    number = number + 2
11    # while presenting output will print command, every iteration 2 is subtracted
12    print(number-2)
```

Enter your number:20

2
4
6
8
10
12
14
16
18
20

Question 2

Compulsory Task 2

Follow these steps:

- Create a program called **names.py** to do the following:
 - Require the user to enter the names of all pupils in a class. The user should be able to type "Stop" to indicate that the names of all the students have been entered.
 - Print out the total number of names the users entered after the loop has been exited.
- Compile, save, and run your file.

Solution 2

```
In [53]: 1 # "name_list" variable is a list data structure, which will stored all variable enter by user
2 name_list = []
3
4 # while loop will activate without any specific condition
5 while True:
6     # "user_input" variable will store string variable, which will input take from user
7     user_input = str(input("Please enter name: "))
8     # append() built-in function has been used for storing all string value in "name_list" list data structure
9     name_list.append(user_input)
10    # if "user_input" variable store "stop" or user enter "stop" than, string comparison take place, break will work
11    # if "user_input" is equal to "stop", then it will break loop
12    if user_input == "stop":
13        break
14    # last string data "stop" will be removed using pop()
15    name_list.pop()
16    print("\nList of name:", name_list)
```

```
Please enter name: Hemant
Please enter name: Yash
Please enter name: Shetty
Please enter name: Ayushi
Please enter name: Vicky
Please enter name: Visam
Please enter name: Swati
Please enter name: Elizabeth
Please enter name: stop
```

```
List of name: ['Hemant', 'Yash', 'Shetty', 'Ayushi', 'Vicky', 'Visam', 'Swati', 'Elizabeth']
```

Question 3

Compulsory Task 3

Follow these steps:

- Create a new file called **while.py**.
- Write a program that always asks the user to enter a number.
- When the user enters -1, the program should stop requesting the user to enter a number,
- The program must then calculate the average of the numbers entered, excluding the -1.
- Make use of the *while loop* repetition structure to implement the program.
- Compile, save, and run your file.

Solution 3

```
In [54]: 1 #importing math library
2 import math
3 #craeting "num_list" list type data structure for storing multiple value
4 num_list = []
5
6 #while loop is activated
7 while True:
8     #user will input random number
9     #"user_input" variable will store integer values
10    user_input = int(input("Please enter number: "))
11    #append() built-in function has been used to store all user input value inside "num_list"
12    num_list.append(user_input)
13    #if "user_input" integer value equal to -1, than loop will break
14    if user_input == -1:
15        break
16 #formula for average, which is mean value calculation in statistics
17 #Sum of all observation/total number of obesrvation
18 #+1 need to add on numerator and 1 need to be subtracted on denominator
19 average = (sum(num_list)+1)/(len(num_list)-1)
20 print("\nList of number:", average)
```

```
Please enter number: 10
Please enter number: 20
Please enter number: 30
Please enter number: 40
Please enter number: 50
Please enter number: 60
Please enter number: 70
Please enter number: 80
Please enter number: 90
Please enter number: 100
Please enter number: -1
```

```
List of number: 55.0
```

```
In [56]: 1 (10+20+30+40+50+60+70+80+90+100)/10
2
```

```
Out[56]: 55.0
```