Tutorial

CPSC 217

Looping in Python

- Till now, you have probably noticed that we are writing codes that can be executed only once! We have written some cool programs with the previous structures; however, doing everything only once is actually in contrast with the nature of programming! Computers are built to do similar tasks over and over again and we, as the programmers, have to write codes for that.
- To accomplish this, we need to use loops. Loops are structures that are used to execute a code block repeatedly. However, you should always have in mind that loops HAVE TO BE TERMINATED! In fact, there should be some "conditional statement" which is evaluated in each iteration, and is guaranteed to become false at some point!

Nested Loop: Practice 1

- Try to replicate the following pattern. The pattern size changes according to input value.

```
C:\Users\Azam\Desktop\samiul>python code.py
Enter an positive integer: 5
*****
*****
*****
*****
*****

C:\Users\Azam\Desktop\samiul>python code.py
Enter an positive integer: 10
**********
**********
**********
**********
**********
**********
**********
**********
**********
**********
```

Nested Loop: Practice 1

- Solution

```
n = int(input('Enter an positive integer:'))

for i in range(1,n+1,1):
        for j in range(1,n+1,1):
                print('*', end= '')
        print()
```

Nested Loop: Practice 2

- Try to replicate the following pattern. The pattern size changes according to input value.

```
C:\Users\Azam\Desktop\samiul>python code1.py
Enter an positive integer: 5
*
**
***
****
*****

C:\Users\Azam\Desktop\samiul>python code1.py
Enter an positive integer: 10
*
**
***
****
*****
******
*******
********
*********
**********
```

Nested Loop: Practice 2

- Solution

```
n = int(input('Enter an positive integer:'))

for i in range(1,n+1,1):
        for j in range(1,i+1,1):
                print('*', end= '')
        print()
```

Nested Loop: Practice 3

- Try to replicate the following pattern. The pattern size changes according to input value.

```
C:\Users\Azam\Desktop\samiul>python code2.py
Enter an positive integer: 5
    *
   **
  ***
 ****
*****

C:\Users\Azam\Desktop\samiul>python code2.py
Enter an positive integer: 10
         *
        **
       ***
      ****
     *****
    ******
   *******
  ********
 *********
**********
```

Nested Loop: Practice 3

- Solution

```
n = int(input('Enter an positive integer:'))

for i in range(1,n+1,1):
        for j in range(1,n-i+1,1):
                print(' ', end= '')
        for j in range(1,i+1,1):
                print('*', end= '')
        print()
```

Nested Loop: Practice 4

- Try to replicate the following pattern. The pattern size changes according to input value.