



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.

```
C:\Users\Azam\Desktop\samiul>p
Enter an positive integer: 10
```

[illegible]

```
C:\Users\Azam\Desktop\samiul>
Enter an positive integer:3
```

```
C:\Users\Azam\Desktop\samiul>
Enter an positive integer: 5
```

一
 二
 三
 四
 五
 六
 七
 八
 九



My PPT slides

- You can find my created PPT slides at the following link:

<https://sites.google.com/site/samicsemist/cpsc217win16>