

Python Programming

For Loops 2

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Teaching, Training and Coaching since more than a decade!

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Nested for loops

```
2 test_cases = int(input())
3
4 for case in range(test_cases):
5     n, sum = int(input()), 0
6     for pos in range(1, n+1):
7         sum += pos
8
9     print('Sum from 1 to ', n, '=', sum)
10
```

```
/home/moustafa/system-i
5
5
Sum from 1 to 5 = 15
4
Sum from 1 to 4 = 10
3
Sum from 1 to 3 = 6
7
Sum from 1 to 7 = 28
0
Sum from 1 to 0 = 0
```

- Read T test cases
 - Read integer N
 - Print sum from 1 to N
- Observe: range(1, n+1)
- Notice how much shorter compare to while loops!
- Tip: In practice, we use for loops much more than while

For else

```
2  # A for loop can have an optional else block as well.  
3  # The else part is executed if the items  
4  # in the sequence used in for loop exhausts.  
5  for i in range(5):  
6      print(i)  
7  else:  
8      print("No items left.")  
9  
10 """  
11 0  
12 1  
13 2  
14 3  
15 4  
16 No items left.  
17 """
```

For else

```
1
2
3 for i in range(5):
4     print(i)
5     if i == 3:
6         break
7 else:
8     print("If you break in the loop. "
9         "Else is ignored")
10
11 """
12 0
13 1
14 2
15 3
16 """
```

For vs While

- For loop are used when the sequence is predefined. You are doing a specific number of steps
 - Later, we will see many things using for: list, dict, etc
- While loops are flexible. We use them when we **don't know when** to stop exactly
- For else is typically rarely used
 - There is also **while else** statement

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”