



7.9. Printing Intermediate Results

In this textbook we provide the codeLens tool so that you are able to step through the program and watch what happens each time a line is evaluated by the Python interpreter. What if you didn't have codeLens though, what would you do?

In that case, print statements are your best friend. They can show you what the value of something is. This is especially helpful in the case of writing for loops or accumulating a value. If something is going wrong you can compare what you expect to happen to what is actually happening.

Save & Run

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Show in CodeLens

```
1 w = range(10)
2
3 tot = 0
4 for num in w:
5     tot += num
6 print(tot)
7
```

45

Activity: 1 -- ActiveCode (ac6_7_1)

Say we weren't sure what `num` was being assigned each time we iterated. One way to find out would be to add a print statement inside of the for loop to see.

Save & Run

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Show in CodeLens

```
1 w = range(10)
2
3 tot = 0
4 for num in w:
5     print(num)
6     tot += num
7 print(tot)
8
```

0
1
2
3
4
5
6
7
8
9
45

Activity: 2 -- ActiveCode (ac6_7_2)

If we wanted to see what was happening to `tot` as well, we could print that out in the for loop as well!

Save & Run

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Show in CodeLens

```
1 w = range(10)
2
3
4 tot = 0
5 for num in w:
6     print(num)
7     tot += num
8     print(tot)
9 print(tot)
10
```

```
0
0
1
1
2
3
3
6
4
10
5
15
6
21
7
28
8
36
9
45
45
```

Activity: 3 -- ActiveCode (ac6_7_3)

Finally, if we wanted to make these numbers easier to understand, we could add more to the print statements to make them easier to read!

Save & Run

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Show in CodeLens

```
1 w = range(10)
2
3 tot = 0
4 print("***** Before the For Loop *****")
5 for num in w:
6     print("***** A New Loop Iteration *****")
7     print("Value of num:", num)
8     tot += num
9     print("Value of tot:", tot)
10 print("***** End of For Loop *****")
11 print("Final total:", tot)
12
```

```
***** Before the For Loop *****
***** A New Loop Iteration *****
Value of num: 0
Value of tot: 0
***** A New Loop Iteration *****
Value of num: 1
Value of tot: 1
***** A New Loop Iteration *****
Value of num: 2
Value of tot: 3
***** A New Loop Iteration *****
Value of num: 3
Value of tot: 6
***** A New Loop Iteration *****
Value of num: 4
Value of tot: 10
***** A New Loop Iteration *****
Value of num: 5
Value of tot: 15
***** A New Loop Iteration *****
Value of num: 6
Value of tot: 21
***** A New Loop Iteration *****
Value of num: 7
Value of tot: 28
***** A New Loop Iteration *****
Value of num: 8
Value of tot: 36
***** A New Loop Iteration *****
Value of num: 9
Value of tot: 45
***** End of For Loop *****
Final total: 45
```

Activity: 4 -- ActiveCode (ac6_7_4)

You have attempted 5 of 4 activities on this page

7.8. Nested Iteration: Image Processing">

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✓ Completed. Well Done!

7.10. Naming Variables in For Loops">

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