

Nested Loops in Python

[Nested Loops in Python Video](#)

0:01

Frequently in programming you will want to nest one loop

0:04

inside of another.

0:06

I'm going to show you how this works, and a few things

0:08

to watch out for.

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So I have a simple program that is

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going to request a number of students from the user.

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It accepts five test scores for each student

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then displays the average test scores,

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which I'm doing after each one because we don't really

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have a way to do a raise yet.

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So I create the variable `num_students = int(input("How`

0:31

many students do you have? ")).

```
num_students = int(input("How many students do you have? "))
```

0:34

Then I have `for student in range(num_students).`

```
for student in range(num_students):
```

```
    total = 0
```

```
    for score in range(1, 6):
```

```
        current_score = int(input("What is the score for the test? "))
```

```
        total += current_score
```

```
    print('The average score for Student ', student + 1, 'is: ', total/5)
```

0:37

So I set the range here, but be aware this counts zero

0:41

to whatever is put in.

0:42

It does not start counting with one.

0:45

I initialize total = 0.

```
total = 0
```

0:48

And then I do another for loop for score in range(1, 6).

```
num_students = int(input("How many students do you have? "))
```

```
for student in range(num_students):
```

```
    total = 0
```

```
    for score in range(1, 6):
```

```
        current_score = int(input("What is the score for the test? "))
```

```
        total += current_score
```

```
    print('The average score for Student ', student + 1, 'is: ', total/5)
```

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So I'm starting at one and counting to six.

0:56

So that will be 1, 2, 3, 4, 5 instead of 0 through 5.

1:01

And I have the current_score = int(input("What is the score

1:04

for the test? ")).

```
current_score = int(input("What is the score for the test? "))
```

1:05

Then I add the current_score to the total,

```
total += current_score
```

1:08

and print("The average score for student ", student + 1, "is ",

1:13

total / 5).

```
print('The average score for Student ', student + 1, 'is: ', total/5)
```

1:15

Now this works, and it works pretty well.

1:19

So I'm going to put in simply two students,

1:21

and then we put in a bunch of scores.

```
How many students do you have? 2
What is the score for the test? 85
What is the score for the test? 98
```

1:29

And it gives me the average for student one,

```
What is the score for the test? 88
The average score for Student 1 is: 81.6
What is the score for the test? 79
What is the score for the test? 98
```

1:31

and then it loops for the next student.

1:42

And so it will give you the average at the end of each one.

```
What is the score for the test? 99
The average score for Student 2 is: 89.2
```

1:47

Now what I wanted to do is to ask

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"what is the score for the test?"

1:51

Except I wanted to do test, and I wanted to show number one.

1:58

So I added a comma and score, which

2:02

would work if it was a print statement,

2:03

but it doesn't like that for an input prompt.

```
current_score = int(input("What is the score for test? ", score))
total += current_score
int('The average score for Student ', student)
```

***Will break the code

Press Ctrl+Period to c

2:07

It will actually break it.

2:08

So if I tell it that I have two students it breaks there.

2:12

So if I want to indicate which test that I'm on there's

2:20

a couple of ways to do this.

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I'm actually going to want to, for each student,

2:30

start with a print("Student number "--

2:41

actually put a new space-- comma and then student + 1.

```
print('Student number ', student + 1)
```

2:46

And if you're not sure something's going to work--

2:48

I'm sure this is going to work-- but you're not

2:50

sure something's going to work you should test it

2:57

after you add a line of code.

```
How many students do you have? 2
```

```
Student number 1
```

```
|What is the score for test?
```

2:58

You don't have to go through everything

2:59

and test the whole thing.

3:00

You just have to test that part.

3:02

So here I'm going to put in a heading of--

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we do a heading instead of putting it,

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which for test one I'm just going to do print "Test number

3:19

" and then add score here.

```
print('Test number ', score)
```

3:26

And since I did score 1 to 6 I shouldn't

3:28

need to add anything to that.

3:29

So let's test that.

3:33

So two students-- student one, test number one,

3:37

what's the score for the test?

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Test number two, and so on.

3:43

So be aware of those issues, but this is how

3:46

you do a simple nested loop.