

For Loops in Python

Making a for loop

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`for`

1. The `for` keyword



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```
for i
```

1. The `for` keyword
2. The **iterator**



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```
for i in
```

1. The `for` keyword
2. The **iterator**
3. The `in` keyword



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```
for i in range(3):
```

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2. The **iterator**
3. The `in` keyword
4. The value being iterated over



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for i in range(3):  
    print("Hey")
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2. The **iterator**
3. The `in` keyword
4. The value being **iterated** over
5. The **body** of the loop




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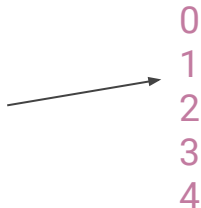
Hey
Hey
Hey

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Using the value of i

```
for i in range(5):  
    print(i)
```



We can make use of the **iterator** within our `for` loops, because it's a variable!

The first value of `i` will always be `0`, it will go upward toward but **not** include the number in the `range()` function - let's call it `n`.

This will create a *number of values* equal to `n`.





Adding More Numbers

More Numbers in Range

If we add an additional number to the range, we can choose both the starting **and** ending numbers!



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```

1
2
3
4



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```
for i in range(1, 5):  
    print(i)
```

1
2
3
4

Just like when we only use **1** number in our `for` loops, the ending number will never be reached - the numbers will always stop **1** short.



Even MORE numbers!

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```
for i in range(1, 10, 2):  
    print(i)
```

The order of those three values is:

1. Starting value (included)
2. Ending value (**not** included)
3. Step size

Just like the other 2 types of `for` loop, the ending value will never be included - the closest you can get is 1 short.



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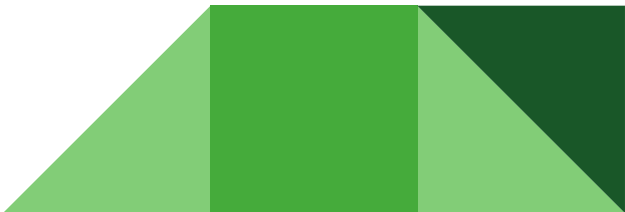
```
for i in range(1, 10, 2):  
    print(i)
```

1
3
5
7
9

The order of those three values is:

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4
7

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If the next value in the sequence would be **greater than or equal to** the Ending value, it will not be included.



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```
for i in range(10, 1, -2):  
    print(i)
```

10
8
6
4
2

The order of those three values is:

1. Starting value (included)
2. Ending value (**not** included)
3. Step size

We can also have our Step size be **negative**. If we do, the Starting value must be **larger** than the ending value.



Using Variables

Anytime we can use a **literal** (programmer-written) value in our programs, we can instead use the value stored in a variable. This includes variables holding user input!

```
num = int(input("How many loops? "))  
for i in range(num):  
    print(i)
```

