

Python for Beginners, session 2

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Plan for today

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Functions

for not repeating ourselves ;)

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Boolean operators

operators to produce or combine **bool** values

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Functions

for not repeating ourselves ;)

Boolean operators

operators to produce or combine **bool** values

Conditional execution

to make our programs branch

Functions

Functions are sequences of instructions that we store to be executed later.

Functions

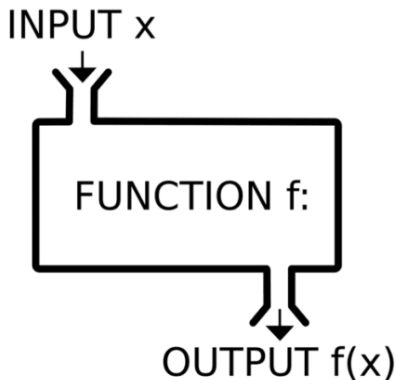
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function_name(parameter1, parameter2, parameterN)
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Demo

Let's do a small demo with the functions we already know.

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We can declare our own functions using the `def` keyword with the following syntax:

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    #function body
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Demo

Illustrate why indentation is needed.

Functions

Returning values from functions

Functions in Python can return values after doing all the operations they perform.

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Demo

Functions

Function Parameters

Parameters are values that are injected to the function body when we call it

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Demo

Checkpoint

Regarding functions, we've seen:

- Functions

Checkpoint

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- Functions
- Calling them

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Checkpoint

Regarding functions, we've seen:

- Functions
- Calling them
- Declaring them
- Returning values from them
- Parameters
- **Questions?**

Boolean operations

We're going to learn two kinds of operators that operate on **bool** values:

- comparison operators
- logical operators

Boolean operations are useful for conditional execution.

Comparision operators

name	description
<code>x == y</code>	x is equal to y
<code>x != y</code>	x is not equal to y
<code>x > y</code>	x is greater than y
<code>x < y</code>	x is lesser than y
<code>x >= y</code>	x is greater than or equal than y
<code>x <= y</code>	x is lesser than or equal than y

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Demo

- Are two strings the same?
- Are two **bool** values different?
- Is this number greater than or equal that other one?

Logical operators

We use logical operators to combine **bool** values. They are the operators with the lowest precedence, any other expression will be evaluated before them.

name	description
x and y	returns True if x and y are True
x or y	returns True if either x or y are True
not x	negates x

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Demo

Break

Let's take 10 mins

Conditional execution

Almost all useful programs need to be able to check conditions and change its behaviour accordingly. That's what conditional execution provides.

if statement

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    <body>
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Demo

- What type will the condition in our if statement have?

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Demo

- What type will the condition in our if statement have?
- How can we create a if statement that always executes its body?

if statement

the if statement is the tool we use for conditional execution in Python

```
if <condition>:  
    <body>
```

Demo

- What type will the condition in our if statement have?
- How can we create a if statement that always executes its body?
- What about one that never does it?

Else clause

The else clause is executed when the condition is evaluated to false:

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```
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    <block>  
else:  
    <block>
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```
if <condition>:  
    <block>  
else:  
    <block>
```

Demo

- Check if a user can drive

Else clause

The else clause is executed when the condition is evaluated to false:

```
if <condition>:  
    <block>  
else:  
    <block>
```

Demo

- Check if a user can drive
- Tell him to wait some time if they can't

Elif clause

Elif clauses are used when there are more possibilities:

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if <condition>:  
    <block>  
elif <condition>:  
    <block>  
else:  
    <block>
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if <condition>:  
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else:  
    <block>
```

Demo

- Check if a user can drive

Elif clause

Elif clauses are used when there are more possibilities:

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if <condition>:  
    <block>  
elif <condition>:  
    <block>  
else:  
    <block>
```

Demo

- Check if a user can drive
- Check if they're accompanied by an adult

Elif clause

Elif clauses are used when there are more possibilities:

```
if <condition>:  
    <block>  
elif <condition>:  
    <block>  
else:  
    <block>
```

Demo

- Check if a user can drive
- Check if they're accompanied by an adult
- Tell them to wait otherwise

Practice time!

Let's do some practice. We have to create a function `calculate_area_triangle_rectangle` that can calculate the area of either a triangle or a rectangle.

Let's spend 5 mins trying to solve it individually and we'll do that afterwards together.

Recap

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Create functions with `def`. Return to produce a value at the end

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Combine comparison & logical operators to check the conditions you need

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Create functions with `def`. Return to produce a value at the end

Combine comparison & logical operators to check the conditions you need

Use `if`, `else`, `elif` for conditional execution

Recommended read

<https://automatetheboringstuff.com/> is a great resource for learning how to apply Python to day to day tasks.

It's a long book, don't try to read it cover to cover but instead pick up the chapters that catch your eye from the index.

You can start reading the chapters on basics, functions, and control flow.

Exercises

- ❶ Create a function `weekly_commute_time` that asks the user their daily commute time and returns their weekly time spent commuting.
 - ❷ What do the following expressions return?
 - `True or 11 > 34`
 - `False and (1 == 1)`
 - `(77 // 11) > 6 and False`
 - ❸ Create a function `area_triangle` that takes the base and height of a triangle and returns its area
- (cont)

Exercises (Cont)

- 4 Create function `area_triangle_rectangle` that takes the base, height, and the kind of shape and calculates its area. It should work for both triangles and rectangles.
- 5 Create a function `im_in_love` that takes a weekday number (from monday to friday), and returns how that weekday is (according to The Cure!):

```
I don't care if Monday's blue  
Tuesday's grey and Wednesday too  
Thursday I don't care about you  
It's Friday, I'm in love
```