
Python

#3

Agenda

- Functions
 - Function definition
 - Function arguments
 - Positional arguments
 - Keyword arguments
- Regular expressions

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Functions

Functions

- Functions are the way to group code of a similar functionality.
 - You can later on reuse the code.
 - The code can be made more generic by adding parameters.
- Each function has its unique name.
- There are a lot of built-in functions in Python like: print, len

Calling a function

- To call a function you need to write its name and parameters in a parenthesis.
- If function doesn't require any parameters you must place the empty parameters after the name to call it.

```
print('My text')  
myfunc()
```

Function definition

- Do define your own function you need to use the keyword **def**.
- Each function has three parts:

Function name

Parameters (can be empty)

Parameters

```
def print_hello(name, surname):  
    print('Hello {} {} !'.format(name, surname))
```

Function body

Function parameters

- In every function definition you need to place a list of parameters in parenthesis.
- Parameters are separated by a comma.
- If there are no parameters that function requires you must place the empty parenthesis.
- Parameters are available in the function body as variables.

```
def print_hello(name, surname):  
    print('Hello {} {} !'.format(name, surname))
```

Positional and keyword parameters

- Positional arguments are defined only by their name.
 - They are required during the function call.
- Keyword arguments are defined by their name and value.
 - They are optional during the function call.
 - If they are not present function will use their value from the definition.
 - The defined value is called a **default value**.

```
def print_n(text, n=5):  
    for i in range(n):  
        print(text)
```

Positional and keyword parameters

```
def print_n(text, n=5):  
    for i in range(n):  
        print(text)
```

```
print_n("my text")  
print_n("my text", 10)  
print_n("my text", n=10)
```

Regular expressions

Regular expressions

- Regular expressions are patterns that describe strings.
- They make use of special characters to define symbols or group of symbols that match the expression.
- Regular expressions can describe matching strings or their parts.

Regular expressions

- There are several tools that may be used to design and verify regular expressions.
 - <https://regex101.com/> - a tool to validate and run regular expressions.
 - <https://regexper.com/> - a tool to visualize regular expressions.

Regular expression syntax basics

- `.` - any character
- `a` - specific character (in this case a letter a)
- `abc` - specific string (in this case abc)
- `a|b` - character a **or** b
- `a*` - 0 or more letters a
- `a+` - 1 or more letters a
- `.*` - 0 or more characters