(/)

# Python - Functions

Python

0%

Novice

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Weight: 1

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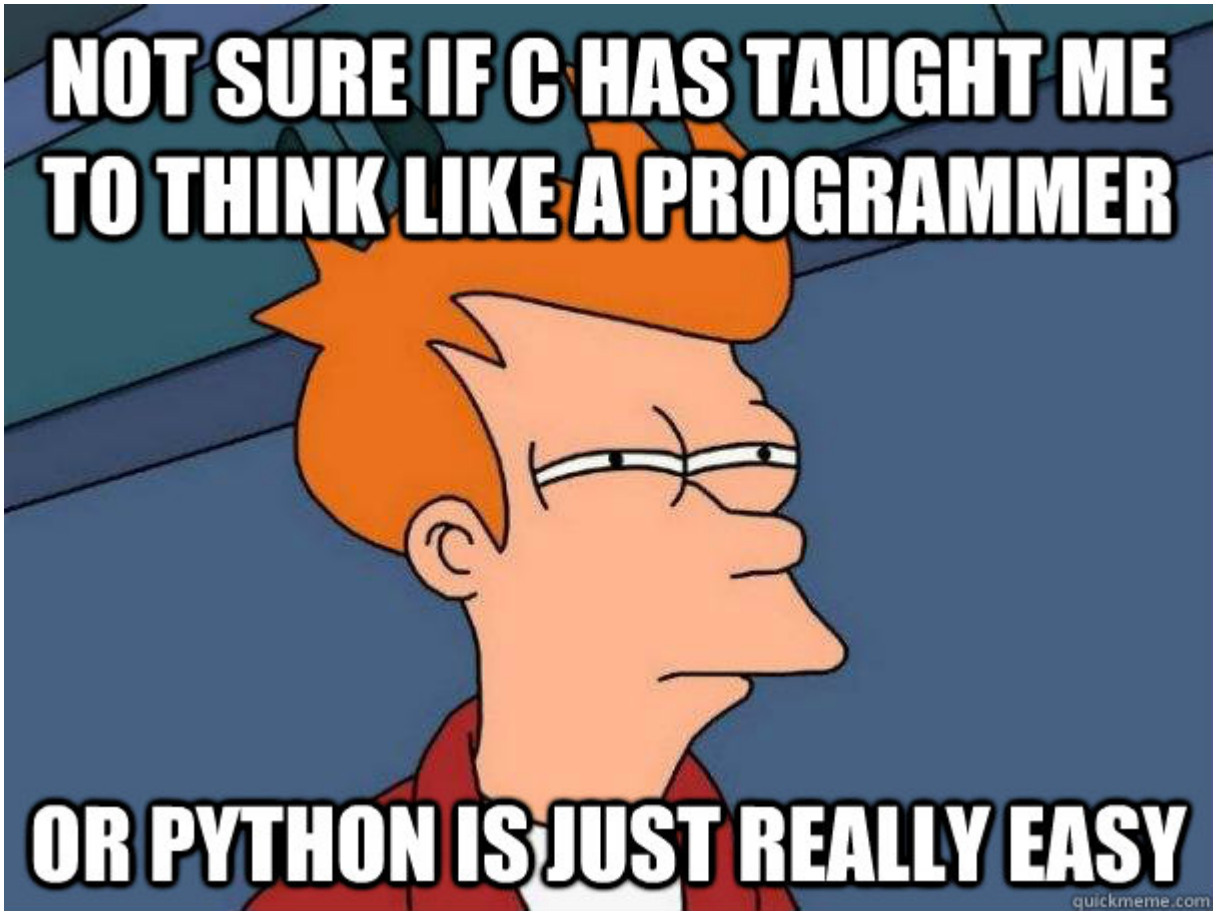


## Resources

**Read or watch**:

- Python for Absolute beginners (/rltoken/5uFfbfK6QVlcJU2nahC66g)
- Python Keywords Identifiers (/rltoken/q6cLs54fBdeRkoVaTqt3nA)
- Python Data Types (/rltoken/PELX1ASgvQUVXDDgiyK6fA)
- How to Code in Python 3 (/rltoken/qrF42cQOQNH6K4Z2kWWdvg)
- The Python tutorial (/rltoken/hFVAGtMmcbUShoKYi9SR7g) (*only the first three chapters below*)
    - Whetting Your Appetite (/rltoken/aCUcy5sNb_m6UlDBNgOopA)
    - Using the Python Interpreter (/rltoken/_rjyEq6YBmQAsiKRRTBw-Q)
    - An Informal Introduction to Python (/rltoken/NKmsPgcymWdqLtyOyUmEGQ) (*Read up until "3.1.2. Strings" included*)
- How To Use String Formatters in Python 3 (/rltoken/O-Mu33rGfludhTWtmTxmKA)
- Learn to Program (/rltoken/q7rM7qM284VGO_1VWk6Czg)
- More Control Flow Tools (/rltoken/SpEo4josdi8hu4ls3qToeg) (*Read until "4.6. Defining Functions" included*)
- Myths about Indentation (/rltoken/f-xYnit9jvOsTE_9ua-5Ow)
- IndentationError - video (/rltoken/b628gc9BA4bl6fi5cjbQzw)
- How To Use String Formatters in Python 3 (/rltoken/O-Mu33rGfludhTWtmTxmKA)
- Learn to Program - video (/rltoken/q7rM7qM284VGO_1VWk6Czg)
- Learn to Program 2 : Looping - video (/rltoken/q7rM7qM284VGO_1VWk6Czg)
- PEP 8 – Style Guide for Python Code (/rltoken/4fhCQOUDMeRHQrXz5c5FxA)

# Learning Objectives

At the end of this project, you are expected to be able to explain to anyone (/rltoken/PqttIlBjDcYQCKKsOZ9r6w), **without the help of Google**:

## General

- What are functions
- How to define and call a function
- What are parameters and arguments
- The role of the return statement in functions
- Difference between built in functions and user-defined functions
- How to write functions to solve specific tasks and improve code reusability

# Requirements

## Python Scripts

- Recommended editors: `Visual studio code`
- All your files will be interpreted/compiled on Ubuntu 20.04 LTS using `python3` (version 3.4.3)
- All your files should end with a new line
- A `README.md` file at the root of the `python-coding` repo, containing a description of the repository
- A `README.md` file, at the root of the folder of *this* project, is mandatory
- The length of your files will be tested using `wc`

(/)

# Tasks

## 0. a + b

mandatory

Write a function that adds two integers and returns the result.

- Prototype: `def add(a, b):`
- Returns the value of `a + b`
- You are not allowed to import any module

You don't need to understand `__import__`

```
guillaume@ubuntu:~/$ cat 0-main.py
#!/usr/bin/env python3
add = __import__('0-sum').add

print(add(1, 2))
print(add(98, 0))
print(add(100, -2))

guillaume@ubuntu:~/$ ./0-main.py
3
98
98
guillaume@ubuntu:~/$
```

**Repo:**

- GitHub repository: `alx_python`
- Directory: `python-functions`
- File: `0-sum.py`

Help | Check your code

**0/7** pts

## 1. a ^ b

**mandatory**

Write a function that computes `a` to the power of `b` and return the value.

- Prototype: `def pow(a, b):`
- Returns the value of `a ^ b`
- You are not allowed to import any module

You don't need to understand `__import__`

```
guillaume@ubuntu:~/$ cat 1-main.py
#!/usr/bin/env python3
pow = __import__('1-power').pow

print(pow(2, 2))
print(pow(98, 2))
print(pow(98, 0))
print(pow(100, -2))
print(pow(-4, 5))

guillaume@ubuntu:~/$ ./1-main.py
4
9604
1
0.0001
-1024
guillaume@ubuntu:~/$
```

**Repo:**

- GitHub repository: `alx_python`
- Directory: `python-functions`
- File: `1-power.py`

Help | Check your code

**0/14** pts

## 2. Temperature Converter Function

**mandatory**

Write a Python function called `convert_to_celsius` that takes a temperature in Fahrenheit as input and returns the temperature in Celsius.

- Prototype: `def convert_to_celsius(fahrenheit)`
- Returns the temperature in Celsius
- You are not allowed to import any module.

You don't need to understand `__import__`

```
guillaume@ubuntu:~/$ cat 2-main.py
#!/usr/bin/env python3
convert_to_celsius = __import__('2-temperature').convert_to_celsius

print(convert_to_celsius(100))
print(convert_to_celsius(-40))
print(convert_to_celsius(-459.67))
print(convert_to_celsius(32))

guillaume@ubuntu:~/$ python3 2-main.py
37.77777777777778
-40
-273.15
0.0

guillaume@ubuntu:~/$
```

**Repo:**

- GitHub repository: `alx_python`
- Directory: `python-functions`
- File: `2-temperature.py`

Help | Check your code

**0/6** pts

## 3. String Manipulation Function

**mandatory**

Write a Python function called `reverse_string` that takes a string as input and returns the reverse of that string.

- Prototype: `def reverse_string(string)`
- Returns the reversed string.
- You are not allowed to import any module.

You don't need to understand `__import__`

```
guillaume@ubuntu:~/$ cat 3-main.py
#!/usr/bin/env python3
reverse_string = __import__('3-string').reverse_string

print(reverse_string("Hello"))
print(reverse_string(""))
print(reverse_string("madam"))
print(reverse_string("Hello, World!"))


guillaume@ubuntu:~/$ python3 3-main.py
olleH

madam
!dlroW ,olleH

guillaume@ubuntu:~/$
```

**Repo:**

- GitHub repository: `alx_python`
- Directory: `python-functions`
- File: `3-string.py`

Help | Check your code

**0/3** pts

## 4. Fibonacci Sequence Function

**mandatory**

Write a Python function called `fibonacci_sequence` that takes a number `n` as input and returns a list of the first `n` Fibonacci numbers.

- Prototype: `def fibonacci_sequence(n)`
- Returns a list of the first `n` Fibonacci numbers.
- You are not allowed to import any module.
- Return an empty list if the it is not possible to generate the Fibonacci numbers for `n`

You don't need to understand `__import__`

```
guillaume@ubuntu:~/$ cat 4-main.py
#!/usr/bin/env python3
 fibonacci_sequence = __import__('4-fibonacci').fibonacci_sequence

print(fibonacci_sequence(6))
print(fibonacci_sequence(1))
print(fibonacci_sequence(0))
print(fibonacci_sequence(20))


guillaume@ubuntu:~/$ python3 4-main.py
[0, 1, 1, 2, 3, 5]
[0]
[]
[0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181]

guillaume@ubuntu:~/$
```

**Repo:**

- GitHub repository: `alx_python`
- Directory: `python-functions`
- File: `4-fibonacci.py`

Help | Check your code

**0/5** pts

## 5. Prime Number Function

**mandatory**

Write a Python function called `is_prime` that takes a number as input and returns True if the number is prime, and False otherwise.

- Prototype: `def is_prime(number)`
- Returns `True` if the number is prime, and `False` otherwise.
- You are not allowed to import any module.

You don't need to understand `__import__`

```
guillaume@ubuntu:~/$ cat 5-main.py
#!/usr/bin/env python3
 is_prime = __import__('5-prime').is_prime

print(is_prime(17))
print(is_prime(15))
print(is_prime(-5))
print(is_prime(0))


guillaume@ubuntu:~/$ python3 5-main.py
True
False
False
False

guillaume@ubuntu:~/$
```

**Repo:**

- GitHub repository: `alx_python`
- Directory: `python-functions`
- File: `5-prime.py`

Help | Check your code

**0/5** pts

## 6. Password Validation Function

**mandatory**

Write a Python function called `validate_password` that takes a `password` as input and performs the following checks:

- The password should be at least 8 characters long.
- The password should contain at least one uppercase letter, one lowercase letter, and one digit.
- The password should not contain spaces.
- Prototype: `def validate_password(password)`
- Returns `True` if the password passes all the checks, and `False` otherwise.
- You are not allowed to import any module.

You don't need to understand `__import__`

6)

```
guillaume@ubuntu:~/$ cat 6-main.py
#!/usr/bin/env python3
 validate_password = __import__('6-password').validate_password

print(validate_password("Password123"))
print(validate_password("abc123"))
print(validate_password("Password 123"))
print(validate_password("password123"))


guillaume@ubuntu:~/$ python3 6-main.py
True
False
False
False

guillaume@ubuntu:~/$
```

**Repo:**

- GitHub repository: `alx_python`
- Directory: `python-functions`
- File: `6-password.py`

Help | Check your code

**0/5** pts

## Score

0%

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Please review **all the tasks** before you start the peer review.

Review all the tasks | Skip this project

Previous project (/projects/2055)