

# Introduction to Python

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July 1, 2019

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# 1 Quick Start

This is an easy part, let's go through these problems!

1. What is Python?

a programming language

2. Who create it?

Guido van Rossum

3. Any other programming language?

like C, C++, java, javascript(almost nothing to do with java), php, matlab, etc. There are about 600 languages, their popularity can be checked on **TIOBE**(The Importance Of Being Earnest, emphasize sincere and professional attitude) programming community index

4. What kind of programming language Python is?

- advance language: more abstract, less efficient, easier(relative)
- dynamic(vs static) language: all are determined during execution, structure and type are mutable
- interpreting(vs compiling) language: execute by interpreter during run-time
- weak(vs strong) type language: no need to specify type to declare a variable

5. Which version to use?

Just use Python 3, it has clear standard and repeated codes are removed

6. Advantages of Python?

- elegant, clear, simple
- wildly used in companies: Douban, Google, YouTube, etc
- cover many scenarios: backup, back-end, web service, widgets, script, game
- relatively easy for developer(less code)

7. Disadvantages of Python?

- relatively slow: cannot be used for OS level, real-time processing(some cases)
- restriction for some areas: iOS, Android, etc
- code exposition(may be advantage)

8. What makes Python easy and fast for development?

mainly because the built-in and third-part library

9. What "run" Python code?

Python interpreter. It's a software written by other language(official default: CPython, may be other: Jython)

10. What is operating system?

software that connects the hardware and application

## 2 Installation

Recommend to use **Anaconda** or **Miniconda**. It will automatically configure everything for you. Better check before use it. In MacOS, **brew** can be used.

## 3 Two Types of Modes

- **interactive** mode: execute input code line by line
- **command line** mode: directly run a python file. Note that the current path must include the python file, otherwise cause error
- **file execution** mode: add `#!/usr/bin/env python3` at first line and make the file executable by `$ chmod +x`, this may cause error due to **environment** problem

## 4 Fundamental IO

- input: `input()`, note that it always return a **string**
- output: `print()`, it can print almost everything

## 5 Format

Placeholder for format in print can be summarized as following:

- `%d`: int
- `%f`: float
- `%x`: hex
- `%r`: string canonical, tip r is for repr
- `%s`: string, this always works

```
print("%2d-%02d" % (3, 1)) #3-01
print("%.2f" % 3.1415926) #3.14
print("Hi, %s, you have $%d." % ("abc", 1000000))
```

format function `format()` can also be used:

```
print("{} is {}".format(a, b)) # comma will be translated to
                               white space
```

## 6 Who to Take?

Hopefully everybody!