CODING BLOCKS

PYTHON BASICS BOOTCAMP

JUNE 9 - 11

Coding Blocks
Greater Noida

OPEN & FREE FOR ALL

Brief history of python

- Created by Guido Van Rossum

- Idea generated in late 1980s
- Implementation began in December 1989
- First released in 1991
- Python 2: 2000
- Python 3: 2008

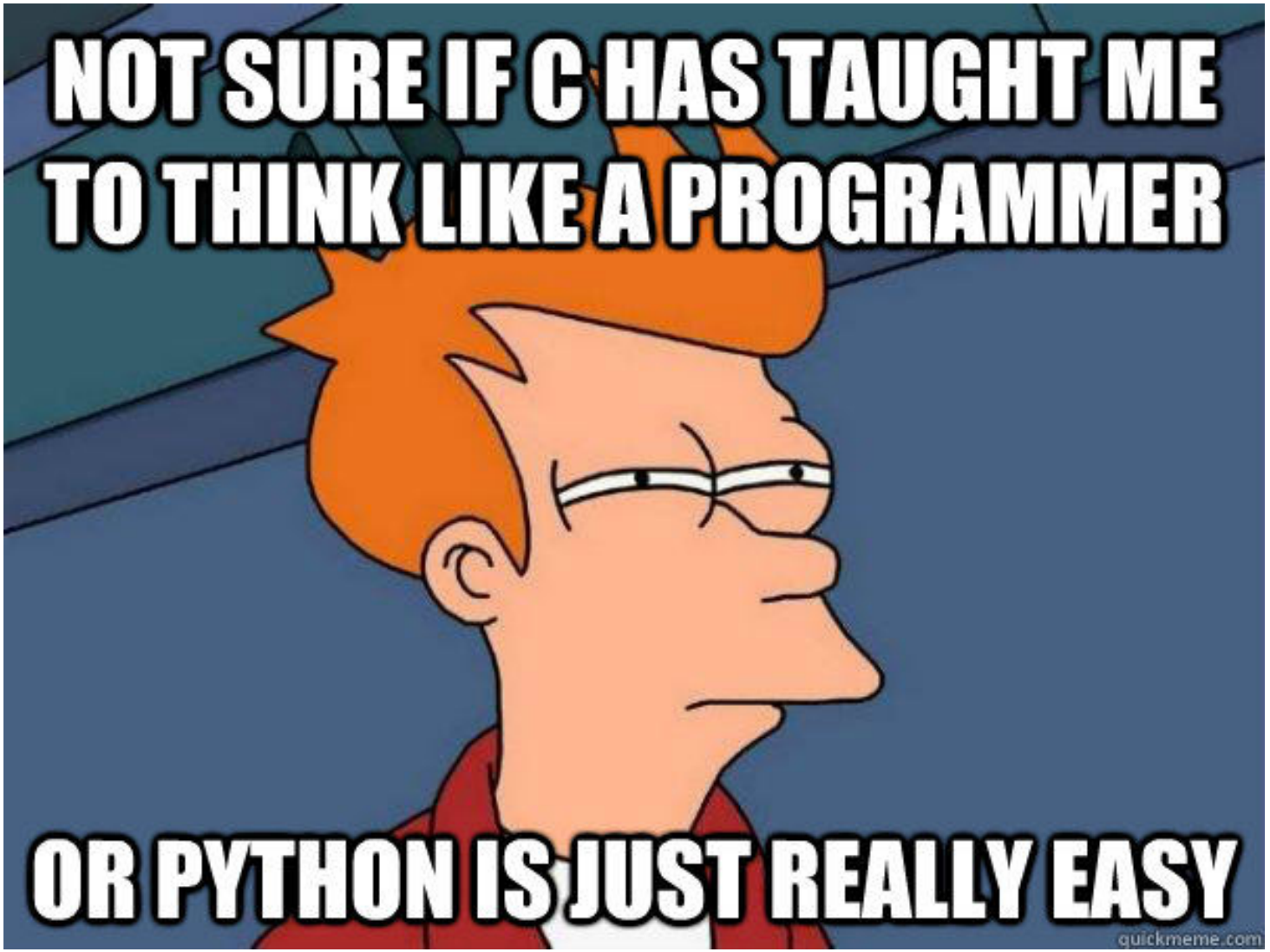
Features of python

1. Simple

Python is a simple and minimalistic language. Reading a good Python program feels almost like reading English, although very strict English! This pseudo-code nature of Python is one of its greatest strengths. It allows you to concentrate on the solution to the problem rather than the language itself.

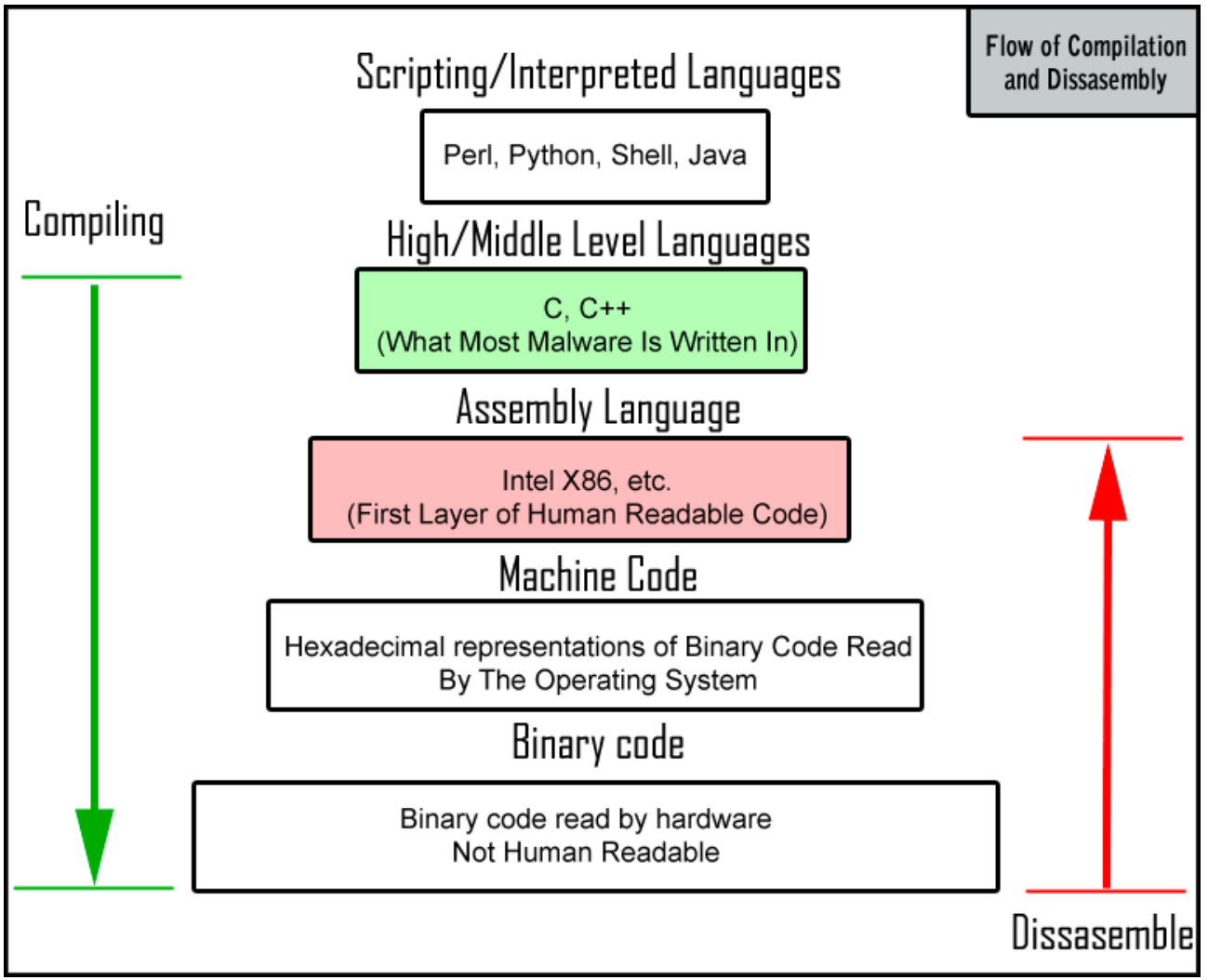
2. Easy to Learn

As you will see, Python is extremely easy to get started with. Python has an extraordinarily simple syntax, as already mentioned.


NOT SURE IF C HAS TAUGHT ME
TO THINK LIKE A PROGRAMMER
OR PYTHON IS JUST REALLY EASY
quickmeme.com

3. High level

When you write programs in Python, you never need to bother about the low-level details such as managing the memory used by your program, etc.



4. Interpreted

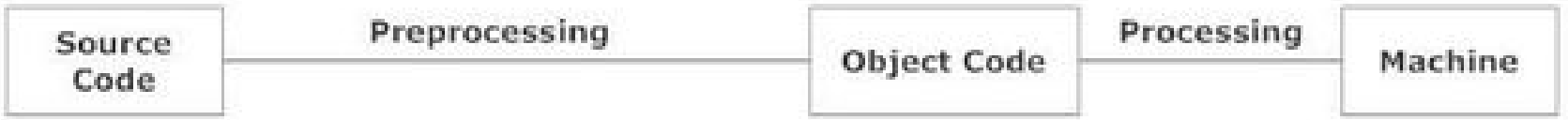
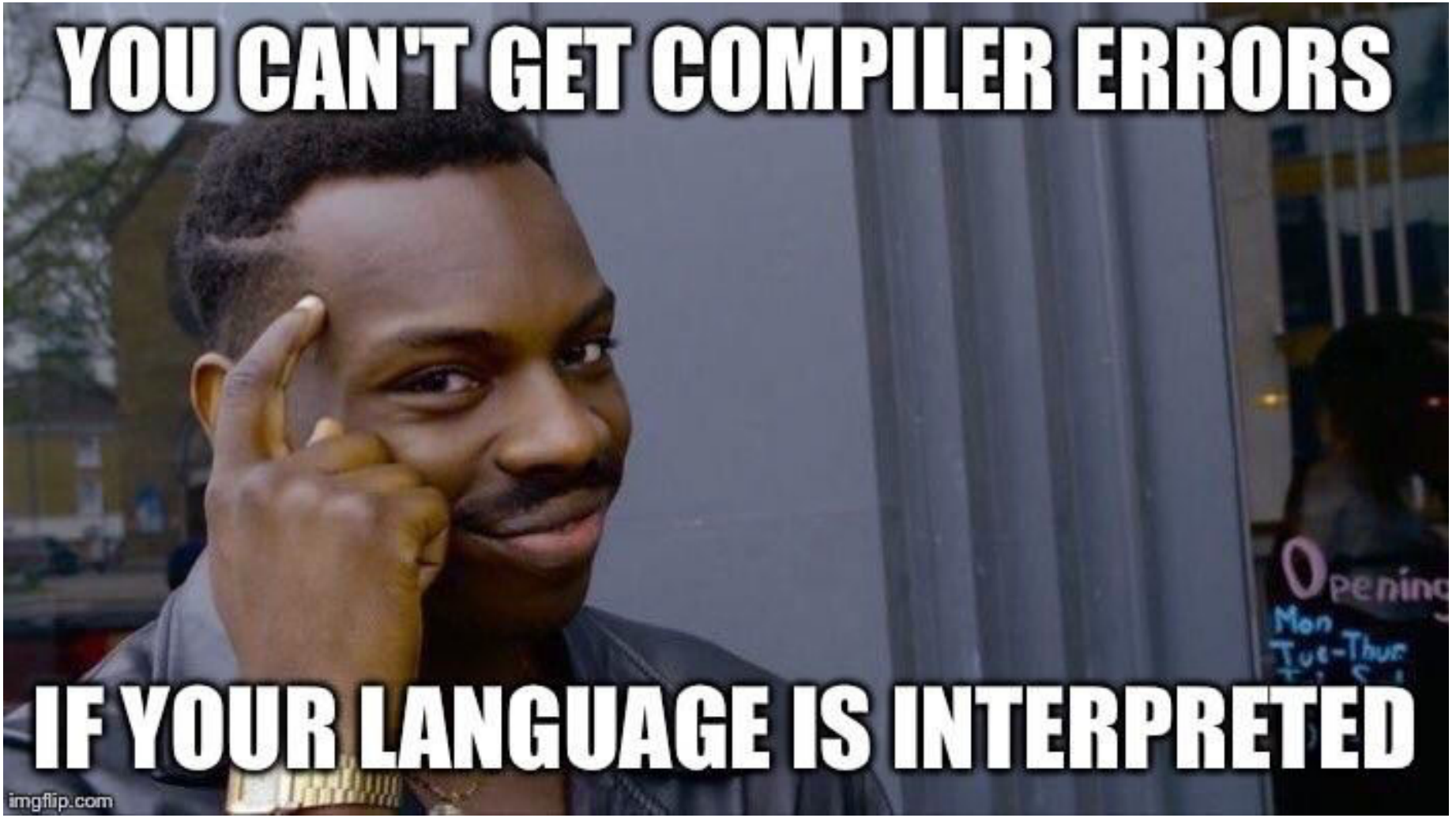


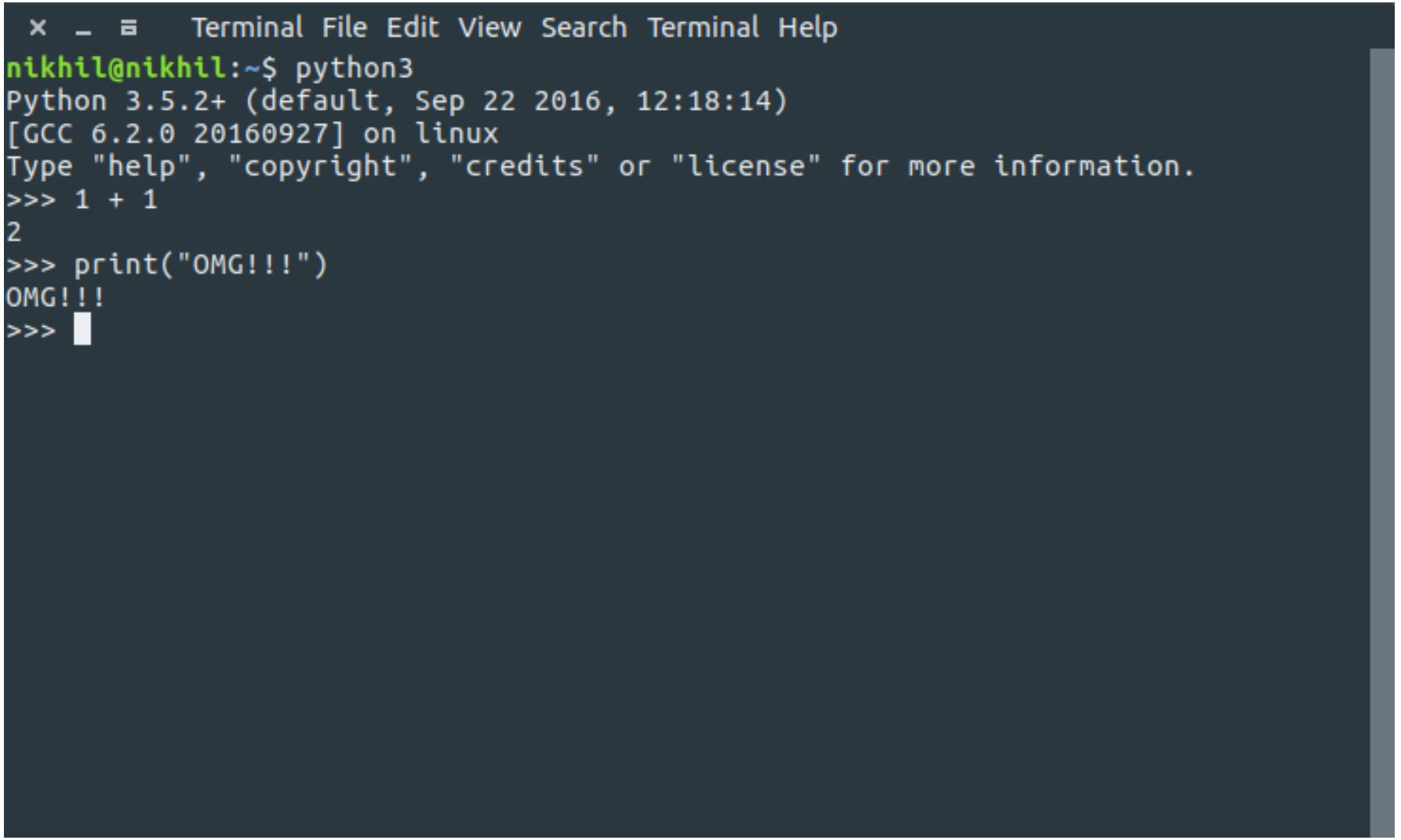
Figure: Compiler

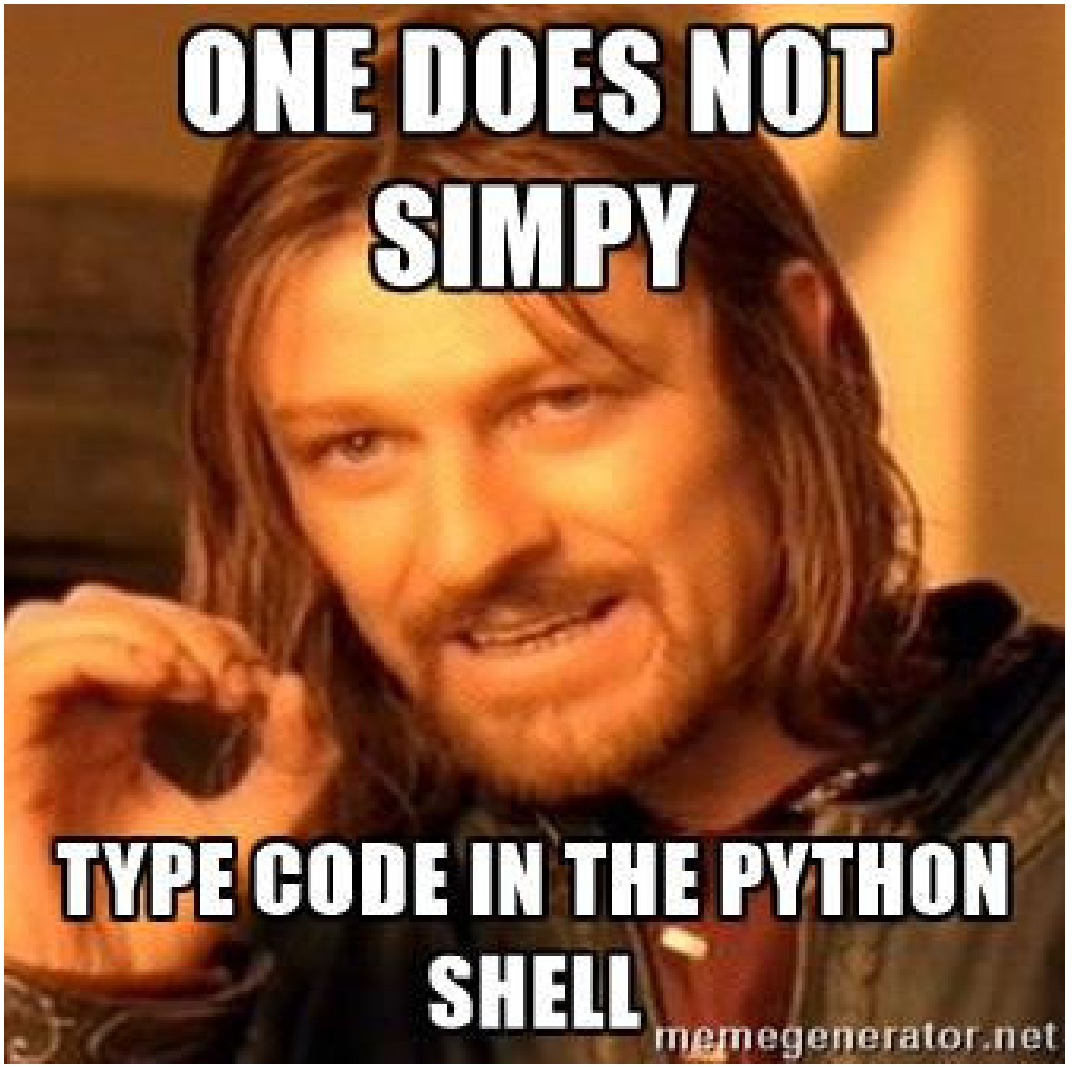
Figure: Interpreter

Interpreter	Compiler
Translates program one statement at a time.	Scans the entire program and translates it as a whole into machine code.
It takes less amount of time to analyze the source code but the overall execution time is slower.	It takes large amount of time to analyze the source code but the overall execution time is comparatively faster.
No intermediate object code is generated, hence are memory efficient.	Generates intermediate object code which further requires linking, hence requires more memory.
Continues translating the program until the first error is met, in which case it stops. Hence debugging is easy.	It generates the error message only after scanning the whole program. Hence debugging is comparatively hard.
Programming language like Python, Ruby use interpreters.	Programming language like C, C++ use compilers.

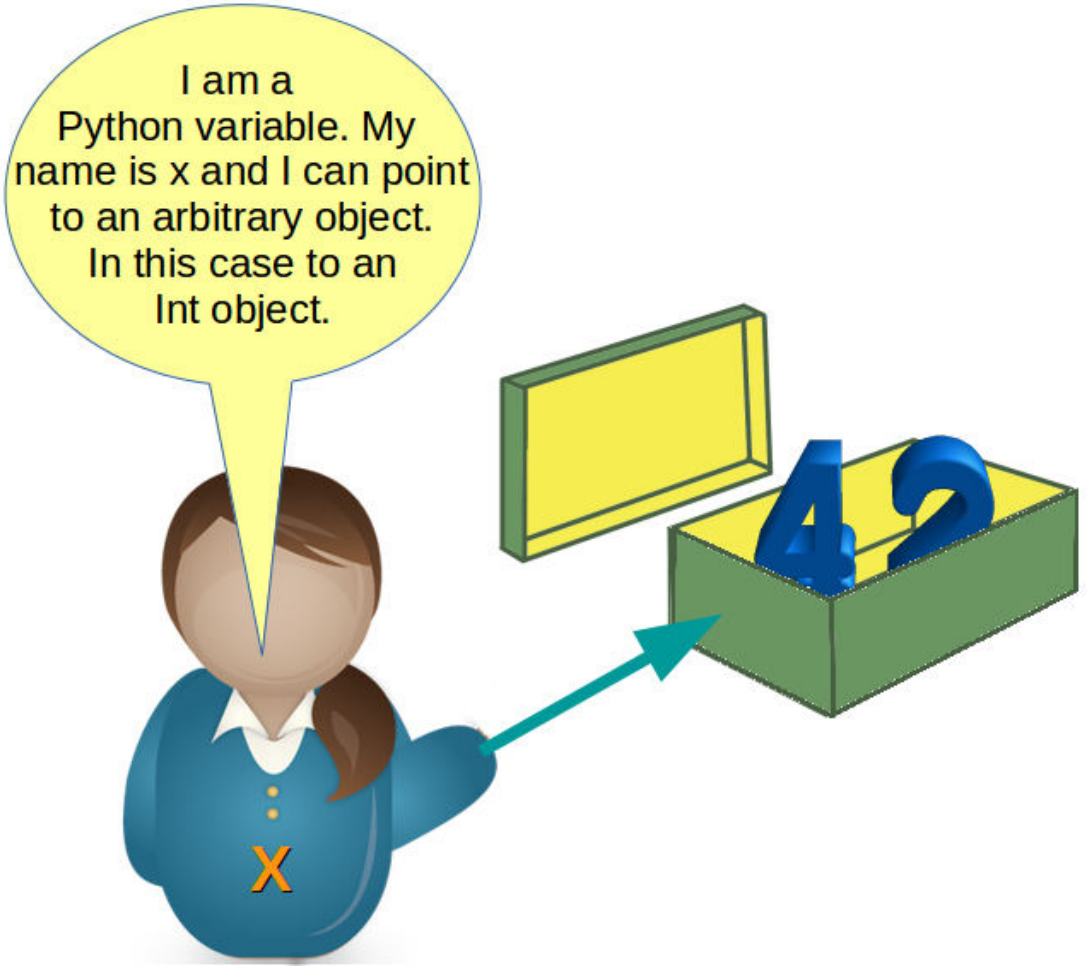

YOU CAN'T GET COMPILER ERRORS
IF YOUR LANGUAGE IS INTERPRETED
imgflip.com

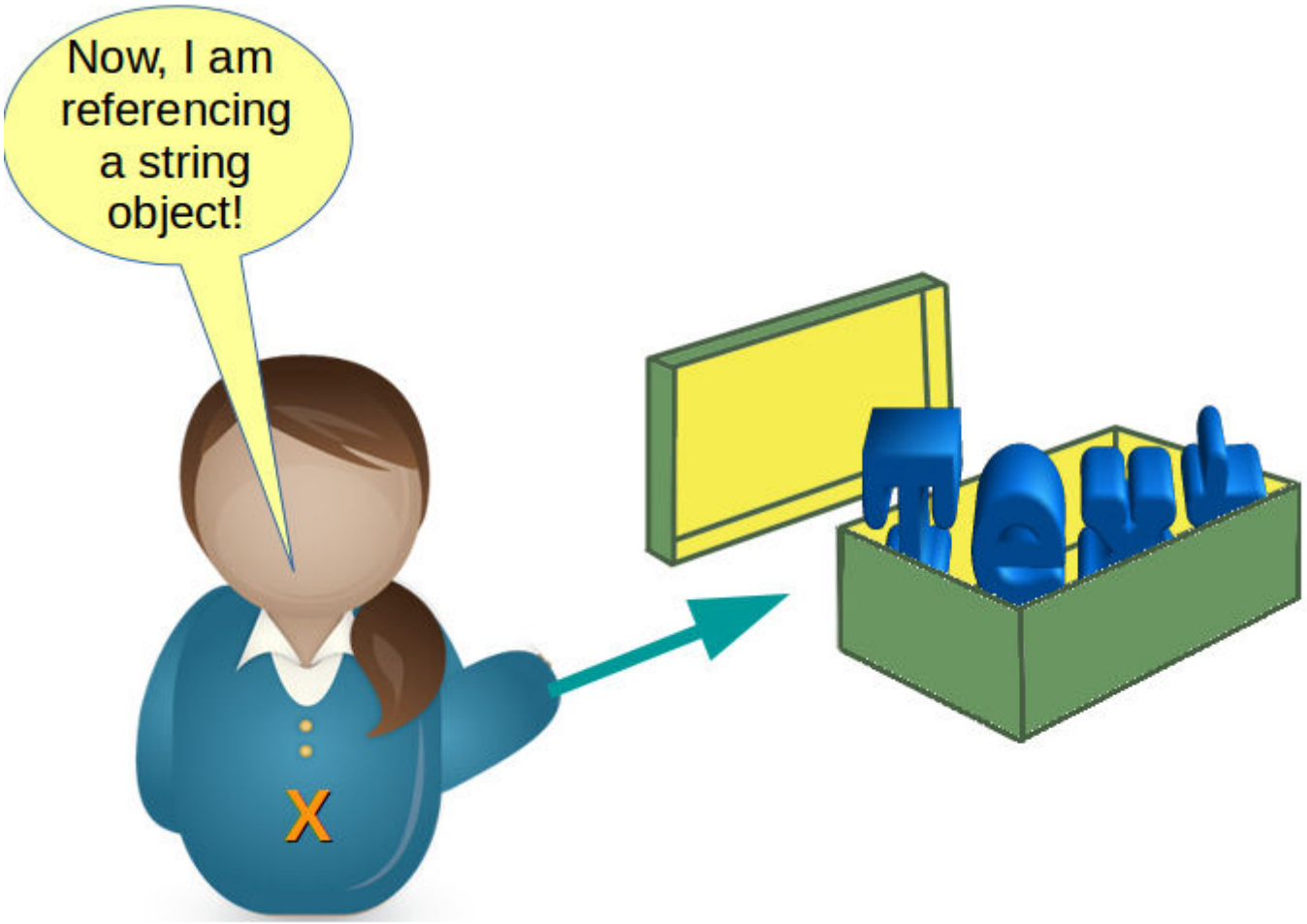
5. Interactive

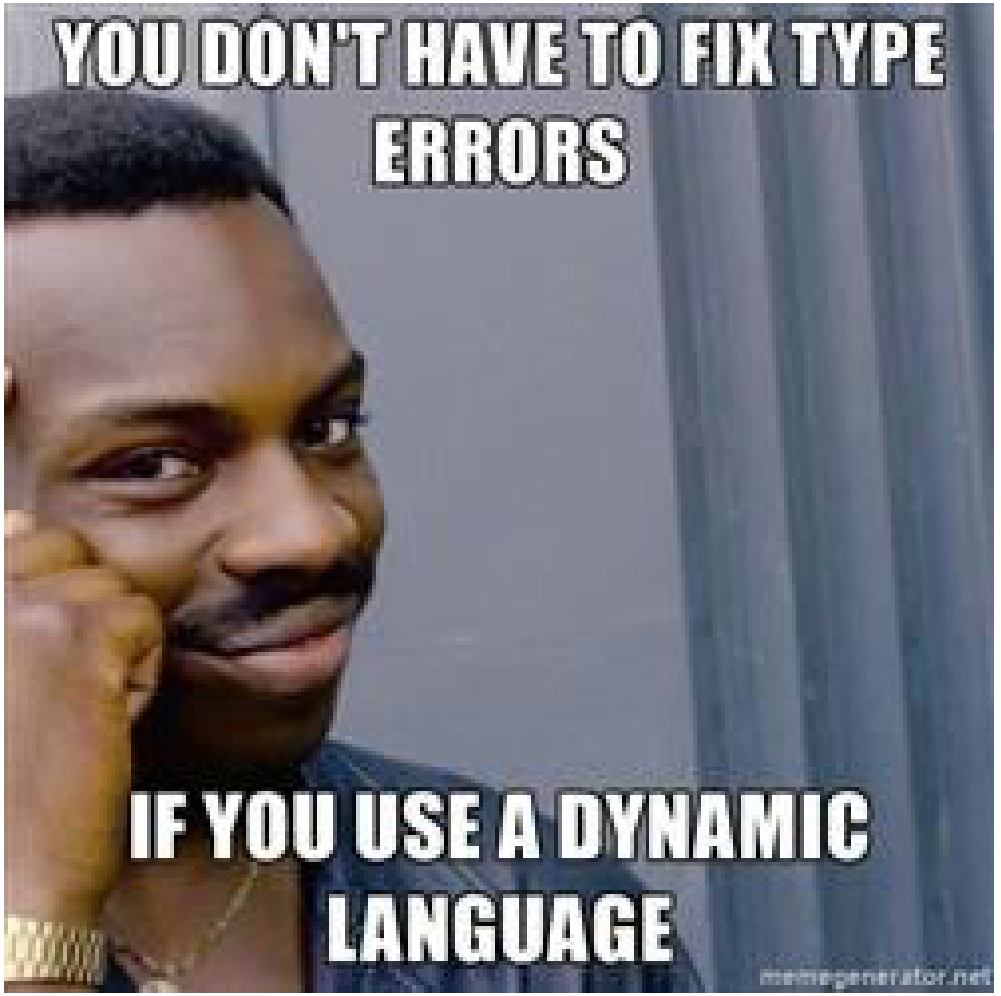



ONE DOES NOT
SIMPY
TYPE CODE IN THE PYTHON
SHELL
memegenerator.net

6. Dynamically typed




Now, I am referencing a string object!
X
"text"


YOU DON'T HAVE TO FIX TYPE ERRORS
IF YOU USE A DYNAMIC LANGUAGE
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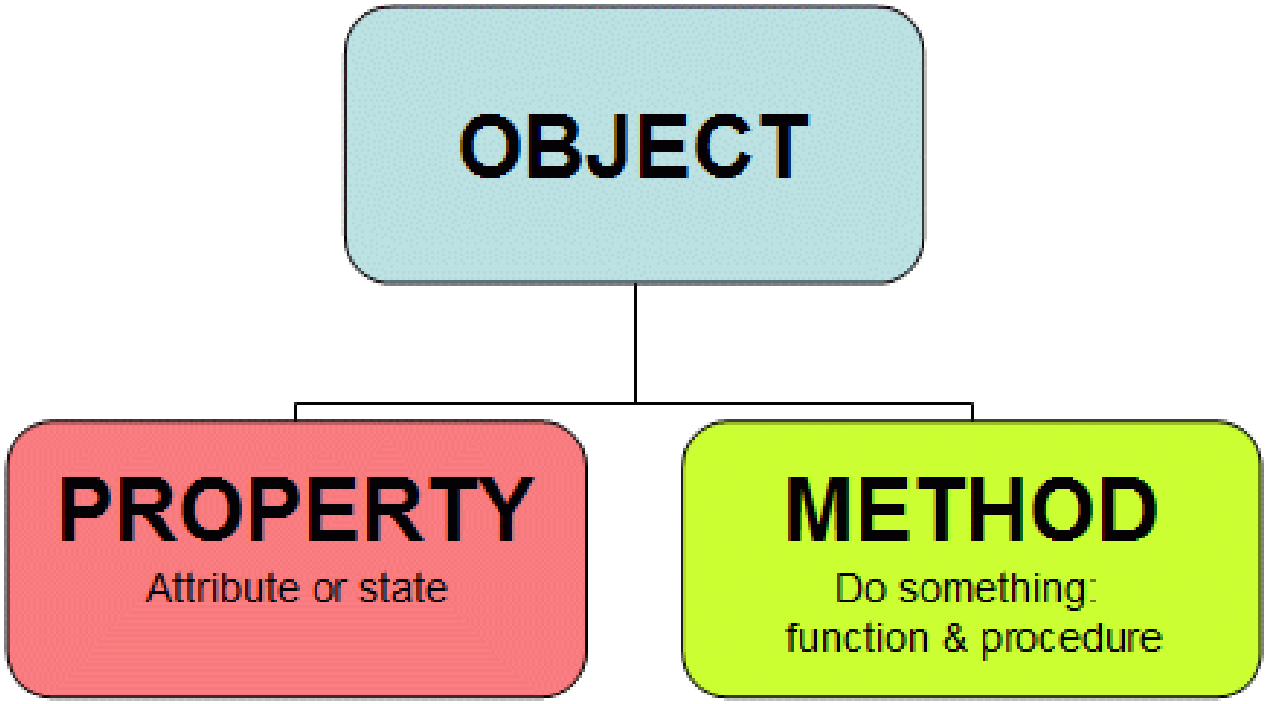
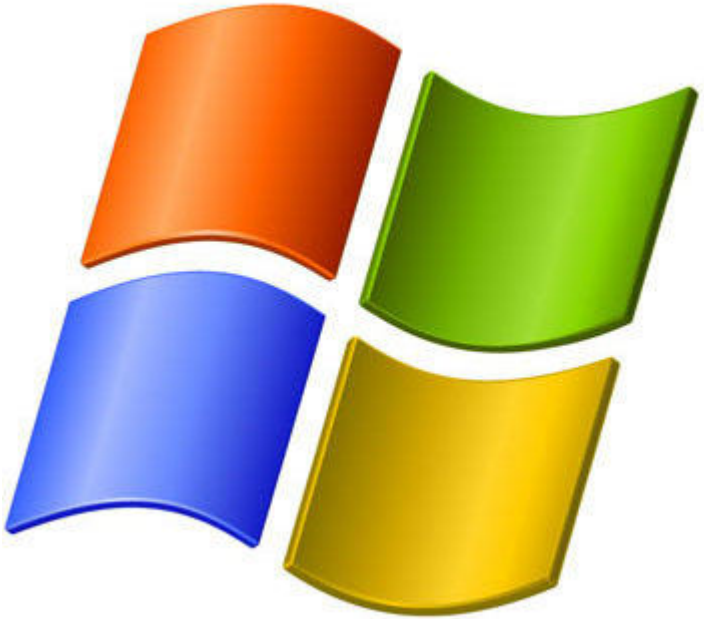
7. Object oriented



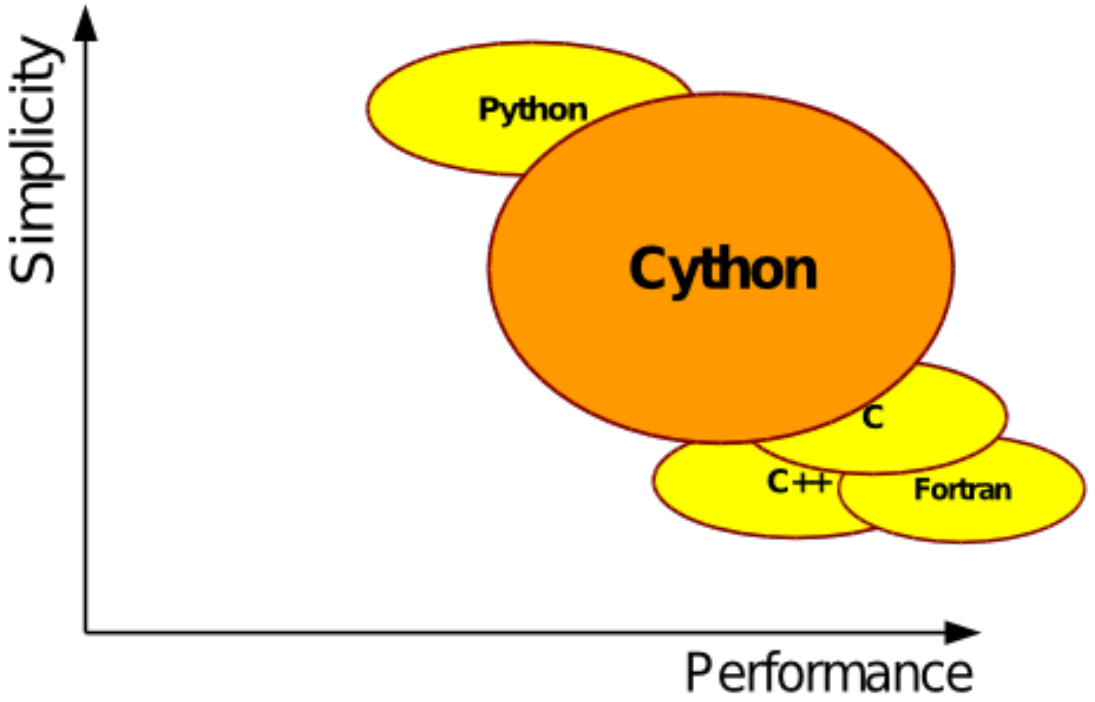

I DON'T ALWAYS WRITE CODE
BUT WHEN I DO, I PREFER OBJECT-ORIENTED PROGRAMMING
quickmeme.com

8. Portable



9. Extensible

If you need a critical piece of code to run very fast or want to have some piece of algorithm not to be open, you can code that part of your program in C or C++ and then use them from your Python program.



Different flavors....

Python Flavors

Python Implementations

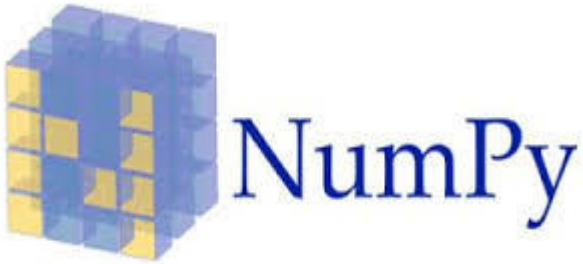
"Why uses a alternative Python implementation? To be able to uses all the stuff regarding this technology stack, for example using Jython it is possible use all the Java stuff and libraries."

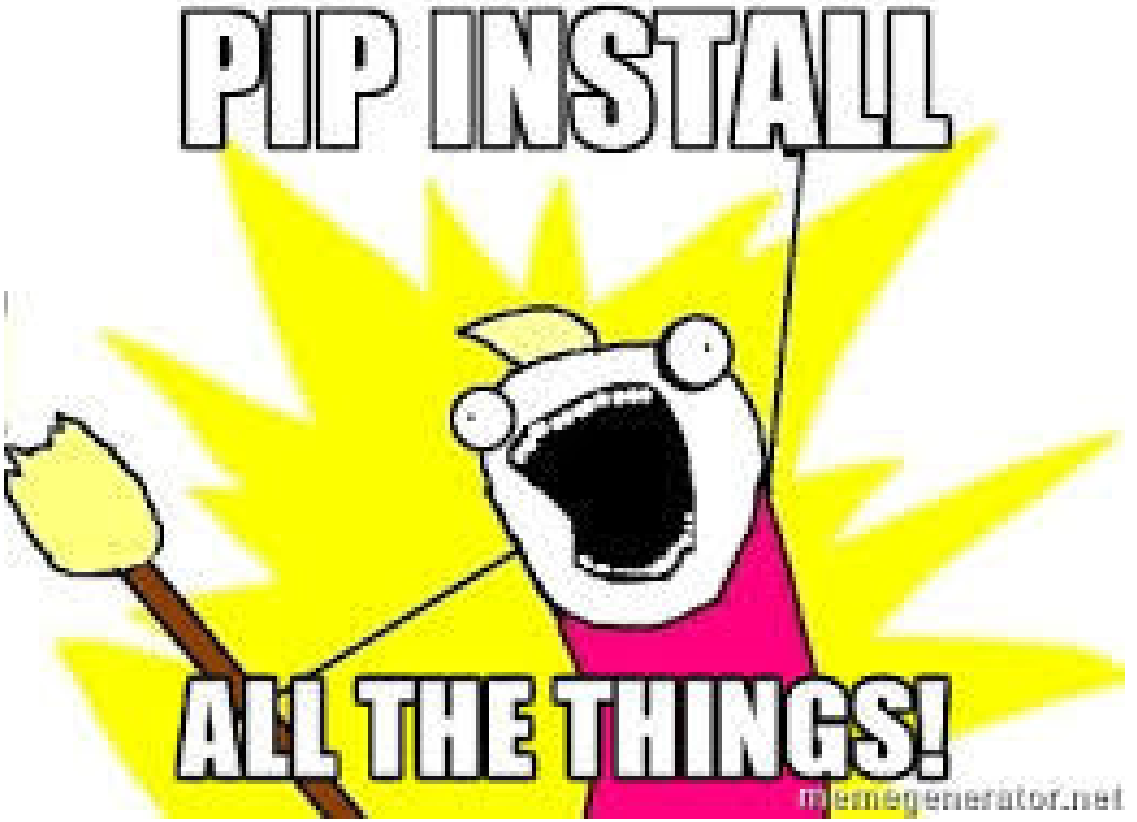
Implementation	Virtual Machine	Language
CPython	CPythonVM	C
Jython	JVM	Java
IronPython	CLR	C#
Brython	Javascript Interpreter(V8)	Javascript
RubyPython	RubyVM	Ruby


WE GOT ALL KIND OF PYTHON
CPYTHON, JYTHON, IRONPYTHON, PYPY, PYSTON, MYPY, CYTHON
memegenerator.net

10. Extensive libraries

The Python Standard Library is huuuuge!!!



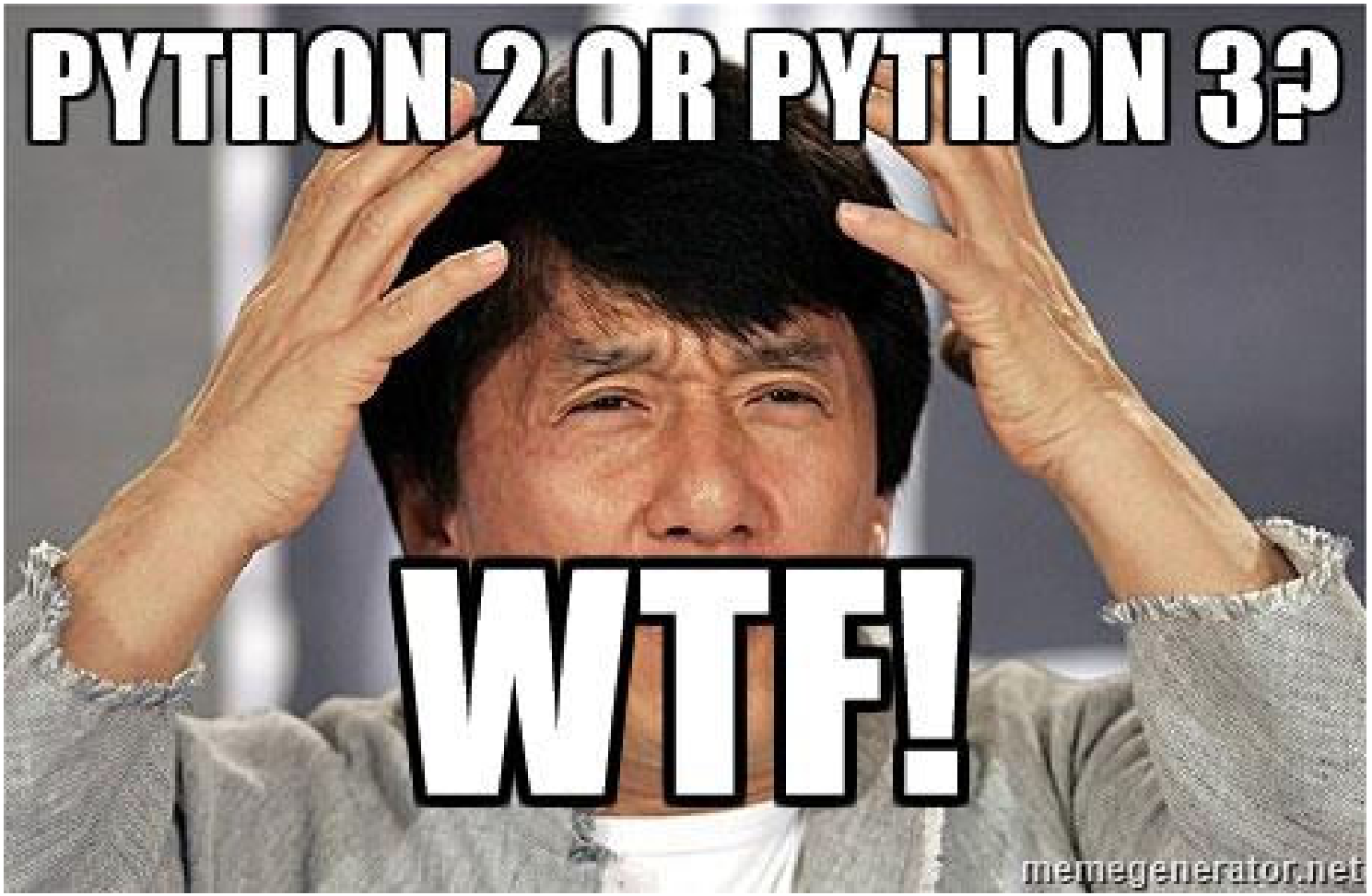

PIP INSTALL
ALL THE THINGS!
memegenerator.net

Applications of python

- Web development (frameworks like django and flask)
- Data analysis (scientific, numeric computing and data visualization)
- Desktop GUIs
- Automating tasks


WRITES 10 LINE PYTHON SCRIPT
ELIMINATES THE NEED FOR 5 JOBS
quickmeme.com

BIG QUESTION



Python 2 vs Python 3

According to PSF,

> Python 2.x is legacy, Python 3.x is the present and future of the language.

Python 3 was designed to rectify certain fundamental design flaws in the language.

But it was realised that it was not possible to implement all changes while retaining full backwards compatibility.

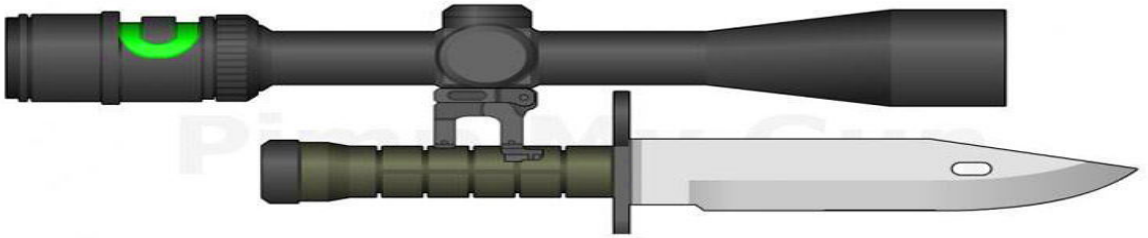
> The guiding principle of Python 3 was: "reduce feature duplication by removing old ways of doing things"

Python 2 is gonna retire in 2020

https://pythonclock.org


Python 2
Python 3
CAPTAIN AMERICA
CIVIL WAR
MAY 6, 2016

Assembler



C

C++

Python