Intro to Python

Course Syllabus

- Intro to programming
- Basic Concepts
  - Installing Python, Python 2 vs 3
  - Zen of Python
  - Data Types
  - Simple Operations
  - Variables
- Control Structures
  - Booleans and Comparison
  - Conditionals
  - Boolean Logic
  - Lists
  - Loops

Course Syllabus

- Functions and Modules
  - Defining functions, lambda functions
  - Returning From Functions
  - Comments and Docstrings
  - The Standard Library & pip
  - Packages
- More Types
  - More on lists
  - Dictionaries
  - Tuples
  - String Formatting
- Files and Exceptions
  - Exception handling
  - Working with files

Course Syllabus

- Regular Expressions
- OOP Concepts
- Python for Data Analysis
  - Numpy
  - Pandas
  - Matplotlib
  - Scipy

What is Programming

- Computer programming is the process of designing and building an executable computer program for accomplishing a specific computing result.

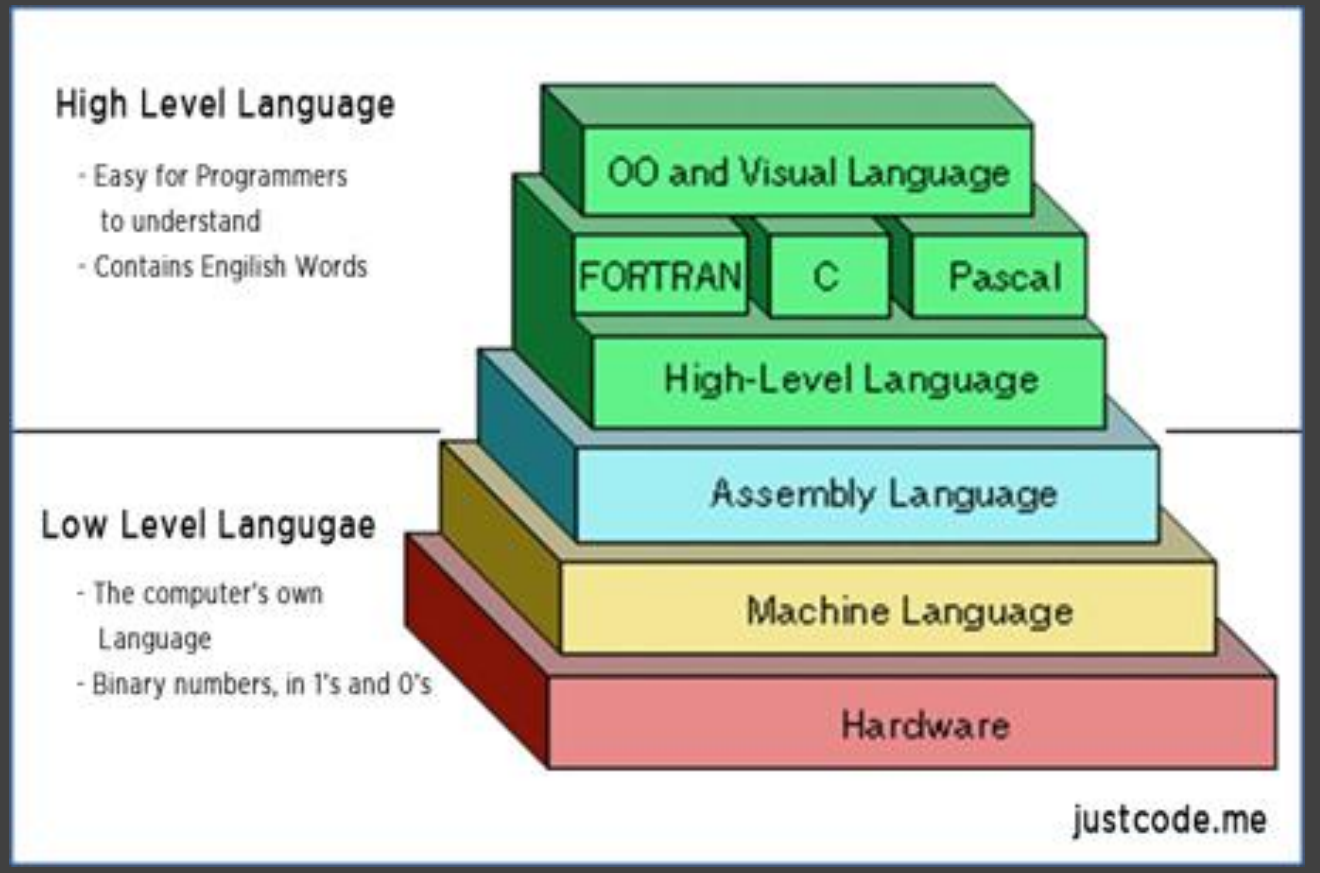
- **Programming languages** are simply the set of instructions to the computer to perform specified tasks and to produce various kinds of desired outputs.

A **high-level language** enables a programmer to write programs that are more or less independent of a particular type of computer.

Python is High Level programming Language

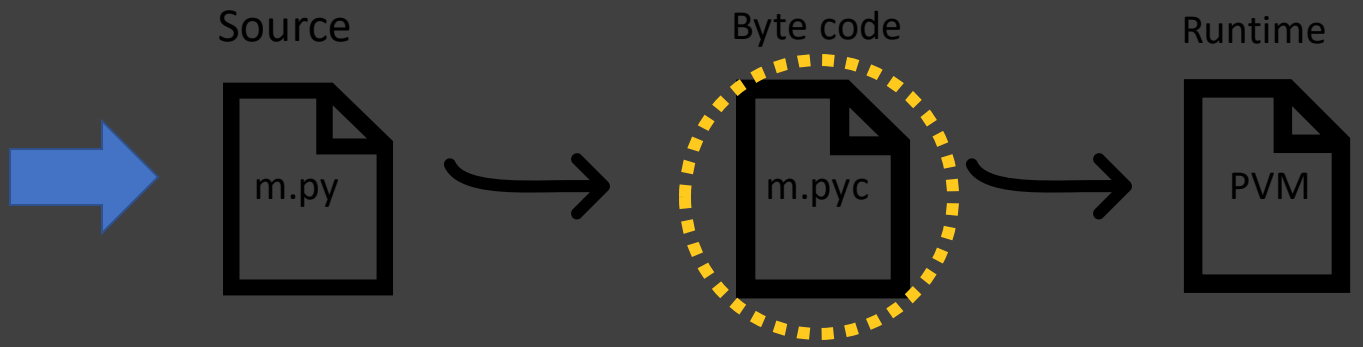
C++ **needs** to be compiled.

Python is an i**nterpreted language.**
Python is **Turing Complete.**



Python’s traditional runtime execution model:

source code you type is translated to byte code, which is then run by the Python Virtual Machine. Your code is automatically compiled, but then it is interpreted.



```
Python 2.7.15+ (default, Oct  7 2019, 17:39:04)
[GCC 7.4.0] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> 1+1
2
>>>
```

Why Python?

- Software quality
  - Easy to understand
- Developer productivity
  - Type less, achieve more
- Program portability
  - Works the same way on Linux and Windows
- Support libraries
  - Build-in and third-party libraries to help you stay focused on your task.

Why Python?

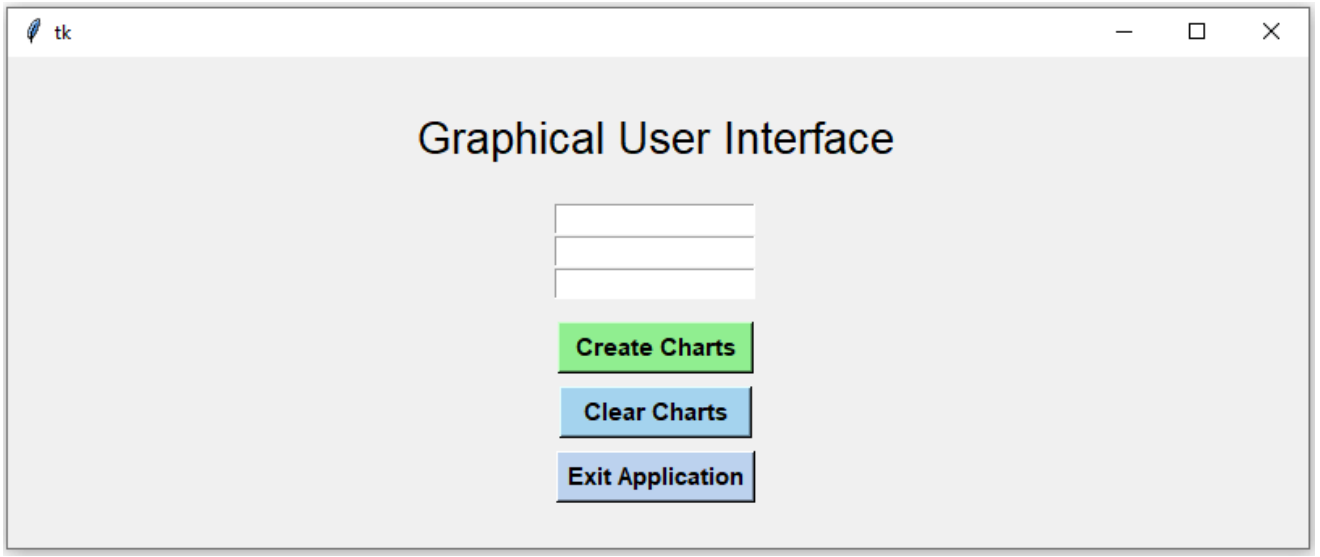
- Open Source
  - Make changes and contribute freely.
- Large Community
  - Faced a problem, Google it!
- Easy to Learn

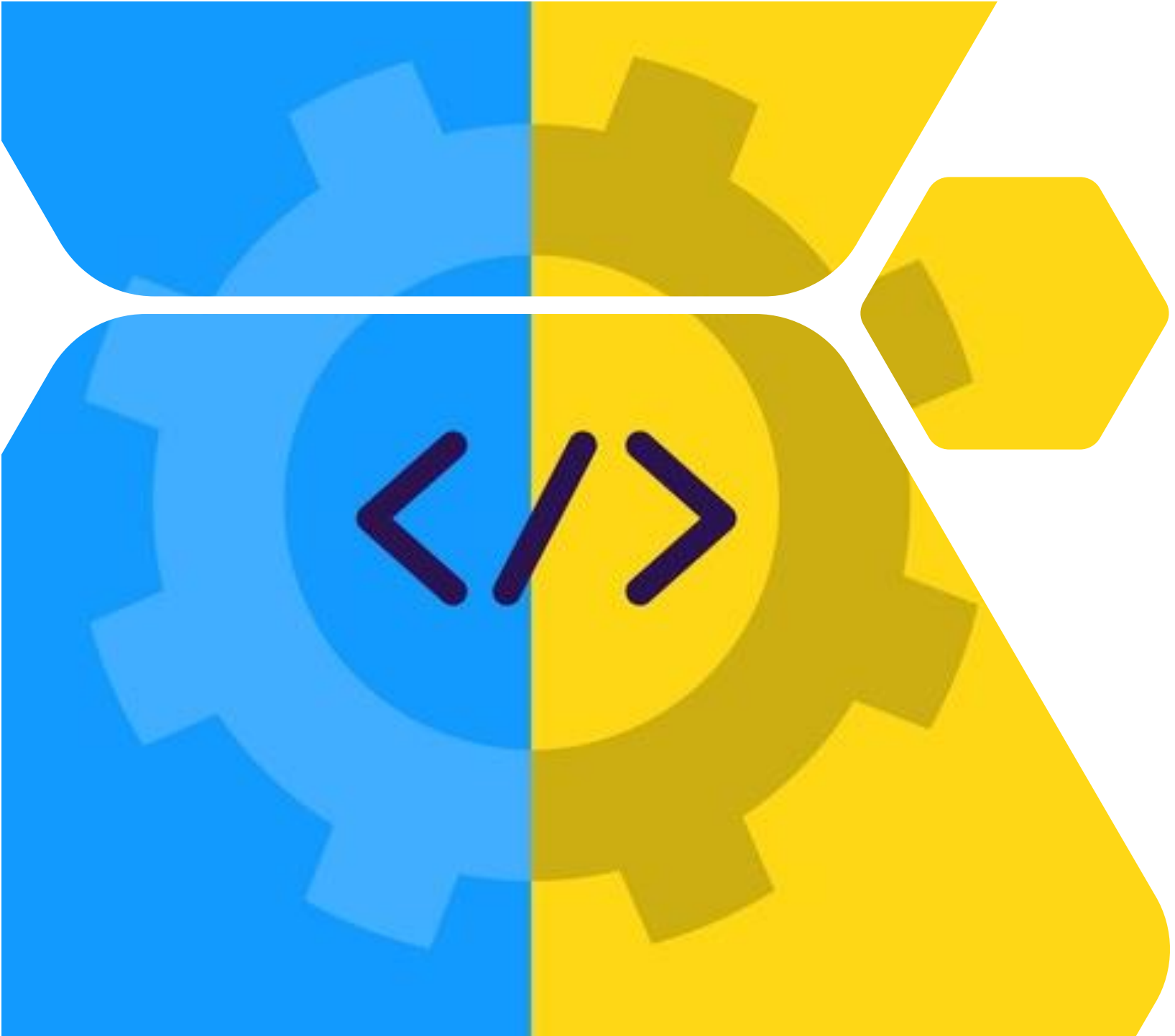
How can I use Python?

- Build Web Pages

How can I use Python?

- Build GUI (Graphical User Interface)





How can I use Python?

- Do some automation

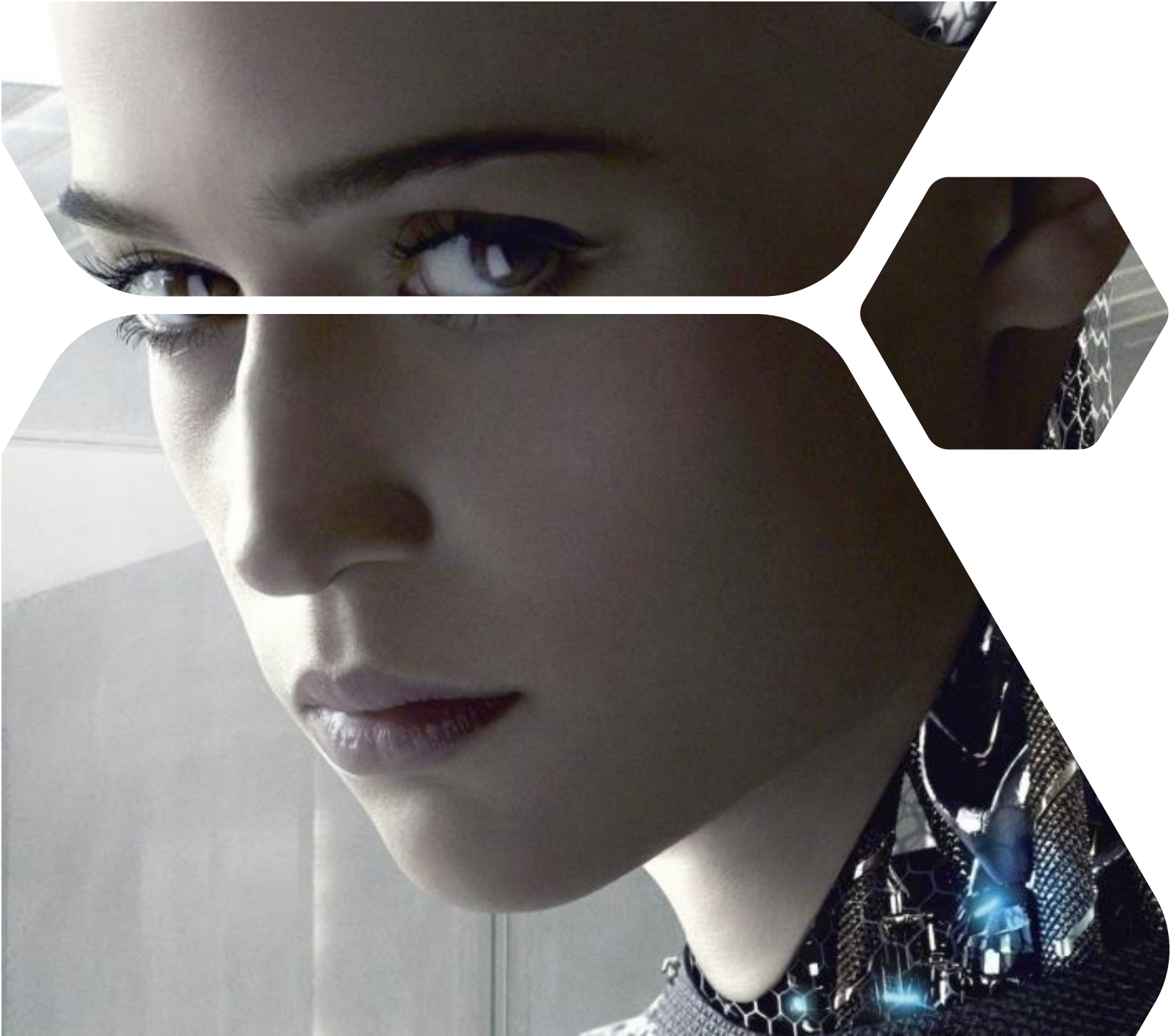
Develop great software

How can I use Python?

- Develop 3D Games

How can I use Python?

- Make Animations

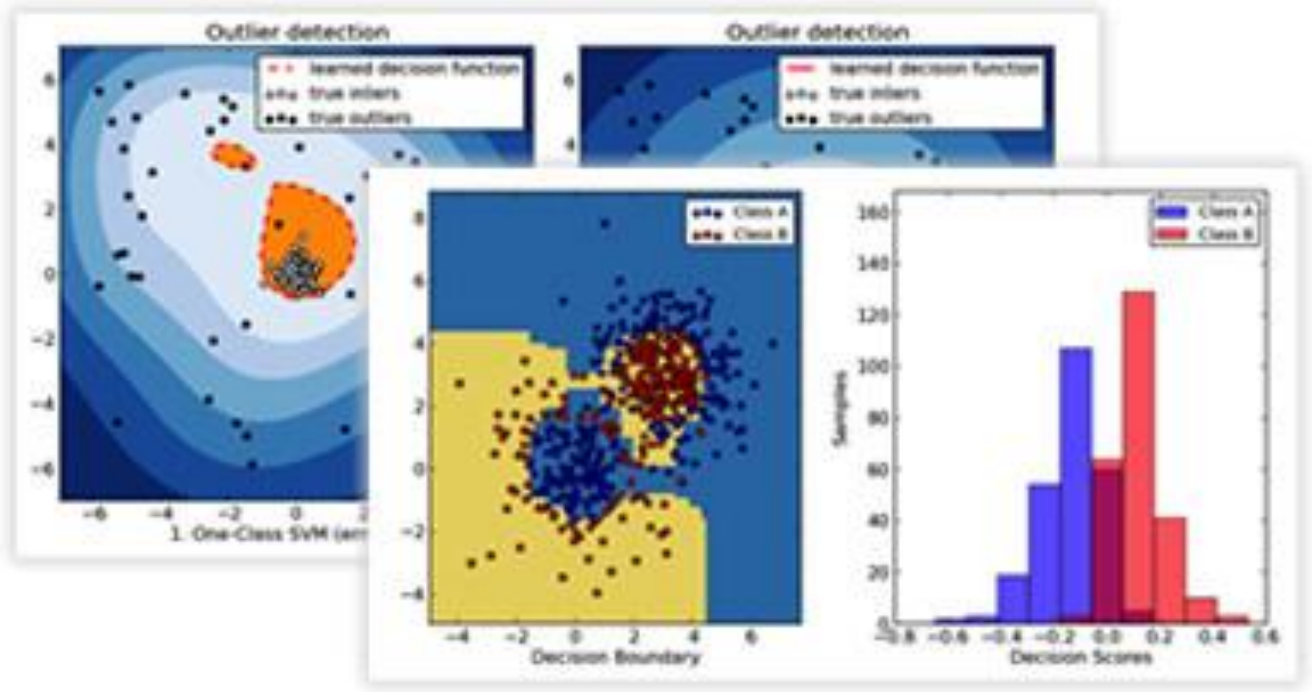


How can I use Python?

- Make Artificial Intelligence

How can I use Python?

- Use in Scientific research



Downsides

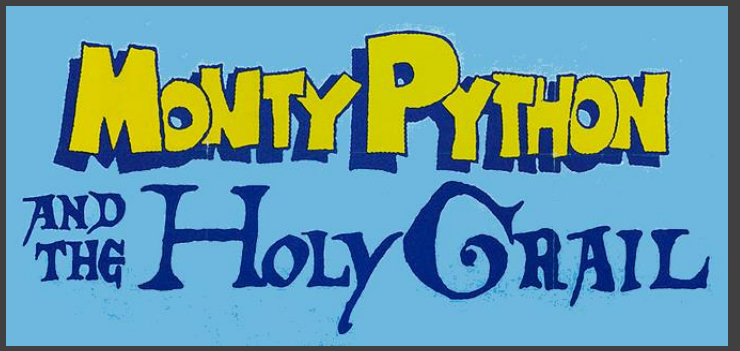
Speed

Who is the Creator?

Guido van Rossum

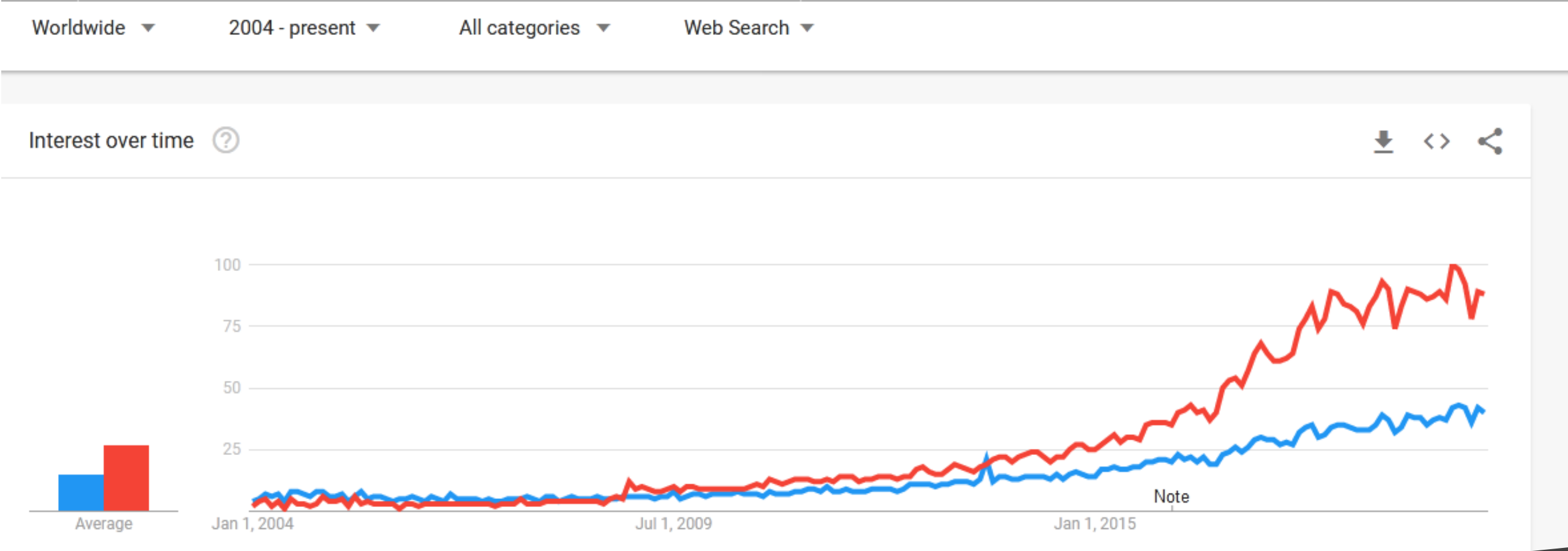
Why it is named so?

- After British TV Show Monty Python



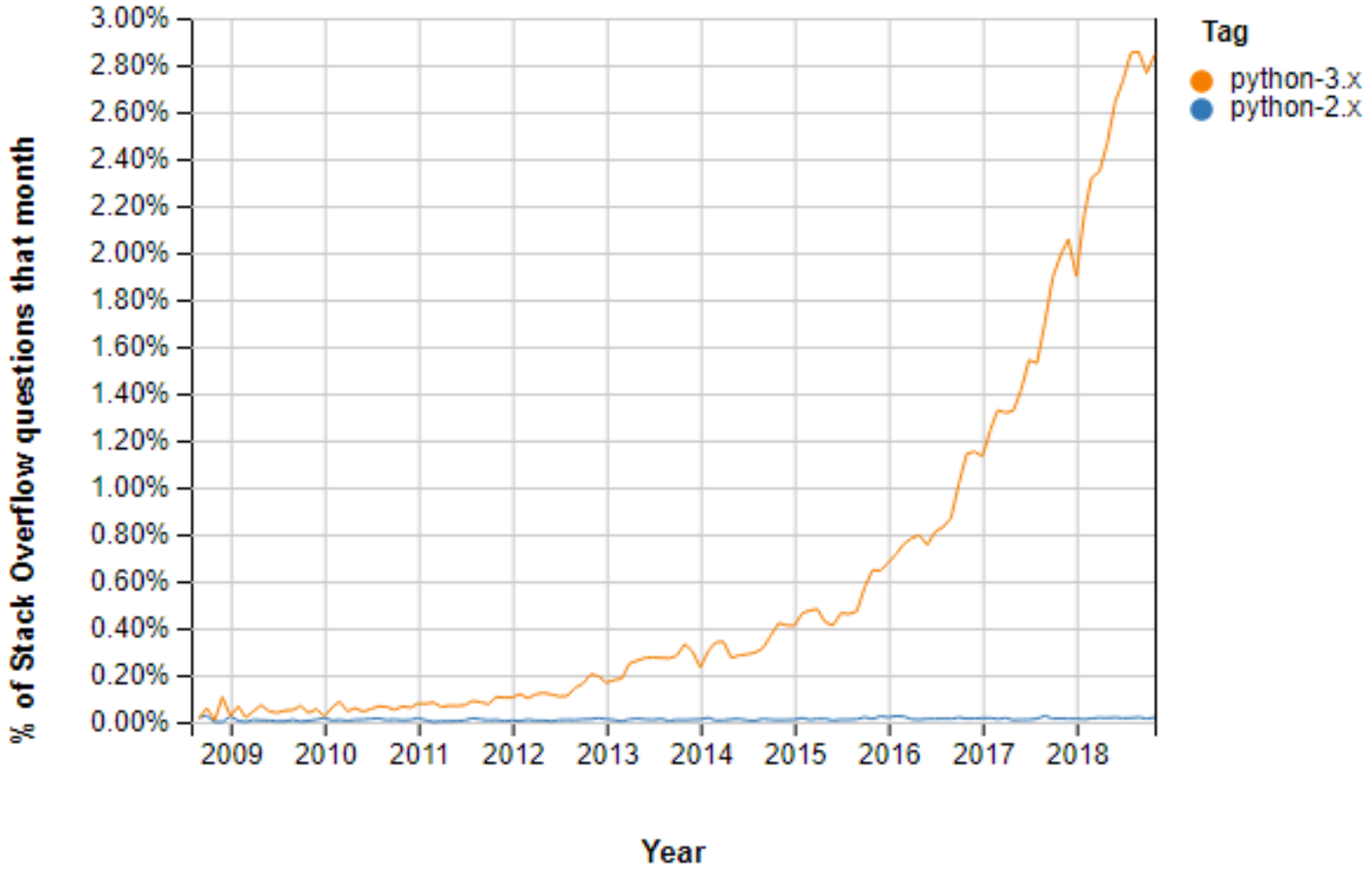
How to Install?

https://www.anaconda.com/



Python 2.x vs 3.x

Python 2.x vs 3.x



Basis of comparison	Python 3	Python 2
Release Date	2008	2000
Function print	print ("hello")	print "hello"
Division of Integers	Whenever two integers are divided, you get a float value	When two integers are divided, you always provide integer value.
Unicode	In Python 3, default storing of strings is Unicode.	To store Unicode string value, you require to define them with "u".
Syntax	The syntax is simpler and easily understandable.	understandable. The syntax of Python 2 was comparatively difficult to understand.
Rules of ordering Comparisons	In this version, Rules of ordering comparisons have been simplified.	Rules of ordering comparison are very complex.
teration	The new Range() function introduced to perform iterations.	In Python 2, the xrange() is used for iterations.
xceptions	It should be enclosed in parenthesis.	It should be enclosed in notations.
eak of variables	The value of variables never changes.	The value of the global variable will change while using it inside for-loop.
ackward compatibility	Not difficult to port python 2 to python 3 but it is never reliable.	Python version 3 is not backwardly compatible with Python 2.
brary	Many recent developers are creating libraries which you can only use with Python 3.	Many older libraries created for Python 2 is not forward-compatible.

One more thing...

May  be With You