

Swiss Institute of
Bioinformatics

First steps with Python in life sciences

Wandrille Duchemin

Robin Engler

Orlin Topalov

Course schedule

Day 1

- morning:**
- Introduction to Jupyter Notebook
 - Python basics: variables, functions and object types.
- afternoon:**
- Code flow: conditional statements (if... else), loops (while..., for ...) and functions.
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Day 2

- morning:**
- Code flow: conditional statements (if... else), loops (while..., for ...) and functions.
- afternoon:**
- Reading / writing files.
 - Python modules: import and re-use existing code.
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Day 3

Additional modules :

- Biopython
- Numpy
- Scipy
- Matplotlib
- Pandas

But first - getting to know you

- Have you programmed before ? Which language ?
- Any experience with command line ?
- Why do you want to program :
 - to analyze data ?
 - to create scripts that serve as *glue* in my pipeline ?
 - to implement my cool new model ?
 - to become one of the cool kids ?
 - to have something to do on my Sundays ?

What is Python ?

“Python is an **interpreted, high-level, general-purpose** programming language.” wikipedia

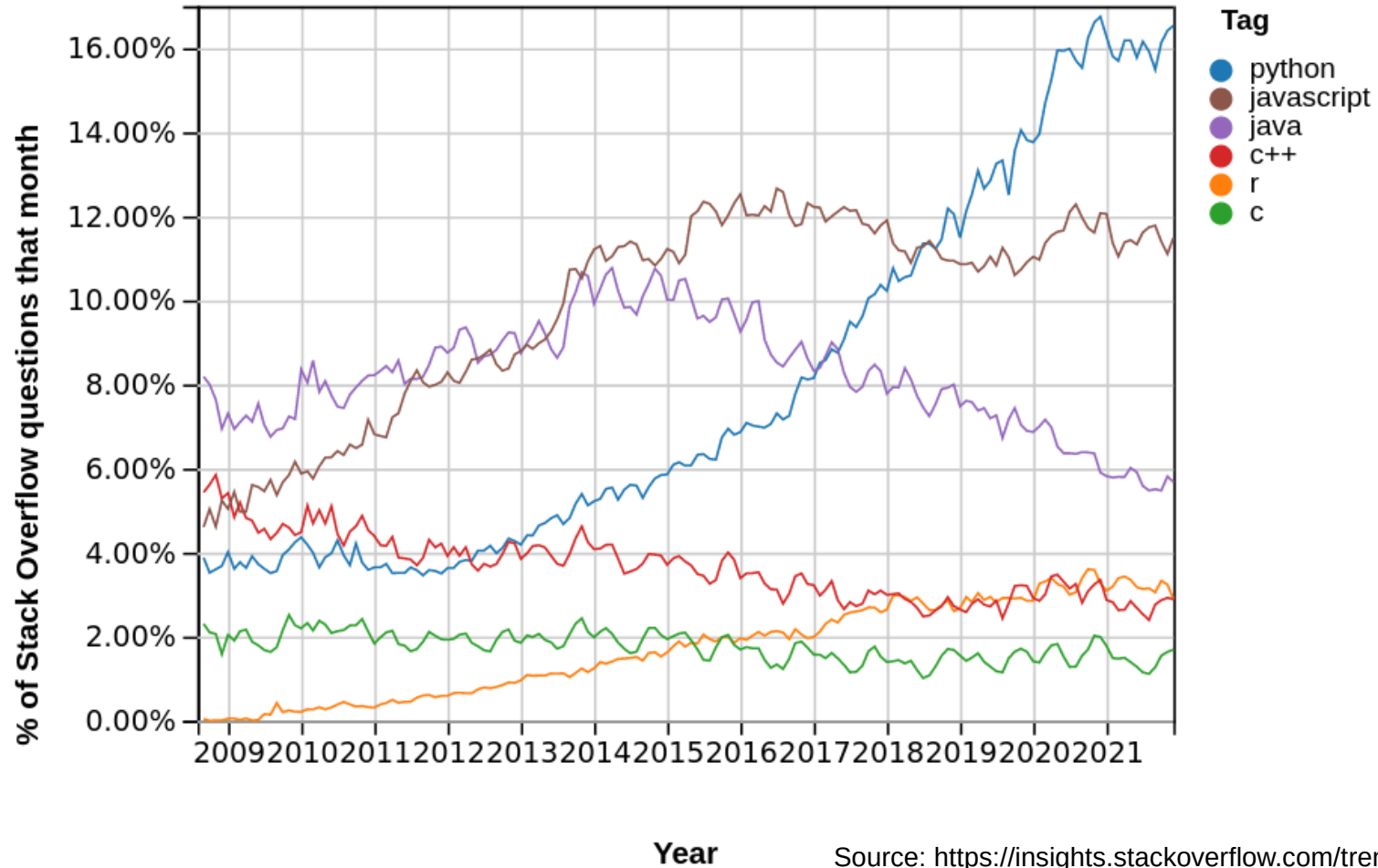
- **Interpreted:** no compilation of the program prior to execution
 - + platform independence (portability), dynamic typing
 - - usually slower, buggy program may still run
- **High level:** abstracted from details of the machine (e.g. memory management)
 - + focus on the application itself
 - - possibly counter-intuitive behaviors (e.g. mutable vs. immutable objects).
- **General-purpose:** not domain specific, can be used in a broad range of software application
 - + wide user base, usable for any purpose
 - - core language fairly simple → modules for domain specific uses

Python - a brief history

- **1991**: First version of Python (0.9.0) publicly released by Guido van Rossum.
 - Its name is a tribute to the British comedy group “Monty Python”, it later adopted the two snakes as logo symbol.
- **2000**: Python 2.0
- **2008**: Python 3.0 (backward incompatible with python2)
- **2015 2020** : end of Python 2.7 support
- **Current version** : 3.8 (as of February 2020)

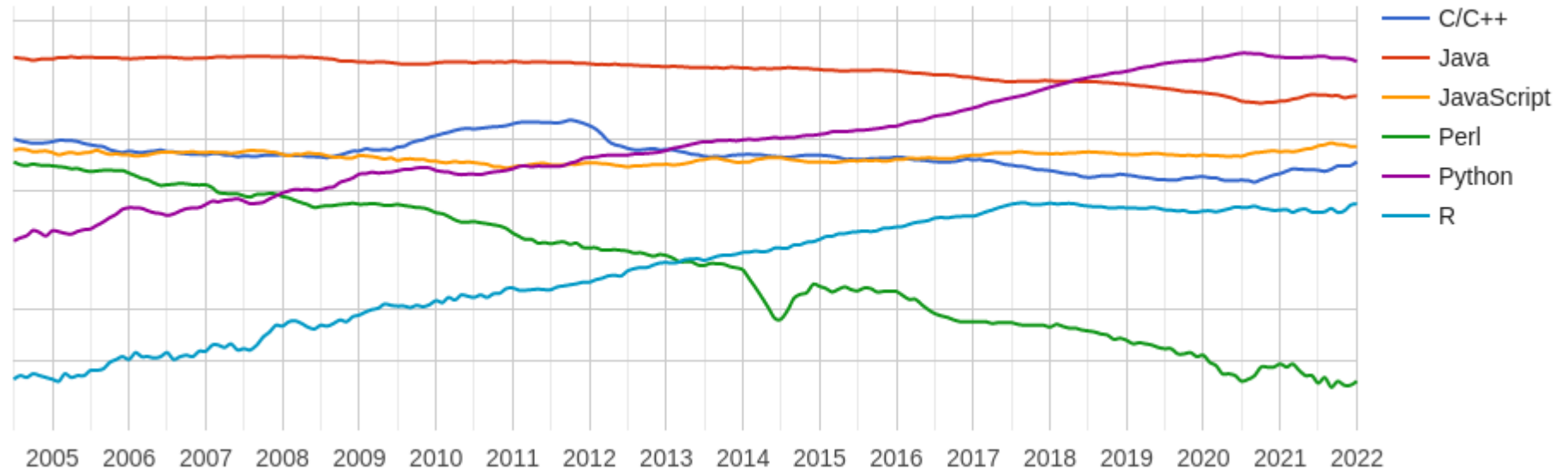


Python - is it used ?



Python - is it used ?

PYPL Popularity of Programming Language



Python – sum up

“Python is an interpreted, high-level, general-purpose programming language.” wikipedia

- Easy to learn - you will experience that first hand !
- Portable: coding for Windows, MacOS or Linux is (almost) the same.
- Broad range of applications: can be used for anything !
- Widely used, including in science application:
 - Huge community to get help/tutorials.
 - Huge number of modules for domain specific applications.

