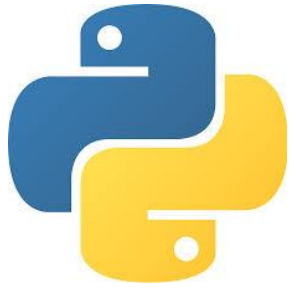


# Introduction to Python

Elements of Applied Data Security

Alex Marchioni



# Python

Python is an Interpreted and Object-Oriented Programming Language.

## **WHY** Python?

- Simple syntax
- Very flexible
- Highly extensible
- Cross-platform
- Open-source with a huge community

Google says: *Python where we can, C++ where we must*

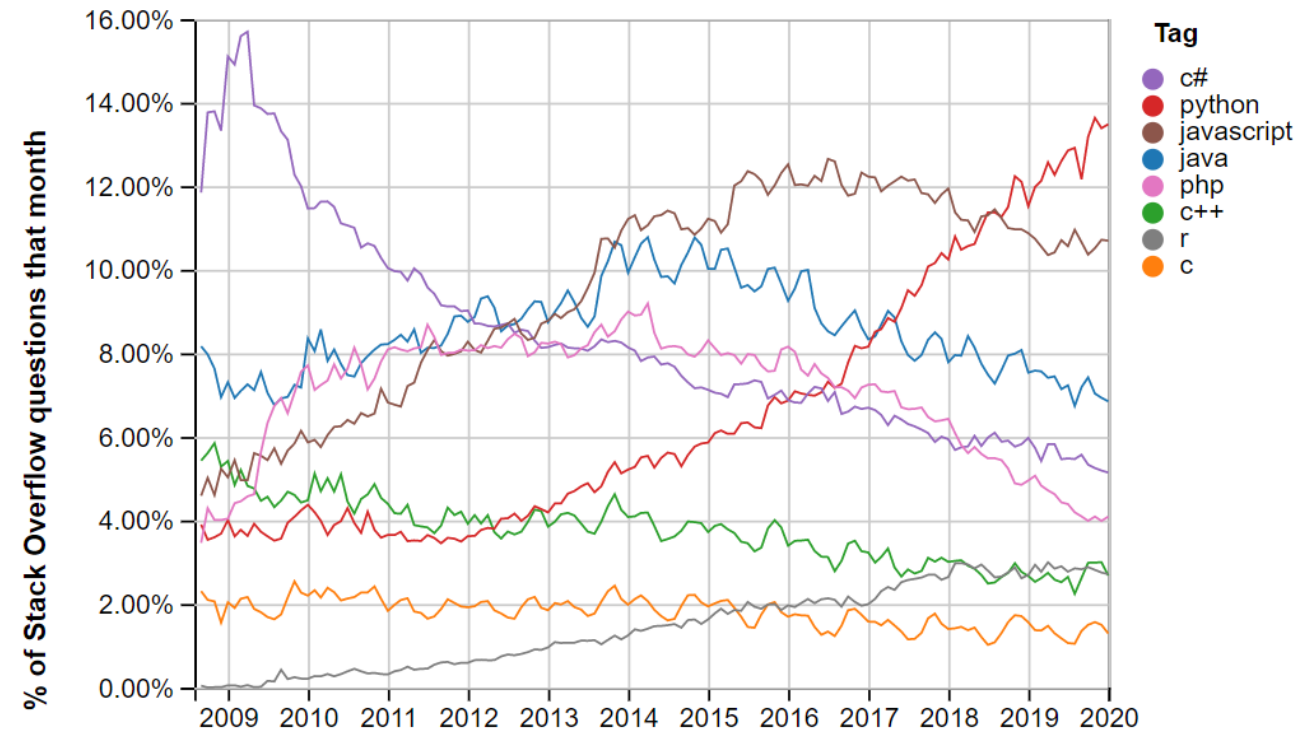
# A bit of History

- It is not so recent, since it was conceived in the late 1980s and implemented in 90s by [Guido van Rossum](#).
- Name is a tribute to [Monty Python](#) (a British surreal comedy group) in fact, as metasyntactic variables spam and eggs preferred to the traditional foo and bar
- **Python 2.0** released on Oct 2000, not supported since 01/2020
- **Python 3.0** released on Dec 2008
- **Last release is 3.8.2** on Feb 2020 (<https://www.python.org/downloads/>)

# Popularity

- According to StackOverflow's [survey](#) and [trends](#) Python among all programming languages is the:

- **1<sup>st</sup>** most questioned
- **4<sup>th</sup>** most used  
behind JavaScript, HTML/CSS, and SQL
- **2<sup>nd</sup>** most loved  
behind Rust
- **1<sup>st</sup>** most wanted  
developers who do not yet use it say they want to learn it



# Applications for Python

- Web and Internet Development
- Scientific and Numeric
- Education
- Desktop GUIs
- Software Development
- Business Applications

Basically anything, like English for spoken languages

# Scipy

[Scipy.org](https://www.scipy.org) = Python for math/science/engineering

- **Numpy**: Numerical Python package (inspired by Matlab)  
N-dimensional array capabilities and some linear algebra, Fourier analysis, random number capabilities, etc.
- **Scipy**: Scientific Python  
For Matlab users, it's very much like many of the core toolboxes.
- **Matplotlib**: most popular data visualization package for Python  
Inspired by Matlab plots, but then it has evolved into something more.
- **Pandas**: Data Science Python  
high-performance, easy-to-use data structures and data analysis tools

# IPython & Jupyter Notebook

- [Jupyter Notebook](#) is a web-based interactive computational environment, that supports different languages (Python, R, Julia, C++)
- [IPython](#) (Interactive Python) is the kernel that allows Python to be run on a Jupyter Notebook.

# Let's start

We will get start with a short tutorial on Python.

- Clone/download this repository:  
<https://github.com/marchioa/data-security>
- There, in the folder *1.intro-to-python* the file [enviroment setup.md](#) lists all the instructions to set up the environment we will work on.
- Once the environment is ready and Jupyter has started you can start opening the notebooks (.ipynb files) composing the tutorial. With great imagination, [1.LETS START.ipynb](#) is the first one.