

Python for .Net Developers

Mike Rapa

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About your speaker

Mike Rapa

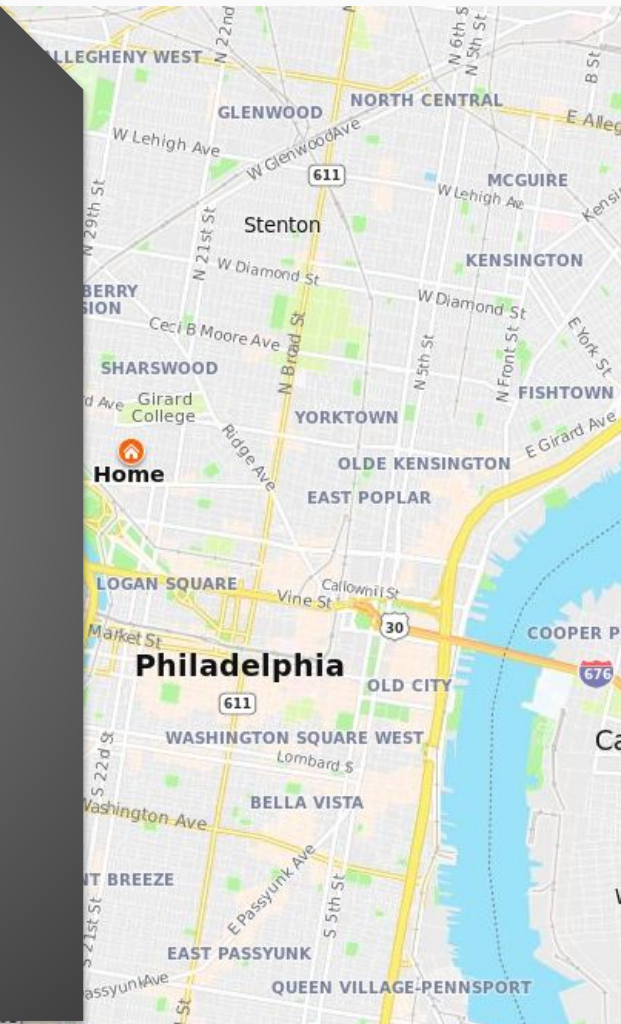
20+ years in software

B.S. Computer Science @ Thomas Jefferson University

M.E. Software Engineering @ Penn State

Director of Software Development at Altera

@mikerapa
github.com/mikerapa



About Python

First released in 1991

Developed by Guido Van Rossum

General purpose programming language, open source

CPython

- CPython is the reference implementation for Python.
- It's partly C and partly Python.
- Python is an interpreted language when running on CPython.

Philosophy:


Emphasize simple code over complex code.

Emphasize grammar over syntax.

(See [Zen of Python](#) for more)

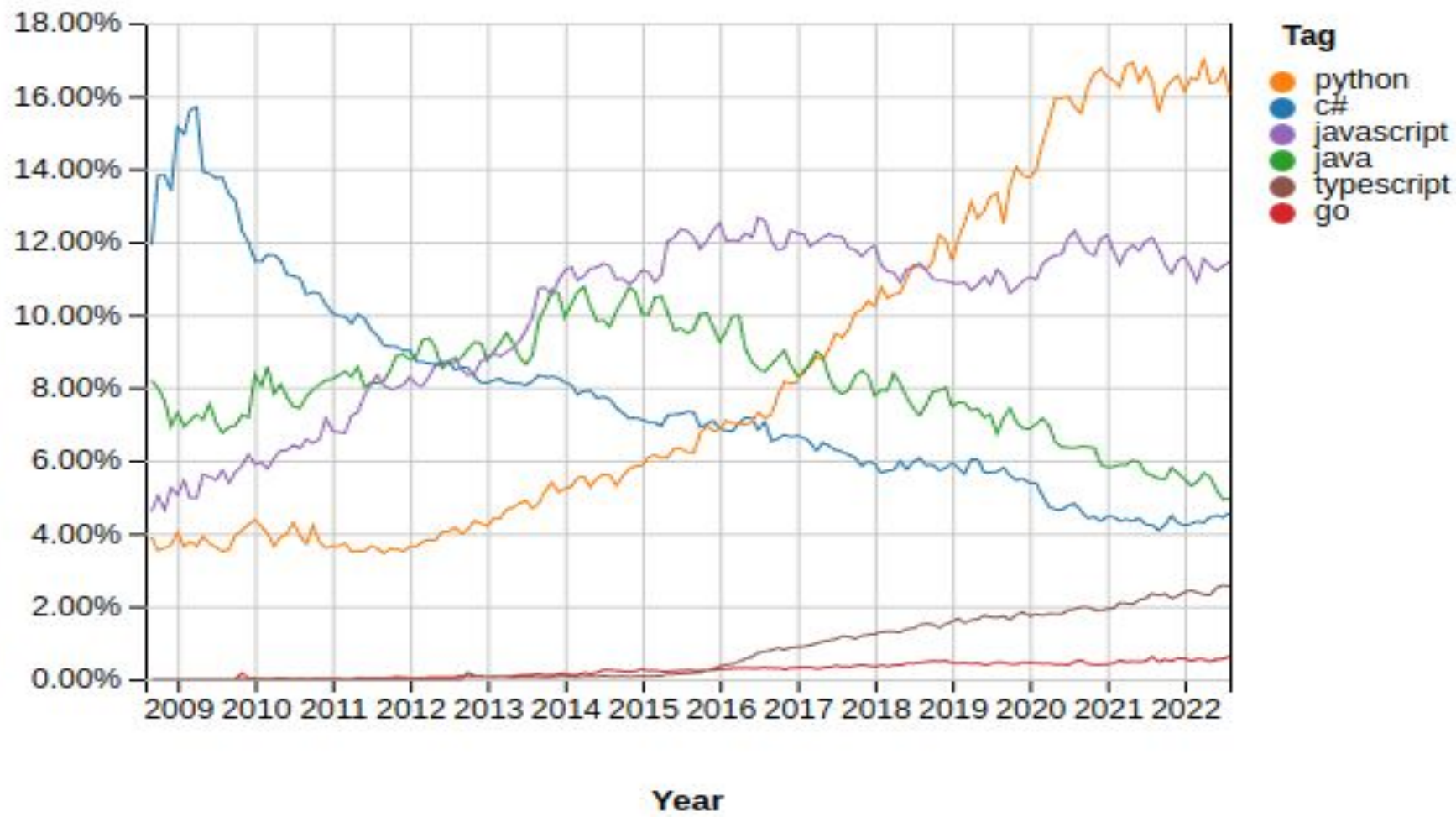
Yes, the name Python is a reference to Monty Python

Popularity of Python

Sep 2022	Sep 2021	Change	Programming Language		Ratings	Change
1	2	▲		Python	15.74%	+4.07%
2	1	▼		C	13.96%	+2.13%
3	3			Java	11.72%	+0.60%
4	4			C++	9.76%	+2.63%
5	5			C#	4.88%	-0.89%
6	6			Visual Basic	4.39%	-0.22%
7	7			JavaScript	2.82%	+0.27%
8	8			Assembly language	2.49%	+0.07%

See <https://www.tiobe.com/tiobe-index/> for details

% of Stack Overflow questions that month



Programming exercise

- Typing
- Main
- Basic syntax
- Looping
- The importance of whitespace
- List comprehension
- Using Pypi.org and PIP to install packages
- Referencing packages with imports
- Create a REST API

Types

Types are always inferred in Python

```
player_name = "Zack Steffen"  
minutes_played = 92
```

string

int

Types can be declared, but they are not used at run-time.
Type hints were introduced in 3.5.

```
player_name: str = "Zack Steffen"  
minutes_played: int = 92
```

```
def get_wc_data() -> list[dict]:  
    data = json.load(open("worldcupdata.json", "r"))  
    return data
```

Packages

- Python has an enormous open source community
- Pypi.org is the largest package repository for Python with over 400k projects and 3.8M releases.
- PIP is the most commonly used package management tool

Installing

Install and update using [pip](#):

```
$ pip install -U Flask
```


Echo-system comparison

	.Net	Python
Package Repository	NuGet	PyPi
Package Management Tool	Nuget Package Manager	PIP
Integrated Development Environment	Visual Studio, VS Code, Ryder	PyCharm, VS Code
Web Frameworks	ASP .Net, Blazer	Flask, Django, Pyramid
Testing Frameworks	MSTest, NUnit	PyTest, Testify, Unittest, DocTest
Cloud Platform Support	AWS, Azure, Google Cloud	AWS, Azure, Google Cloud
Desktop/Thick-client	WinForms, WPF, MAUI	PyQT, TKinter, Kivy
Primary uses	Desktop, web, gaming, mobile	Data science, web, artificial intelligence, scripting, automation

Language comparison

	c#	Python
Typing	predominantly static typing	dynamic
Object Orientation	✓	✓
Functional	Partially supported	Partially supported
Procedural	✓	✓
Generics	✓	Type hinting only (not runtime)
Garbage Collection	✓	✓
Syntax Type	C/C++ like, embrace the curly brace	Significant whitespace
Maintainer	Microsoft	Python Software Foundation

Python in Science, Data Science, Mathematics and Statistics

Reasons why Python is a popular choice for Data Science

- Approachable for those without a programming background
- Powerful and broadly-adopted libraries for data ingestion, processing, calculations and analysis
- Language features which reduce the friction of working with data sets
- Jupyter Notebooks are a prominent part of the dev community

Popular packages for data science:

- NumPy
- TensorFlow
- Pandas
- Keras
- SciPy

Continuing your Python journey

Python.org getting started

<https://www.python.org/about/gettingstarted/>

Pluralsight: www.pluralsight.com

Talk Python To Me podcast: <https://talkpython.fm>

