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Why you need to learn Python?

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Introduction

- What is Python?

- Dinamic vs Static

- Strong vs Weak

- History of Python

- Versions

- Where Python can be used?

- Indentation is very important!

Introduction

What is Python?



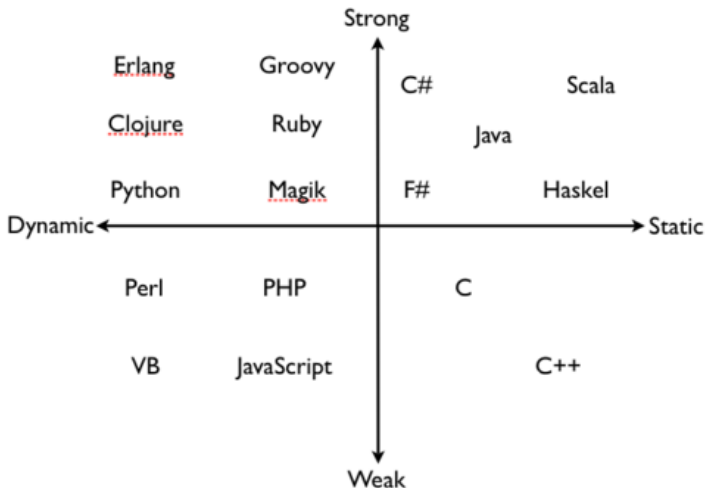


Python

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. This is a general-purpose language that can be equally well developed system applications with a graphical interface, command line utilities, scientific applications, games, applications for the Web, and much more.

Introduction

What is Python?





Dinamic – Python

```
1 >>> variable = "string"
2 >>> type(variable)
3 <class 'str'>
4
5 >>> variable = 42
6 >>> type(variable)
7 <class 'int'>
```



Dinamic – Python

```
1 >>> variable = "string"
2 >>> type(variable)
3 <class 'str'>
4
5 >>> variable = 42
6 >>> type(variable)
7 <class 'int'>
```

Static – C

```
1 int i = 10;
2 i = "string";
3 DO NOT COMPILE
```



Weak – JavaScript

```
1 >>> [] + []  
2 >>>  
3  
4 >>> [] + {}  
5 [object Object]  
6  
7 >>> {} + []  
8 0  
9  
10 >>> {} + {}  
11 NaN
```




Weak – JavaScript

```
1 >>> Array(10)
2      , , , , , , , , , ,
3
4 >>> Array(10).join("wat")
5 watwatwatwatwatwatwatwatwat
6
7 >>> Array(10).join("wat" + 1)
8 wat1wat1wat1wat1wat1wat1wat1wat1wat1
9
10 >>> Array(10).join("wat" - 1) + "_Batman!"
11 NaNNaNNaNNaNNaNNaNNaNNaNNaN NaN Batman!
```

Introduction

WAAAAAT?





Strong – Python

```
1 >>> print 4 + "4"  
2 TypeError  
3 >>> print [] + {}  
4 TypeError
```

Introduction

History of Python



Guido van Rossum is a Dutch computer programmer who is best known as the author of the Python programming language. In the Python community, Van Rossum is known as a "Benevolent Dictator For Life" (BDFL), meaning that he continues to oversee the Python development process, making decisions where necessary. He was employed by Google from 2005 until 7 December 2012, where he spent half his time developing the Python language. In January 2013, Van Rossum started working for Dropbox.





Implementation started | December 1989

- ▶ First appeared - 20 February 1991, 25 years ago

Python 1.0 | January 1994

- ▶ Python 1.6 - September 5, 2000

Python 2.0 | October 16, 2000

- ▶ Python 2.7 - July 3, 2010

Python 3.0 | December 3, 2008

- ▶ Python 3.5 - September 13, 2015

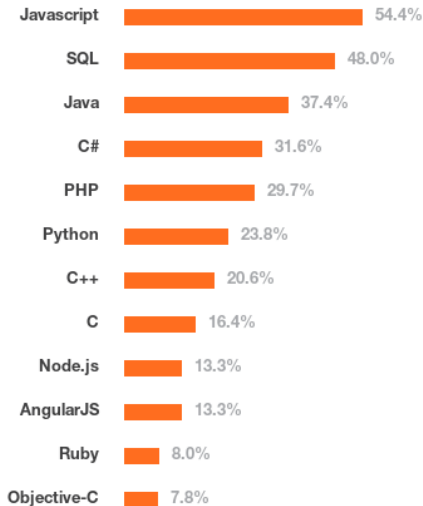


► Pross

- Easy to learn
- Cross-platform
- Community
- Open License
- Efficiency
- Simplicity
- Batteries

► Cons

- GIL
- Performance (???)

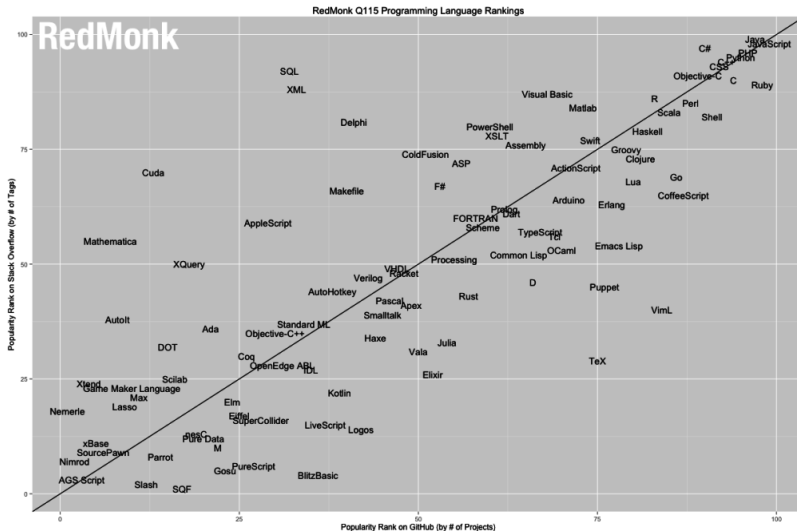


Introduction

RedMonk statistic



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Science

- ▶ NumPy - a numerical Python library (a bedrock library for anything to do with matrices)
- ▶ Pandas - a library for data analysis, similar to R's data frames or an Excel spreadsheet, built on scipy and numpy
- ▶ Scikit-learn - rapidly turning into the default machine learning library, built on scipy
- ▶ Biopython - a bioinformatics library similar to bioperl
- ▶ SymPy - a symbolic manipulation package, written in pure Python.



Web

- ▶ Django
- ▶ Pyramid
- ▶ Bottle
- ▶ Flask
- ▶ Tornado



High Performance Python

- ▶ Cyton
- ▶ Numba
- ▶ Pythran
- ▶ PyPy
- ▶ Shed Skin



GUI applications

- ▶ PyQt
- ▶ PyGTK
- ▶ Kivy
- ▶ wxWidgets

Introduction

Indentation is very important!



Indentation

```
1  if _True:
2      print ("True")
3  else:
4      print ("False")
5
6  if _True:
7      print ("True")
8      print ("Error")
9
10 if _True:
11     print ("True")
12     print ("Error")
```



Questions?

Contacts

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