python™ 101: From Zero to Hero

Lu Lu

DPD Club Meeting
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History

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In December 1989, I was looking for a 'hobby' programming project that would keep me occupied during the week around Christmas. My office ... would be closed, but I had a home computer, and not much else on my hands.

…...

I chose Python as a working title for the project, being in a slightly irreverent mood (and a big fan of Monty Python's Flying Circus).

------ Guido van Rossum

What is Python?

Python is an interpreted high-level programming language for general-purpose programming.

Python has a design philosophy that emphasizes code readability, and a syntax that allows programmers to express concepts in fewer lines of code.

Python features a dynamic type system and automatic memory management. It supports multiple programming paradigms, including object-oriented, imperative, functional and procedural.

------ Wikipedia

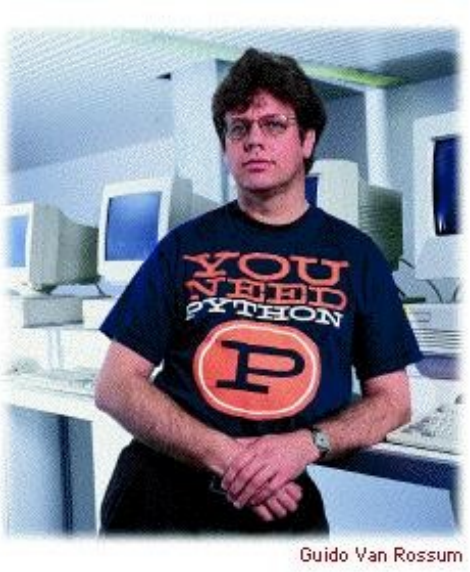
Why Python?

Life is short

You need Python

------ Bruce Eckel

ANSI C++ Committee member



Guido Van Rossum

Why Python?

Scientific computation

- NumPy
- SciPy
- Pandas

Visualization

- Matplotlib
- Seaborn
- Bokeh
- Plotly

Machine learning

- SciKit-Learn
- Theano
- TensorFlow
- Keras
- PyTorch
- Caffe

Hello World!

- hello.py

  ```
  # This is a comment.
  print(‘Hello World!’)
  ```

- python hello.py

Math

- +, -, /, *, %, <, >, <=, >=, **

Logic

- True, False, !=, ==, and, or, not

Variables

- a = 100
- b = a / 2
- c = a + b
- print(c)

String

- ‘I am a string’
- “I also am a string”
- “””Me
  too
  ”””
- ‘’’Me
  too
  ‘’’

Functions

```
def add(x, y):
    return x + y

add(1, 2)
```

import

- nektar.py

```
def add(x, y):
    return x + y
```

- crunch.py

```
import nektar
x = netkar.add(1, 2)
```

```
from nektar import add
x = add(1, 2)
```

If

- if x < y:
    print(‘x is smaller than y’)
  elif x == y:
    print(‘x is equal to y’)
  else:
    print(‘x is bigger than y’)

Loops and Lists

```
the_count = [1, 2, 3, 4, 5]
for x in the_count:
    print(x)

for i in range(5):  # range(5): [0, 1, 2, 3, 4]
    print(the_count[i])

x = 0
while x < 6:
    print(x)
    x +=1
```

dictionary

```
stuff = {‘name’: ‘Zed’,
         ‘age’: 39,
         ‘height’: 6}
print(stuff[‘name’])
print(stuff[‘age’])
```

Resources

The Official Documentation

Basics

- Learn Python the Hard Way
- Head First Python
- Learning Python

More advanced

- Python Cookbook
- Fluent Python
- Effective Python

Questions?

Exercises

http://www.pythonchallenge.com/

- Challenge 0 – 5