



Python Programming

Introduction

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About me

- lecturer at the Computer Science Institute, LUT
- doctoral degree in technical science
- scientific interests: eye tracking, programming, diagnosis and therapy of speech non-fluency
- private interests: climbing mountains, playing tennis and volleyball, classical music, canoeing
- programming languages: C/C++, C#, Python, PHP, Pascal, Logo
- web technologies: HTML, CSS, JavaScript, JQuery

Short self-presentation

Tell something about your ...

- home country
- home town
- family
- home university, field of study
- interests and hobbies
- previous experience in programming
- any experience with Python language

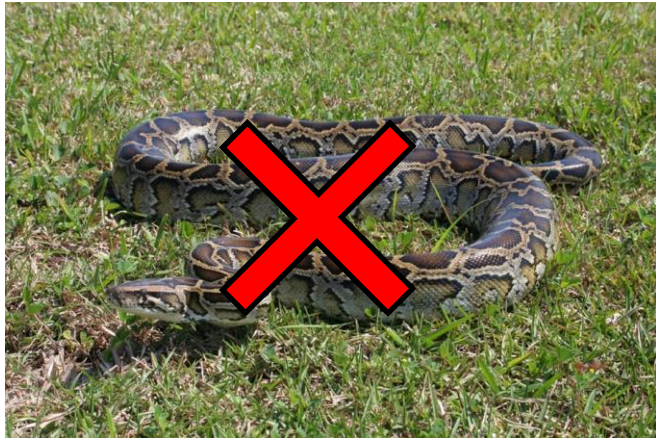
Brief history of Python

- created in 1989 by Guido van Rossum
- created as a scripting language for administrative tasks
- based on *All Basic Code (ABC)* and *Modula-3*
- released publicly in 1991
- open sourced
- used by Google
- object oriented and functional
- considered a scripting language
- managed by Python Software Foundation



Origin of the name

- Why is it called Python?



- Monty Python's Flying Circus - a BBC comedy series from the seventies
- the name that was to be short, unique, and slightly mysterious

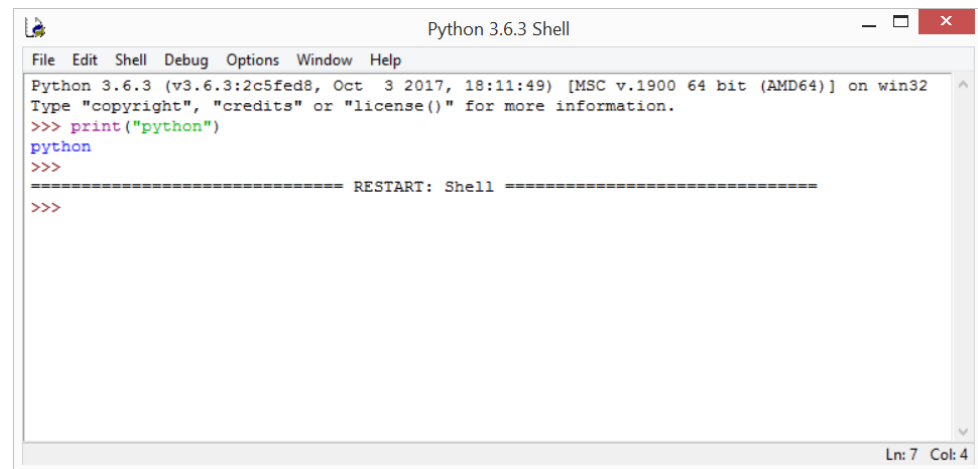
Popularity of programming languages

■ TIOBE Index for October 2018

Oct 2018	Oct 2017	Change	Programming Language	Ratings	Change
1	1		Java	17.801%	+5.37%
2	2		C	15.376%	+7.00%
3	3		C++	7.593%	+2.59%
4	5	⬆	Python	7.156%	+3.35%
5	8	⬆	Visual Basic .NET	5.884%	+3.15%
6	4	⬇	C#	3.485%	-0.37%
7	7		PHP	2.794%	+0.00%
8	6	⬇	JavaScript	2.280%	-0.73%
9	-	⬆	SQL	2.038%	+2.04%
10	16	⬆	Swift	1.500%	-0.17%

Recommended software

- Python 3.6 or 3.7 (64 bit) - non-backward compatible version
- IDLE – Python IDE (Integrated Development Environments) - official IDE distributed with Python
 - multi-window text editor with syntax highlighting, auto-completion, smart indent



```
Python 3.6.3 Shell
File Edit Shell Debug Options Window Help
Python 3.6.3 (v3.6.3:2c5fed8, Oct  3 2017, 18:11:49) [MSC v.1900 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("python")
python
>>>
===== RESTART: Shell =====
>>>
```

The screenshot shows a Windows-style window titled "Python 3.6.3 Shell". It has a menu bar with "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The main text area displays the Python 3.6.3 startup message, followed by the user input `print("python")` and the output `python`. A separator line indicates a "RESTART: Shell". The status bar at the bottom right shows "Ln: 7 Col: 4".

Main issues of lecture/laboratory

- Python programming fundamentals
 - variable and data types
 - control structures
 - strings
 - collections (lists, tuples and dictionaries)
 - functions
 - input/output
 - exception handling
- Advanced Python
 - object oriented programming concept
 - database interaction
 - GUI programming
 - data and information processing techniques
 - data visualisation

Literature (optional)

- Think Python. How to Think Like a Computer Scientist
<http://interactivepython.org/courselib/static/thinkcspy/index.html>
- The Python Tutorial
<https://docs.python.org/3/tutorial/index.html>
- Learning to Program Using Python
<https://docs.google.com/file/d/0B8IUCMSuNpl7MnpaQ3hhN2R0Z1k/edit>
- Problem Solving with Algorithms and Data Structures using Python
<http://interactivepython.org/runestone/static/pythonods/index.html>
- Fundamentals of Python Programming
<http://python.cs.southern.edu/pythonbook/pythonbook.pdf>
- Hands-on Python Tutorial
<http://python.cs.southern.edu/pythonbook/pythonbook.pdf>
- The official Python Tutorial
<https://docs.python.org/3/tutorial/>

Python Programming classes/lectures

- 30 hours = 12 x 2.5 h
- Day: Wednesday
- Time: 2 pm - 4 pm
- Classroom: 403C

Assessment criteria

- Class participation
- Test
- Homework/Project
 - Program correctness – 80%
 - Documentation – 10%
 - Readability – 10%