

# The Python programming language



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## Origins of Python

- Interpreted script language
- Developed in the early 1990s by Guido van Rossum
- Named after British comedy group “Monty Python”
- Current version number: 2.5.2
- Implementations: *CPython*, *Jython*, *IronPython*, *PyPy*

## Who uses Python?

- Zope Application Server
- Google
- YouTube
- BitTorrent (prior to version 6.0)
- NASA
- Industrial Light & Magic

## Characteristics

- Syntax inspired by C, Lisp, Perl and Java
- Python code is designed to be easy to read (“pseudo code that works”)
- Multi-paradigm
- Very large standard library
- Can be easily extended using C / C++ modules

## Syntax

- Uses only the most important keywords and language constructs
- Uses English words instead of punctuation
- No semicolons are needed at the end of an instruction
- No curly braces used to delimit an instruction block (indentations are used)

## Syntax (II)

- Default types (bool, int, float, strings...)
- Supports arrays and dictionaries
- Every data type is an object
- You can create your own data types using classes
- Type of a variable set by value, not by name

- *if ... elif ... else:*  
A conditional block. Python doesn't use *switch-case* or things like *goto*, you have to implement these things on your own
- *def:*  
Defines a function or a class method
- *for:*  
Iterates over an array
- *while:*  
Creates a loop which is executed until a certain condition is fulfilled
- *class:*  
Defines a class

# Comparison to other languages

- **C / Java:**

- Python programs are executed slower
- Python programs can be programmed faster and are also shorter
- C / Java more suitable for low-level programs

- **Perl:**

- Similar background (Unix scripting)
- Can both be extended using C / C++
- Python is more readable

- **PHP:**

- Can both be extended using C / C++
- Python is more object-oriented
- Python core is much smaller, better naming conventions

## Code example

```
# This is a comment
```

```
def add(a, b):  
    a + b = c  
    return c
```

```
number1 = 2
```

```
number2 = 3
```

```
print add(number, number2)
```

## Code example (II)

```
mark = 3
```

```
if mark < 5:
```

```
    print "You've passed the exam"
```

```
else:
```

```
    print "You have not passed the exam"
```

## Code example (III)

```
# Print numbers from 0 to 20

x = 0

while x < 21:
    print x
```



Ende

*Thanks for listening!*