python™

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Guido van Rossum begann 1989 mit der Entwicklung von Python

Kurze Historie

- 1991: Python 0.9.0

- 1994: Python 1.0

- 2000: Python 2.0

- 2008: Python 3.0

- 2009: Python 2.6.4 & 3.1.1

Paradigmen

- imperativ

```
for e in lst:
    func(e)
```

- funktional

```
map(func, lst)
```

- objektorientiert

```
Obj(lst).func()
```

Starke Typisierung

```
>>> a = 23
>>> b = '23'
>>> a == b
False

>>> a + b
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
TypeError: unsupported operand type(s) for +: 'int' and
'str'
```

Duck Typing

```python
class Bird(object):
    pass

class Duck(Bird):
    def quak(self):
        return 'Quak'

class Frog(object):
    def quak(self):
        return 'Quak'

animals = [Bird(), Duck(), Frog()]

for animal in animals:
    try:
        print animal.quak(), animal
    except AttributeError:
        print 'No duck', animal

No duck <__main__.Bird object at 0x10048d5d0>
Quak <__main__.Duck object at 0x10048d610>
Quak <__main__.Frog object at 0x10048d650>
```

„If it looks like a duck and quacks like a duck, it must be a duck.“

EAFP

```python
# Exception handling in python.
def handle_error(msg):
    print 'An error has occurred: %s' % msg

class Spam(object):
    pass


spam = Spam()

if hasattr(spam, 'eggs'):
    ham = spam.eggs
else:
    handle_error('Asked permission.')

try:
    ham = spam.eggs
except AttributeError:
    handle_error('EAFP')

An error has occurred: Asked permission.
An error has occurred: EAFP
```

„It is Easier to Ask for Forgiveness than Permission.“

Weitere wichtige Merkmale

- Strukturierung durch Einrücken

- Interaktiver Interpreter

- Große Standardbibliothek

- GUI-Bibliotheken: PyGTK, PyQt, PyKDE, wxPython, PyObjC

- First-class functions

- Closures, Dekoratoren, Generatoren

- Unit Testing

- Reguläre Ausdrücke

- WSGI, FastCGI

- Meta-Programmierung

Implementierungen

- CPython

- Stackless Python

- PyPy & Psyco

- Jython (für die Java Virtual Machine)

- IronPython (für die CLR)

- Unladen Swallow (Google)

Betriebssysteme und Plattformen

- FreeBSD, NetBSD, OpenBSD, Solaris

- Linux

- Darwin, Mac OS X

- Nintendo, Nokia, Palm, PlayStation, Symbian

- Windows

Lizenz

- Python Software Foundation License (PSFL)

- Freie Software

- Von der „Open Source Initiative" bestätigt

- Kompatibel mit der GPL

- Kein Copyleft

Einsatz

- Web-Application-Frameworks

- „One Laptop Per Child" (OLPC)

- Skriptsprache (2D & 3D, GIS, Office)

- Wissenschaftliche Anwendungen

- „Glue-Language"

- CERN, Google, NASA, Yahoo!, YouTube

Websites

- http://www.python.org/

- http://diveintopython.org/

- http://python.net/~goodger/projects/pycon/2007/idiomatic/presentation.html

- http://rgruet.free.fr/#QuickRef