



VilniusPy #1

Python

A multipurpose language

Saulius Žemaitaitis @frgtn

Outline

- Brief history
- Current state of affairs
- Python ecosystem
- Companies built on Python

Brief history

Started in the Netherlands

- CWI – Dutch National Research institute of mathematics and computer science
- Early 1980s - ABC language
- In 1986 Guido van Rossum started work on Amoeba OS and Python

ABC language

HOW TO RETURN words document:

PUT {} IN collection

FOR line IN document:

 FOR word IN split line:

 IF word not.in collection:

 INSERT word IN collection

RETURN collection

First public release

- 1991 - Version 0.9
- Functions, classes, inheritance
- Exception handling
- str, list, dict types
- Module system like Modula 3

Python 1

- 1.0 released in 1994
- lambda, map, reduce, filter builtins
- Keyword arguments in Python 1.4
- Development moved to Corporation for National Research Initiatives in US

Python 2

- Released in 2000
- Development moved to BeOpen PythonLabs which later joined Zope
- 2.0 - list comprehensions
- First GC that handled cyclical references
- 2.2 - generators

Fibonacci generator

```
def fibonacci(limit):  
    a0, a1 = 0, 1  
    while a1 <= limit:  
        yield a1  
        a0, a1 = a1, a0 + a1  
  
for n in fibonacci(1000):  
    print n
```

Python 3

- Released December 2008
- Emphasis on consistency, removing duplication
- Backwards-incompatible with Python 2
- “Correcting past mistakes”



Current state of affairs

Today

- Python 2.7 alongside Python 3.2, 3.4
- Changes backported to Python 2.7
- Slow migration to Python 3

Python interpreters

- CPython – main Python implementation
- Jython – Python for Javaworld
- IronPython – Jython for .NET world
- PyPy – JIT-compiled Python
- Pyston – LLVM Python from Dropbox

Packaging

- Package Index a.k.a CheeseShop
<https://pypi.python.org/>
- setup.py – package description in code
- Pip – Python package installer
- Virtualenv – isolated Python environments
- Wheel – new package format

Ecosystem

Web development

- Frameworks (Zope, Pylons/Pyramid, Django, Flask)
- ORM (SQLAlchemy, ZODB, Peewe, Pony, Django)
- Template engines (Jinja, Cheetah, Mako, Django)
- Background tasks (Celery)

Asynchronous IO and networking

- Twisted – async programming
- Tornado – more async programming, coroutines
- Gevent – seamless async IO
- Asyncio in Python 3.4

Administration tools

- Configuration management – Ansible, Saltstack
- Fabric – run scripts remotely
- Sentry – Exception and event logging
- Stats – Graphite stack and Grafana

Enterprise management software

- OpenERP (Renamed Oodo)
- Tryton - fork of TinyERP, a precursor to OpenERP

Scientific computation and data

- Scientific computation core – SciPy, NumPy
- Machine learning – scikit-learn
- Computer Vision – OpenCV, scikit-image
- Language processing – nltk
- Data analysis – pandas,
- Interactive environment – IPython notebooks

Desktop applications

- PyQt / PySide – Qt bindings
- wxPython – wxWidgets bindings
- PyGTK
- Tkinter

Game development

- Pyglet
- Pygame
- Kivy
- Panda3D
- Python-ogre

Companies using Python

- Google
 - One of main languages alongside C++ and Java
 - Youtube written in Python
- Dropbox
 - Cross-platform client written in Python
 - Guido van Rossum join in 2012

- Yelp
 - Built in Python
- Uber
 - Main language together with Javascript
- Reddit!
 - Migrated from LISP to Python
- Disqus
 - Built on Django

- CCP Games
 - Eve online client runs on Stackless Python
- Wargaming
 - World of {Tanks, Warplanes, Warships}
 - Uses Python for backend along with other languages
- Demonware
 - Subsidiary of Activision-Blizzard
 - Python backend for games
 - Network backend for Call of Duty

Python in Lithuania

- POV
- Esperonus
- Atviro Kodo Sprendimai (Opensource solutions)
- BliuBliu
- Bribespot
- Hacbee
- Incore
- Sandas

Python in Lithuania

- Uber
- Revel Systems
- Bentley Systems
- Shoobx

Links

- <https://github.com/vinta/awesome-python>
- PyCoders Weekly <http://pycoders.com/>
- Python Weekly <http://www.pythonweekly.com/>

Thank you