CLI tools in Python + interesting/useful packages

~ Workshop ~

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Real life 😕

Real life 😕

```
{"gifts":{"socks":{"S": 2, "M": 5,
"L": 1}, "toys": ["Yellow duck",
"Wooden bricks"]},"TODO":["bake
Vanocka","pack gifts","tidy own
desk"]}
```

Better life ☺

```
$ pytube \
  'https://www.youtube.com/watch?v=jrmZIgVoQw4'
```

Better life ☺

```
$ python -m json.tool ugly.json
{
    "TODO": [
        "bake Vanocka",
        "pack gifts",
        "tidy own desk"
    ],
    "gifts": {
        "socks": {
            "L": 1,
            "M": 2,
            "S": 5
        },
        "toys": [
            "Yellow duck",
            "Wooden bricks"
        ]
    }
}
```

Preparation ...

What can you expect?

- demo of some existings handy (often CLI) tools
- as-short-as-necessary introduction to **pip**, **PyPI** and **virtualenv**
- it's not necessary know the language

What **do not** expect:

- course like "Programming in Python"

Try it on your own!

Everything for this workshop is available in:

```
http://github.com/mpavlase/python-talk
```

Prepare workplace:

```
cd python-talk
./prepare-env.sh
```

PyPI/pip

PyPI = Python Package Index repository of software for Python

```
 $ sudo pip install odpdown
```

target: /usr/lib/python2.7/site-packages

... or

```
 $ pip install --user odpdown
```

target: ~/lib/python2.7/site-packages

... or

virtualenv

```
$ sudo dnf install python-virtualenv

$ mkdir -p ~/sandbox
$ cd ~/sandbox

$ virtualenv venv
$ source venv/bin/activate
$ pip install odpdown
```

target:

~/sandbox/venv/usr/lib/python2.7/site-packages

Demo time!

Overview

- File manipulation
- Text/image transformation
- Python
- Data generators
- Presentation
- System utilities
- Internet / multimedia
- Terminal

File manipulation

zipfile

Basic operations with ZIP archives. [builtin]

```
$ python -m zipfile -c my.zip file [...]
$ python -m zipfile -e my.zip dest-folder
$ python -m zipfile -l my.zip
$ python -m zipfile -t my.zip
```

in Python:

```
from zipfile import ZipFile
with ZipFile('my.zip', 'w') as myzip:
    myzip.write('content.txt')
```

filecmp

Compare two directories. [builtin]

```
python -m filecmp dir1 dir2
```

in Python:

```
from filecmp import dircmp
diff = dircmp('a', 'b')
diff.report()
```

Text/image transformation

json.tool

Reformat JSON (and validate as well). [builtin]

```
$ python -m json.tool < ugly.json
$ python -m json.tool ugly nice
```

in Python:

```python
import json
j = {'1': 25, 'key': ['arr']}
print json.dumps(j, indent=4)
```

encodings.rot_13

En/decoding stream oneliner. [builtin]

```
$ echo "abcd" | python -m
encodings.rot_13
$ echo "nopq" | python -m
encodings.rot_13
```

in Python:

```
from encodings import rot_13
rot_13.rot13(open('file.in'),
open('file.out', 'w'))
```

markdown

Convert Markdown into HTML. [pypi]

```
$ python -m markdown example.md
```

in Python:

```
from markdown import markdown
print markdown("# I'm a H1!")
```

markdownify

Convert HTML into Markdown. [pypi]

in Python:

```
from markdownify import markdownify
print markdownify('Be <b>bold</b>')
```

oneliner

similar to `nl`, but much more versatile. (pypi)

```
$ python -m oneliner -ne \
'"(%s): %s" % (NR, _.upper())' \
example.py
```

pygments

Make your code colorful! [pypi]

```
$ pygmentize < example.sh
$ pygmentize -O full,style=monokai
-o demo.html example.py
```

imgdiff

Display visual difference of two pictures. [pypi]

```
$ imgdiff -H --opacity 30 \
-o diff.png a.png b.png
```

Python

pudb

Interactive text-based debugger. [pypi]

in Python:

```
import pudb; pudb.set_trace()
```

notebook

Web-based interactive env.(IDE) and more. [pypi]

```
$ python -m notebook
```

Data generators

randomdata.datagen

Generates CSV according to spec file. [pypi]

```
$ echo spec.conf < \
"id, IntID
age, Int, {'maximum': 100}"
$ python -m randomdata.datagen \
-l 10
```

fake-factory

Generates fake userdata (name, email, ...) [pypi]

```
$ faker -r 5 name
```

in Python:

```
from faker import Faker
fake = Faker()
for _ in range(5):
    print fake.name()
```

Presentation

python-pydown

Make HTML presentation from Markdown. [pypi]

```
$ cat > slides.md <<EOF
!SLIDE
# pydown
!SLIDE
## heading text
EOF

$ pydown slides.md html
# entry point: html/index.html
```

odpdown

Create presentation from Markdown. [pypi]

```
$ odpdown --content-master content\
--break-master chapter \
input.md template.odp output.odp
```

playitagainsam

Record and replay terminal session. [pypi]

```
$ pias record session.pias
$ pias play --auto-type 50 \
--auto-waypoint 500 session.pias
```

Note: there exists HTML/js player as well.

System utilities

copypaste

Platform independent copy + paste. [pypi]

```
$ date | copy
$ paste
```

pyinotify

Linux filesystem events monitoring. [pypi]

```
$ pyinotify -v .
```

Internet / multimedia

SimpleHTTPServer

Share current folder as HTTP page. [builtin]

```
$ python -m SimpleHTTPServer
```

telnetlib

Telnet client. [builtin]

```
$ python -m telnetlib url port
```

pytube

Download videos from YouTube. [pypi]

```
$ pytube \
  --extension mp4 \
  --resolution 720p \
  'https://www.youtube.com/watch?v=jrmZIgVoQw4'
```

status_server

HTTP status code on demand. [pypi]

```
$ status_server

$ curl -i
http://localhost:8888/404/200
```

sigal

Simple image gallery generator. [pypi]

```
$ sigal init
# will process ./pictures folder
$ sigal build
```

Run webserver with the gallery:

```
$ sigal serve
```

Terminal

pychalk

Print color text into terminal. [pypi]

in Python:

```
import chalk
chalk.green("Hello world!")
```

rad

Console highlighter. [pypi]

```
$ rad -n # new rule
$ cat some.log | rad log
```

ConwayCPU

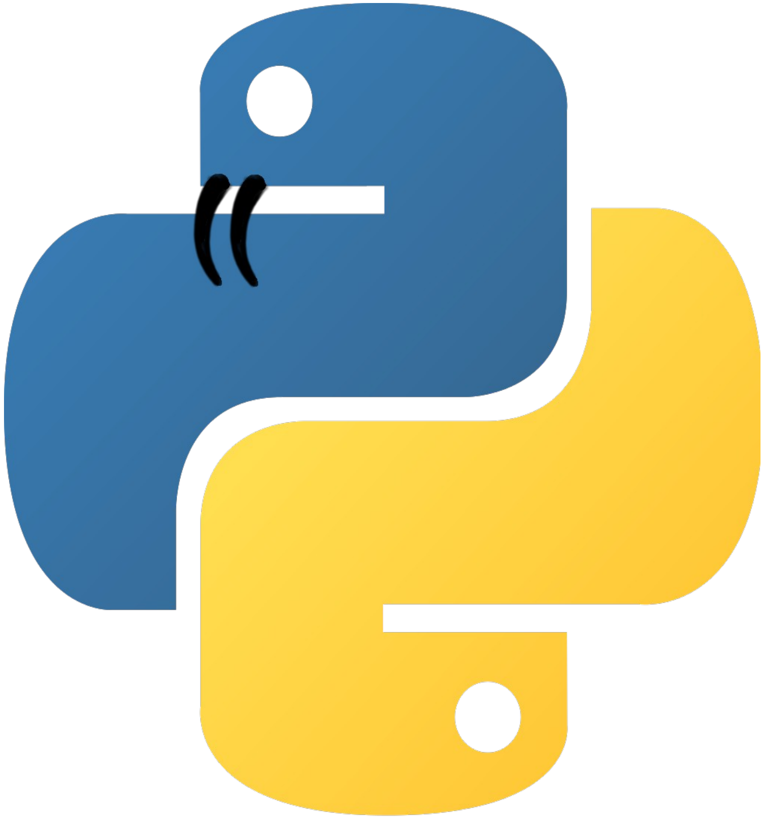
Game of Life (cellular automata), changes according of CPU usage. [pypi]

```
$ ConwayCPU.py
```

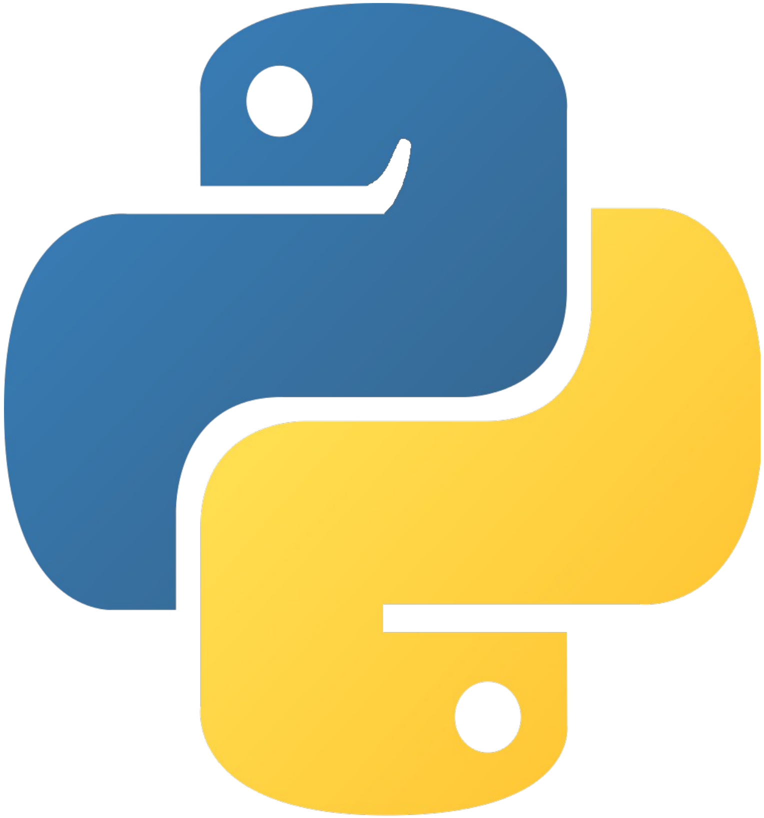
Disclamer

"During work on this topic wasn't hurt even killed any zoologist or snake."

Python ...



Python ...



Thank You!

Resources

- https://twitter.com/pypi
- https://pymotw.com/2/
- https://groups.google.com/d/topic/comp.lang.python/_QLuMFfSLKk/discussion
- http://pythonwise.blogspot.cz/2015/01/python-m.html
- ... and pypi pages to each showed package