

2018-04-15, 14:00, Input Session

Python 101 - Data processing with Python Martin Czygan, Data Pathologist, UB Leipzig

### Hackathons

- Hackathons are not usually about one language or technology
- More about: ideas, exchange, collaboration and experimenation

### **Impressions**

- great way to meet curious people
- opportunity to peek into unknown technologies
- awareness, inspiration
- escape work, also: do better work (or worse, sometimes worse is better)
- Python works well for prototyping

## Python

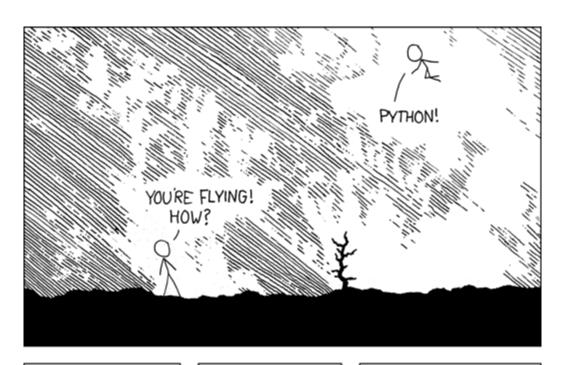
- Python is a nice (if you like whitespace), lightweight language
- Python 0.9: February 20, 1991
- Python 3.6.4: December 19, 2017
- In top 5 of Tiobe Index, alongside Java and
- an active, heterogeneous community

## Python hard facts

How many lines of code does it take to ...?

- build a web application: 6
- iterate over XML RSS feed items: 3
- parse a URL into a programmable spreadsheet: 1
- state of the art deep learning object detection in images: 16

## xkcd.com/353





I LEARNED IT LAST NIGHT! EVERYTHING IS SO SIMPLE!

HELLO WORLD 15 JUST print "Hello, world!"

I DUNNO...
DYNAMIC TYPING?
WHITESPACE?

COME JOIN US!
PROGRAMMING
15 FUN AGAIN!
IT'S A WHOLE
NEW WORLD
V. UP HERE!

BUT HOW ARE YOU FLYING? I JUST TYPED import antigravity
THAT'S IT?

... I ALSO SAMPLED
EVERYTHING IN THE
MEDICINE CABINET
FOR COMPARISON.

BUT I THINK THIS
16 THE PYTHON.

### Now for real

Let's look at ways to access, inspect, transform, analyze and present data.

# Jupyter Notebooks

- CDV18 datasets
- Working with XML
- RSS feeds
- OAI harvesting
- CSV and Excel files
- Python and Art

#### TODO

#### Datasets:

look at example data sets and apis

#### Where to try Python:

repl.it

#### Beautiful Python:

- a few one liners, 8 queens, ...
- mixed typed arrays, multi paradigm
- list comprehensions, generators

#### Packages:

• one notebook per package, 5 minutes, 10 packages