An introduction to Python

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History

XXX slkdjlksj

Functioning principles

XXX dsdskldj

slkdfjslk

kdjfkdjfkdj

MATLAB vs. Python

Some drawbacks of MATLAB:

- It is a proprietary software
- It does not scale properly to big projects
- Hard to work with in a general framework other than numerical computing
- Tricky code organization (function name = file name)
- Toolboxes are distributed/purchased separately

Python solves all of these problems!

How to get Python

We are going to use the **miniconda** installer, which is cross-platform and provides package management, together with the **spyder** IDE.

1. XXX Thibaut
2. Peux-tu completer
3. Cette liste de choses à faire
4. Pour obtenir miniconda + spyder?
5. Merci! :D

Practical tools

XXX jfdhjfhdf

Basic commands

- Basic arithmetic logic operations: `+`, `-`, `*`, `/`, `%`, `<`, `<=`, `==`, `!=`, `and`, `or`, `not`, etc.
- No need to declare variables
- Basic types: `int`, `float`, `double`, `complex`, `bool`, `string`
- Container types: `list`, `dict`
- Tabs matter!

XXX À completer: ajouter exemples (images?) pour chaque point.

Hello world!

XXX Juste un exercice pour voir s'ils ont bien installé python et spyder.

Lists

Python allows to use list comprehension:

```
[3*n + 1 for n in range(0, 10) if n % 2 == 0]
# returns [1, 7, 13, 19, 25]
```

Exercise 1

Rewrite the `filter_positive` function and reduce it to one line.

Exercise 2 - File I/O

XXX sdjhj

Exercise 3 - Numpy?

XXX Maybe a small numpy example?