

A(E)3M33UI — Exercise 0: Python and friends.

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1 Python Info

Python is *interpreted, dynamically typed* programming language:

- Versions: 2.7.x (current 2.7.6), **3.3.x** (current 3.3.4)
- <http://python.org>, <http://docs.python.org>
- Suggested textbook: Mark Pilgrim, *Dive into Python* (available in PDF).
- V české verzi knihu vydalo sdružení CZ.NIC (knihy je dostupná v PDF).
- Working interactively in shell vs. writing and running scripts.
- Python packages and modules, **import**.
- Python scientific stack: Numpy, Scipy, matplotlib, pandas, ...
- Python distributions: “official” Python, Canopy, Anaconda, **pyzo**, ...

2 Python basics

For a basic use of Python you should know about the following topics:

- Python as a calculator, interactive use via Python shell
- Variables and types of values
- Data structures: list, tuple, dictionary; **zero-based indexing**
- The role of **indentation** in Python: **for**, **if**, **while**
- Functions, named arguments, default argument values.

3 Homework 0

You will not learn to use Python, if you will not use it. You should spend 6 hours of home work per week preparing for the course. Use these 6 hours in the next week to learn about the above mentioned topics, read the book or other tutorial and **try the examples yourself!**

You can use the *Dive into Python 3* book. The important topics are covered in the following chapters and sections:

- **Chapter 1: Your first Python program**

Functions and their arguments, docstrings, importing modules, everything is an object, indenting code, everything is case-sensitive, running scripts.

- **Chapter 2: Native datatypes**

Especially lists, tuples, dictionaries (at least basic usage).

- **Chapter 11: Files**

Opening and closing text files, `with` statement, specifying an encoding, reading line by line. For now, you can ignore binary files.

If you still have some time left, learn about the following:

- Chapter 4: Strings

Interesting reading, but we will need probably only a few string methods, like `str.split()`, `str.strip()`, etc.

- Chapter 7: Classes and iterators

This particular topic is IMHO not explained very nicely in the book. We will probably use classes only a few times and in a very simple way.

Each language has some unique features that distinguish it from the others. In case of Python, these are IMHO described in

- Chapter 3: Comprehensions, and

- Chapter 6: Closures and generators.

There is no need to hand-in or upload anything, but **I strongly urge you to put your hands on Python**, try it, explore it, and ask questions on the forum!