



Models of Neural Systems I, WS 2009/10

Computer Practical 1

First steps in Python

Python is a modern high-level programming language. In contrast to C/C++ and Java, Python is an interpreted language which means that Python programs (also called scripts) don't have to be compiled. It makes programming Python very quick and interactive. It also allows you to see immediately the results of all operations, analyse them or further process them. Here you will learn the basic concepts of Python.

(a) Open an interactive shell. Implement a simple (!) calculator:

```
a = 3
b = 4
print 'a+b=', a+b
```

Open your favourite editor, paste the code and save it as `calc.py`. Run the script from the Unix shell with the command: `python calc.py`.

(b) **Data structures.** Create variables containing: a number, a string and a list. Using introspection find out what methods are available for these structures.

(c) **Functions.** Define a function printing elements of Fibonacci series smaller than N :

$$F(n) := \begin{cases} 0 & \text{if } n = 0; \\ 1 & \text{if } n = 1; \\ F(n-1) + F(n-2) & \text{if } n > 1. \end{cases}$$

Write a documentation for your function (docstring) and test it.

Generating reports

You will be asked to hand in solution to your exercises (starting next week). The easiest way to do it is to use Python package called `pyreport`. To generate a report call simply

```
pyreport source_file.py
```

from the command line (not Python shell) where `source_file.py` is a file containing your Python code. You can easily add comments, LaTeX formula and graphs to your code (see `pyreport` webpage). Please use these features extensively!

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