Getting Started with Python 3

We'll setup and get familiar with the Python 3 tools we will be using for the rest of this course.

Python 3

First things first, for all assignments in this course we will use the programming language *Python*, version 3. Which specific version of 3 you use is not that important, currently the most recent version is 3.6.2. *Python* should already be installed on your *Ubuntu* machine, you can run it by typing

```
python3
```

If it is not installed, just follow the download instructions at python.org. You will also need *pip*, which is a package manager for *Python* with the recursive acronym: *Pip Installs Packages*. Install it with

```
sudo apt-get install python3-pip
sudo pip3 install --upgrade pip
```

Most likely you will already have used *Python* on your own in another course, but if not, it is one of the easiest languages to pick up. Most of your knowlegdge of other imperative languages like *Java* will still apply, only with a much cleaner syntax. You can get started by following the official tutorial, specifically chapter 3 and chapter 4 will help you get started with the basics quickly. If you prefer a more comprehensive book, Dive into Python might be a good resource for you.

Once you have a grasp of the basic operations in *Python*, you can use the standard library as reference for the built-in operations available in *Python* or just use your favourite search engine and some *search-fu*.

Jupyter notebook

All assignments will be written in Jupyter notebooks. These notebooks allow a mixture of nicely formatted text (even supporting `Latex` for equations), *Python* code, experiment results and graphs, all on the same webpage. In fact, this assignment is also written in a notebook. In order to open it, first install Jupyter

```
sudo pip3 install jupyter
```

Now in your terminal, navigate to the directory where you placed the files for the assignment and run the command

```
jupyter notebook
```

This will print some information about the *Notebook* server in your console, and open a web browser to the URL of the web application. By default this is http://127.0.0.1:8888. Note that *127.0.0.1* is the home ip-adress, so this is now a webpage running on your own computer!

This first page shows the dashboard, which lists the notebooks available in the current directory. You can create new notebooks from the dashboard with the `New` button (select *Python 3* notebook), or open existing ones. Creating a new notebook will create a new file `Untitled1.ipynb`. The extension `.ipynb` indicates it is a notebook file, you can rename the file to something more descriptive at the top of the page.