

# AdvNLP Practical Work: Introduction to the Environment

## Summary

The goal of this notebook is to get you introduced to an environment that will enable you to run experiments in text analysis for the AdvNLP course. We will use the [Python 3](#) programming language, with [Jupyter](#) notebooks to write instructions and log your results.

To use Python and Jupyter Notebooks, you have two options:

1. local (recommended), with an environment-specific installation with Conda (recommended) or without Conda
2. cloud-based with Google Colab.

## Conda environment manager

If you want to manage several versions of Python and its modules, a good idea is to install an environment manager such as Conda. Before installing Python and Jupyter locally, installing Conda will help you manage different versions of Python and of other modules on your computer, for instance for several courses. (You may wish to install Conda before Python, but you can also do it later, in which case it will install its own Python libraries.)

Miniconda is a minimal environment manager, while Anaconda is a larger software distribution that includes also Python and R software.

- To install Conda, follow the instructions at <https://docs.conda.io/projects/conda/en/latest/user-guide/install/index.html> and consider installing **Miniconda**. Follow the instructions for your OS: Windows, Linux or MacOS.
- You will be prompted to get a suitable installer from <https://www.anaconda.com/docs/getting-started/miniconda/main> (an executable for Windows, or a bash script for Linux).
- In Linux, run `wget https://repo.continuum.io/miniconda/Miniconda3-latest-Linux-x86_64.sh` and then `bash Miniconda3-latest-Linux-x86_64.sh`
- Conda commands are the same on all OSs -- the most important ones are for creating and loading an environment
- after you install Conda, commands are performed from the command line (command prompt, a Power Shell, Anaconda Prompt, etc.)
- try `conda info` for a start.

- to get familiar with Conda: <https://docs.conda.io/projects/conda/en/latest/user-guide/getting-started.html>
- cheatsheet of Conda commands: <https://docs.conda.io/projects/conda/en/latest/user-guide/cheatsheet.html>
- to create an environment called *AdvNLP* for this course and activate it:
  - `conda create --name AdvNLP python=3.14`
  - `conda activate AdvNLP`
  - `conda list` to see what packages are installed in the activated conda environment
  - `conda deactivate` to exit from the environment

You can also perform a system-wide installation of Python, without Conda environments, but this is more prone to conflicts between packages and versions. To install Python 3.14 (the latest stable Python 3 version) follow the instructions at <https://www.python.org/downloads/>.

## Jupyter Notebooks

Installing the Jupyter server will allow you to open, edit, and run notebooks. With a local version (as opposed to cloud-based Colab), you will be able to work offline, and you will also gain first-hand experience with Python and Jupyter installation.

- Install the [Jupyter package](#).
- A good idea is to use the [Package Installer for Python \(pip\)](#) to add new packages.
- All these operations are done in the command line (on Windows: `cmd` or Power Shell).
- The `MSE_AdvNLP_Introduction.ipynb` must be saved into your repository of Jupyter notebooks.
- Start Jupyter with `jupyter notebook --no-browser`
- Open the Jupyter interface at <http://localhost:8888> and launch this notebook.

Jupyter knows about Conda environments. A notebook can use a kernel associated to a specific Conda environment. Once Jupyter is installed in the same Conda environment that you will use for these labs (say, ``AdvNLP''), run these commands:

- `conda activate AdvNLP`
- `python -m ipykernel install --user --name AdvNLP --display-name "AdvNLP"`

Once you have done this, you can just choose this kernel (environment) when you open a new Jupyter notebook.

## Using Google Colab (no local installation)

You can use the free cloud-based environment provided by Google, named [Colab](#). You will need a Google or Gmail account, and your files will be stored on your Google Drive. Once you open a session in Colab, you will need to import the AdvNLP Jupyter

notebooks to Colab. This environment is offered by Google for machine learning experiments, with CPU / GPU / TPU computation, but not for time-consuming jobs. All Python packages that we will use are already installed.

## Running simple tests

To test your settings, run some a simple operation first.

```
In [ ]: 1 + 2 * 3 / 4
```

Create a list with the first ten numbers (1 to 10) and then print the list of their squares.

```
In [ ]: numbers = list(range(11))
squares = [n ** 2 for n in numbers if n > 0]
print(squares)
```