PROGRAMMING IN PYTHON I

Jupyter and packages for Hands On AI I

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JUPYTER NOTEBOOK

Jupyter Notebook

- Some lectures will use Jupyter Notebook for course materials or submissions
- Jupyter Notebook is a browser-based application that allows for running and documenting Python code
  - Can be locally saved as file
  - Is structured in cells
  - Is displayed via your browser (no internet connection required)
  - Attaches to your local Python installation
- When a cell is executed, the code in the cell is executed and the results (variables) are stored
- You can execute cells individually
- To clear the currently stored variables, you can reset the kernel

Jupyter Notebook – Installation

- You can try out a notebook without installation here:
  `https://mybinder.org/v2/gh/ipython/ipython-in-depth/master?filepath=binder/Index.ipynb`
- Installation can be done via `pip` (`https://jupyter.org/install.html`):

  ```
  pip3 install jupyter
  ```
- More information: `https://jupyter.org/`

Jupyter Notebook – Running a notebook

- You can start Jupyter Notebook from the terminal/command line via:

  ```
  jupyter notebook
  ```

- Select a file and follow the instructions after starting Jupyter Notebook

MATPLOTLIB

matplotlib

- matplotlib provides a vast variety of plotting tools in Python
- Its submodule pyplot provides the simpler plotting functionalities
- Different backends for plotting (colors and designs might differ slightly between versions/OS)
- Lots of functionalities, details can be tricky
- Installation via pip (`https://matplotlib.org/users/installing.html`):

  ```
  pip3 install matplotlib
  ```

- More information: `https://matplotlib.org/`

SKLEARN

sklearn

- scikit-learn (sklearn) provides simple and efficient tools for ML, data mining, and data analysis
- Built on NumPy, SciPy, and matplotlib
- Installation via pip (`https://scikit-learn.org/stable/install.html`):

  ```
  pip3 install scikit-learn
  ```

- More information: `https://scikit-learn.org/`