Data Analysis and Data Management WS2023/24 Exercise Sheet 1

Issued: 24.10.2023 Due: 03.11.2023

1. Install a python interpreter on your computer. Suggested distributions include the official python package from python.org, “Anaconda” or “Miniconda”.
2. Verify that the installation works by opening a python shell. Which python version are you running?
3. Make python print your name, and calculate the sum of some numbers
4. Use the package manager “pip” to check which packages are installed. If not present, install the following packages: “numpy, jupyter, matplotlib”
5. Start a jupyter lab session, and create a new jupyter notebook.

   The series of Fibonacci numbers are defined in the following iterative manner:

   $$F(0) = 0, F(1) = 1, F(n) = F(n-1) + F(n-2)$$

6. Write a small program that generates and displays the Fibonacci number *n*.
7. Put that same program inside a function called fibonacci(n), and put it inside a separate file fibonacci.py. Import that file into your jupyter notebook, and execute it from there.
8. Enable the debugger, and execute the function line by line. Investigate how the values of your local variables change during execution.
9. Using matplotlib, plot the first 10 fibonacci numbers as function of n.
10. Install “vscode” as an alternative execution environment. Install the python and jupyter extensions. Open your jupyter notebook in vscode and see if it can be executed. Also, try to debug it in vscode.