

ELSTE Data Science Master Course

A rapid introduction to data science using Python

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Preface

This is a Quarto book.

To learn more about Quarto books visit <https://quarto.org/docs/books>.

Part I

Class 1

Class 1

Today's objectives

Theory

1. Why scientific coding?
2. Fundamentals of scientific computing
3. Why Python?
4. How to use Python?

1 Summary

In summary, this book has no content whatsoever.

Part II

Appendices

Setup VS Code

This tutorial guides you through the installation and configuration of Visual Studio Code (VS Code) for Python development in the 0013 computer room at the University of Geneva.

Open VS Code

1. Create a folder on your H:/ drive named `data_science`
2. Open VS Code
3. Click **File** / **Open Folder** and choose the `data_science` folder (Figure ??)
4. When asked, click to confirm your trust in the system

These steps will ensure that Python works and finds the files in this exact folder.

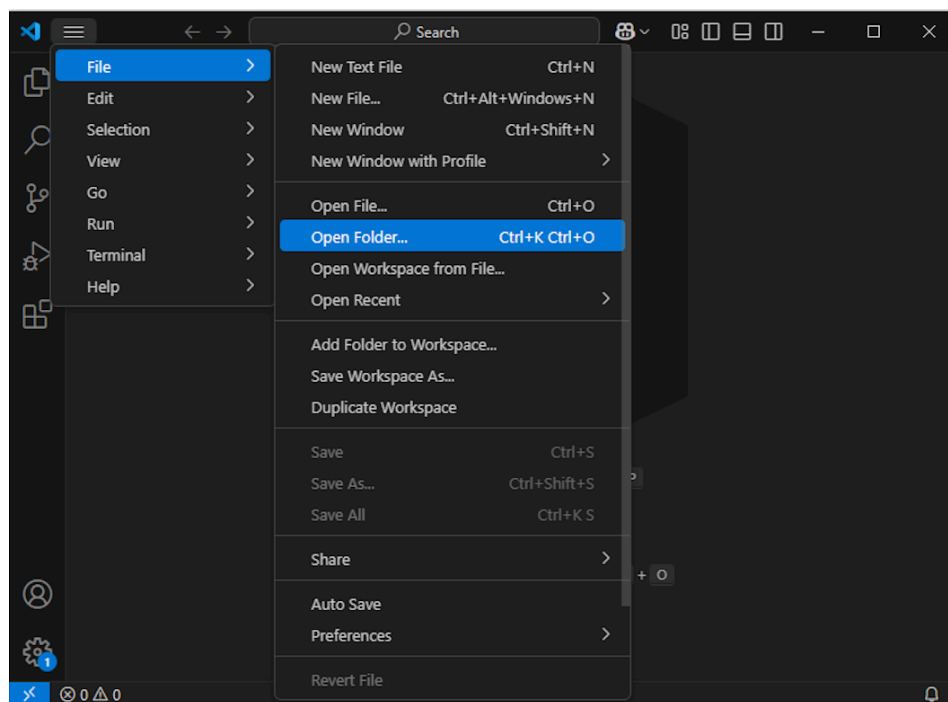


Figure 1.1: Open VS Code and set the working folder

Create a new Jupyter Notebook

1. Type Ctrl + Shift + i (or Cmd + Shift + i on MacOS) to open the command palette
2. Type `jupyter` and select `Create: New Jupyter Notebook` (Figure ??)

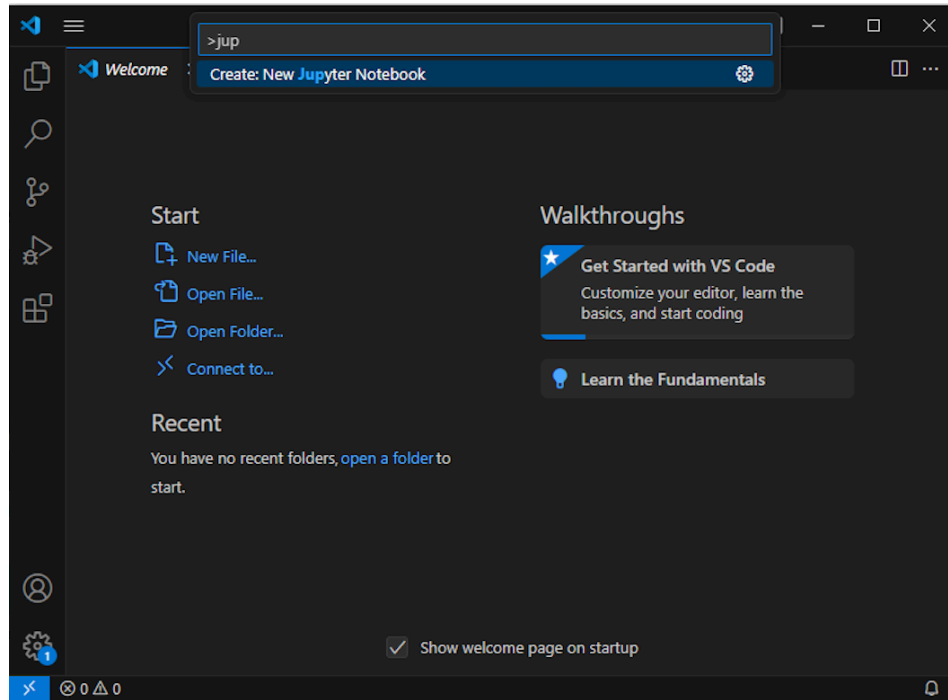


Figure 1.2: Create a new Jupyter Notebook

💡 Command palette

The command palette is a key functionality of VS Code, learning to use it will speed up your workflow.

Install the Python extensions

This step installs the Python extensions for VS Code.

1. When asked, click the `Install` button and wait for it to finish (Figure ??)

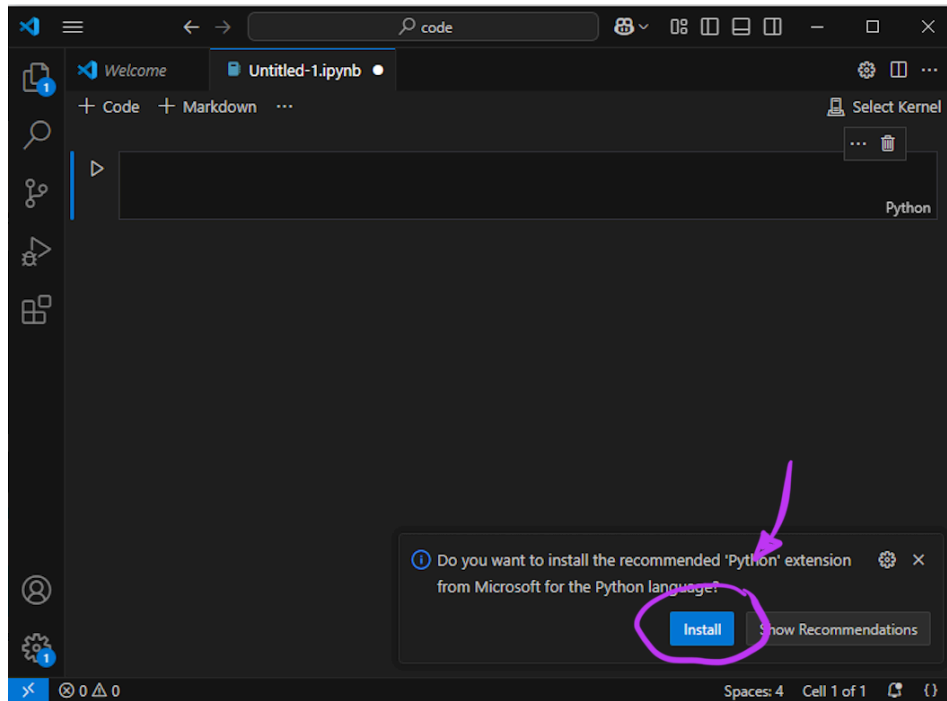


Figure 1.3: Create a new Jupyter Notebook

Install Jupyter

Jupyter Notebooks are one of the ways to run Python. This step installs all the required Jupyter stuff for VS Code.

1. On the top right corner of the notebook, locate and click on the **Select kernel** button
Figure ??
2. Install the **Jupyter notebook support** extension (Figure ??)

Select the right Python

Several versions of Python can be installed on a computer. In the computer room, these versions are controlled by an *environment manager* called **anaconda**. This step ensures that the Jupyter notebook will use the right Python version, i.e., the one installed using **anaconda**.

1. On the top right corner of the notebook, where the **Select kernel** button previously appeared, make sure you see **base (Python 3.x.x)** (Figure ??)
2. If you don't, click on the button and search for the right one (i.e., there should be **anaconda** in the path)

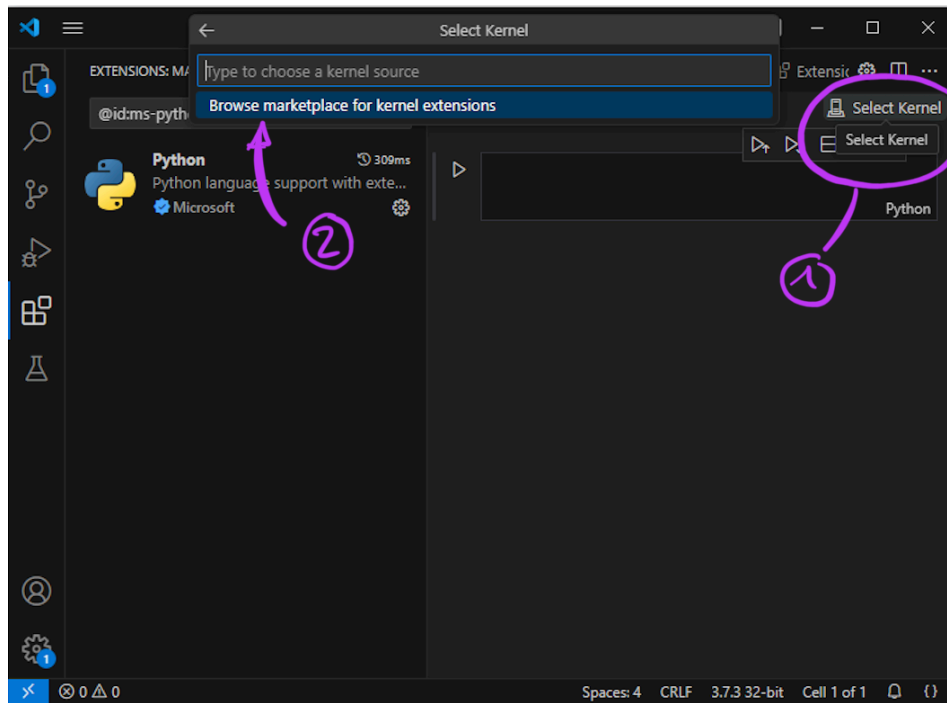


Figure 1.4: Browse for kernels

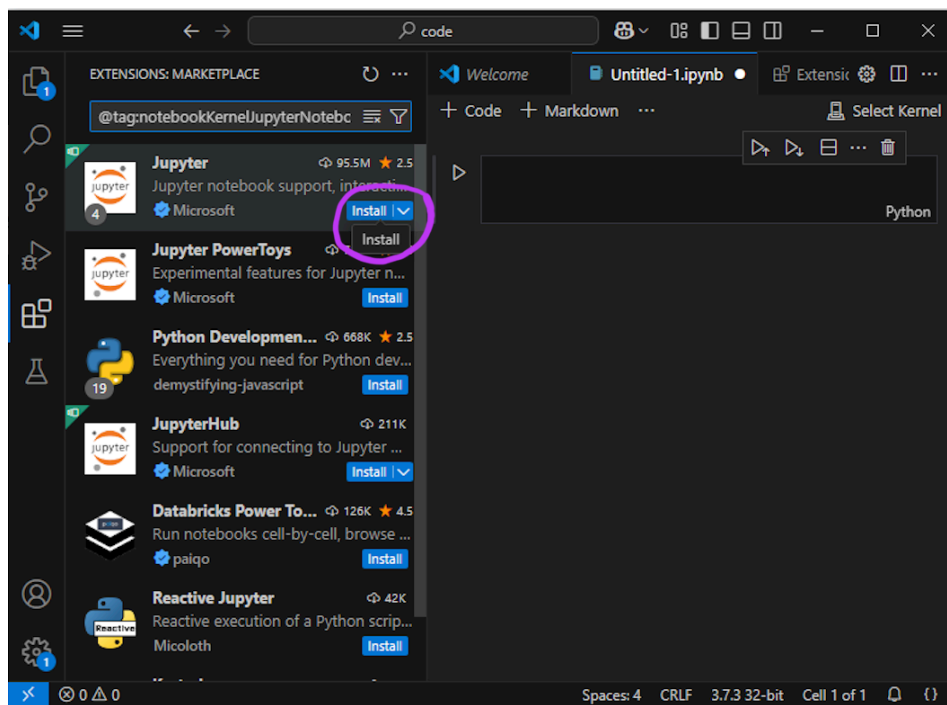


Figure 1.5: Install the Jupyter notebook support extension

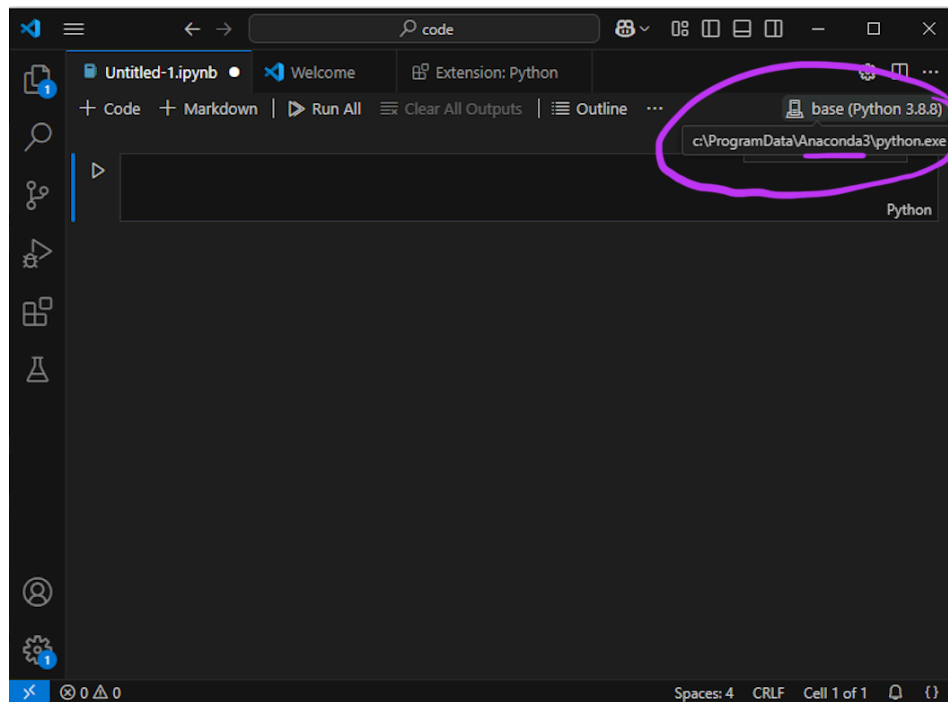


Figure 1.6: Select the right Python environment