Active and Passive Surface Wave Testing: Addressing Uncertainty using Open-Source Tools

Python and Jupyter

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Python

All of the examples we will cover will be using Python.

This presentation offers a **<u>very</u>** brief introduction to Python and various tools from the Python ecosystem.

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Python as Open-Source

Python is released under the Python Software Foundation (PSF) license.
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** I am not a lawyer and this is not legal advice. **

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Python as Community

An active and growing open-source community.
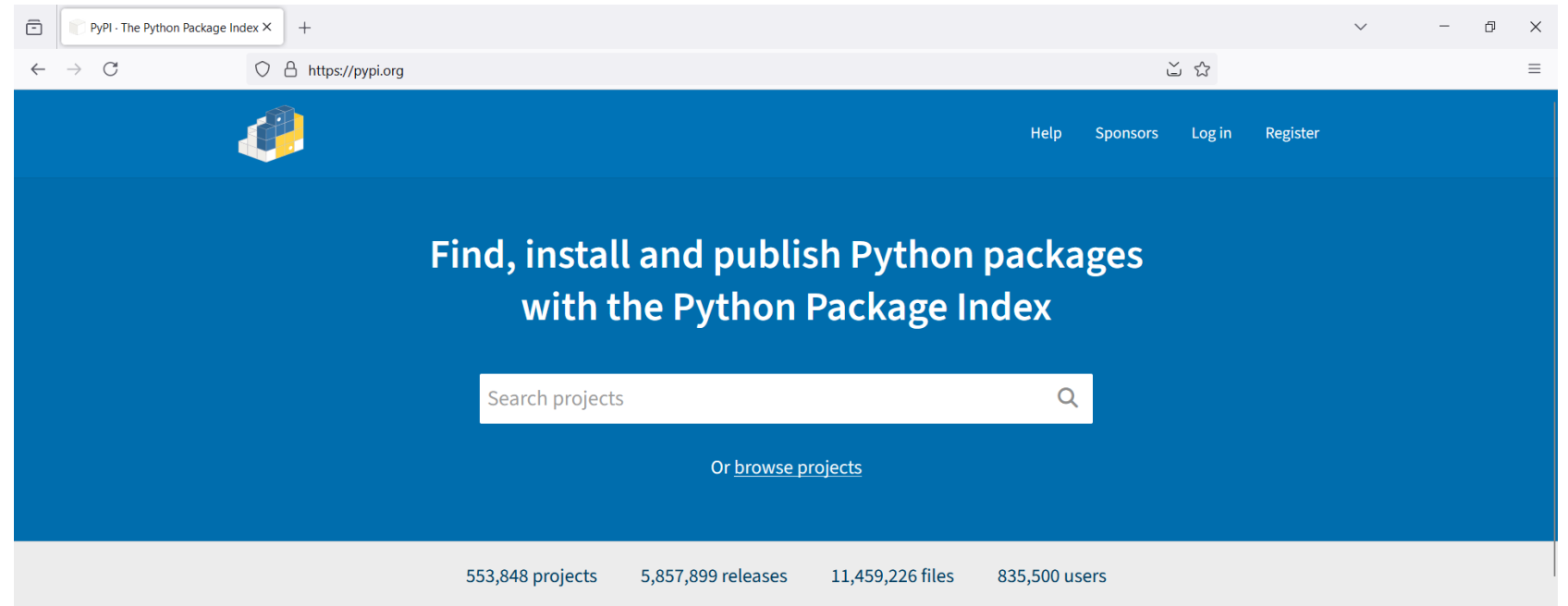
Show swprocess, swprepost, hvsrpy

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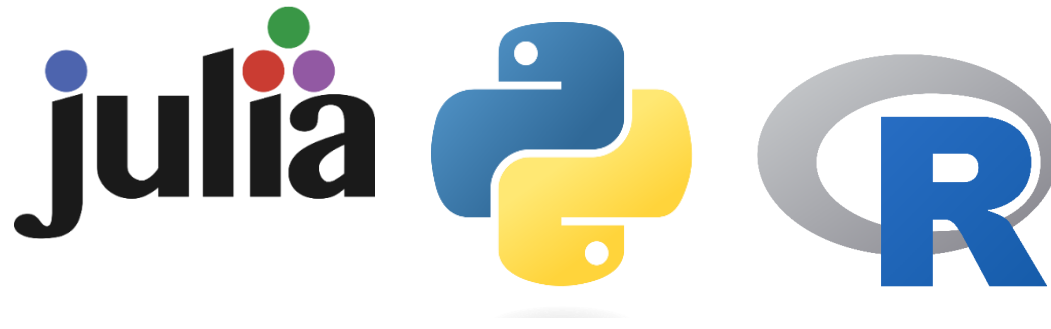
The Jupyter Project

Started in 2014;
Out of the IPython Project started in 2001.

"Free software, open standards, and web services
for interactive computing across all
programming languages" – jupyter.org

Name from JUlia, PYthon, R

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Jupyter Lab

Jupyter started with the Jupyter Notebook.

However, in 2018 the traditional Jupyter Notebook interface was replaced with Jupyter Lab.

Jupyter Notebook refers to file (.ipynb)
Jupyter Lab refer to environment where file runs.

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Jupyter Lab Basics | Starting Jupyter

Open file explorer to the location of your choice

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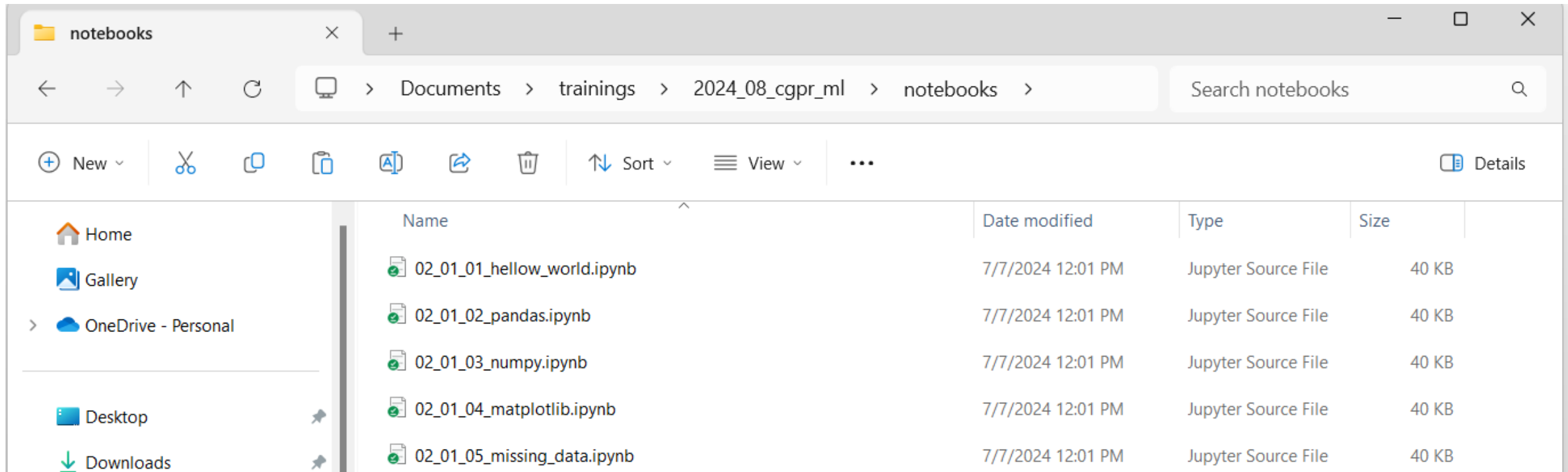
Jupyter Lab Basics | Starting Jupyter

Select top path

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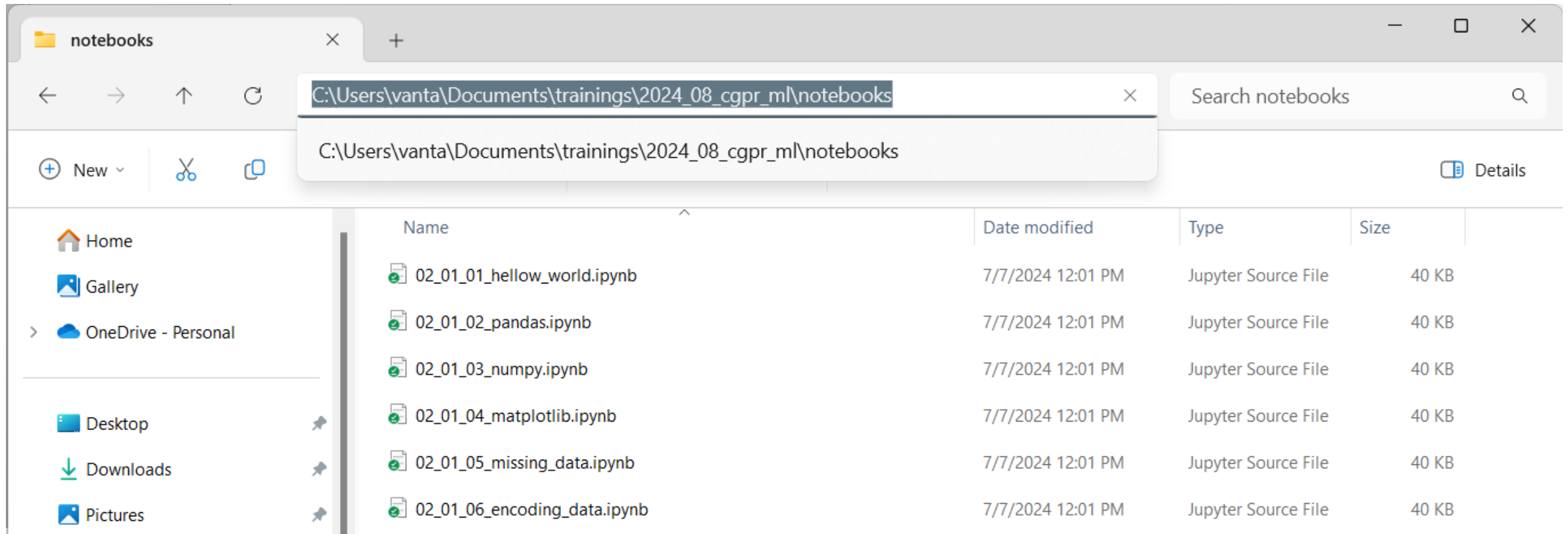
Jupyter Lab Basics | Starting Jupyter

Replace it with `jupyter lab` and press Enter.

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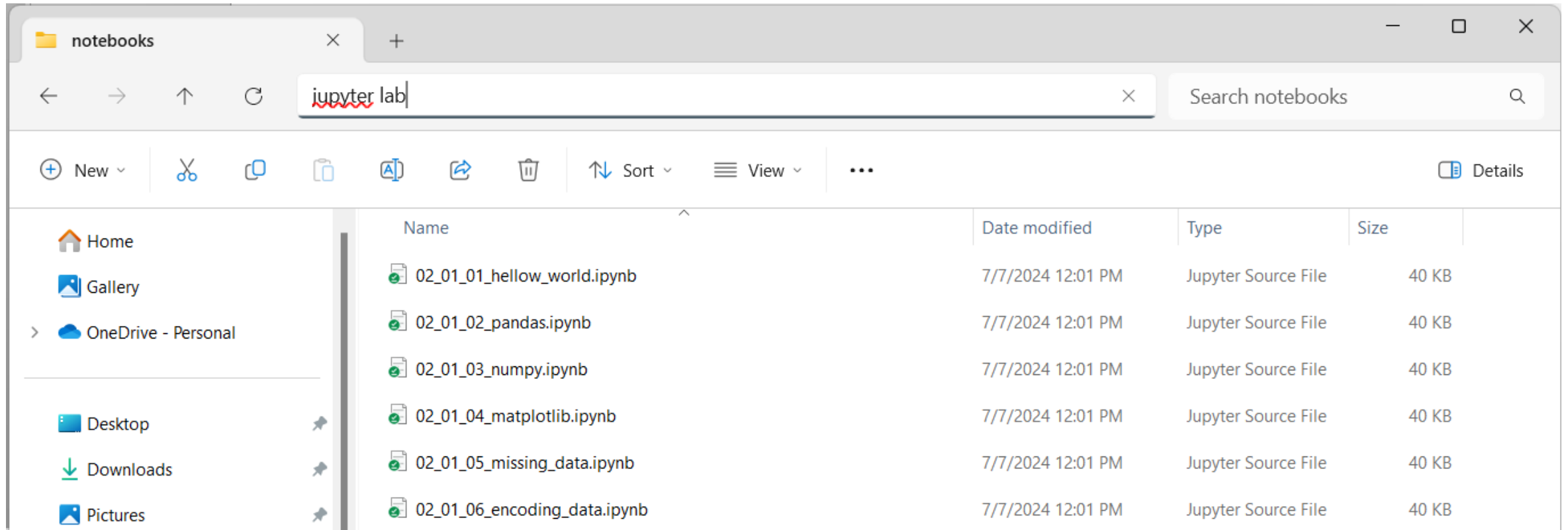
Jupyter Lab Basics | Starting Jupyter

Jupyter Lab will now open in your preferred browser.*

*Note while it is in your internet browser it is running on your local machine and not running in the cloud.

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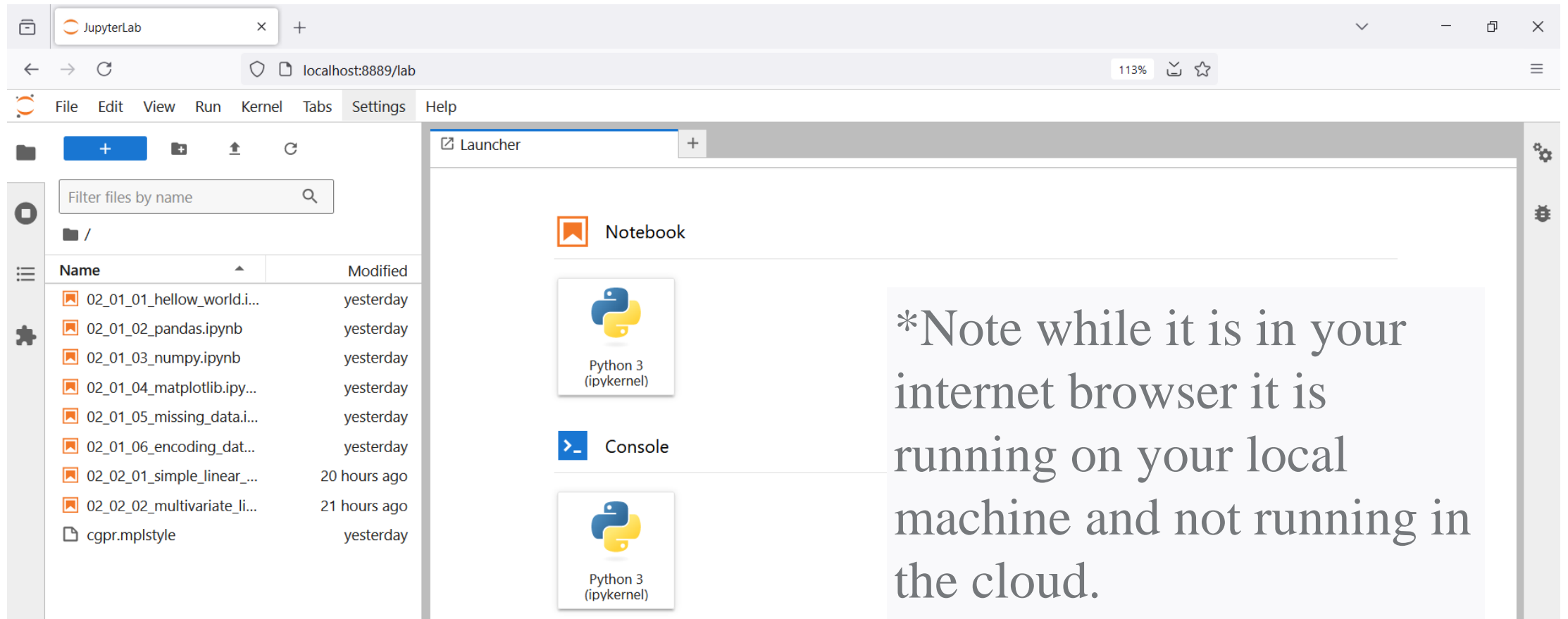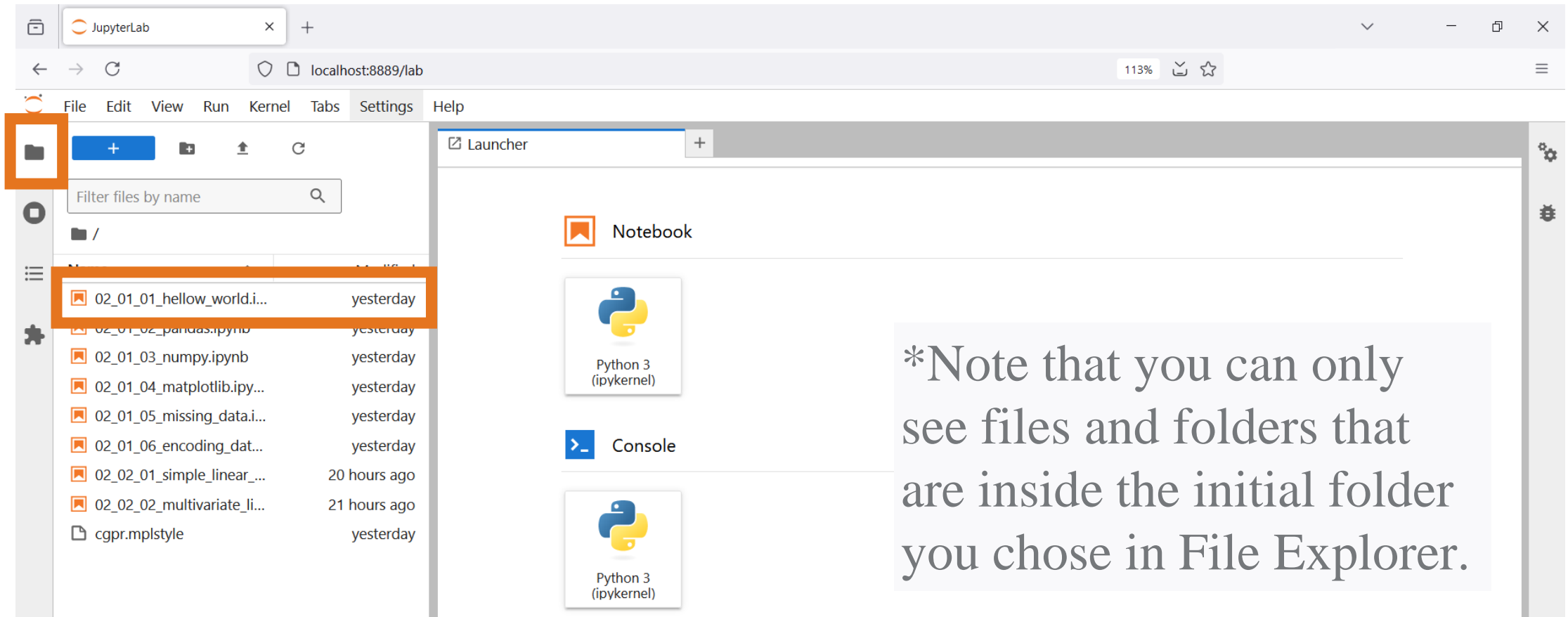
Jupyter Lab Basics | Starting Jupyter

Open a new notebook.

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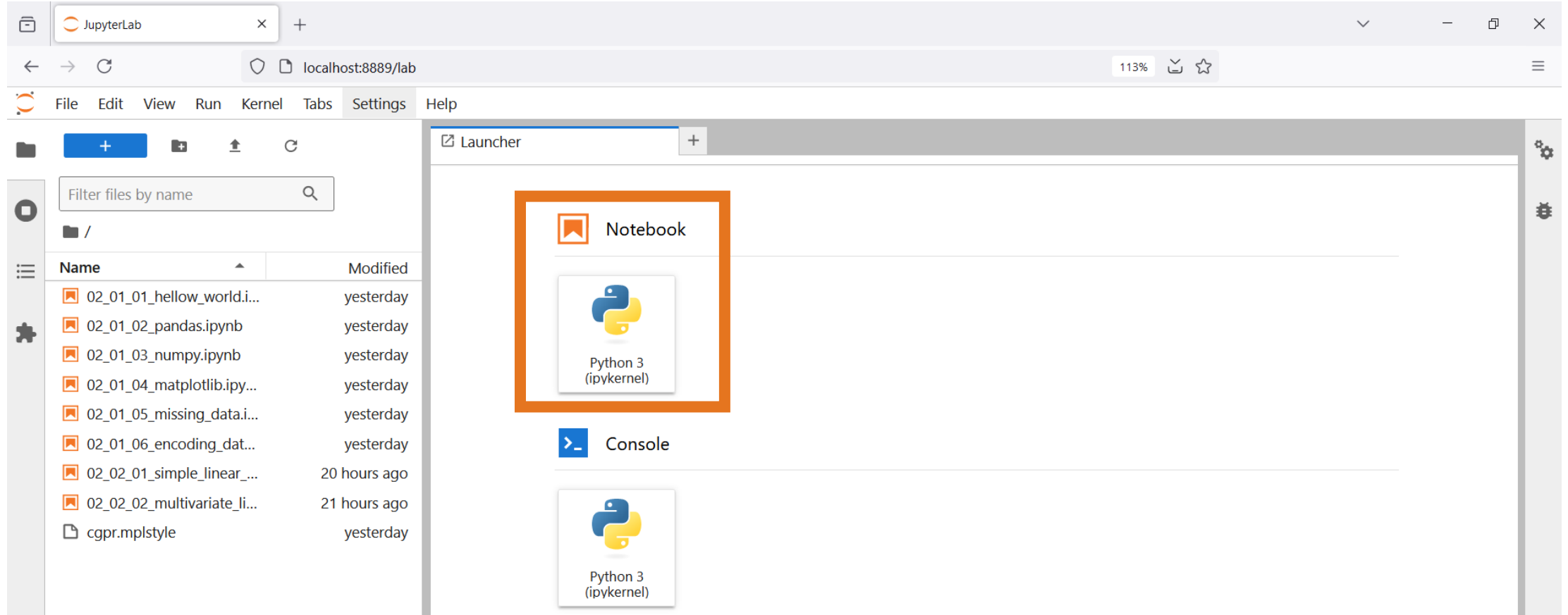
Jupyter Lab Basics | Starting Jupyter

Open existing notebook.
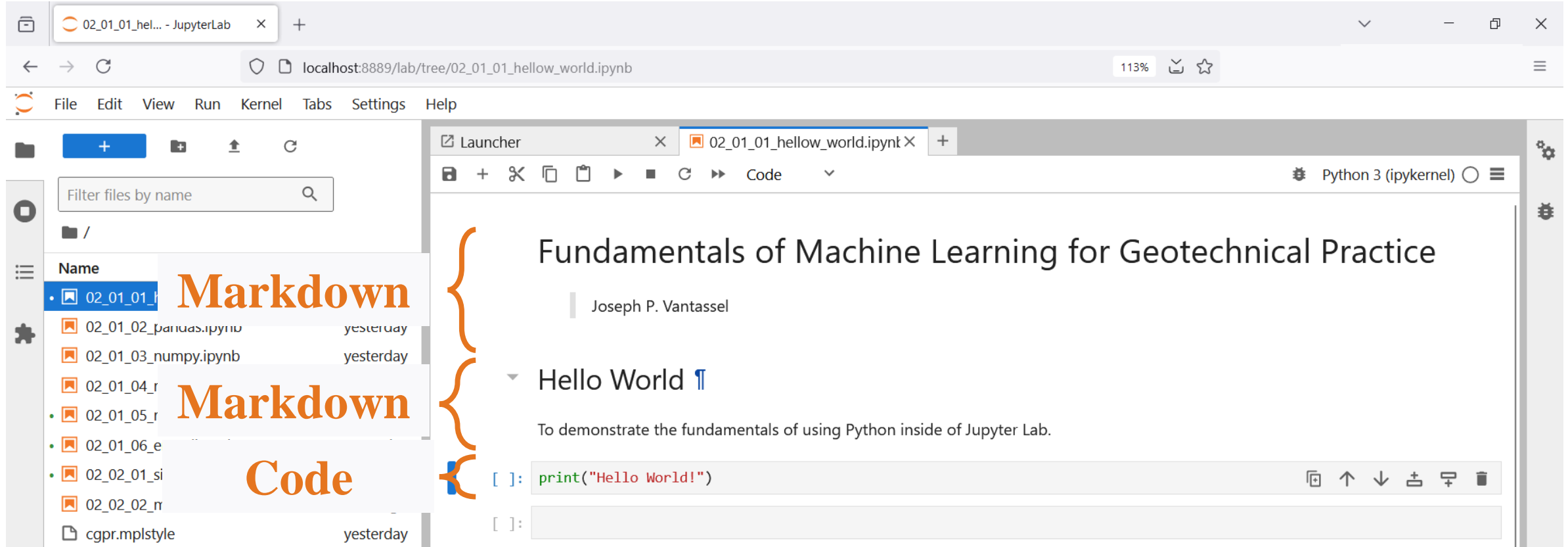
*Note that you can only see files and folders that are inside the initial folder you chose in File Explorer.

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Jupyter Lab Basics | Hello World

Each notebook is composed of cells for markdown or code.

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Jupyter Lab Basics | Hello World

Select cell, Shift + Enter to execute code

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Jupyter Lab Basics | Hello World

Select cell, Shift + Enter to execute code

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Jupyter Lab Basics | Hello World
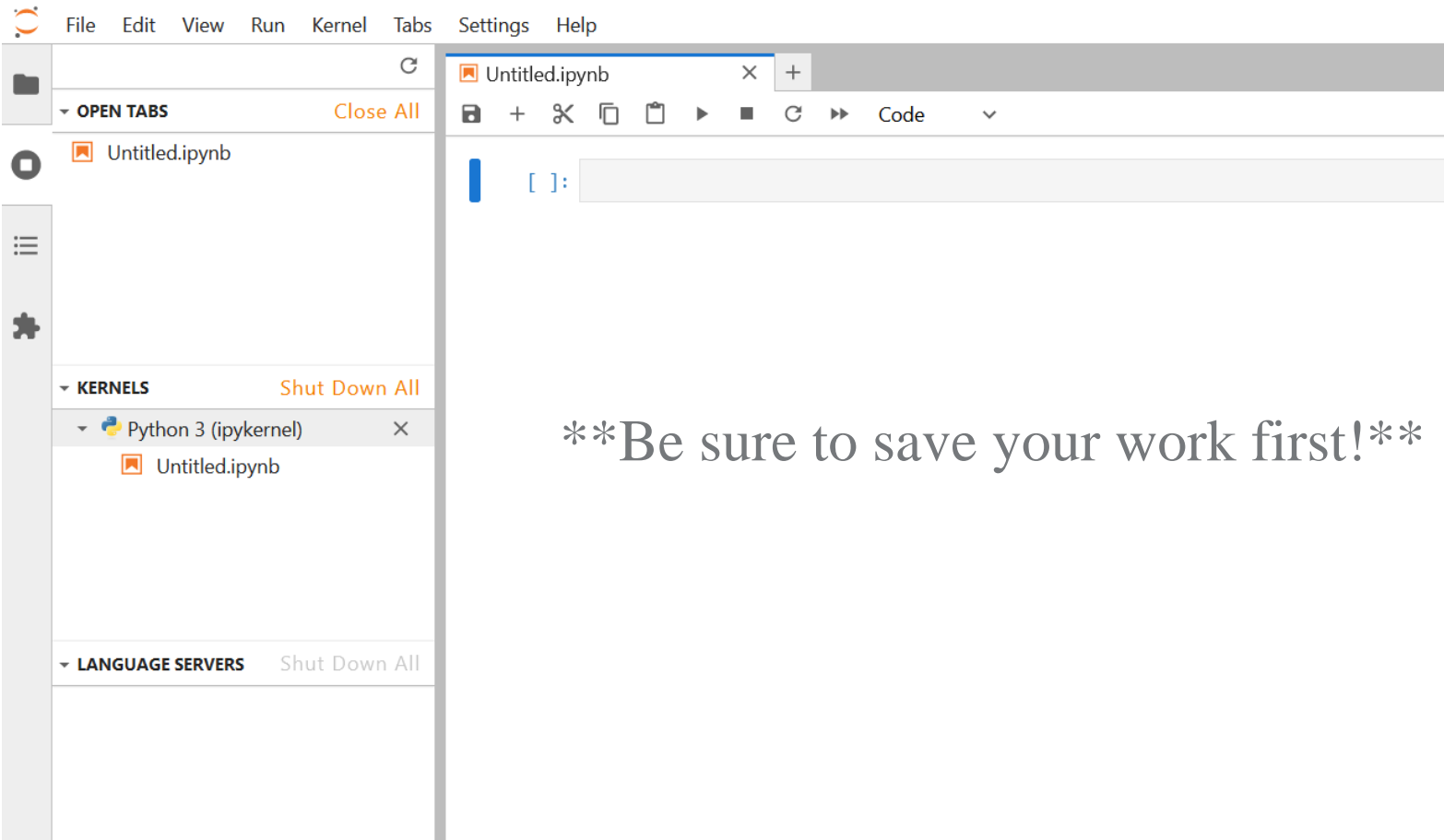
To restart: Kernel > Restart Kernel and Clear Outputs of All Cells
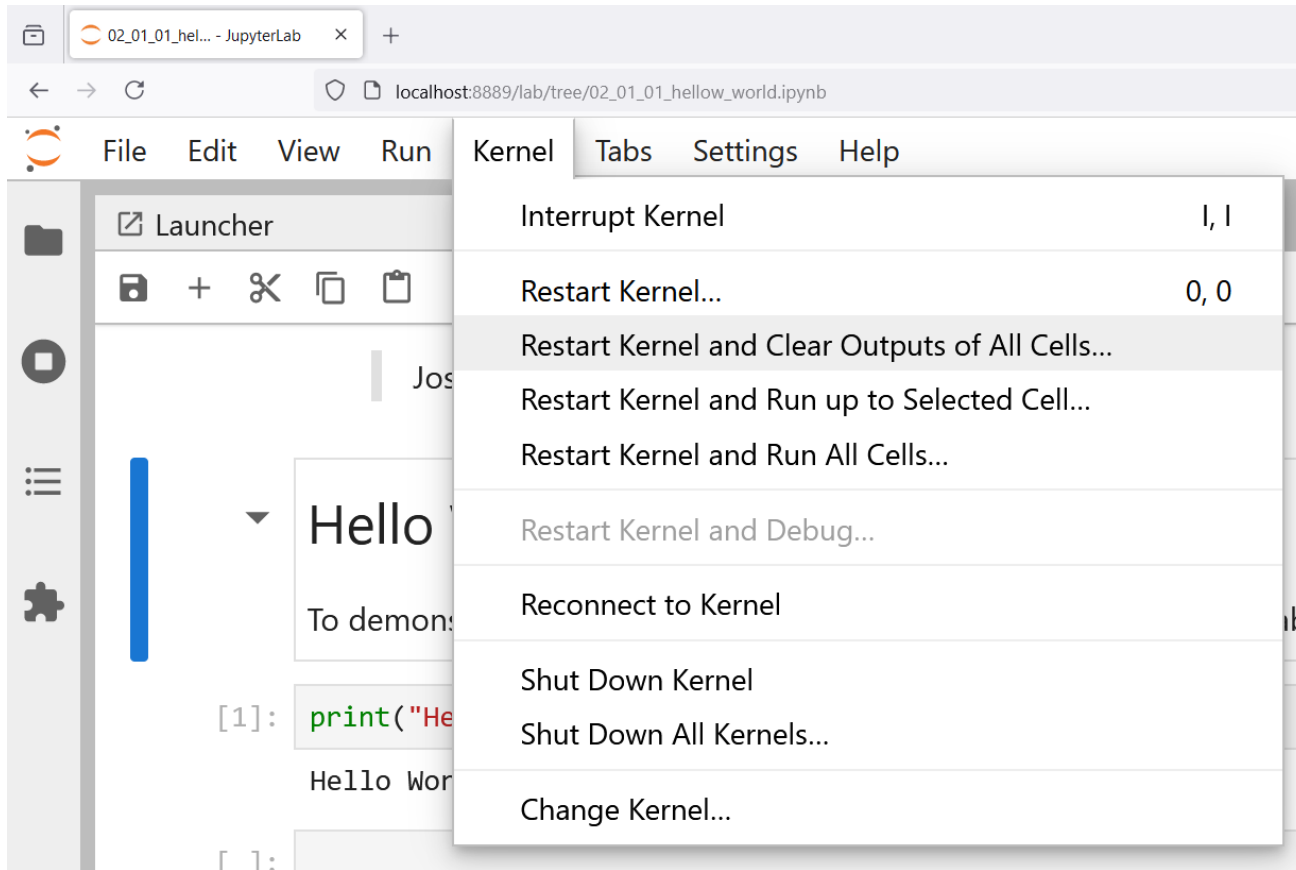
The kernel keeps track of all variables and allows code in different cells to interact. It also allows cells to be executed in any order and multiple times.

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Jupyter Lab Basics | Hello World

Shutting Down

Close Tab(s)

Close Kernel(s)

Be sure to save your work first!

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Jupyter Lab Basics | Hello World

Shutting Down
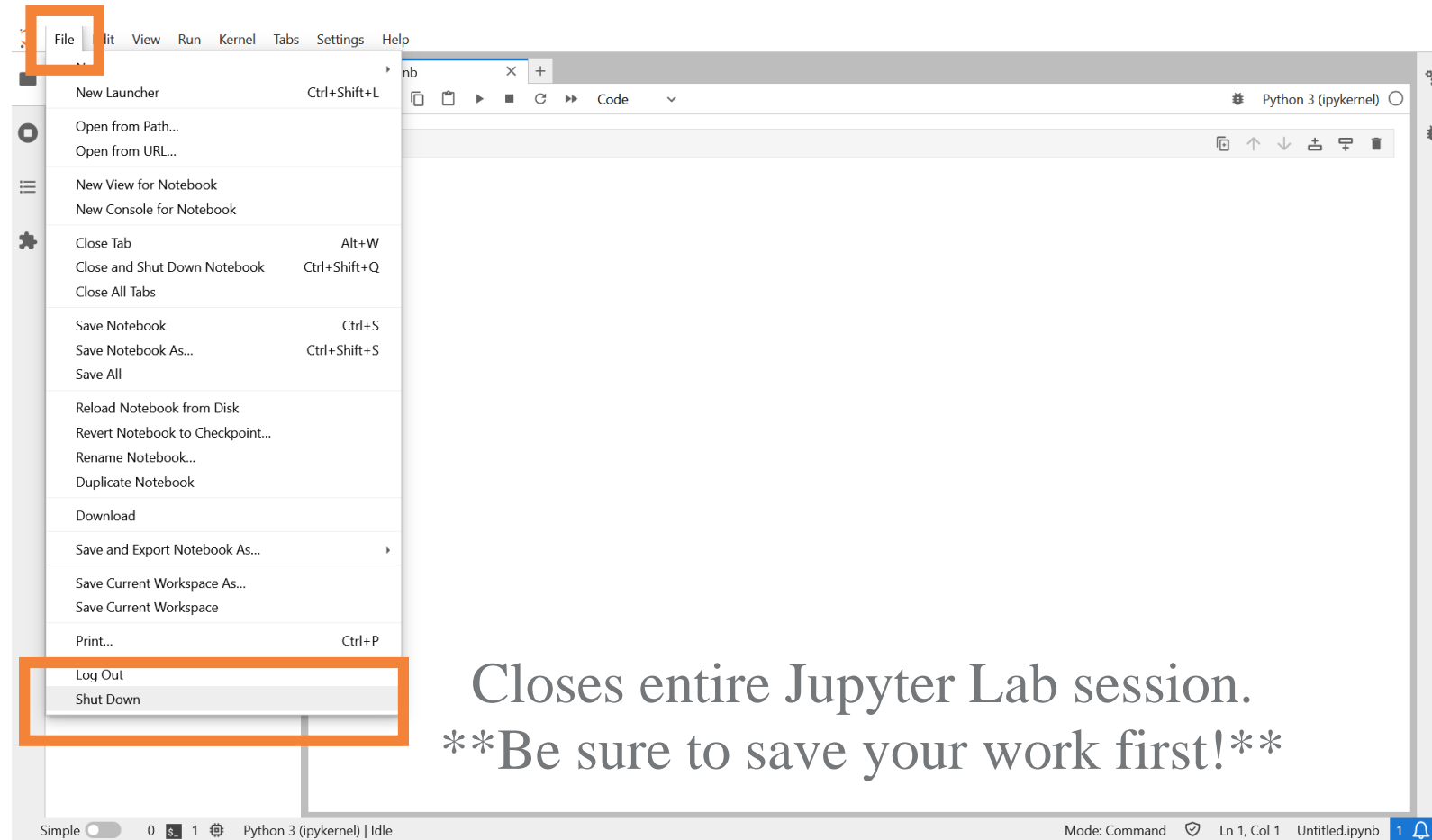
Closes entire Jupyter Lab session.
Be sure to save your work first!

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