Jupyter Notebook in Noto.epfl

A quick tutorial

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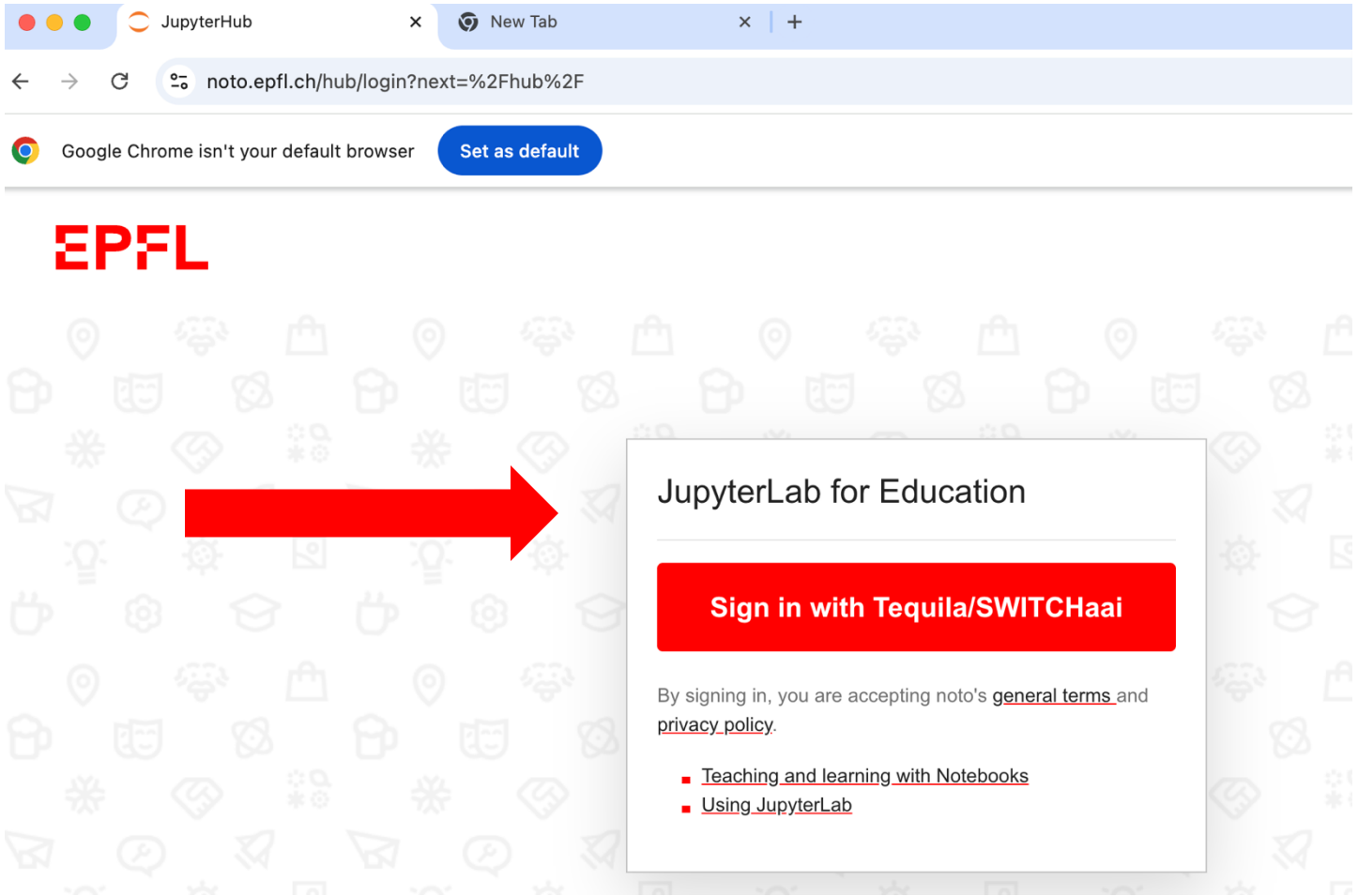
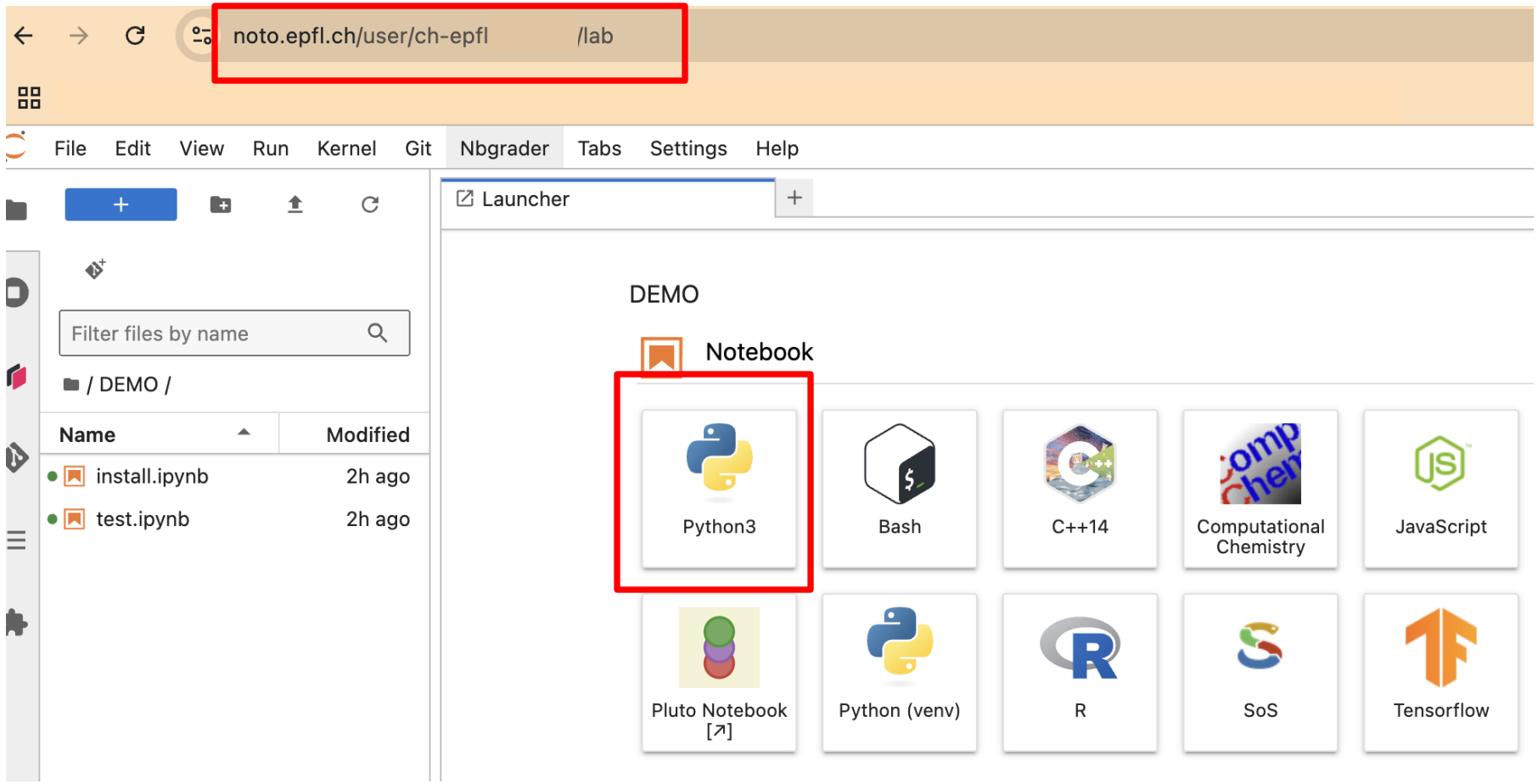
Accessing Jupyter notebook with NOTO



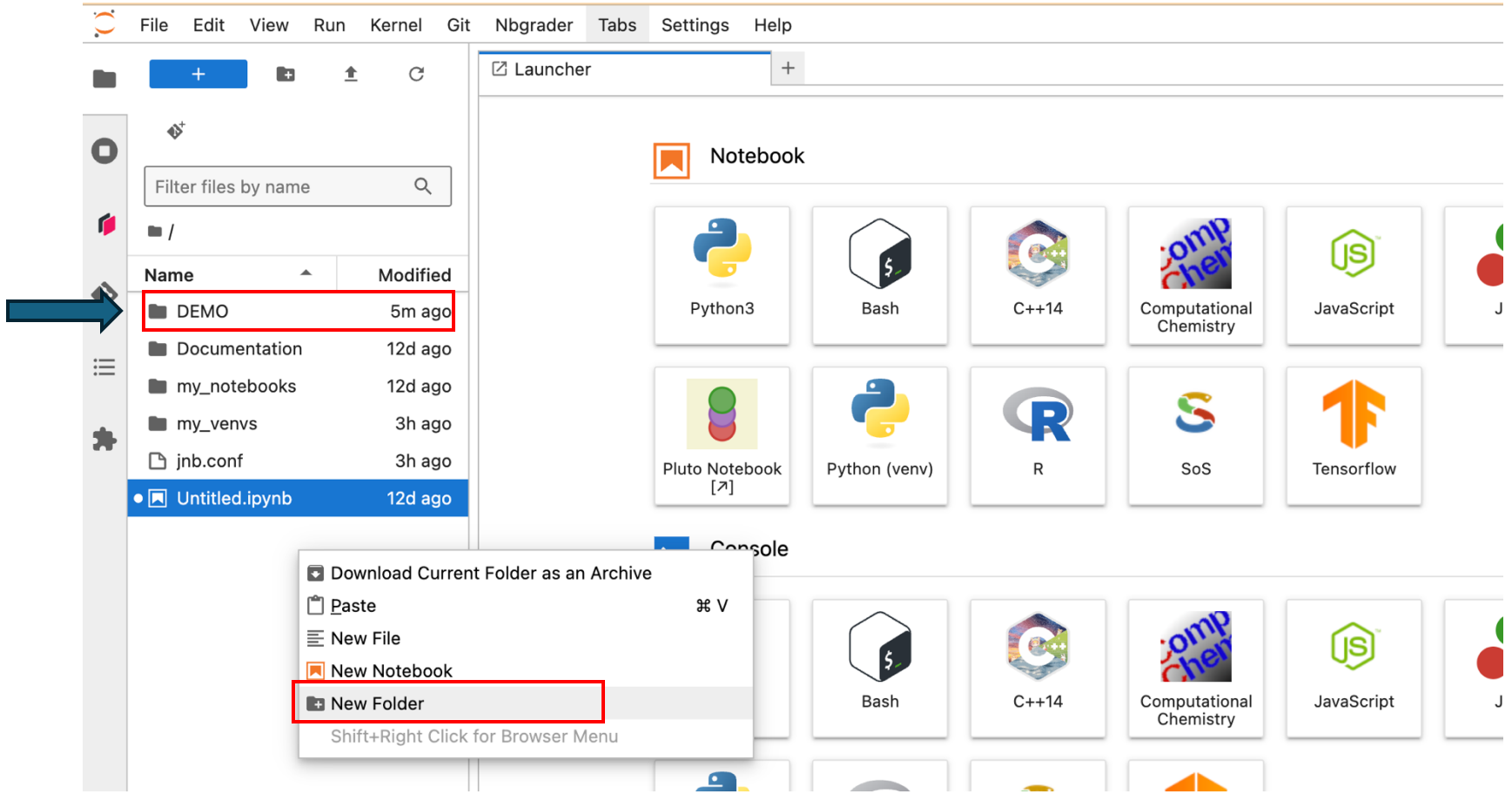
Accessing Jupyter notebook with NOTO

Your sciper ID appears here, ideally



Create a new folder

I have created ‘DEMO’ folder



Creating virtual environment

- Take the install.ipynb file from moodle, place it in your folder
- Run the following cells to create a new virtual environment. It takes a while. So be patient

Installation of a new environment

[1]:
```
# Create new venv
!python3 -m venv ~/my_venvs/venv
!source ~/my_venvs/venv/bin/activate
```

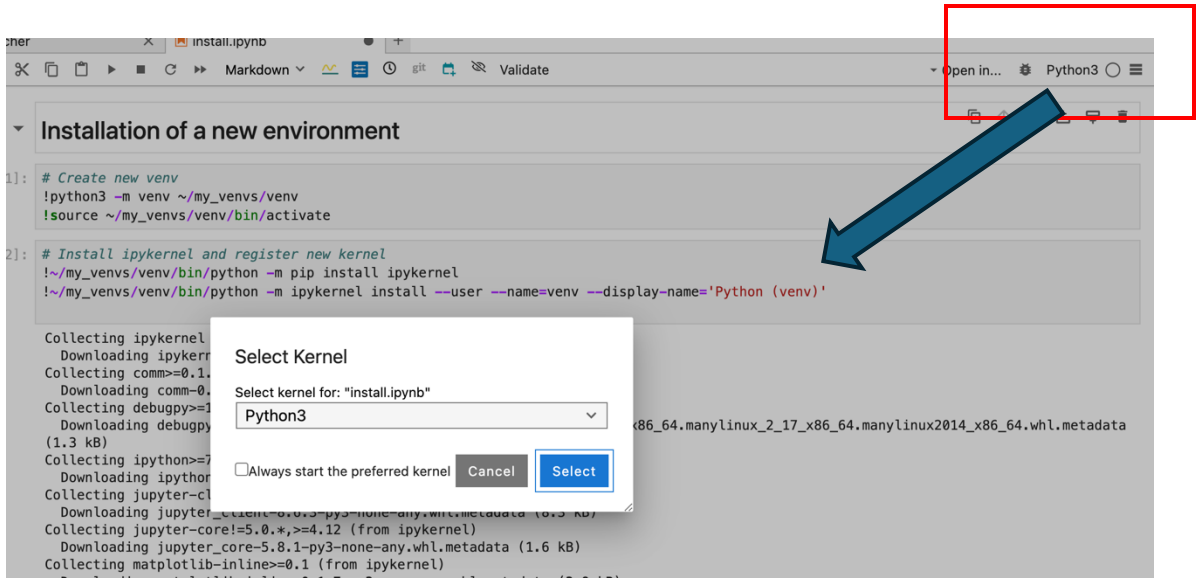
[2]:
```
# Install ipykernel and register new kernel
!~/my_venvs/venv/bin/python -m pip install ipykernel
!~/my_venvs/venv/bin/python -m ipykernel install --user --name=venv --display-name='Python (venv)'
```

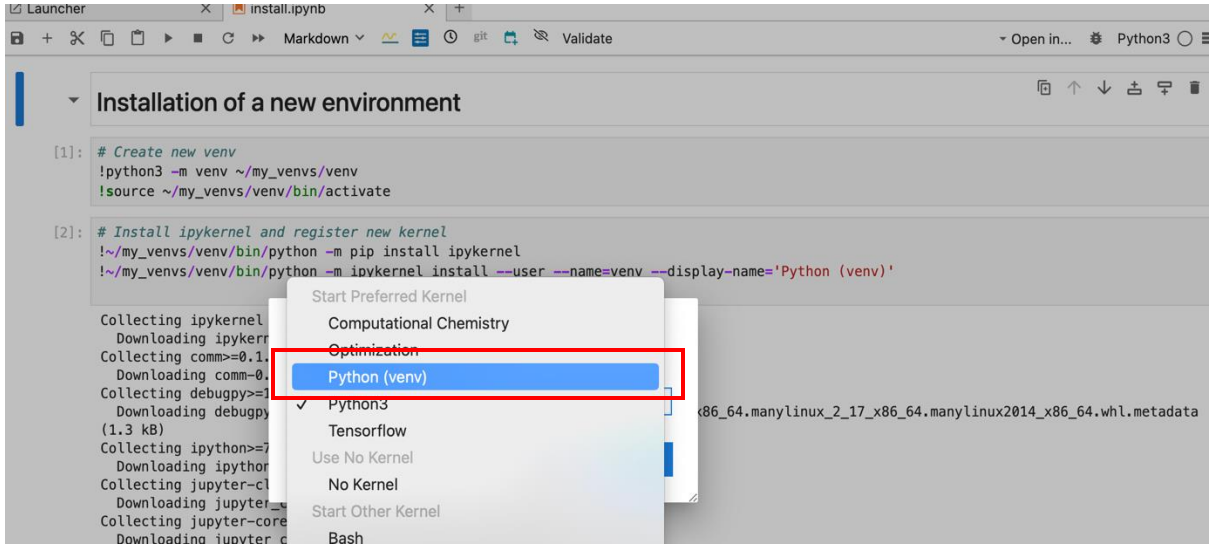
```
Collecting ipykernel
```

Switch to the new environment

Use the new venv/kernel

- refresh the page and in "kernel" choose "Change kernel..." and from the dropdown, choose your "Python (venv)"
  - *it can also be changed on the top right of the console*
  - check "Always start the prefered kernel" for it to be chosen by default
- Then we can install amplpy as said in the readme but using {sys.executable} instead of python to make sure we install under the venv
  - *This is only needed for terminal commands like this one*





Install AMPLPY modules in the new venv

Just run this cell

[1]:
```
import sys

# Install Python API for AMPL
!{sys.executable} -m pip install amplpy --upgrade

# Install solver modules (e.g., HiGHS, CBC, Gurobi)
!{sys.executable} -m amplpy.modules install highs cbc gurobi

# Activate your license (e.g., free https://ampl.com/ce license)
!{sys.executable} -m amplpy.modules activate [redacted]
```

Your UUID goes here

Test with test.ipynb

- Take the test.ipynb file from moodle, place it in your folder
- This should work If all steps before were followed correctly
- You have solved your first optimisation problem!

```
ampl.solve()

# Show results
print("Objective value (Total Profit):", ampl.obj['TotalProfit'].value())
print("Production plan:")
for p in ampl.set['PRODUCTS']:
    print(f"  {p} = {ampl.var['Production'][p].value()}")
```

```
HiGHS 1.10.0HiGHS 1.10.0: optimal solution; objective 1200
0 simplex iterations
0 barrier iterations
Objective value (Total Profit): 1200.0
Production plan:
  A = 0.0
  B = 40.0
```