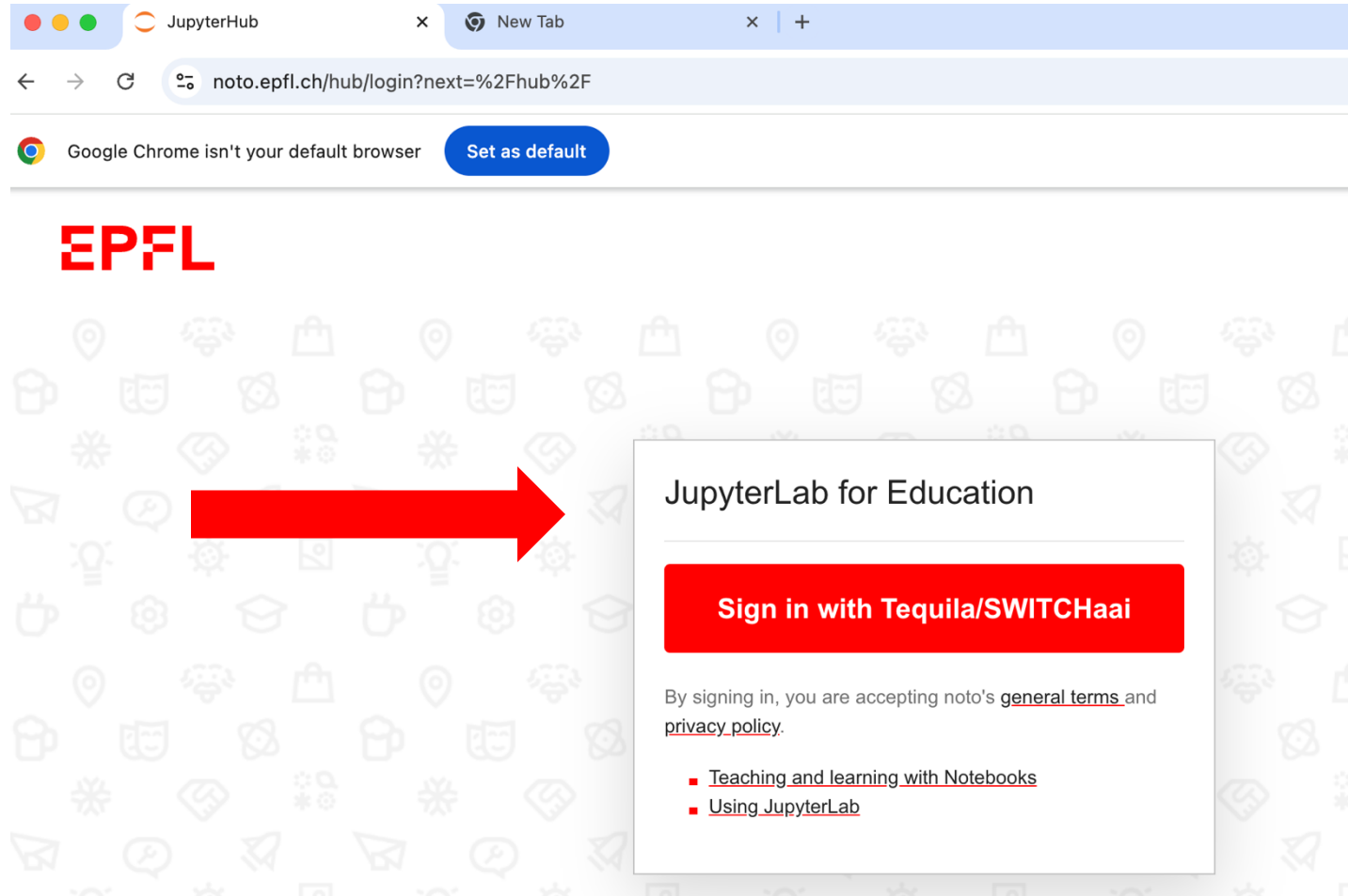


Jupyter Notebook in Noto.epfl

A quick tutorial

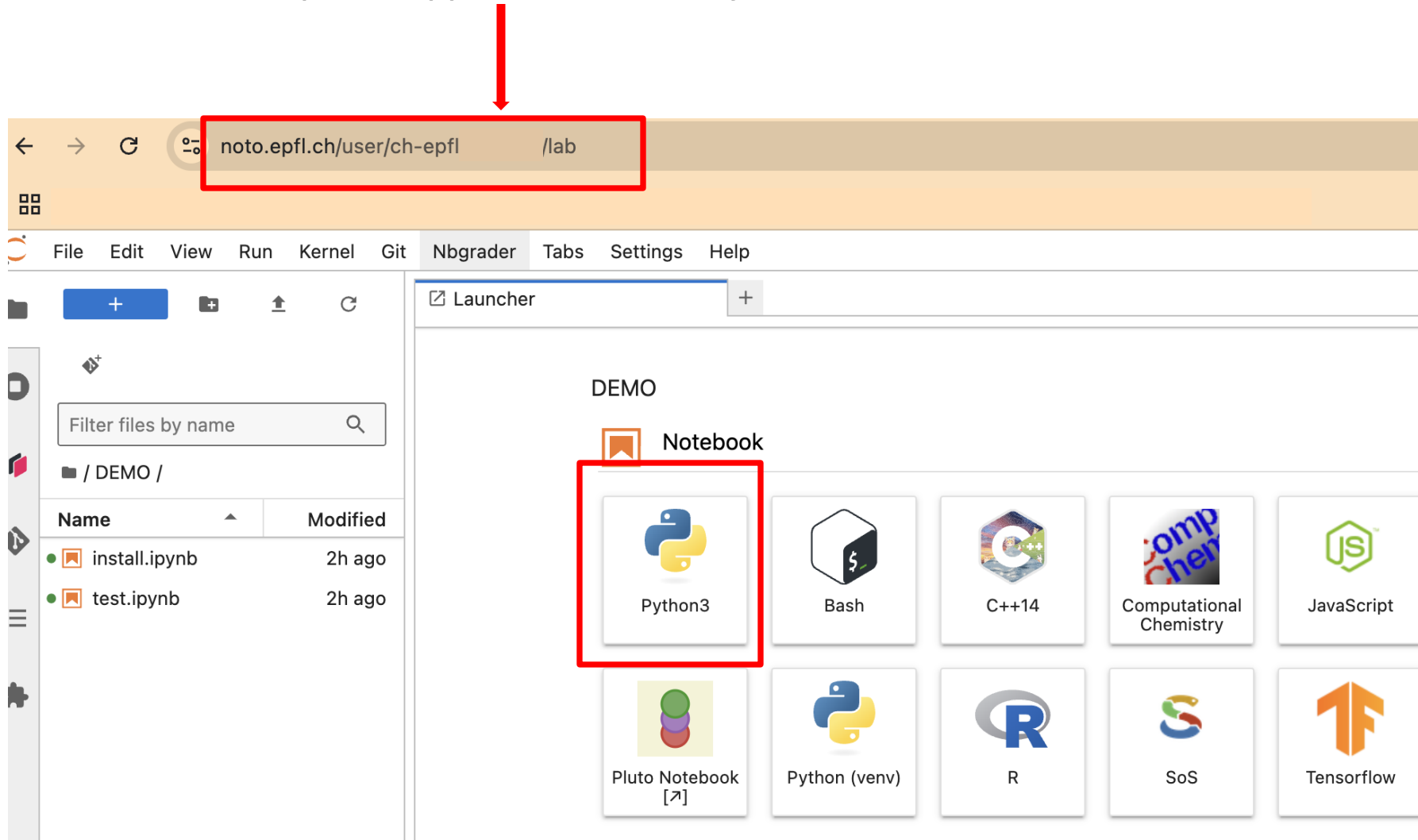
Sai Sudharshan Ravi
Joao Carlos Ferreira Da Silva

Accessing Jupyter notebook with NOTO



Accessing Jupyter notebook with NOTO

Your sciper ID appears here, ideally



The screenshot displays the JupyterLab web interface. A red arrow points from the text "Your sciper ID appears here, ideally" to the URL bar, which contains the text "noto.epfl.ch/user/ch-epfl /lab". The URL bar is highlighted with a red rectangle. Below the URL bar, the JupyterLab interface is visible, featuring a menu bar (File, Edit, View, Run, Kernel, Git, Nbgrader, Tabs, Settings, Help) and a sidebar on the left. The sidebar shows a file browser for the "/ DEMO /" directory, listing files "install.ipynb" and "test.ipynb", both modified "2h ago". The main area displays a "Launcher" tab with a grid of icons for different environments. The "Python3" icon is highlighted with a red rectangle. Other icons include Bash, C++14, Computational Chemistry, JavaScript, Pluto Notebook, Python (venv), R, SoS, and Tensorflow.

noto.epfl.ch/user/ch-epfl /lab

File Edit View Run Kernel Git Nbgrader Tabs Settings Help

Launcher

DEMO

Notebook

Python3

Bash

C++14

Computational Chemistry

JavaScript

Pluto Notebook [↗]

Python (venv)

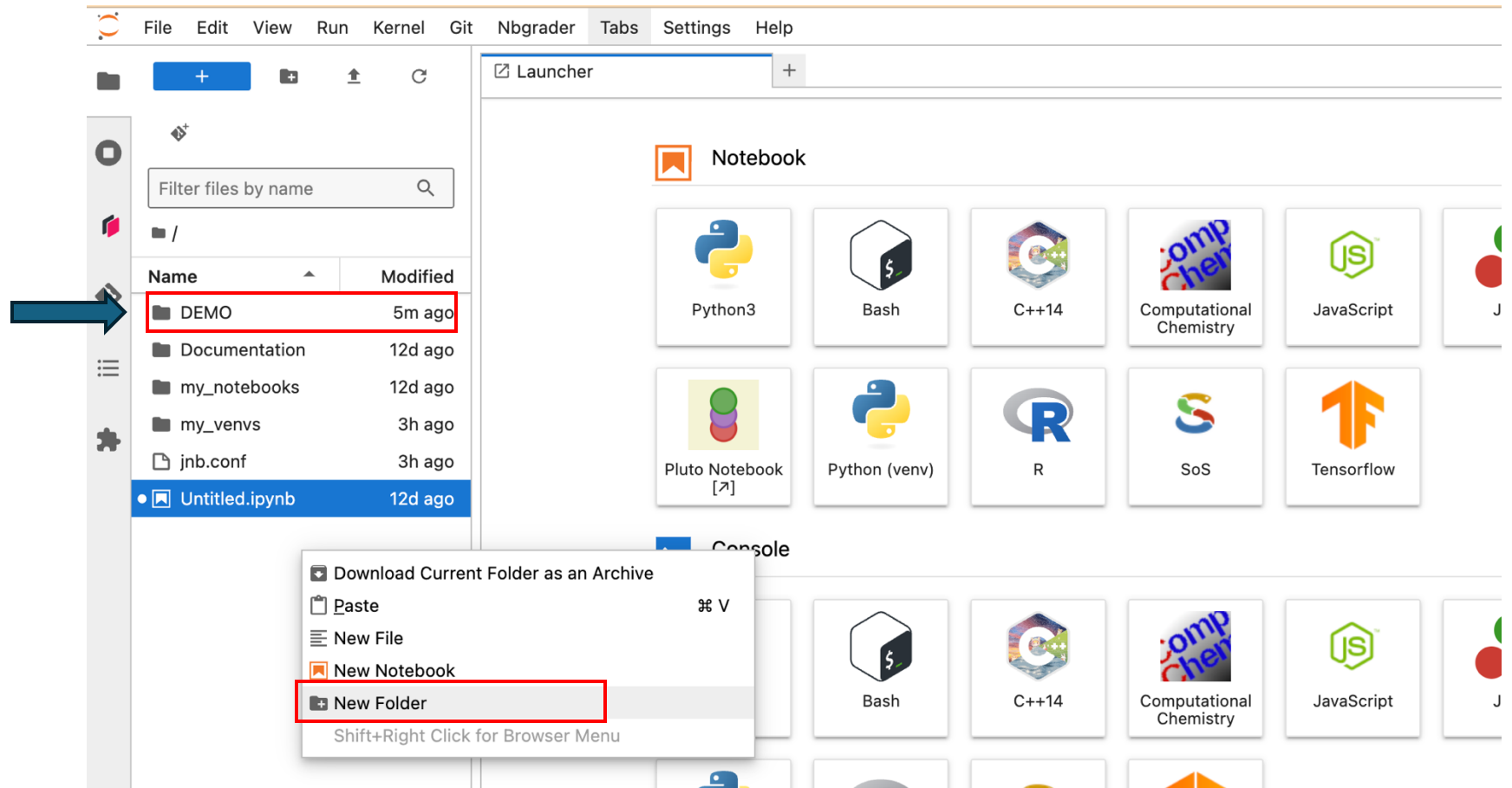
R

SoS

Tensorflow

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
```

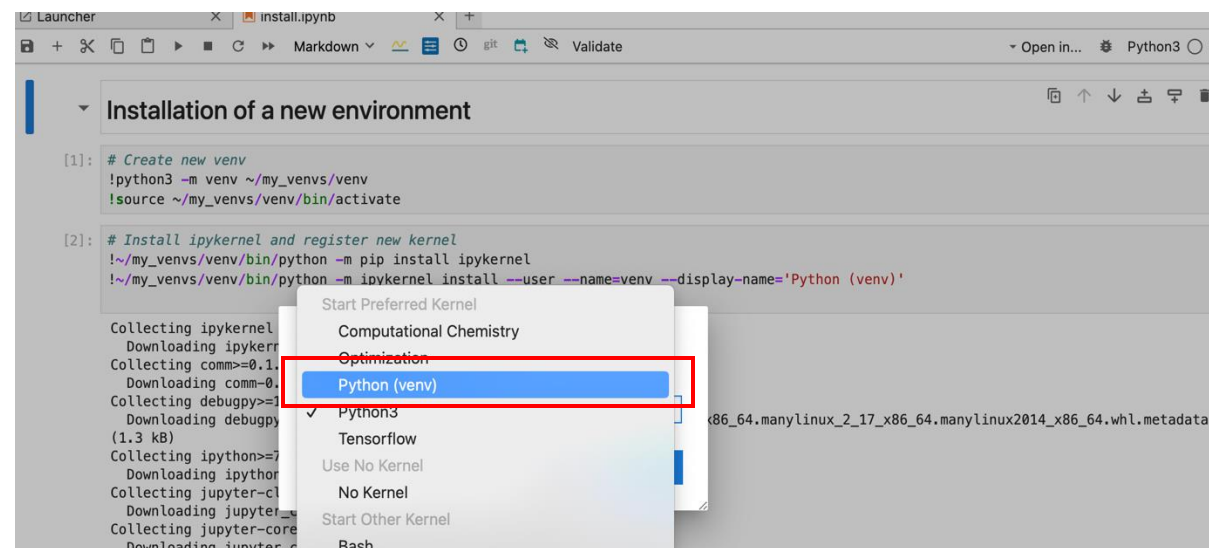
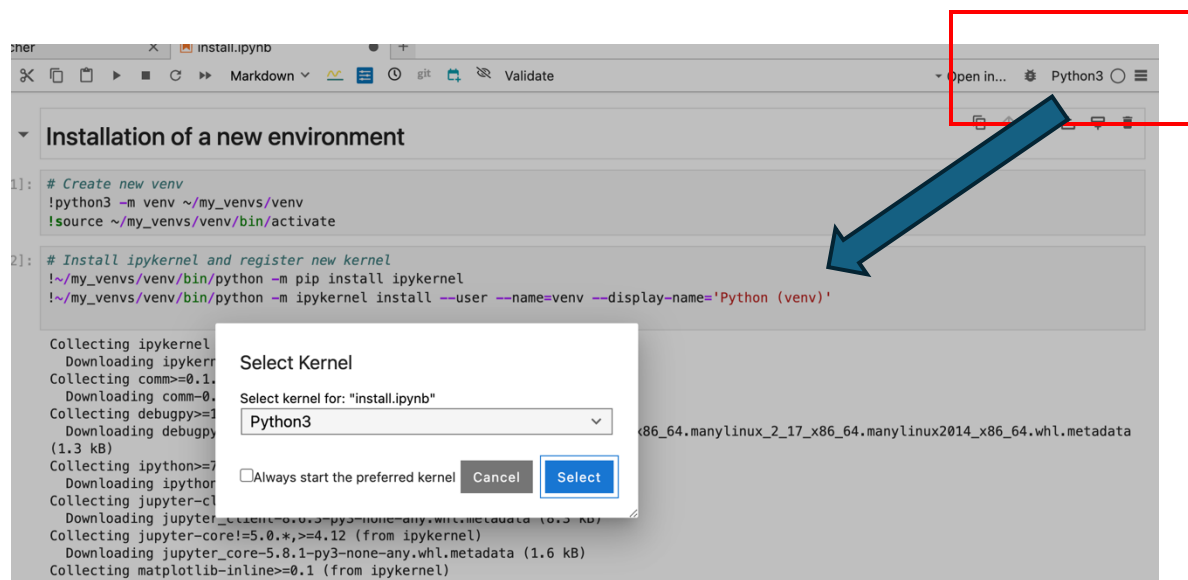
```
[2]: # Install ipykernel and register new kernel
!~/my_venvs/venv/bin/python -m pip install ipykernel
!~/my_venvs/venv/bin/python -m ipykernel install --user --name=venv --display-name='Python (venv)'
```

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 preferred kernel" for it to be chosen by default
- Then we can install amply 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`

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
```