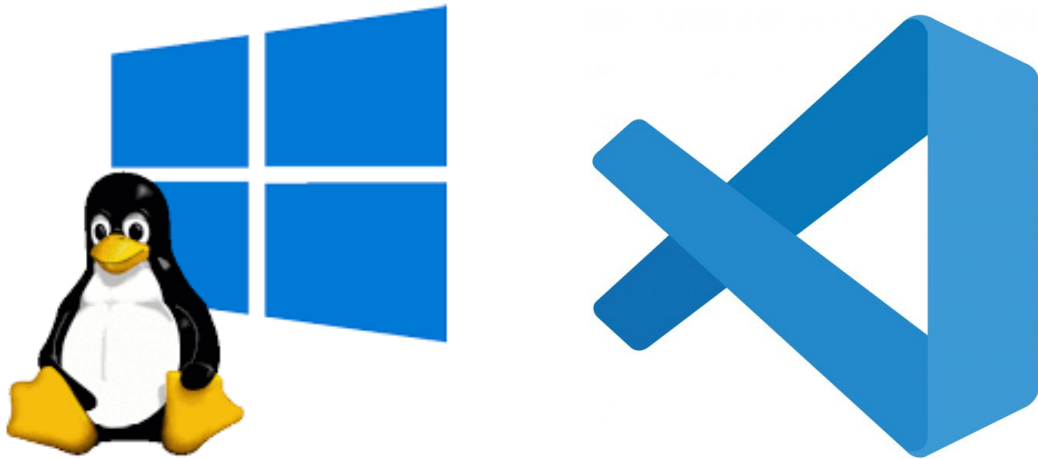


Visual Studio Code for WSL

<https://gogs.elic.ucl.ac.be/pbarriat/learning-vscode>

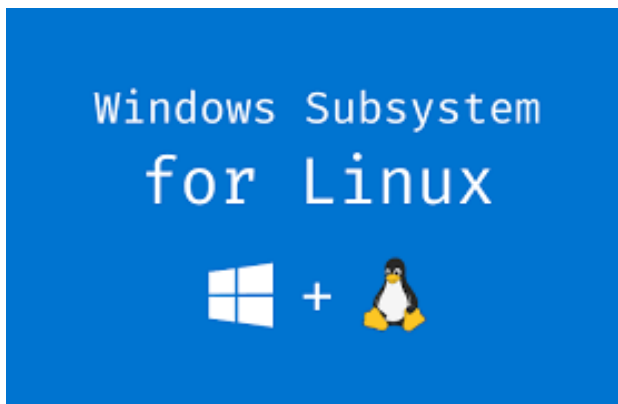


Pierre-Yves Barriat

ELIC Training Sessions June 13th, 2023

What is WSL ?

Windows Subsystem for Linux (WSL) allows you to leverage the benefits of Linux package management and command line tools to streamline your development workflow. This is particularly useful for web developers and **data scientists**



The easiest way to access your Ubuntu development environment in WSL is using **Visual Studio Code** via the built in *Remote extension*

What is Visual Studio Code ?

Visual Studio Code (VS Code) is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux.

It has a rich ecosystem of extensions for languages (such as C++, Fortran, Java, Python, etc) and runtimes (Git, Jupyter, etc)

VSC is one of the most popular and powerful text editors used by software engineers today

free, open-source and [available](#) for macOS, Windows and Linux 👍

WSL on a Windows UCLouvain PC

Linux from CII interface is **overkill**




based on Virtualbox: heavy workload 🤔

No auto process (yet) to install WSL from UCLouvain IT support

You must install WSL by your own with the **Administrator access** from CII interface




Don't worry: just follow the guideline below... 💪



UCLouvain SISE - IT information center



Personal data :
 Pierre-Yves Barriat
 UCLouvain ID : barriat
 pierre-yves.barriat@uclouvain.be
 → **Login credentials** ←
 My desk UCLouvain : 
 My professional contact : 


MECM :
 IT systems management tool
 - ID computer = 1R0.119
 - Owner = pierre-yves.barriat@uclouvain.be

Change request



Looking for information ?
Sector SST (Top of the city) : 
 → Didactic, printers,...
Information system UCLouvain : 
 → Service Offering IT, Services, Security,...


Need for assistance ?
Help Desk : 
Recommendation : STOP EMAIL - NO REPLY
 >> Optimal support <<
 - !!! Priority >> Self-service (request, follow-up)
 - Computer out of service ? → (010/4) 78282



Your resources : Personal space Z: (20 Go - on UCLouvain servers) : \\oasis.uclouvain.be\dfs\Users\B\barriat

Printers : 
 Need another printer ?
 Contact the manager in charge.


- Name -	- Model -	- Location -	...
Copernic	Dell 5130cdn Color Laser	Mercator B 3	
Galilee	HP LaserJet Pro 400 M401dn	Mercator B 4	


Group sharings : 
 To access another working group,
 contact the manager in charge.


- Sharing -	- Path -	- Level -
siws-ressource	\\oasis.uclouvain.be\dfs\Groups\Si\siws-ressource	Write
sc-phys	\\oasis.uclouvain.be\dfs\Groups\Si\sc-phys	Management


Shared calendars : 
 Creation, membership, configuration,...

- Name -	- Description -	...	- Level -
calp-adpi-b467	Calendrier réservation local b467 au Mercator		Write
calp-elic-b326	Calendrier réservation local b326 au Mercator		Write


Frequent Asked Questions
 - UCLouvain ID password reset
 - Software Catalog
 - Wifi
 - Access outside UCLouvain (VPN)
 - RDP (remote control of a machine)
 - Service offer Office365
 * Office 365 Online
 * OneDrive (cloud backup)
 * Teams (communication, visio,...)
 - Transvol (large file transfer)
 >> IT Services <<



A blue screen, slowness ?
 - System Drivers Update
 Last scan - Not yet registered


Backup and antivirus


Backup DPM : 

> Report <
a problem

Backup not configured !
Antivirus Sophos : In error
 Last synchro. - 31/05/2023 16:12


A configuration, an installation ?
 Obtain an Administrator access
 (Duration 15 minutes)

Admin Access


Need Linux ?
 You can have a virtualized Linux system.

Linux

Windows required features

1. From CII interface, ask for an **Admin access**
2. Open a **Powershell terminal** in **Administrator mode**
3. Copy paste this line and press *Enter*

```
dism.exe /online /enable-feature /featurename:Microsoft-Windows-Subsystem-Linux /all /norestart
```

4. Copy paste this line and press *Enter*

```
dism.exe /online /enable-feature /featurename:VirtualMachinePlatform /all /norestart
```

5. Restart your computer

Install WSL2

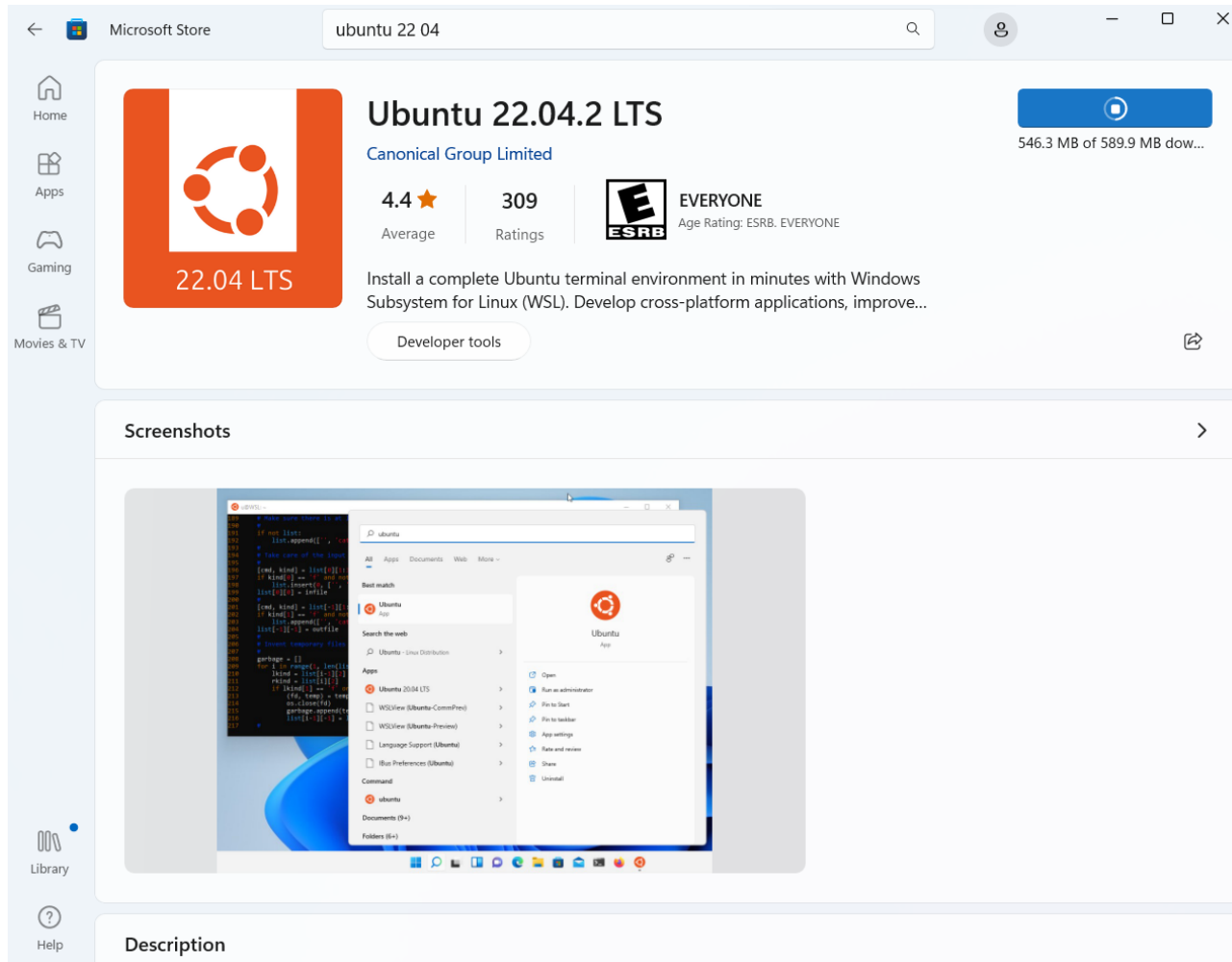
1. From CII interface, ask for an **Admin access**
2. Download the **WSL2 update** and install it (double click on the file)

https://wslstorestorage.blob.core.windows.net/wslblob/wsl_update_x64.msi

3. Open a **Powershell terminal** in **Administrator mode**
4. Copy paste this line and press *Enter*

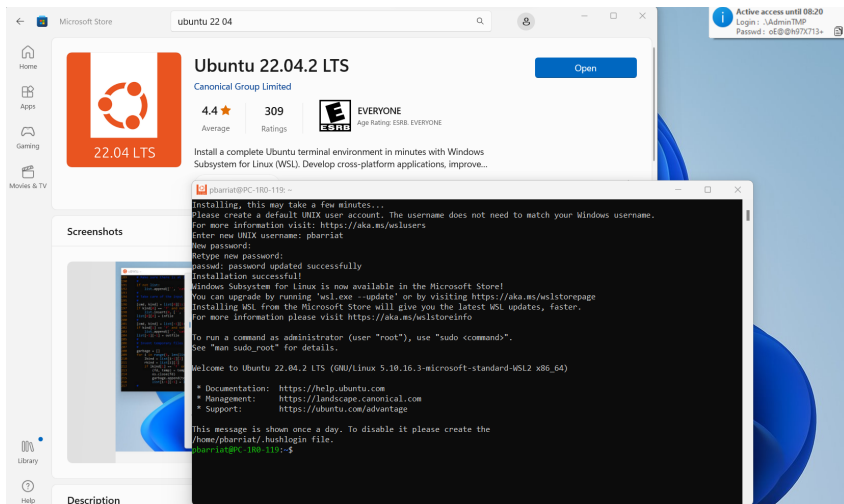
```
wsl --set-default-version 2
```

Install Ubuntu 22.04 from Microsoft Store



First configuration of Ubuntu

(Open Ubuntu) and choose a login/password



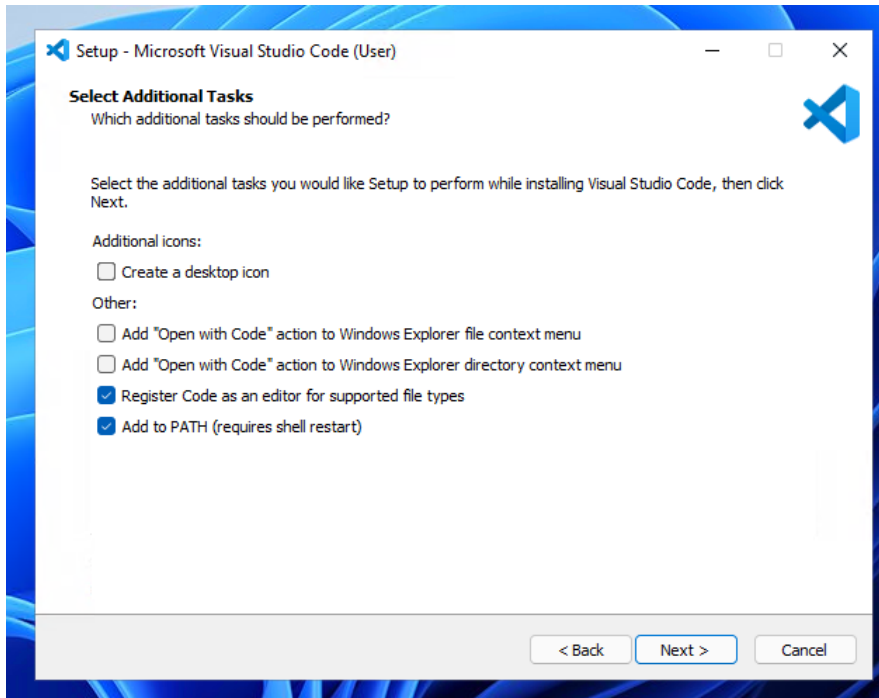
In the Ubuntu terminal do

```
sudo apt update  
sudo apt upgrade
```

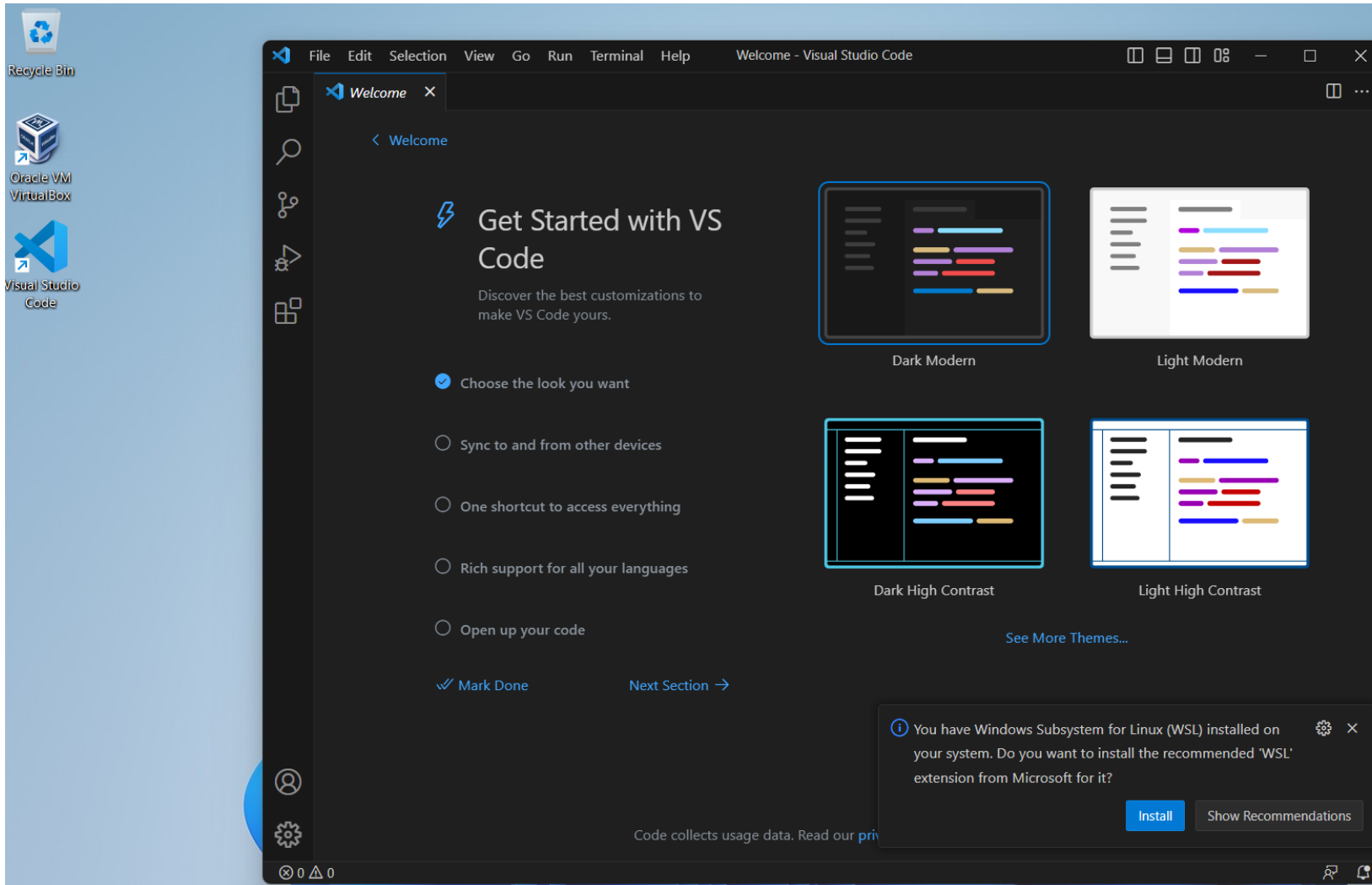
VS Code

You can install Visual Studio Code from the web link [here](#)

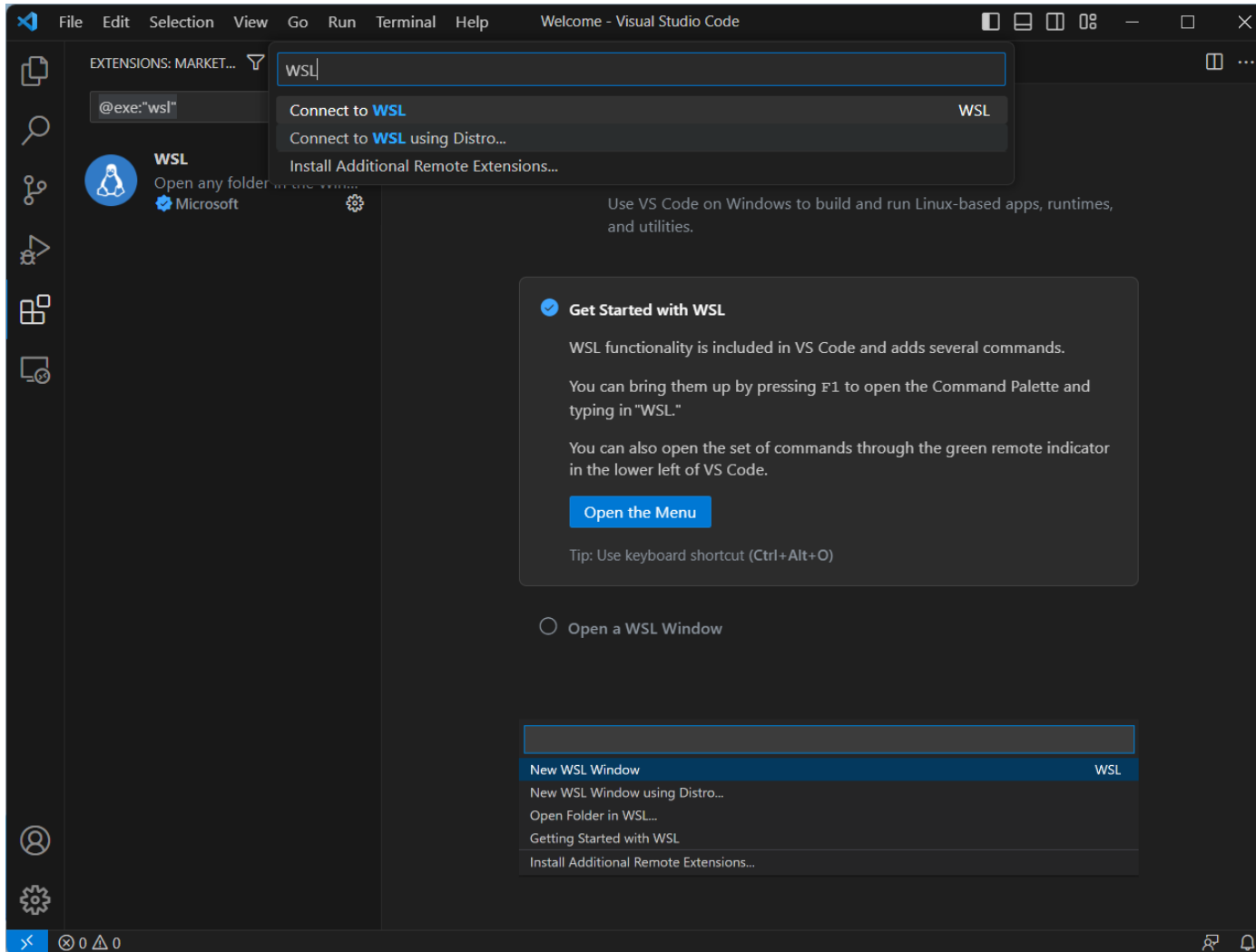
during installation, under the **Additional Tasks step**, ensure the **Add to PATH** option is checked



Open VS Code and install **WSL** for VS Code

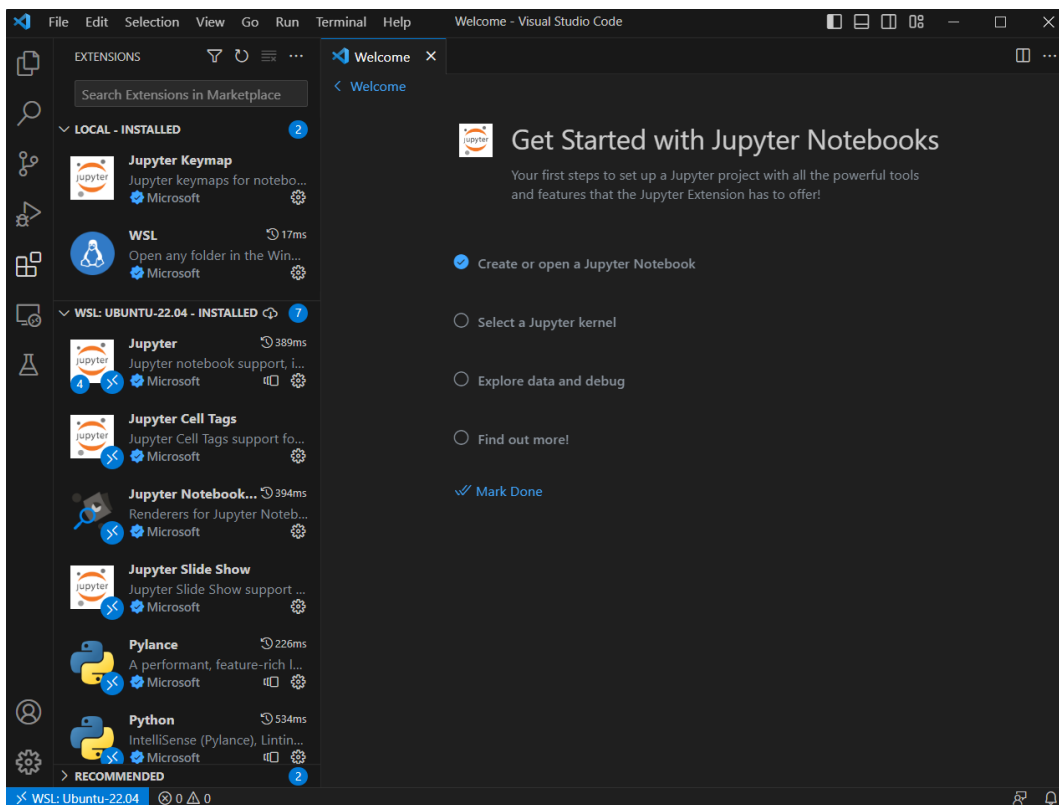


Connect to WSL using a **distro** (Ubuntu 22.04)



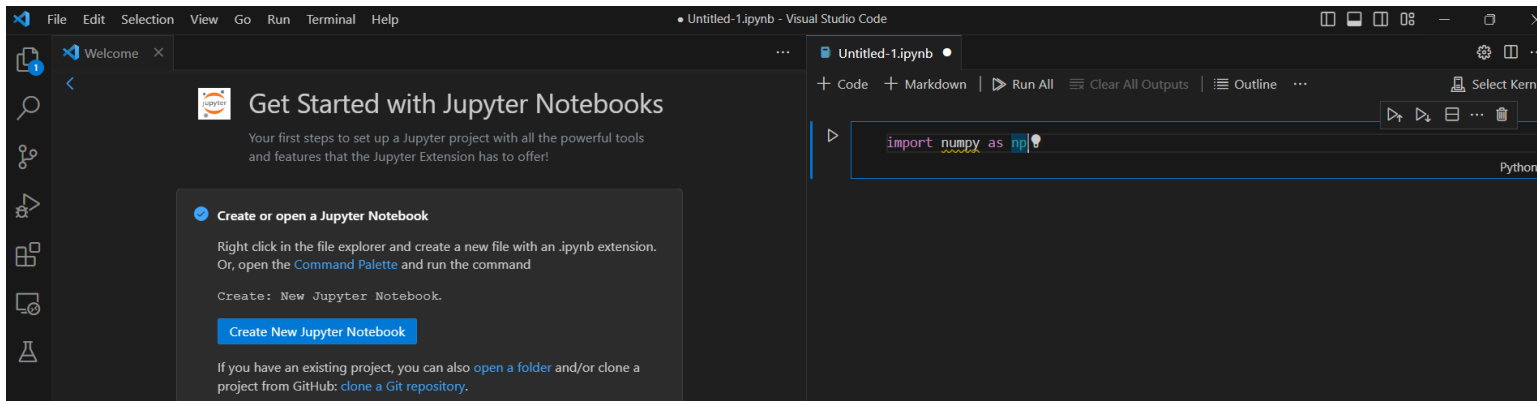
Install extensions for "WSL: Ubuntu 22.04"

- Python
- Jupyter



Jupyter Notebook in VS Code

Create a new Jupyter Notebook

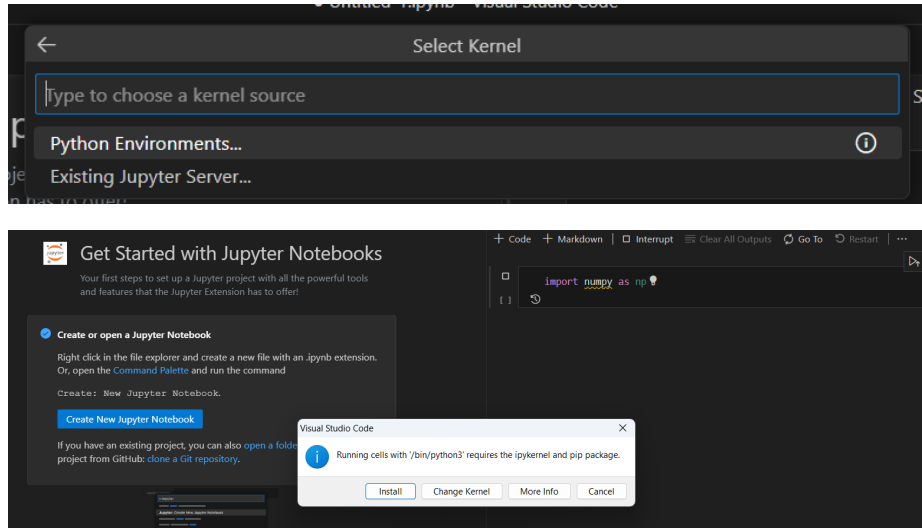


Fill the first cell

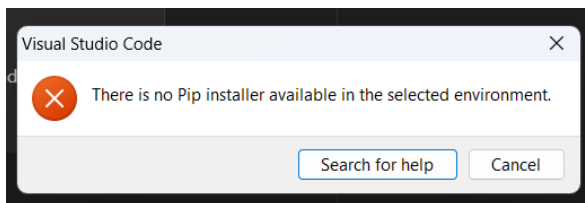
```
import numpy as np
```

Try to run the cell

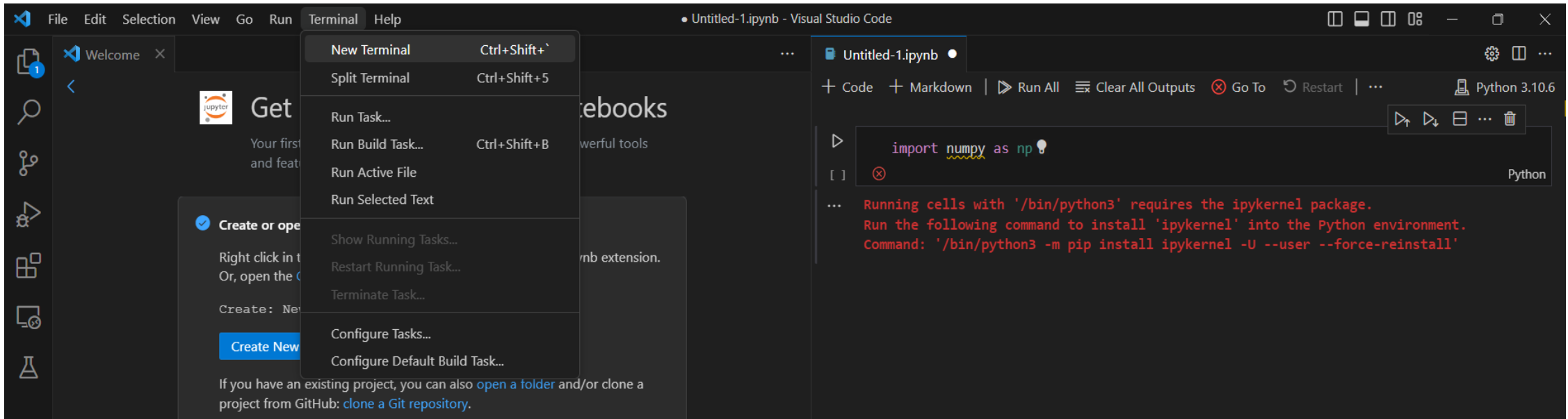
you must choose a Python environment first : Python 3.6 and **Install**



But... 



So open your first **WSL terminal** in VS Code

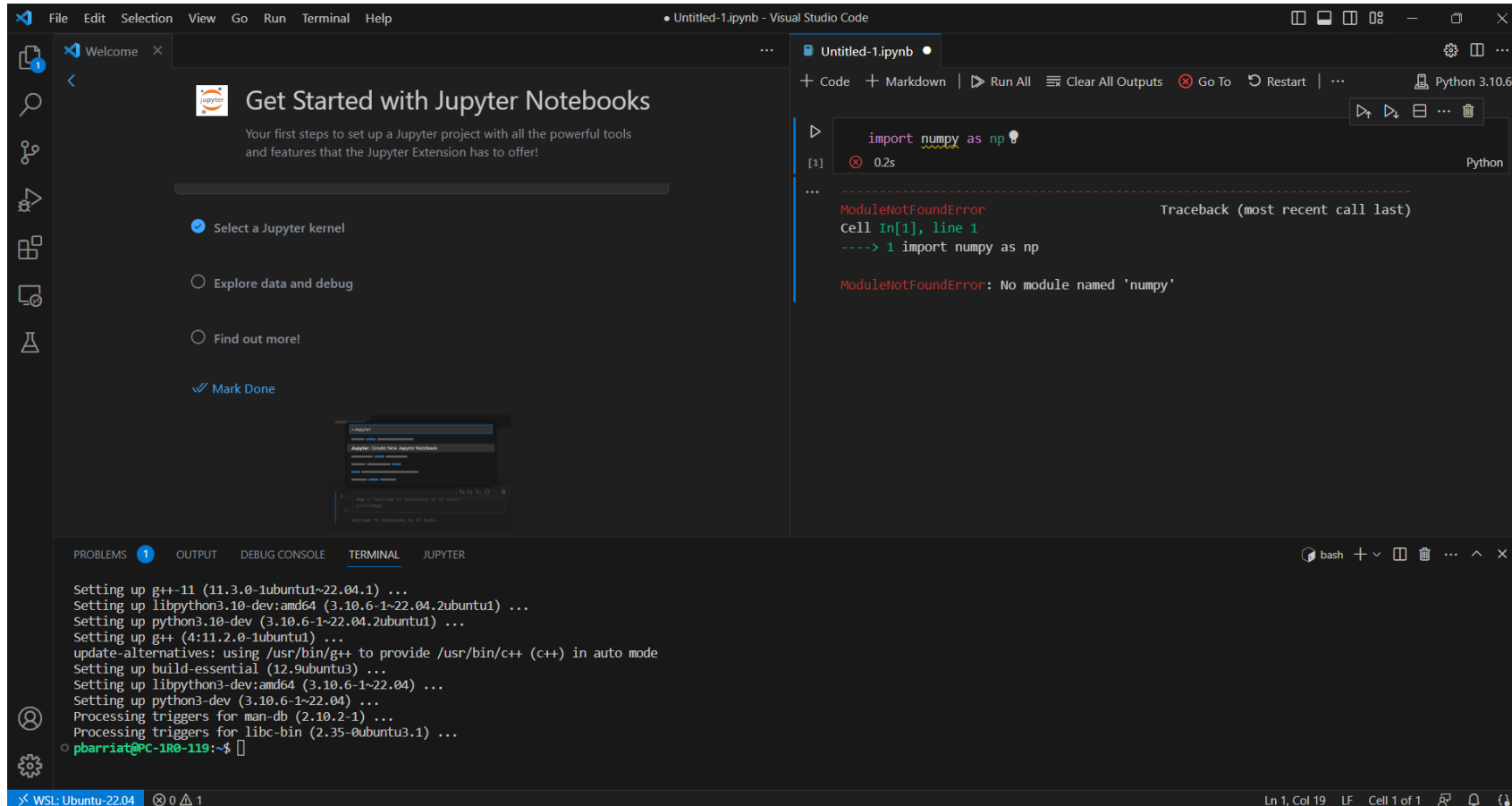


In this **Linux** terminal, do

```
sudo apt install python3-pip
```


Try again to run the cell !

But now... 



The screenshot shows the Visual Studio Code interface with a Jupyter Notebook open. The left sidebar displays the 'Get Started with Jupyter Notebooks' tutorial. The main editor area shows a code cell with the following content:

```
[1] import numpy as np
```

The cell has a status bar indicating it took 0.2s to execute. Below the code, a traceback is shown:

```
ModuleNotFoundError                                Traceback (most recent call last)
Cell In[1], line 1
----> 1 import numpy as np

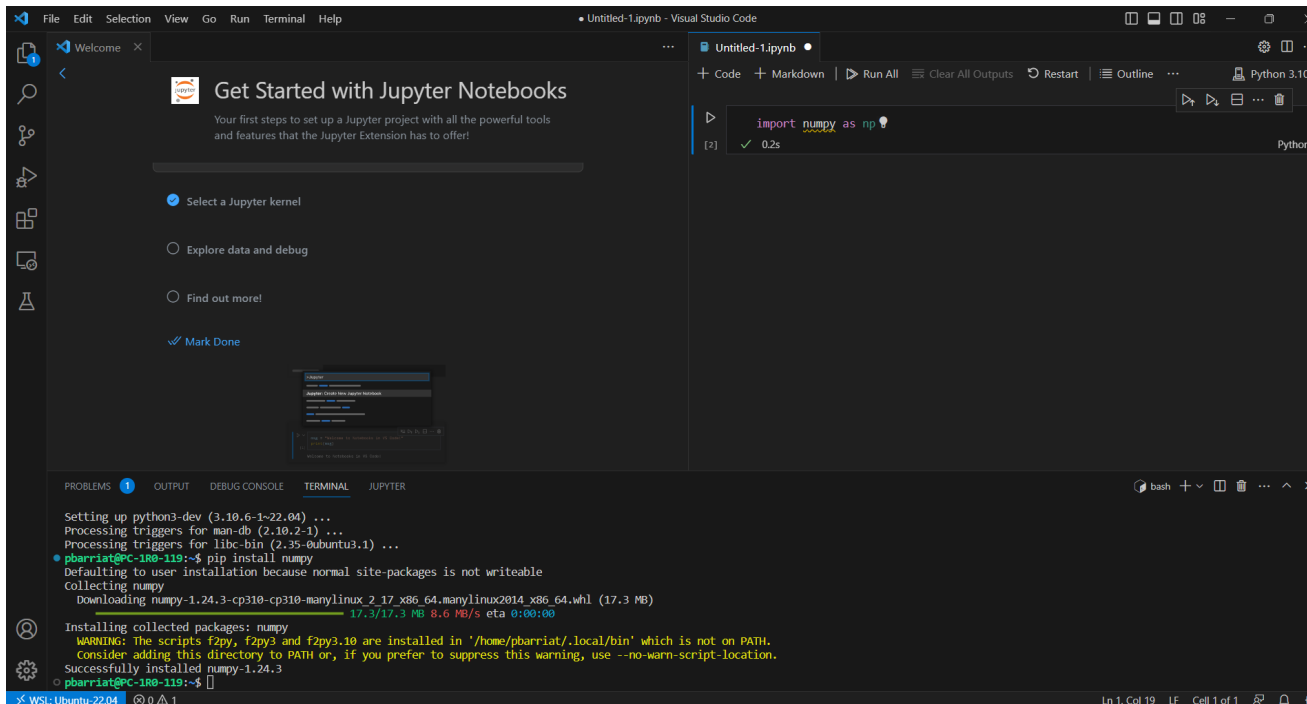
ModuleNotFoundError: No module named 'numpy'
```

The bottom panel shows the terminal output, which includes the following text:

```
Setting up g++-11 (11.3.0-1ubuntu1~22.04.1) ...
Setting up libpython3.10-dev:amd64 (3.10.6-1~22.04.2ubuntu1) ...
Setting up python3.10-dev (3.10.6-1~22.04.2ubuntu1) ...
Setting up g++ (4:11.2.0-1ubuntu1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.9ubuntu3) ...
Setting up libpython3-dev:amd64 (3.10.6-1~22.04) ...
Setting up python3-dev (3.10.6-1~22.04) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
pbarriat@PC-1R0-119:~$
```

In your **Linux** terminal, install the missing Python extension ...

```
pip instal numpy
```



The screenshot shows the Visual Studio Code interface with a Jupyter Notebook open. The notebook cell contains the code `import numpy as np`. The terminal at the bottom shows the command `pip install numpy` being executed. The output indicates that numpy-1.24.3-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (17.3 MB) is being downloaded and installed. A warning message is also visible: `WARNING: The scripts f2py, f2py3 and f2py3.10 are installed in '/home/pbarriat/.local/bin' which is not on PATH. Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.` The terminal prompt is `pbarrist@PC-180-119:~$`.

... and run the cell again: great, it's OK now 😊

Let's try a full notebook example

First clone this **Git repository**

```
git clone https://gogs.elic.ucl.ac.be/pbarriat/learning-vscode
```

You don't already know what's Git ?

Shame on you ! 🙄

It's not to late: take a look here

https://gogs.elic.ucl.ac.be/TECLIM/Git_Training

Now open the file `example.ipynb`

The first cell implies you must install some requirements

To run this example, install the extensions below

```
pip install netCDF4  
sudo apt install libgeos-dev libgdal-dev  
pip install cartopy
```

Now, try to run all the cells of this notebook !

Visual Studio Code for WSL