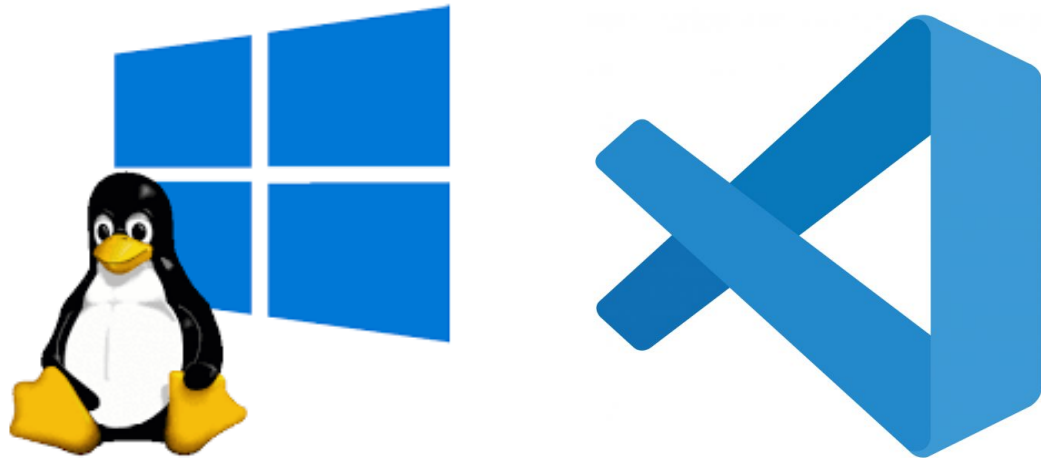


Visual Studio Code for WSL

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



Pierre-Yves Barriat

ELIC Training Sessions June 14th, 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\Sl\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

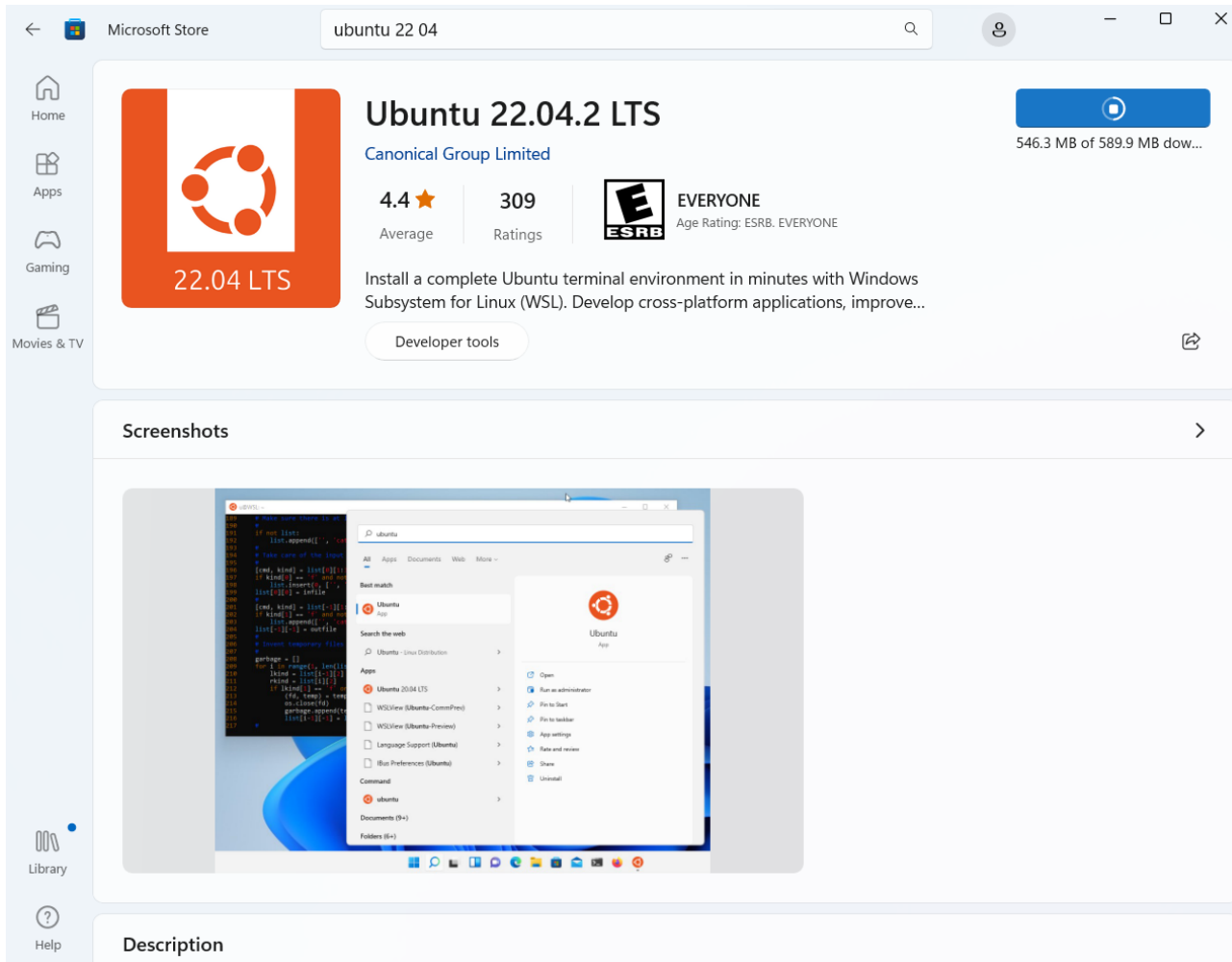
1. From CII interface, ask for an **Admin access**
2. Download the **WSL2 update** and install it (double click on the file)

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



Microsoft Store | ubuntu 22.04

Ubuntu 22.04.2 LTS

Canonical Group Limited

4.4 ★ Average | 309 Ratings

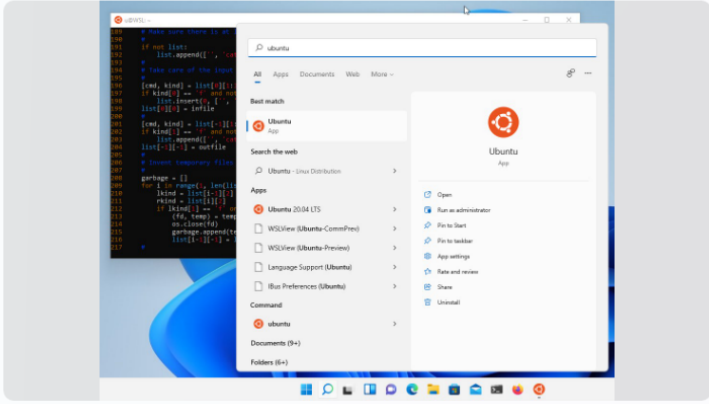
E **ESRB** **EVERYONE**
Age Rating: ESRB. EVERYONE

546.3 MB of 589.9 MB dow...

Install a complete Ubuntu terminal environment in minutes with Windows Subsystem for Linux (WSL). Develop cross-platform applications, improve...

Developer tools

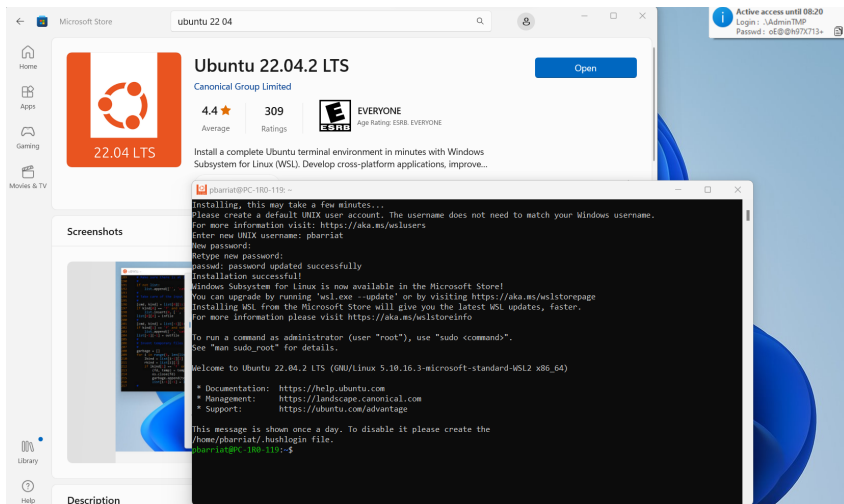
Screenshots



Description

First configuration of Ubuntu

(Open Ubuntu) and choose a login/password



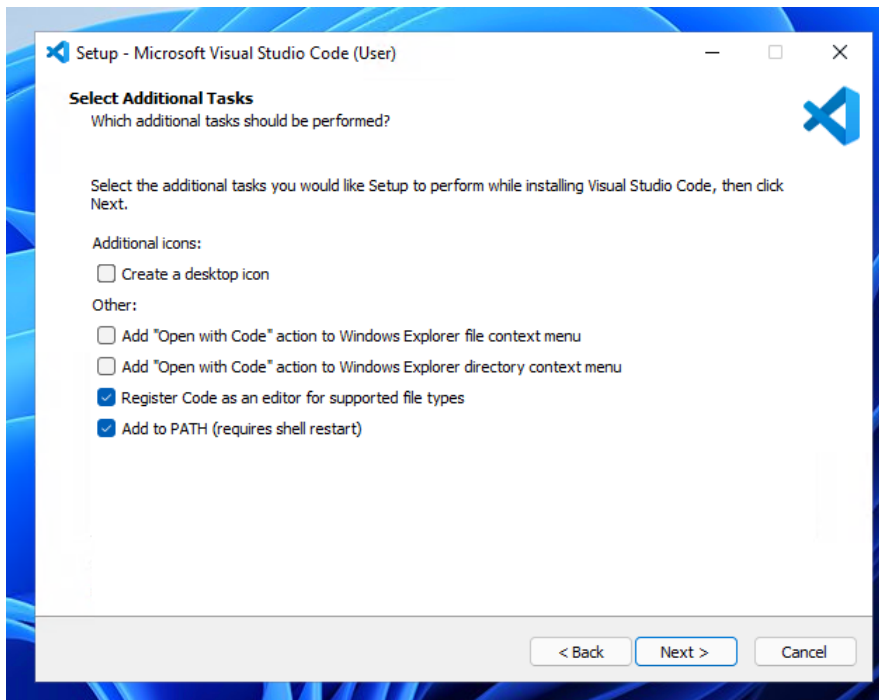
In the Ubuntu terminal do

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

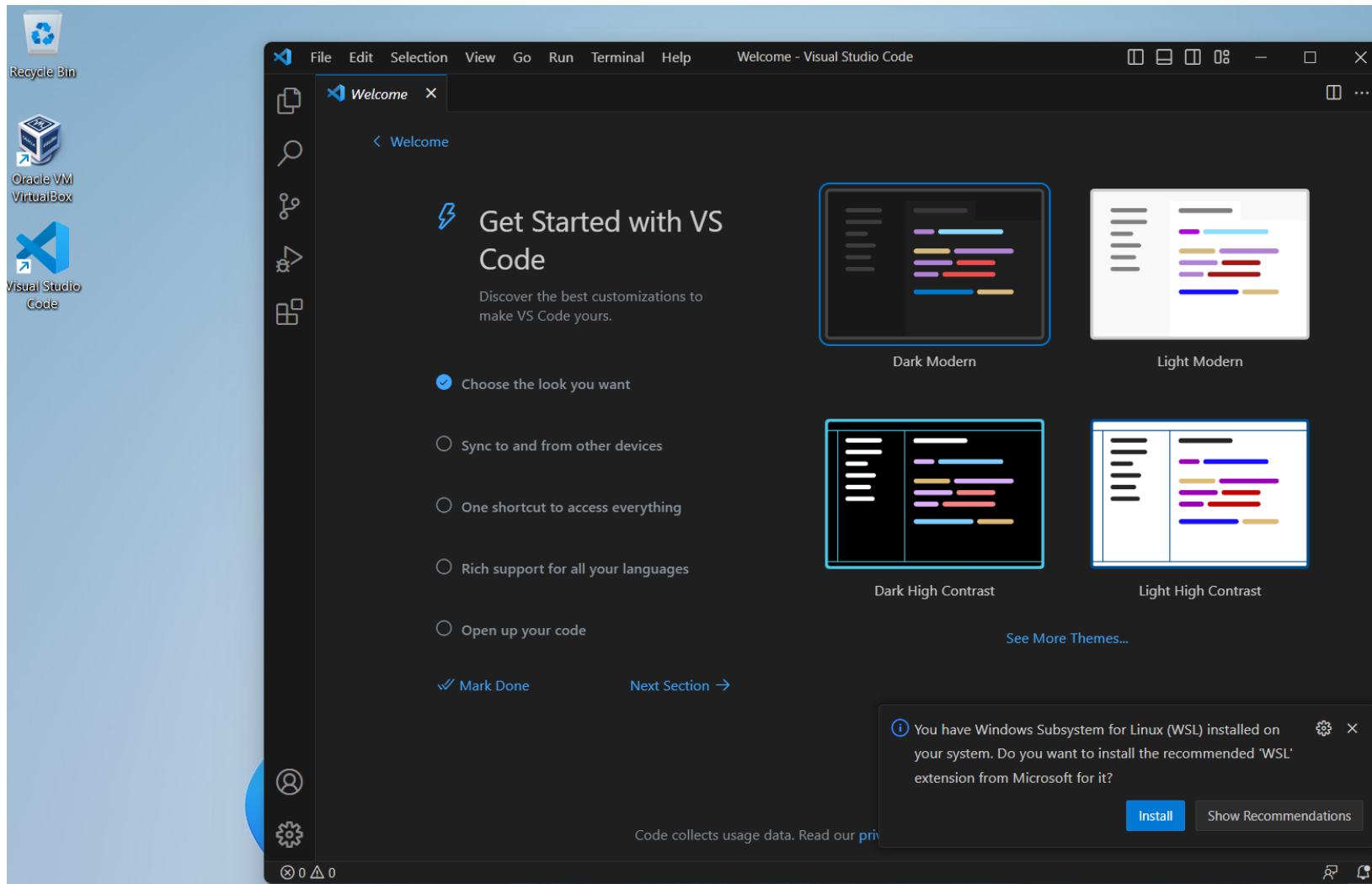
VS Code

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

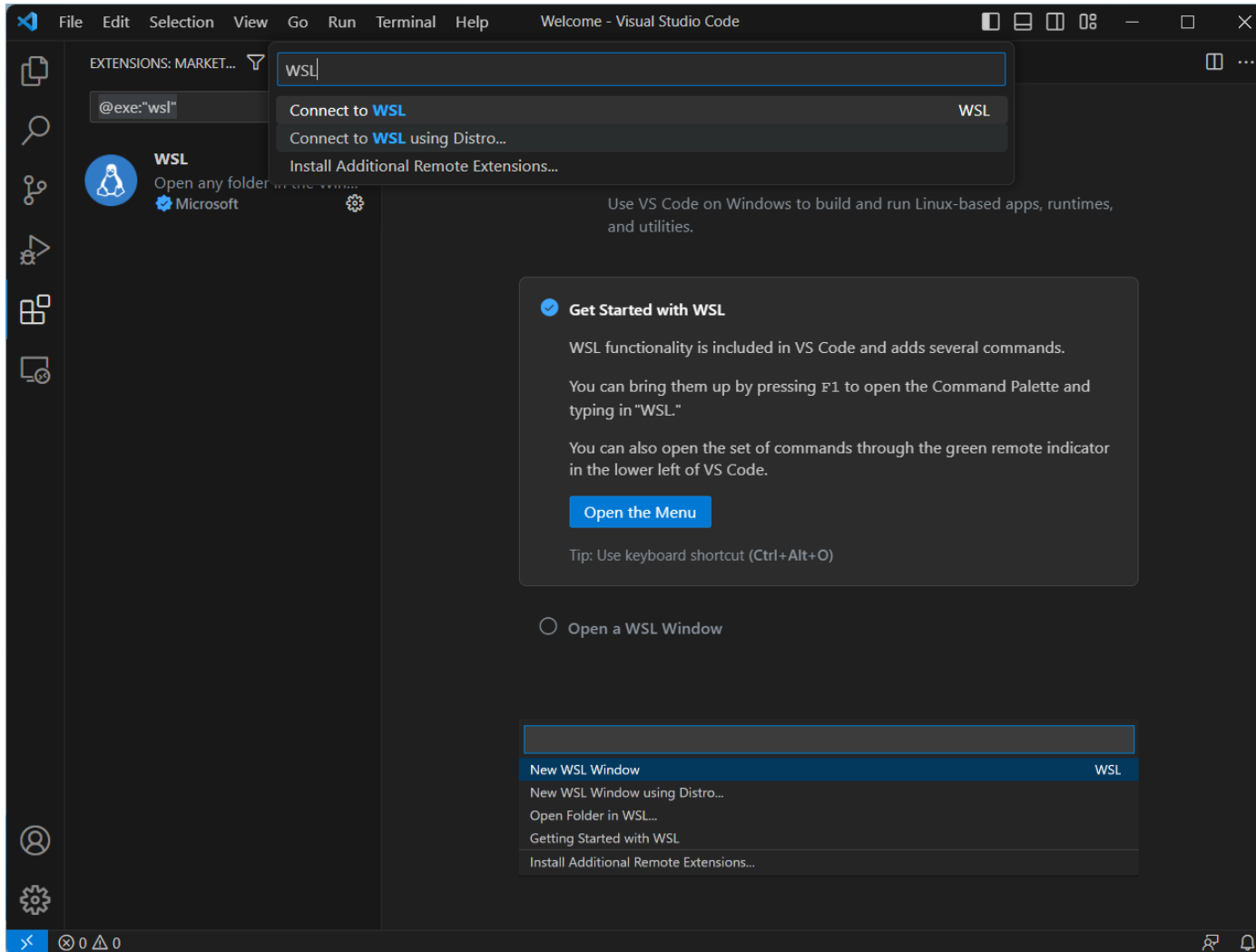
during installation, under the **Additional Tasks step**, ensure the **Add to PATH** option is checked



Open VS Code and install WSL for VS Code

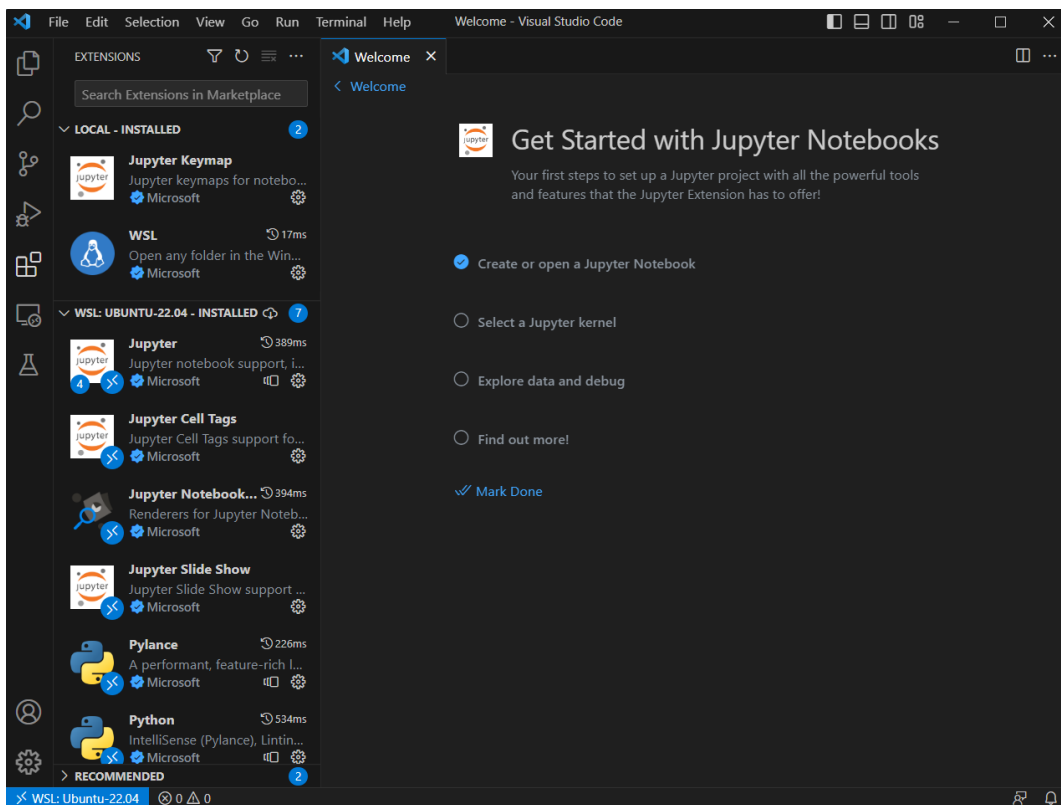


Connect to WSL using a distro (Ubuntu 22.04)



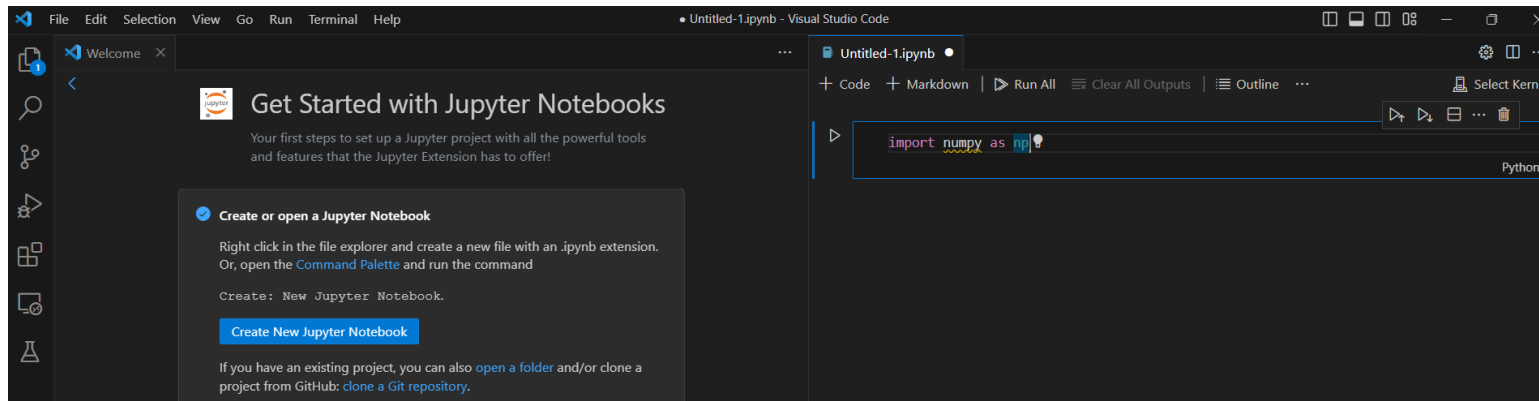
Install extensions for "WSL: Ubuntu 22.04"

- Python
- Jupyter



Jupyter Notebook in VS Code

Create a new Jupyter Notebook

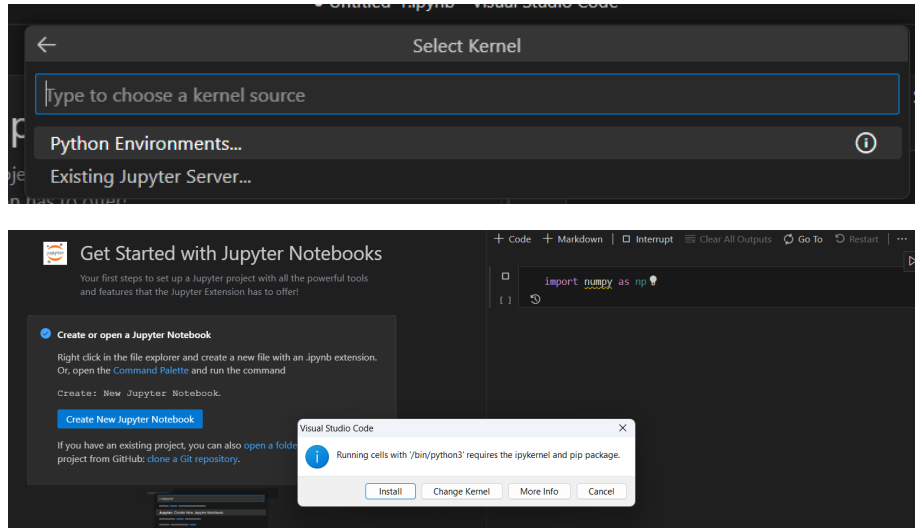


Fill the first cell

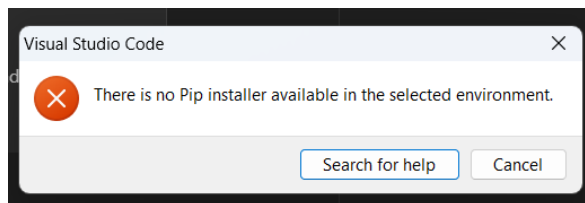
```
import numpy as np
```

Try to run the cell

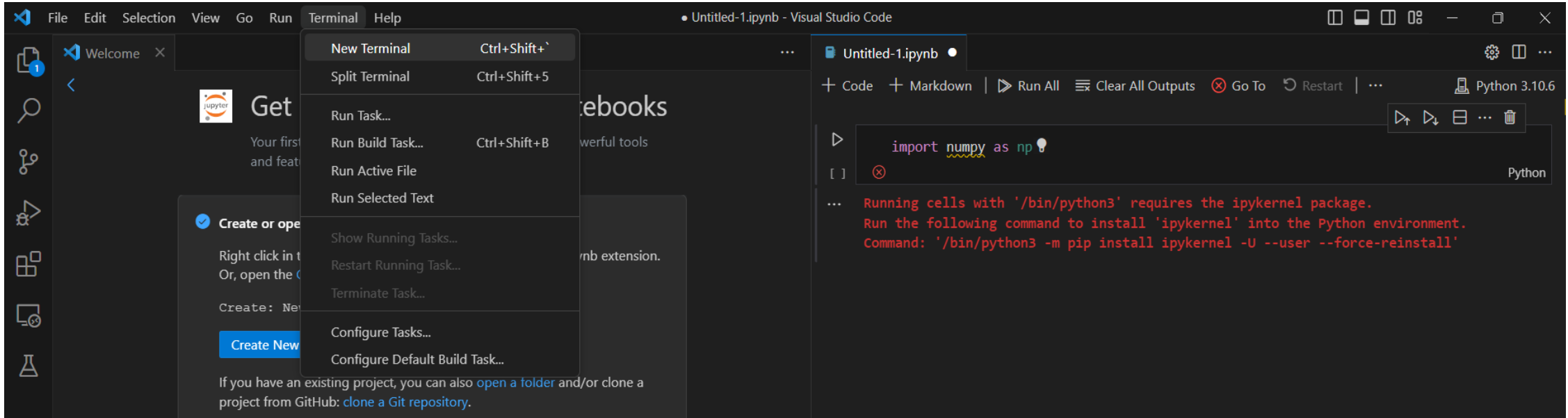
you must choose a Python environment first : Python 3.6 and **Install**



But... 



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

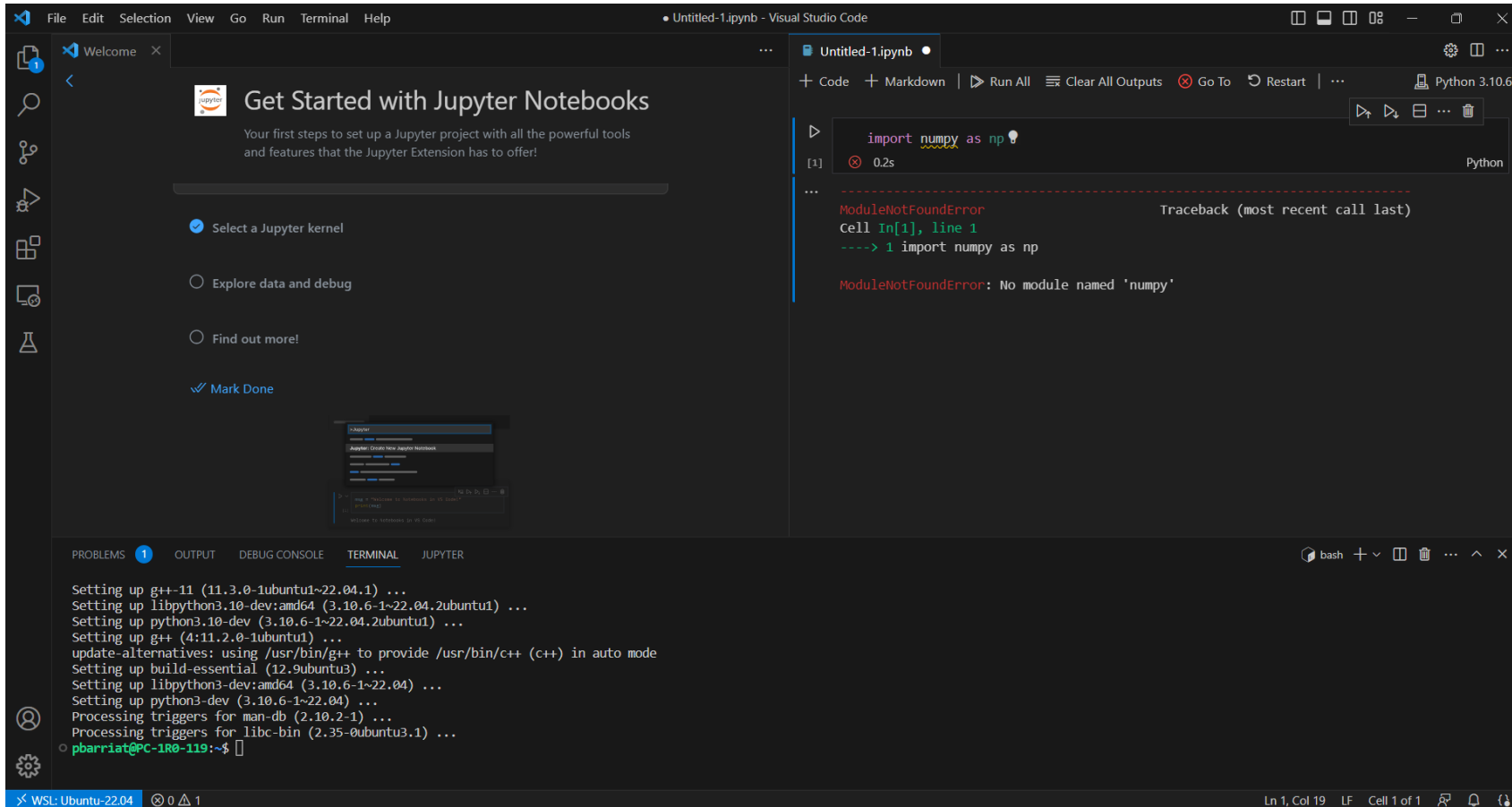


In this **Linux** terminal, do

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


Try again to run the cell !

But now... 

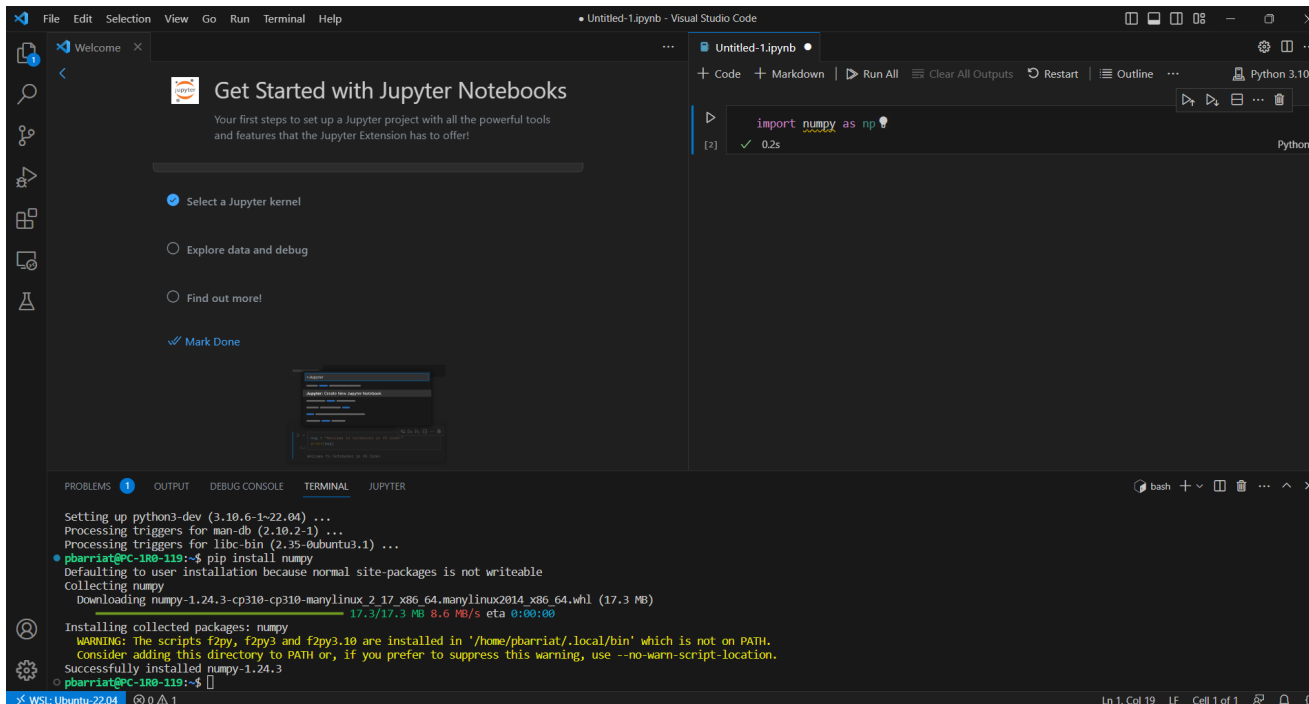


```
File Edit Selection View Go Run Terminal Help
Untitled-1.ipynb - Visual Studio Code
Welcome x
Get Started with Jupyter Notebooks
Your first steps to set up a Jupyter project with all the powerful tools and features that the Jupyter Extension has to offer!
Select a Jupyter kernel
Explore data and debug
Find out more!
Mark Done
import numpy as np
[1] 0.2s Python
ModuleNotFoundError: No module named 'numpy'
Traceback (most recent call last)
Cell In[1], line 1
----> 1 import numpy as np
ModuleNotFoundError: No module named 'numpy'
```

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 window at the bottom shows the command `pip install numpy` being executed, with the output indicating that the package was successfully installed. The terminal output includes: `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:~$ pip install numpy`, `Defaulting to user installation because normal site-packages is not writeable`, `Collecting numpy`, `Downloading numpy-1.24.3-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (17.3 MB)`, `17.3/17.3 MB 8.6 MB/s eta 0:00:00`, `Installing collected packages: numpy`, `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.`, `Successfully installed numpy-1.24.3`, and `pbarriat@PC-1R0-119:~$`.

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

Let's try a full notebook example

Install Git : `sudo apt install git -y`

Now 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