Visual Studio Code for WSL

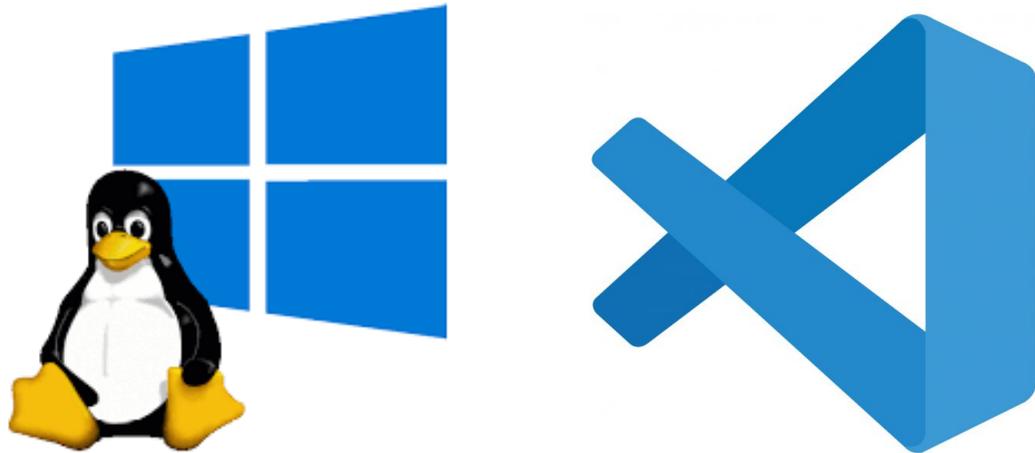https://gogs.elic.ucl.ac.be/pbarriat/learning-vscode

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ELIC Training Sessions June 14th, 2023

UCLouvain

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\S\siws-ressource	Write
sc-phys	\\oasis.uclouvain.be\dfs\Groups\S\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

> Report <
a problem

Backup DPM : 🌐

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 Microsft Store
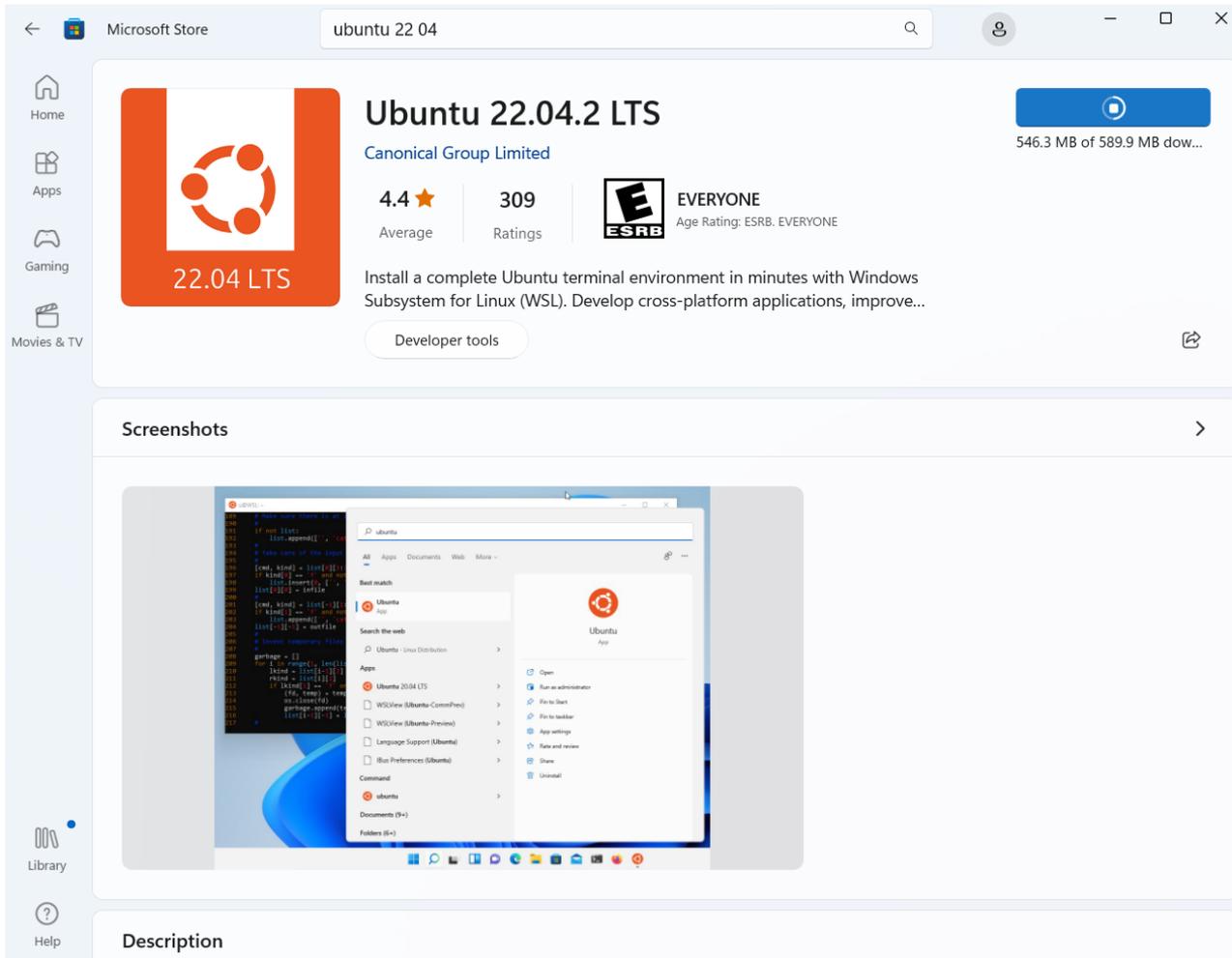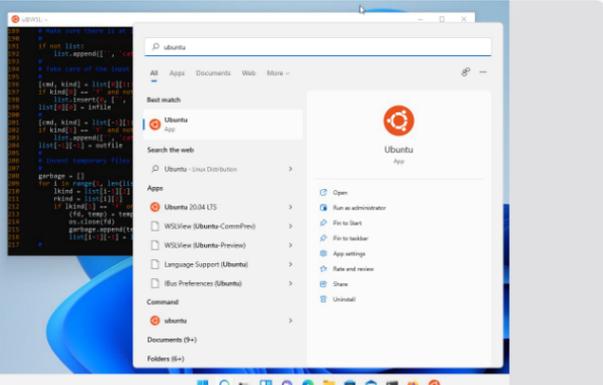
First configuration of Ubuntu

(Open Ubuntu) and choose a login/password
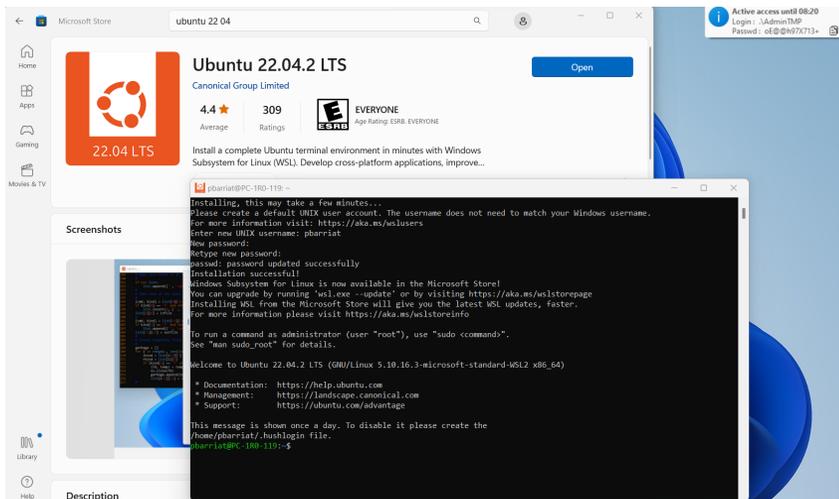
In the Ubuntu terminal do

```
sudo apt update

sudo apt upgrade
```

Graphical User Interface

Open a **Powershell terminal** in **User mode** and do

```
wsl --update
```

> maybe an Admin login/password is required (so ask for with CII interface)

Open a new **Ubuntu terminal** and do
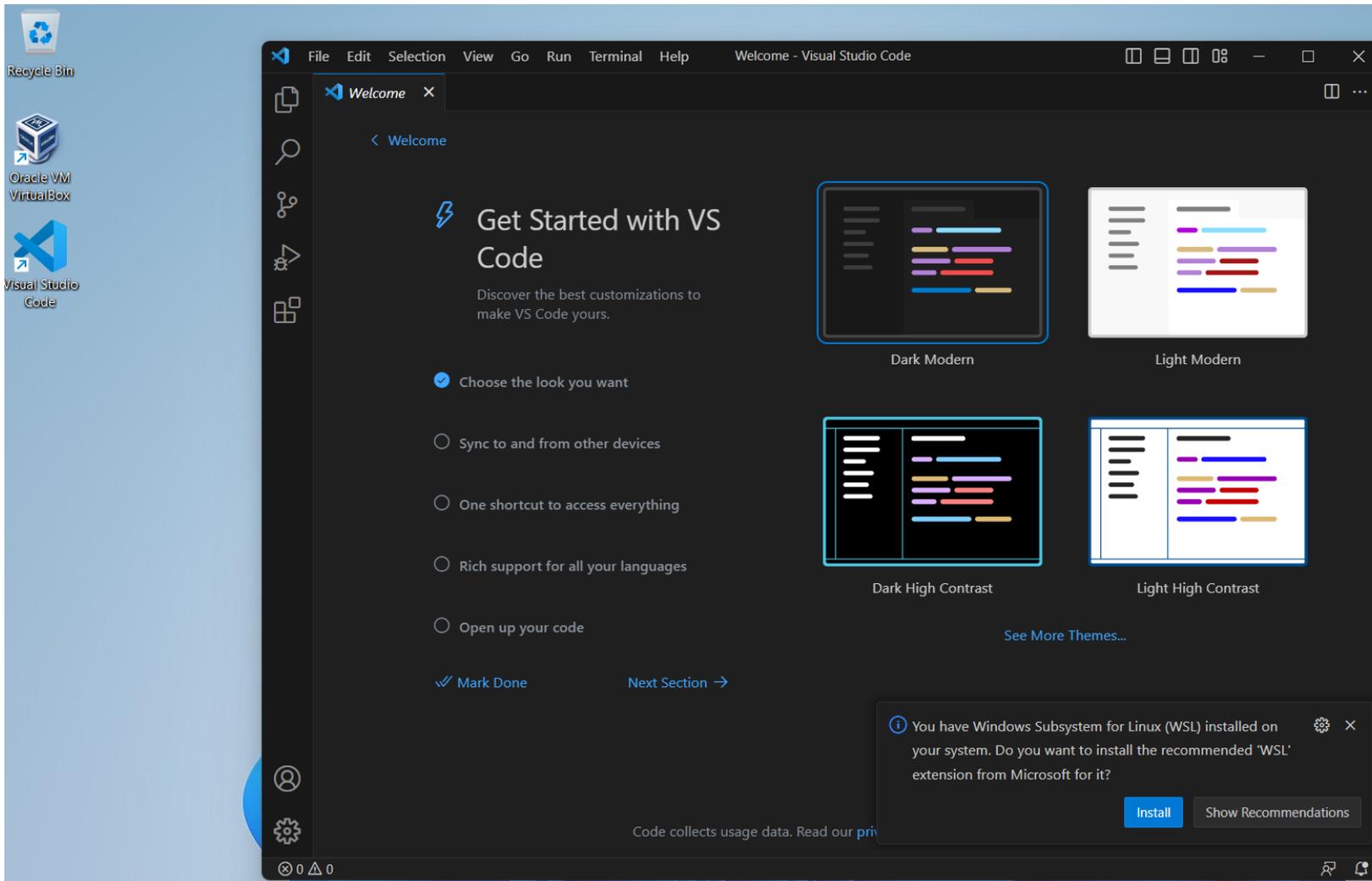
```
sudo apt update
sudo apt upgrade
sudo apt install x11-apps -y
```

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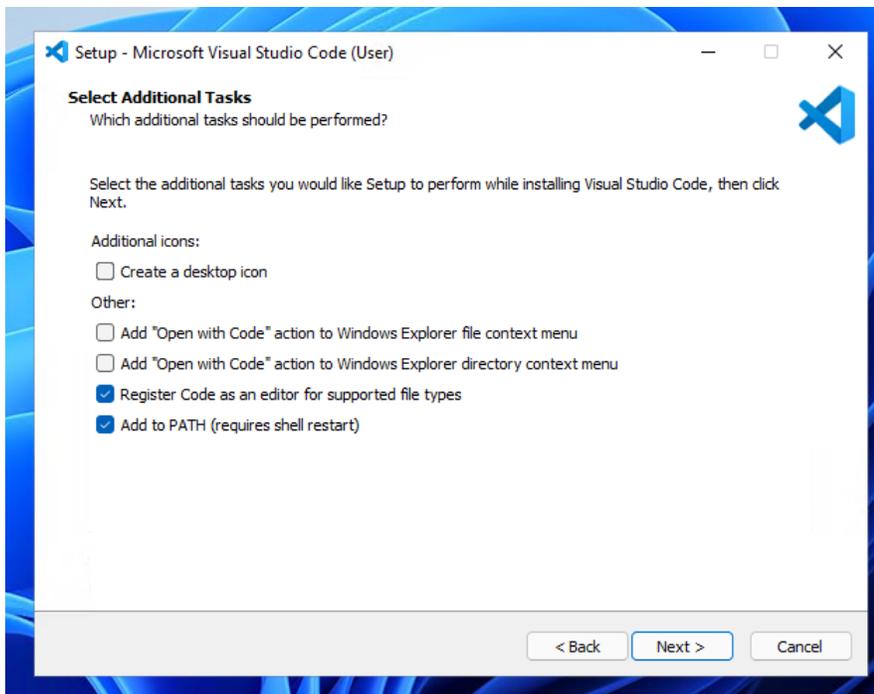
Open VS Code and install **WSL for VS Code**

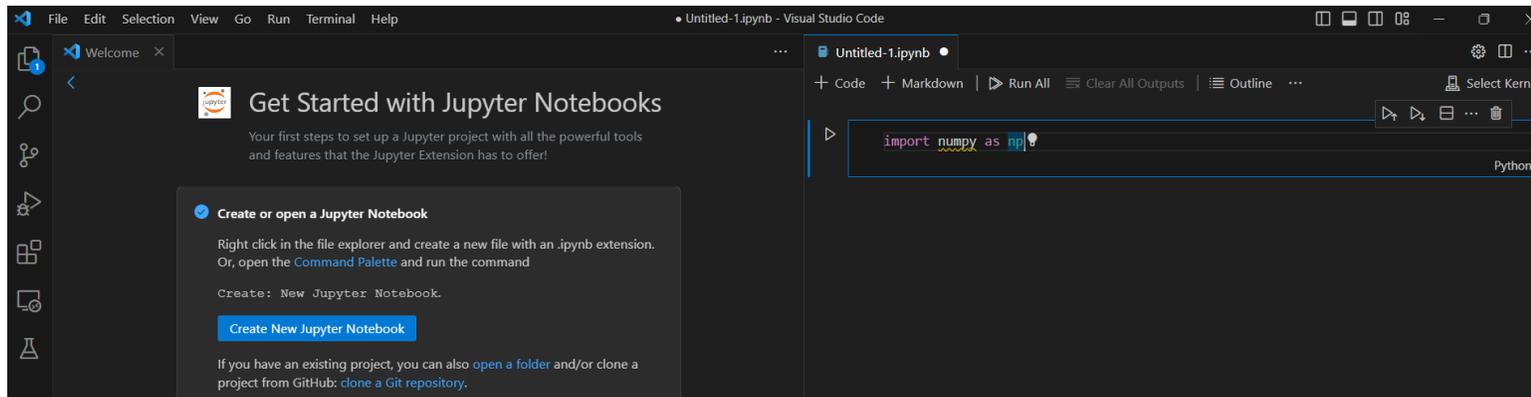# Connect to WSL using a **distro** (Ubuntu 22.04)
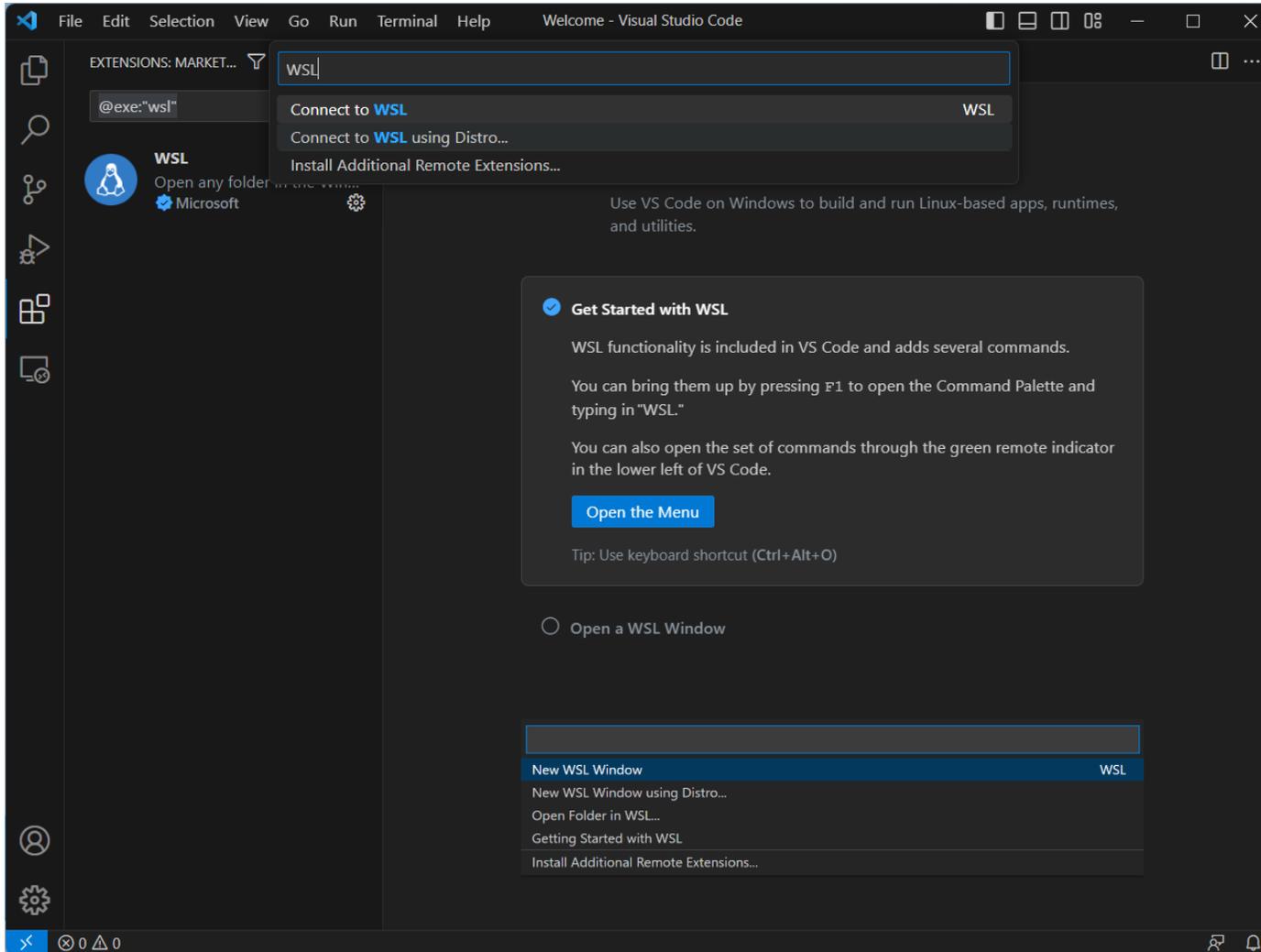
Install extensions for **"WSL: Ubuntu 22.04"**

- Python

- Jupyter
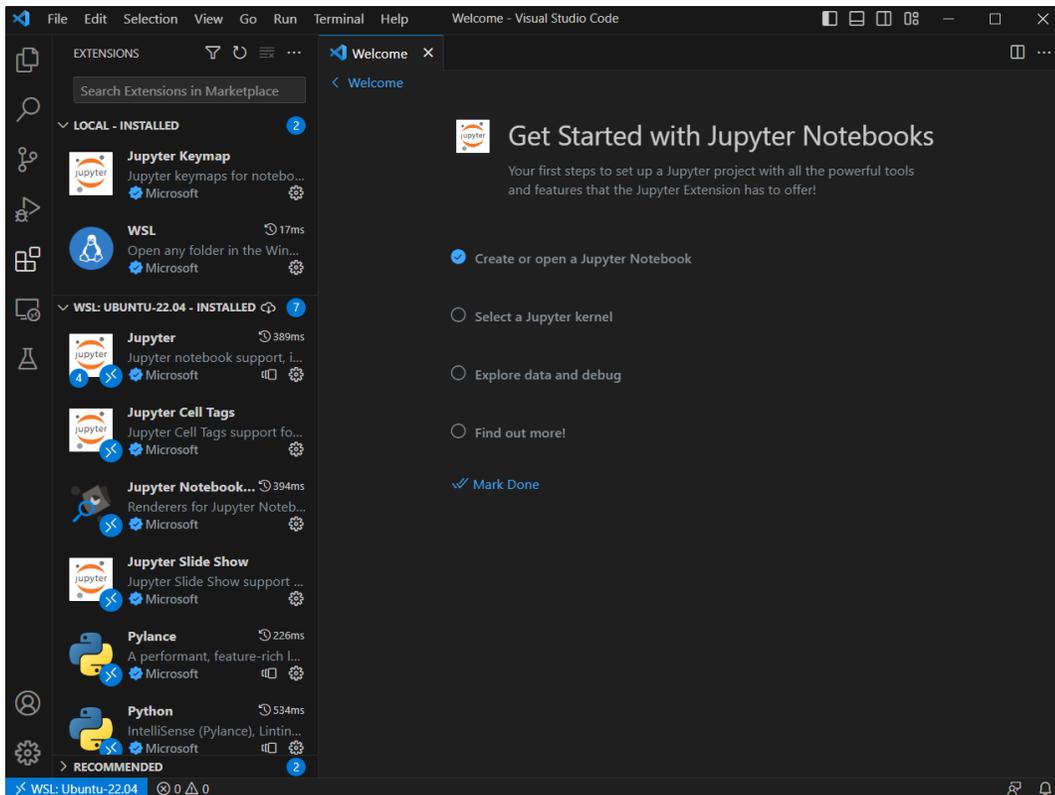
Jupyter Notebook in VS Code

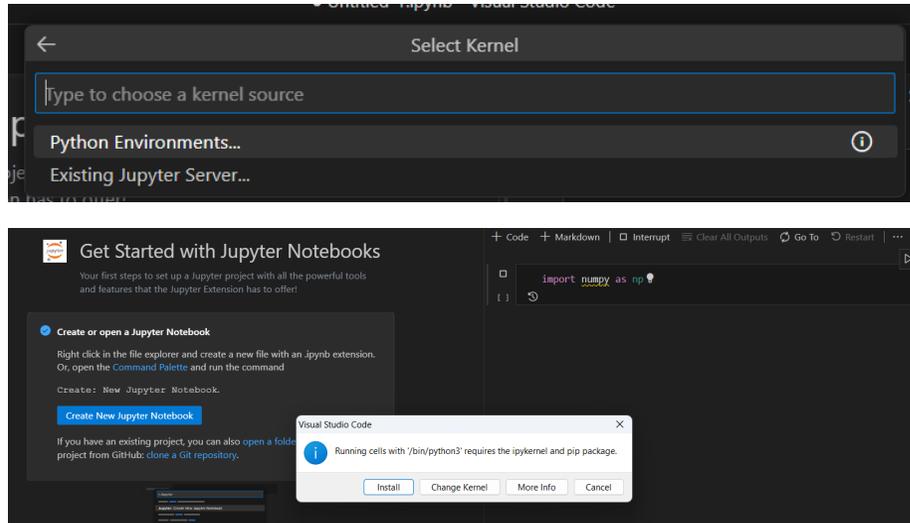Create a new Juyter Notebook

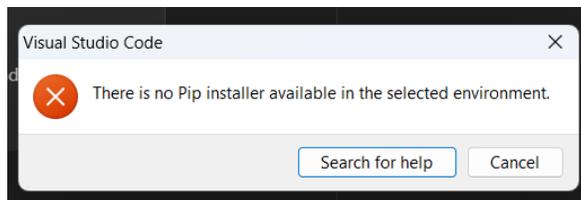Fill the first cell

```python
import numpy as np
```
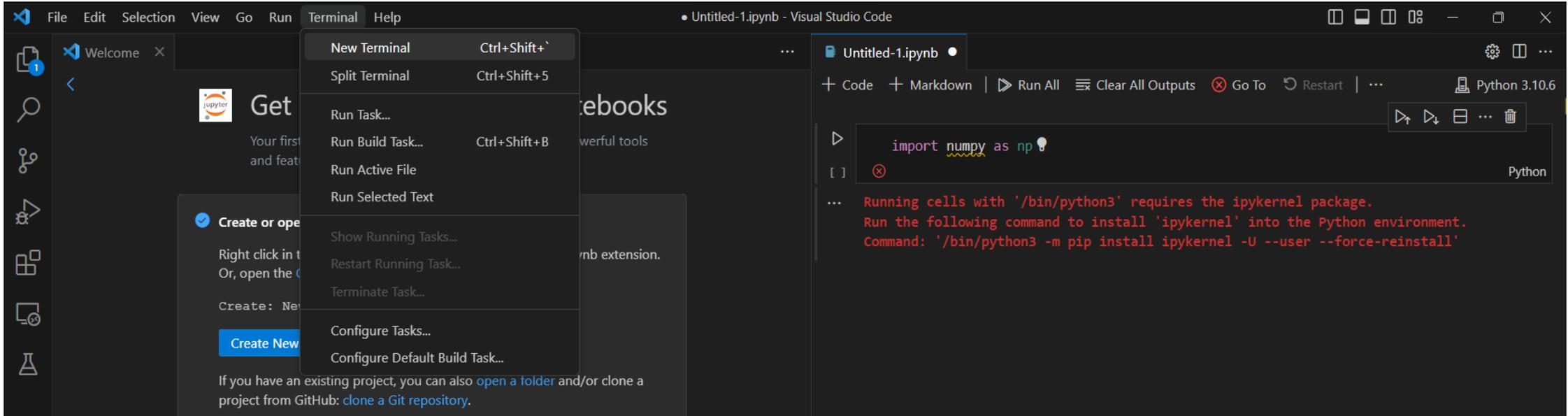
Try to run the cell

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

But... 💥

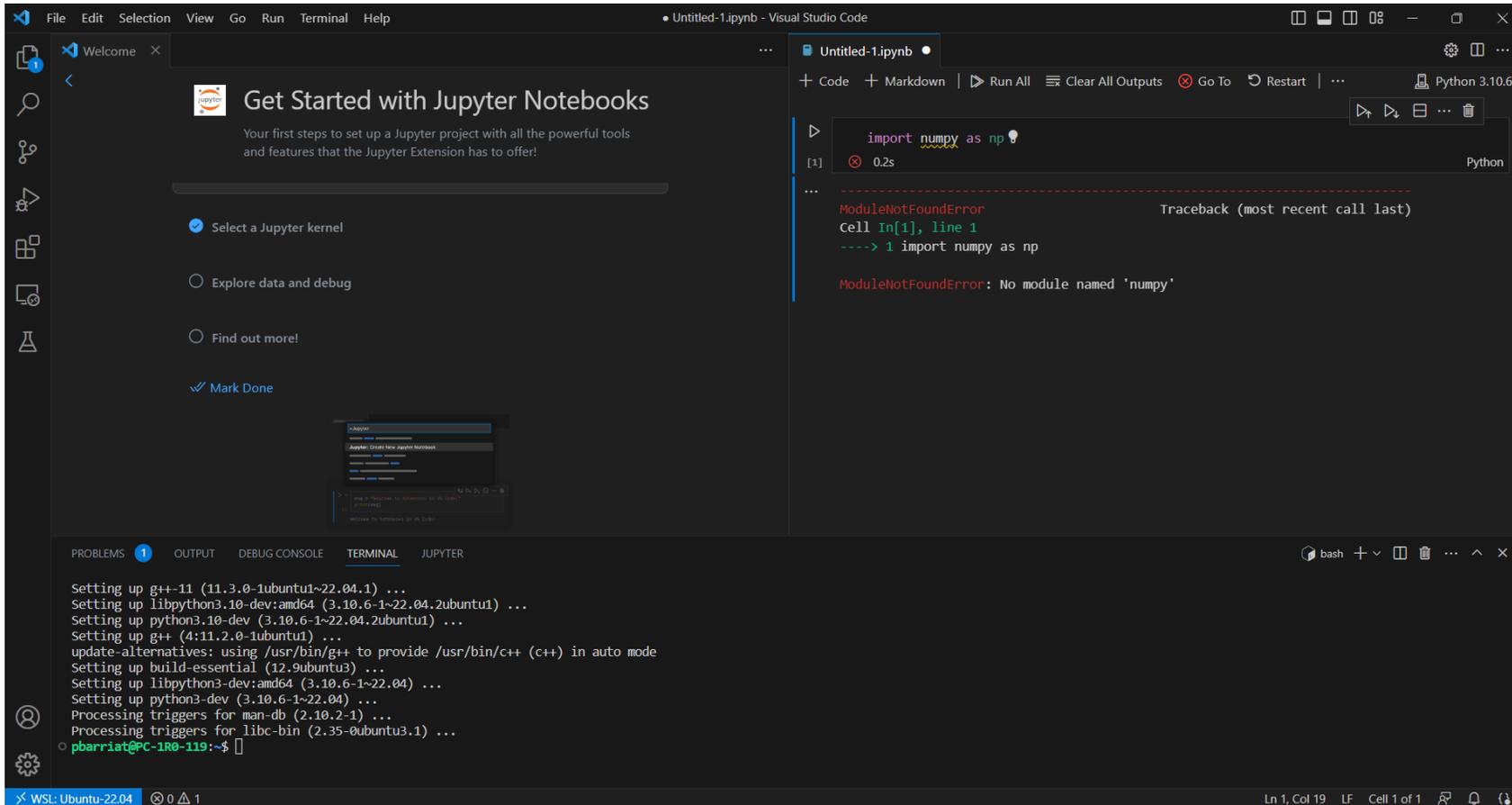# So open your first **WSL terminal** in VS Code

In this **Linux** terminal, do

```
sudo apt install python3-pip
```
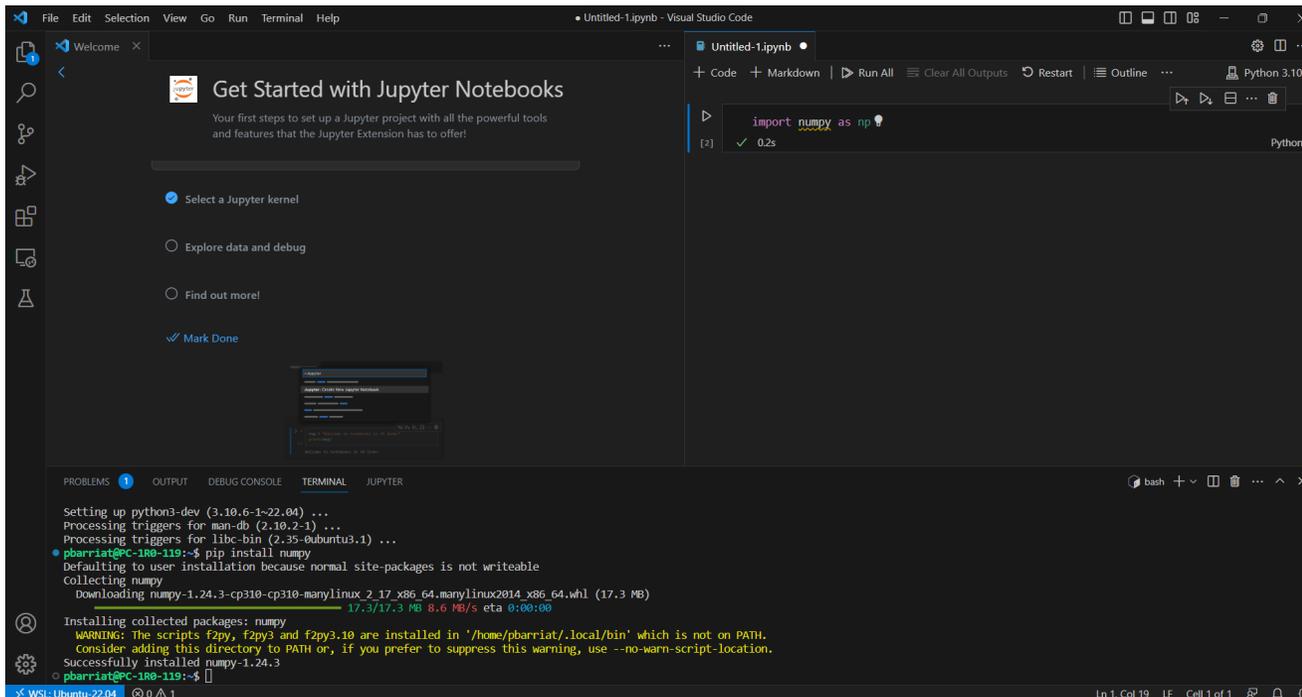
Try again to run the cell !

But now... 💥

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

```
pip instal numpy
```


... 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 ❗

VS Code nice extensions

- `Remote - SSH` : lets you use any remote machine with a SSH server

- `Tabnine` : code faster with AI code completions

- `Regex Previewer` : shows the current regular expression's matches

- `Modern Fortran` : Fortran syntax is missing in built-in version

VSCode - Remote SSH : example

Select `Remote-SSH: Open Configuration File`

```
Host cyclone
    HostName cyclone.elic.ucl.ac.be
    User pbarriat
```

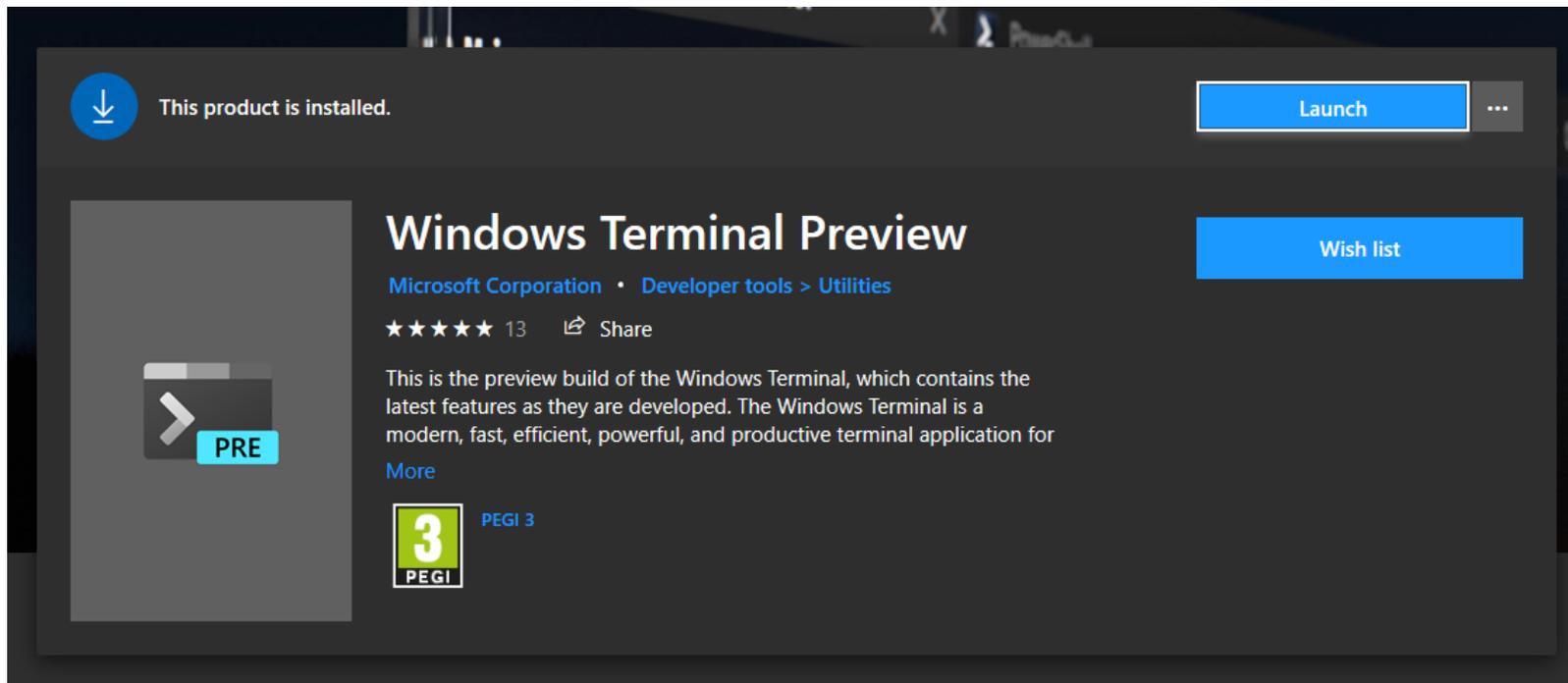Visual Studio Code is now configured and ready to connect to your server :

click on the green `Open a remote window` button in the bottom left-hand corner and select `Remote-SSH: Connect to Host`

> On ELIC workstation, choose a Python environment from `ELIC_Python` module :
>
> `/opt/easybuild/...`

Ubuntu with WSL (and without VS Code)

I strongly recommand to install `Windows Terminal Preview` from **Microsft Store**

Visual Studio Code for WSL 💬