COMP2005 Laboratory Sheet 0: Setting Up Python Environment

1. Installing Python

For **Windows** users:

- Visit this website: https://www.python.org/downloads/windows/
- Download the latest version of Python (Figure 1).

Figure 1

For **macOS** users:

- Visit this website: https://www.python.org/downloads/macos/
- Download the latest version of Python (Figure 2).

Figure 2

Run the executable file.

- Select both the checkboxes in Figure 3 and click *Install Now*. The installation should start on your computer.

Figure 3

2. Installing PyCharm

PyCharm is one of the most popular Integrated Development Experience (IDE) for Python programming, and we will be using it for all future labs.

- Visit this website: https://www.jetbrains.com/pycharm/download/
- Select either *Windows* or *macOS* in Figure 4.
- Download *PyCharm Community Edition.*

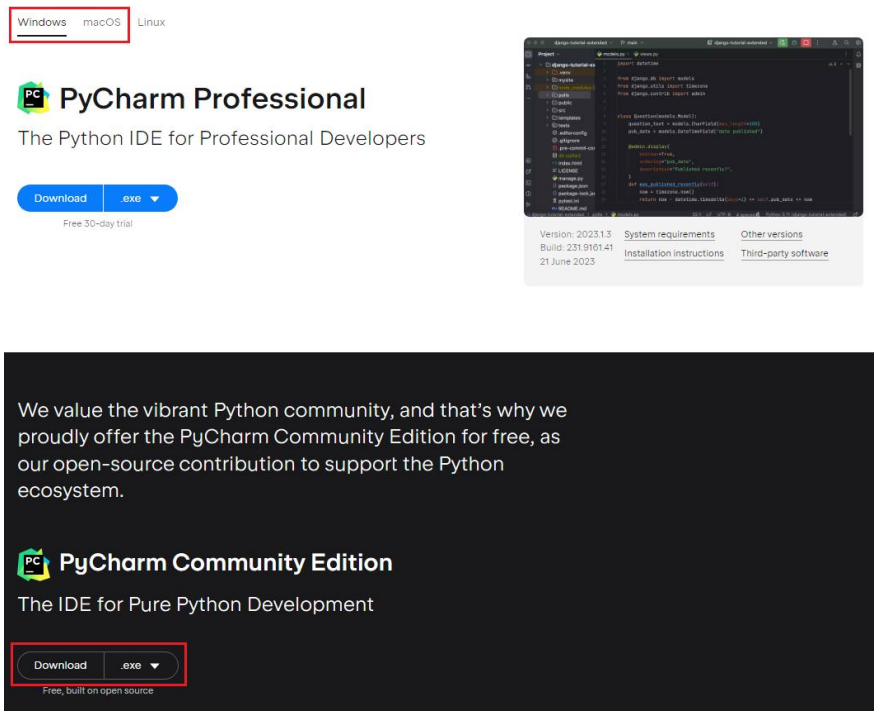

Figure 4

Run the executable file.

- Click *Next* in Figure 5.

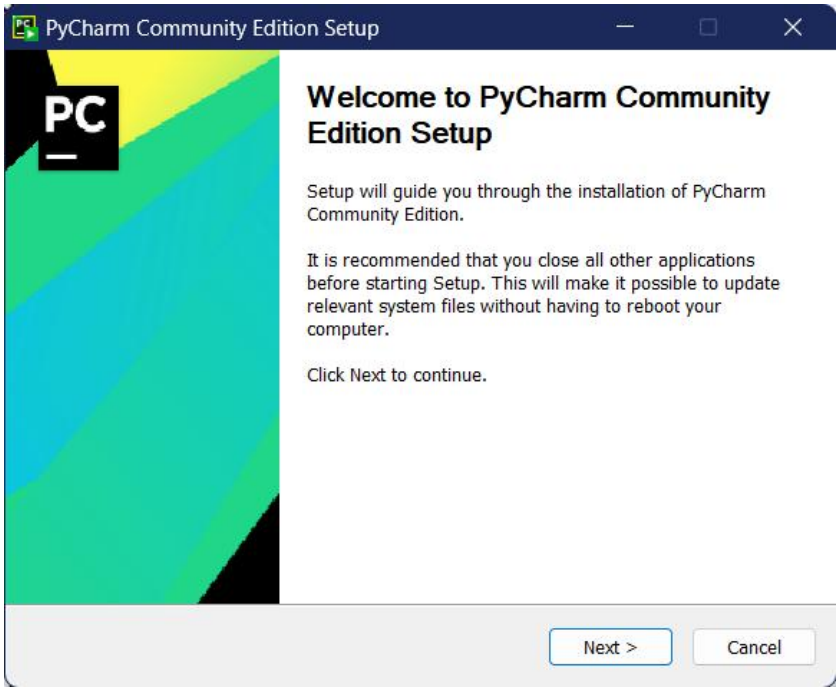

Figure 5

- You may select a different destination folder or just retain the default in Figure 6. Then, click *Next*.

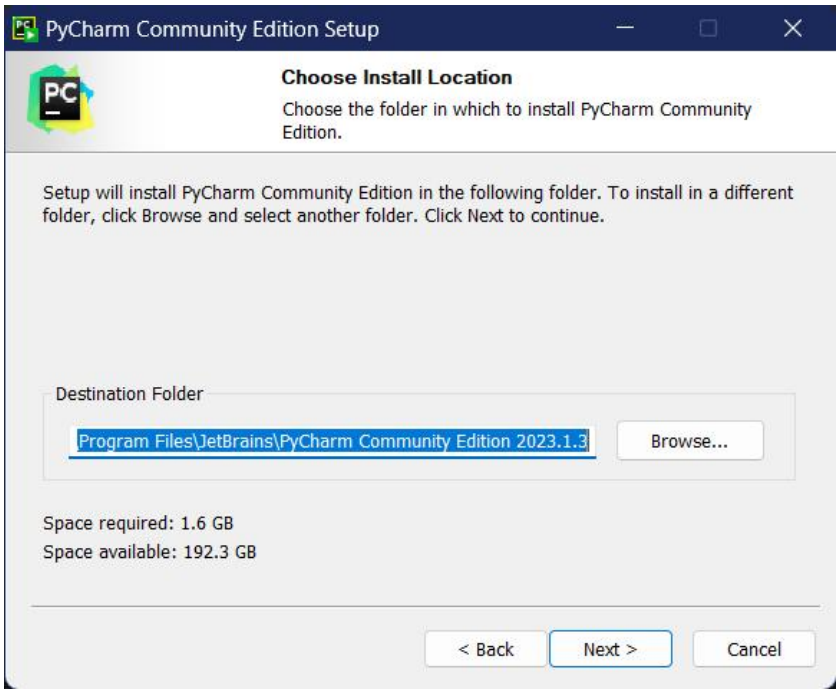

Figure 6

- The installation options in Figure 7 are up to individual preferences, but none of them is required. Then, click *Next*.
    - *Create Desktop Shortcut*
    - *Update Context Menu*: When right-clicking a folder, the option to open the folder as a project in PyCharm will be available.
    - *Create Associations*: Sets PyCharm as the default application to open a .py file.
    - *Update PATH Variable*: Allows PyCharm to be accessed from Command Prompt.

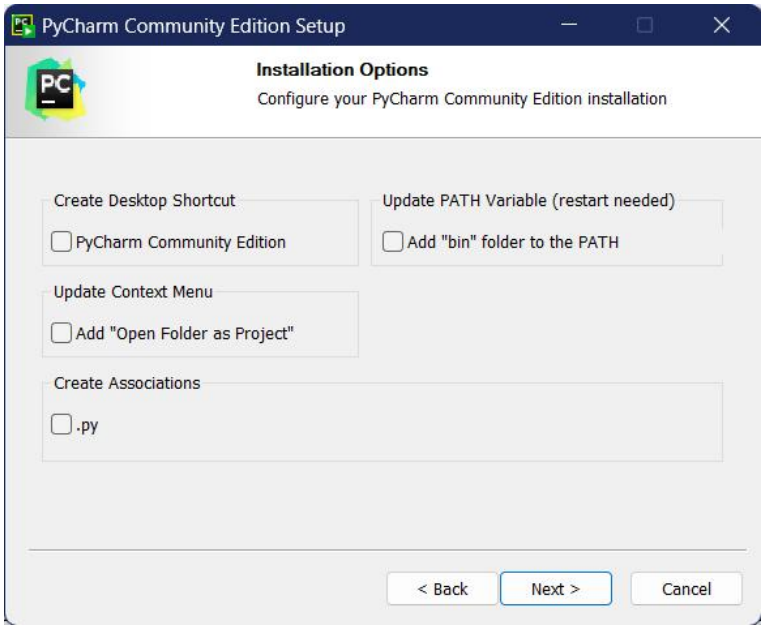

Figure 7

- You may select a different Start Menu folder or continue with the default in Figure 8. Click *Install* to commence the installation process.

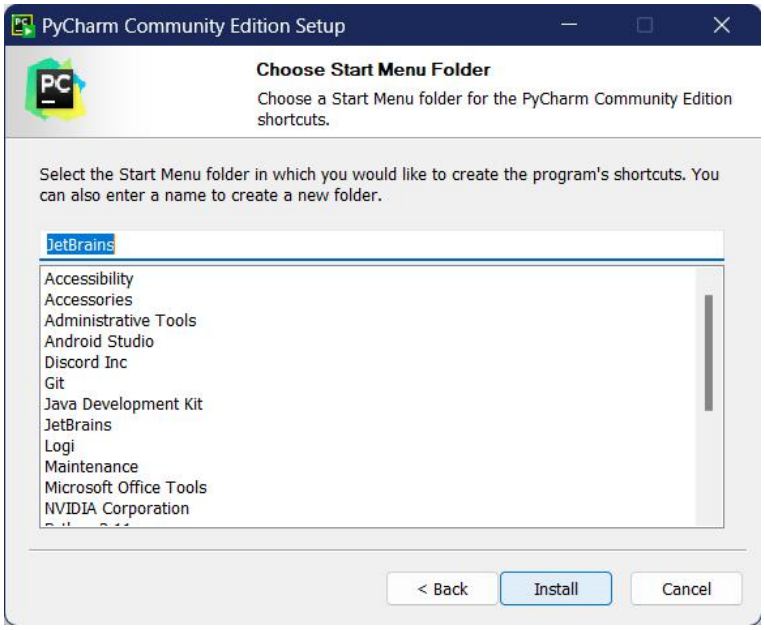

Figure 8

3. Coding with Python

Run PyCharm.

- The welcome screen in Figure 9 will be displayed. Click *New Project*.

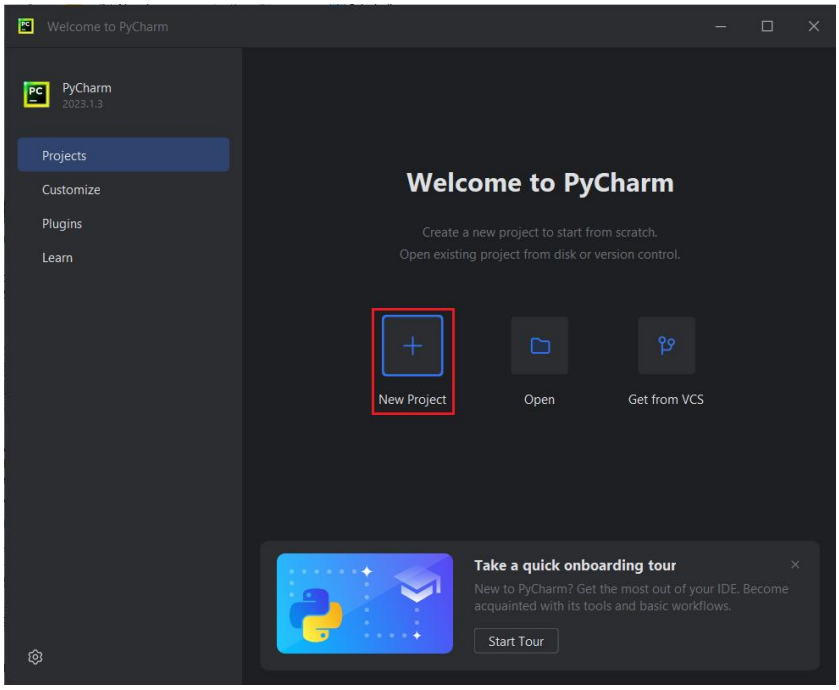

Figure 9

- In Figure 10, select the directory for the project and provide a name for it (in this case, the project name is *Lab*). Ensure the path stated in the base interpreter is the path to the Python executable. Then, click *Create*.

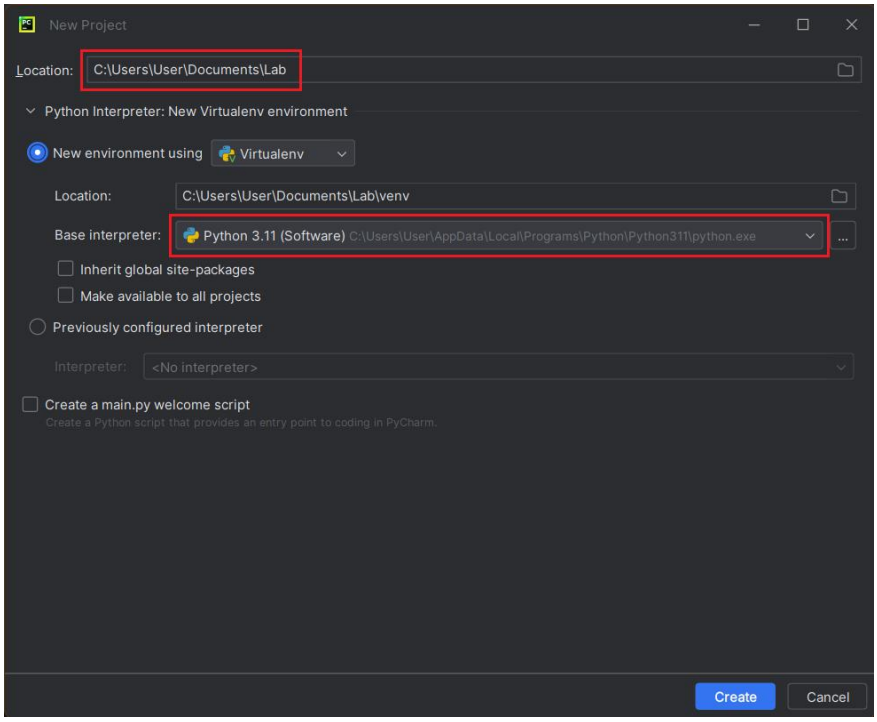

Figure 10

- Once the project has been successfully created, Figure 11 will be shown. Currently, there are no files in the project besides the *venv* folder.

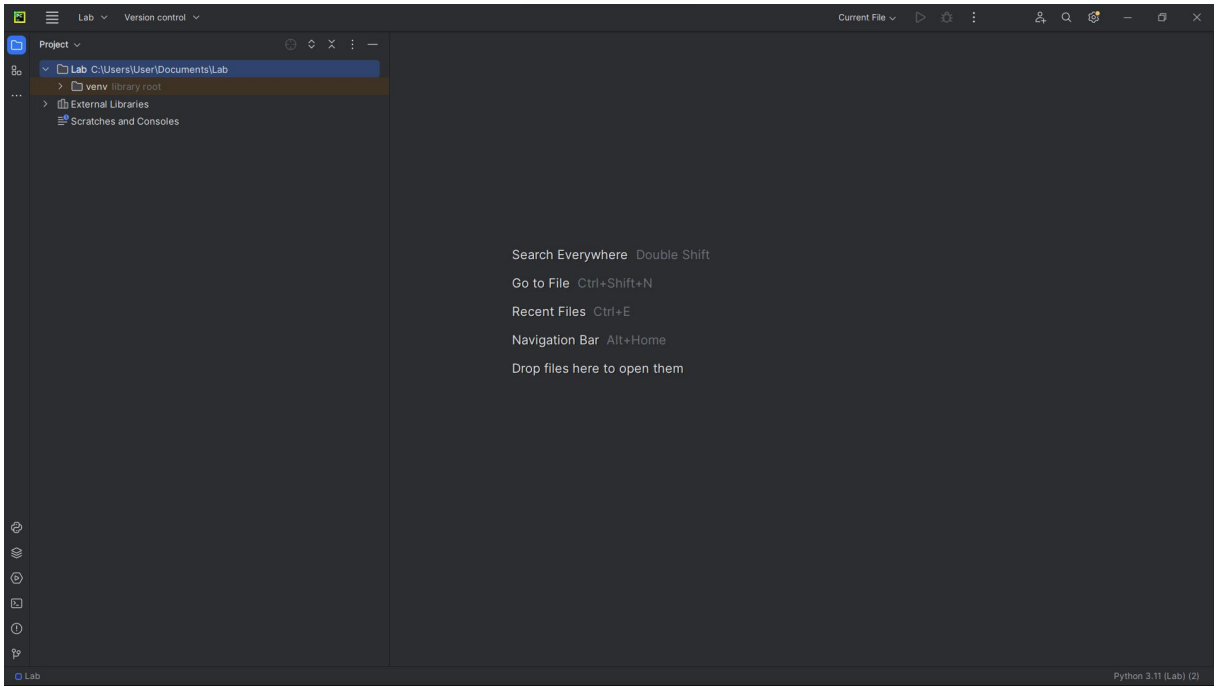

Figure 11

- We can create a Python file by right-clicking the project root in Figure 12 (the *Lab* folder) and selecting *New* | *Python File*. Name the Python file as “Lab1”.

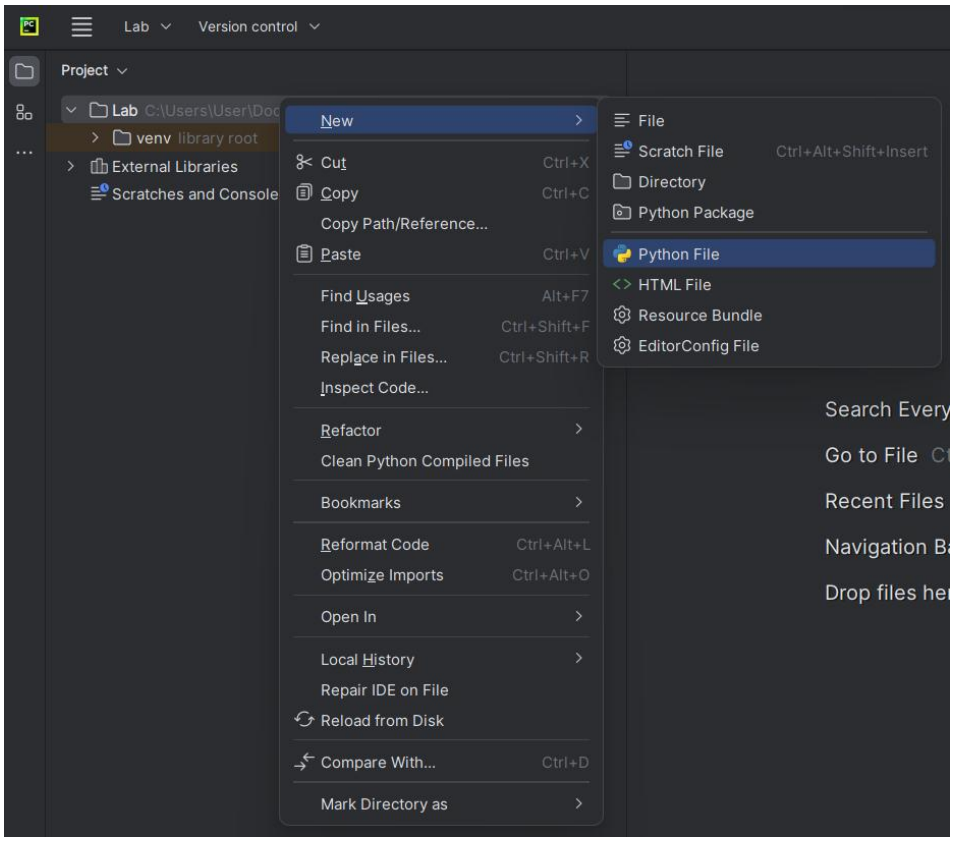

Figure 12

Now, let's run a simple code to ensure that Python and PyCharm are set up and functioning.

- Type the following code into Lab1.py.
  - *print("Welcome to Image Processing")*
- Run the Lab1.py file by right-clicking anywhere in the Lab1 editor and selecting *Run 'Lab1'* (Figure 13).

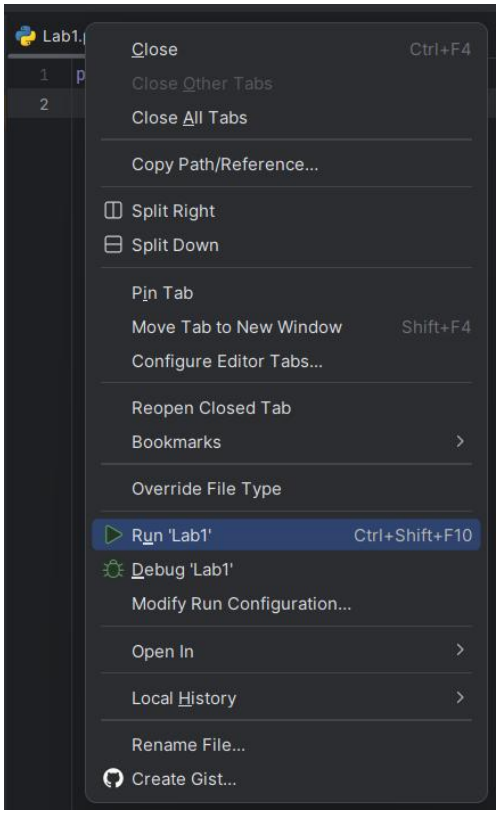

Figure 13

- If your Run tool window displays Figure 14, you have successfully installed Python and PyCharm.

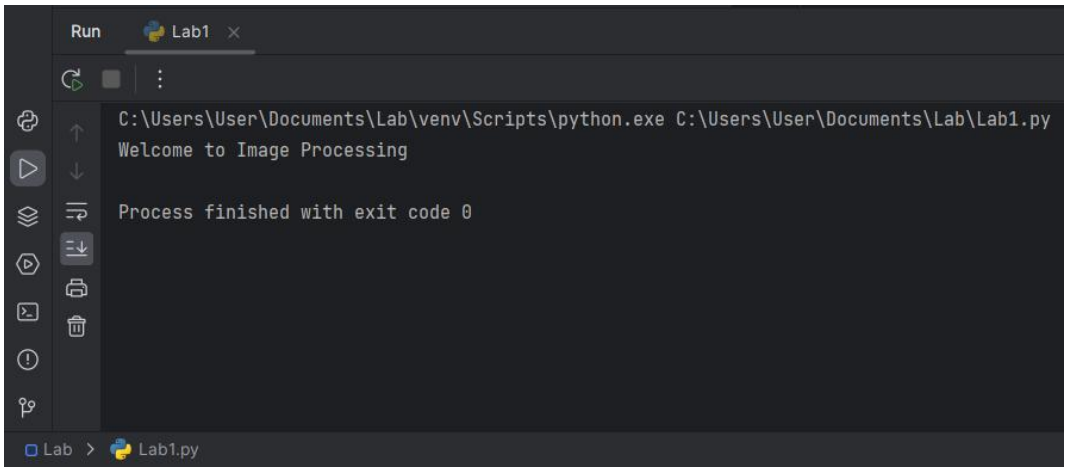

Figure 14

4. Installing Libraries

We will be using some Python libraries in the upcoming labs. The libraries must be installed before they can be used, and in all future labs, we will be using the OpenCV library.

- Click *Python Packages* in the Tool Window (on the left side) as shown in Figure 15.

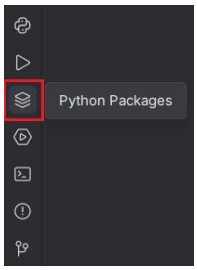

Figure 15

- Type “opencv” into the search bar, select *opencv-contrib-python* and click *Install package* (Figure 16).

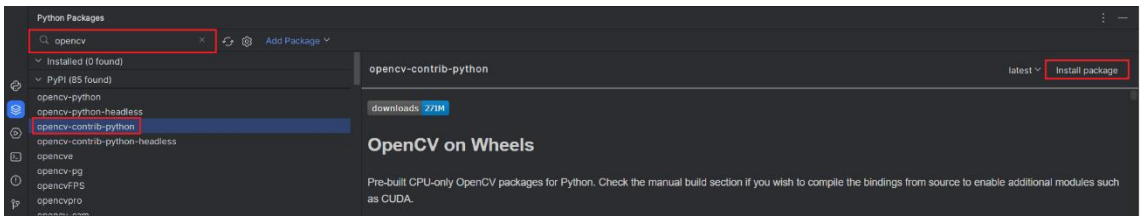

Figure 16

- The library will begin installing, and the progress is shown at the bottom of the window (Figure 17).

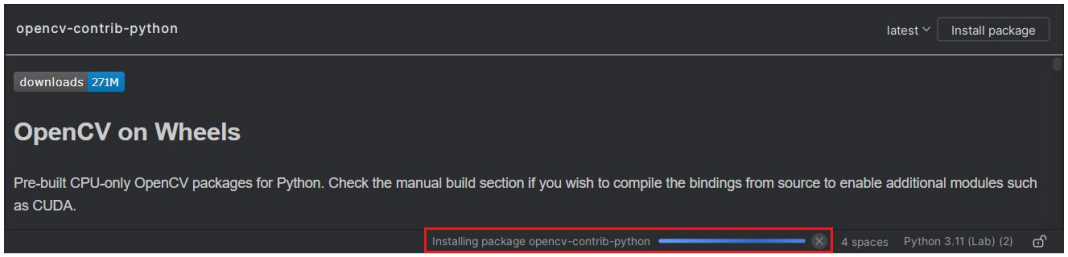

Figure 17

- Once it has been successfully installed, it will be shown under the list of packages installed (Figure 18).

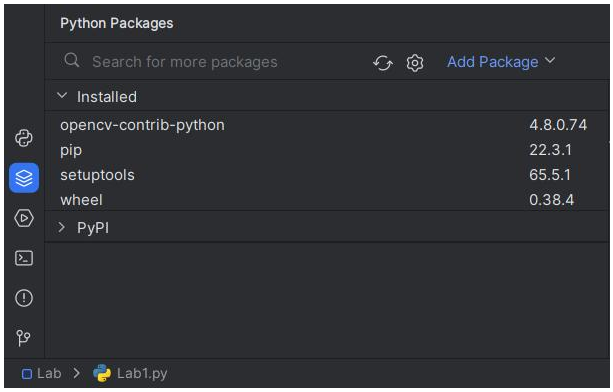
Python Packages
Search for more packages
Add Package
Installed
opencv-contrib-python 4.8.0.74
pip 22.3.1
setuptools 65.5.1
wheel 0.38.4
PyPI
Lab
Lab1.py

Figure 18