Weather-Based Prediction of Wind Turbine Energy Output: A Next-Generation Approach to Renewable Energy Management

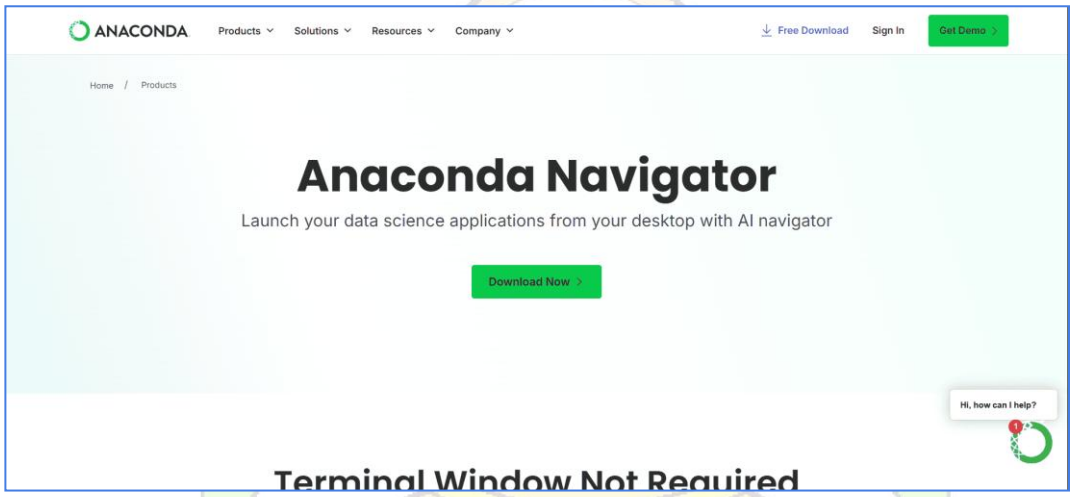
DATE	28-02-2026
TEAM ID	LTVIP2026TMIDS90651
PROJECT NAME	Weather-Based Prediction of Wind Turbine Energy Output: A Next-Generation Approach to Renewable Energy Management
MAXIMUM MARKS	2 MARKS

Chapter 6
Project Development

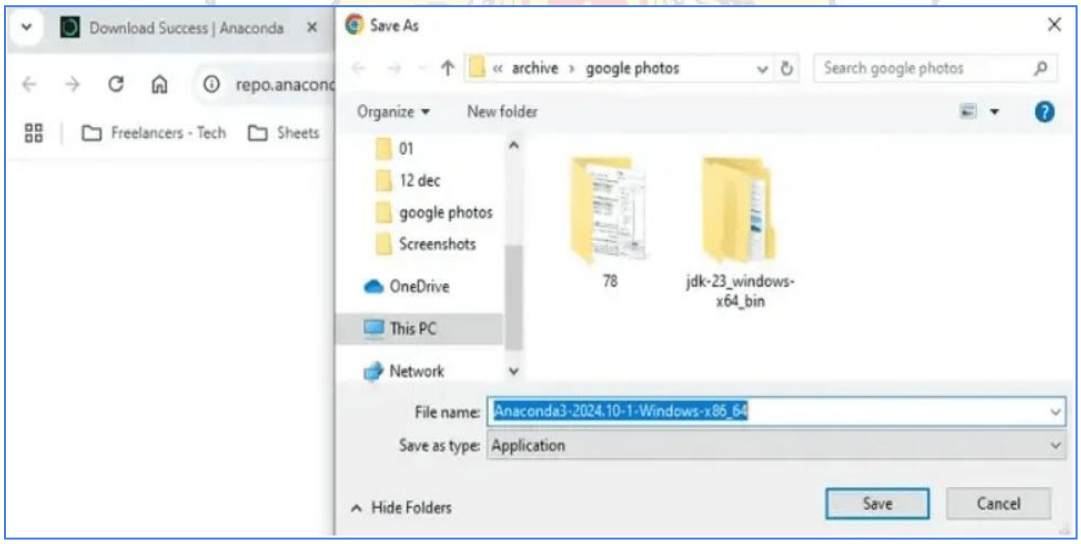
6.1 - Pre-Requisites:

→ How to install Anaconda Navigator

Step - 1: Open this link *https://www.anaconda.com/products/navigator*



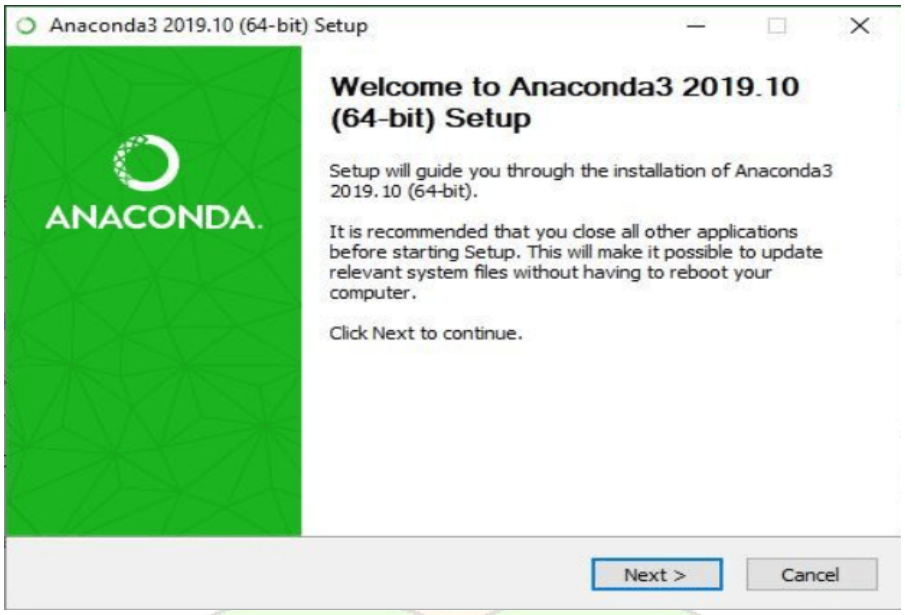
Step - 2: Click on Download button



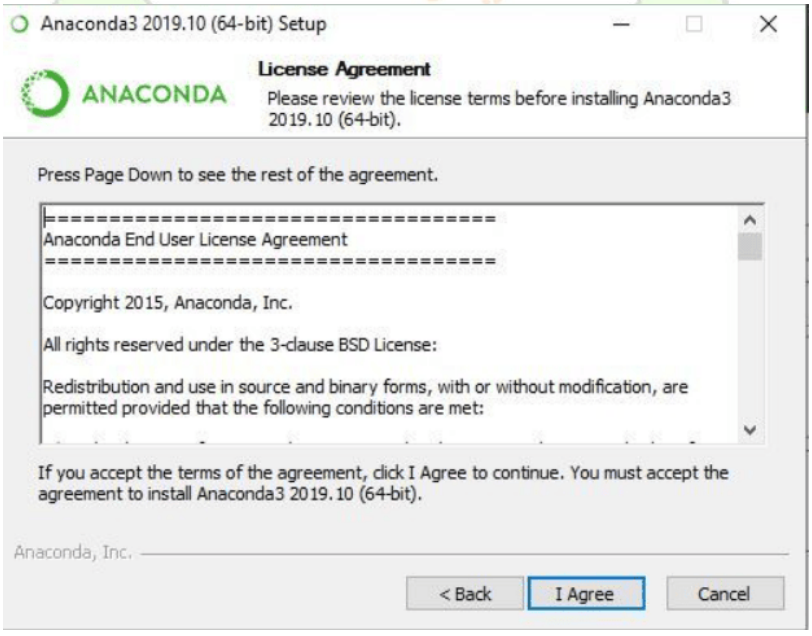
Step - 3: After downloading the Anaconda Navigator double click on the file

Step - 4: Select the Windows Installer

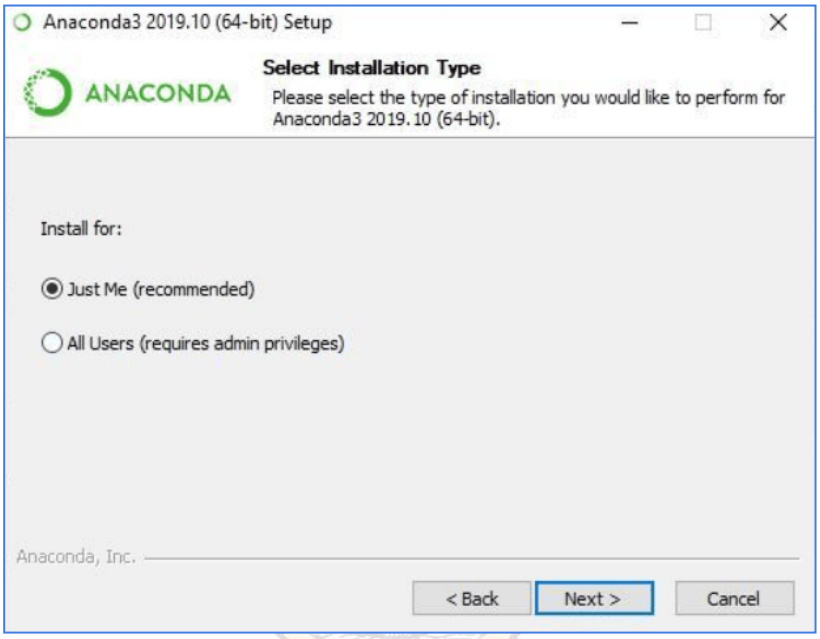
Step - 5: Begin the installation process



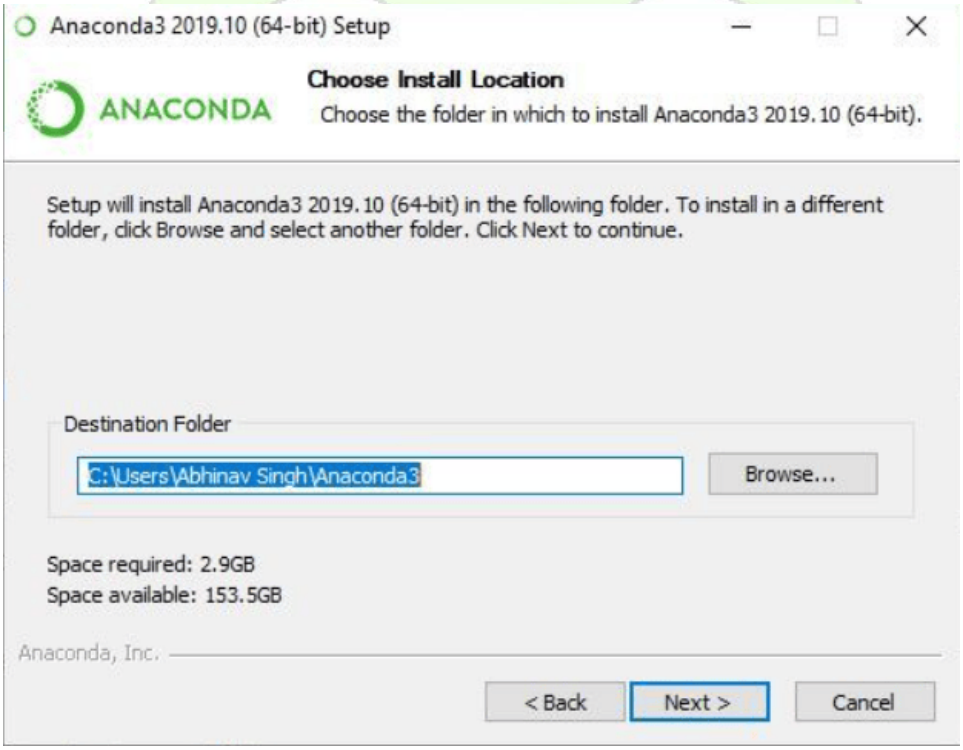
Step - 6: Getting through licence agreement



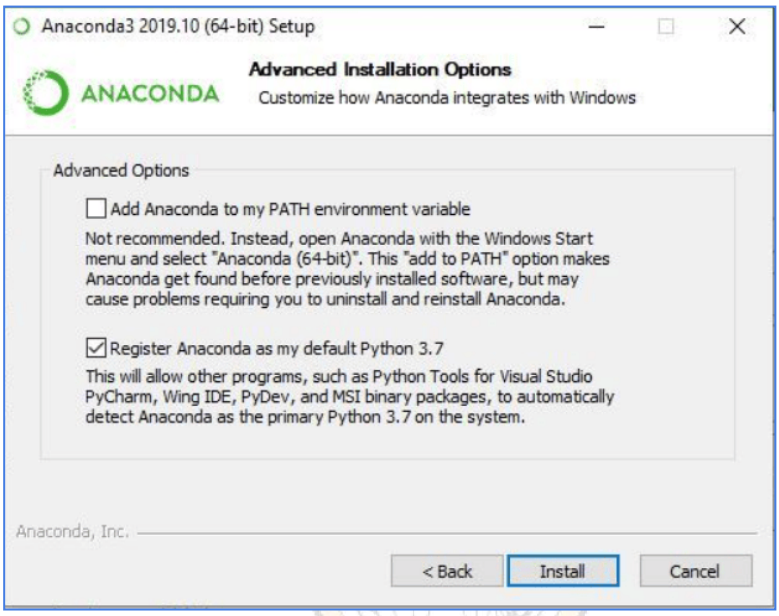
Step - 7: Select Installation Type



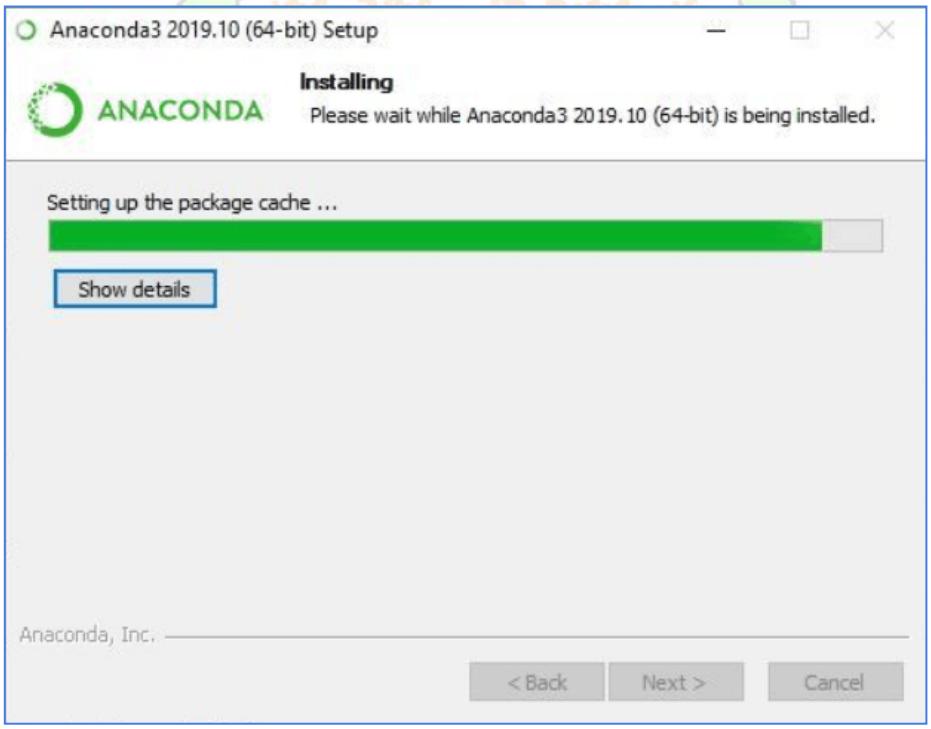
Step - 8: Select the path where you wish to install the file extractor and click "Next" to proceed ahead.



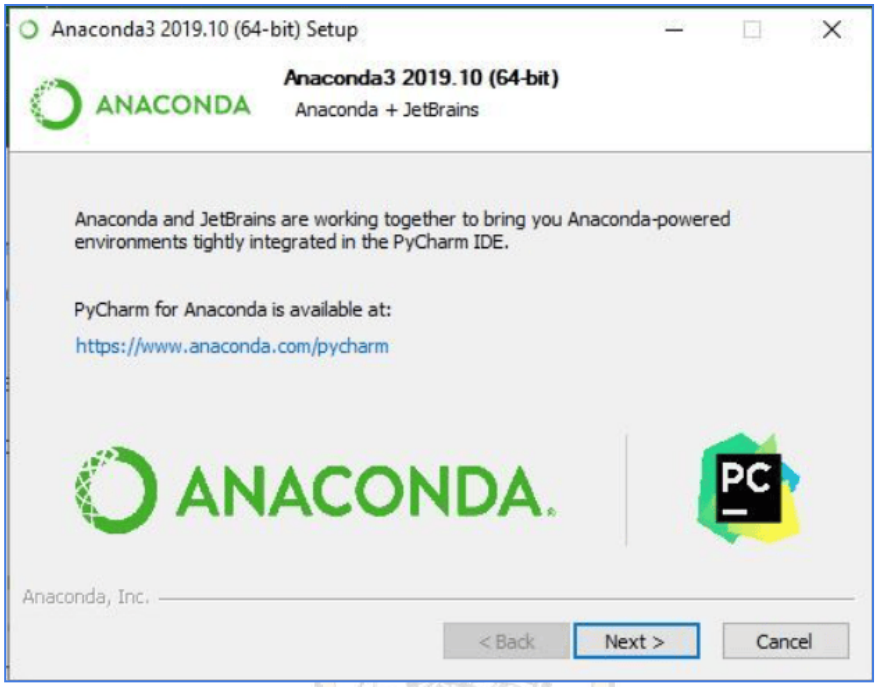
Step - 9: Advance installation options



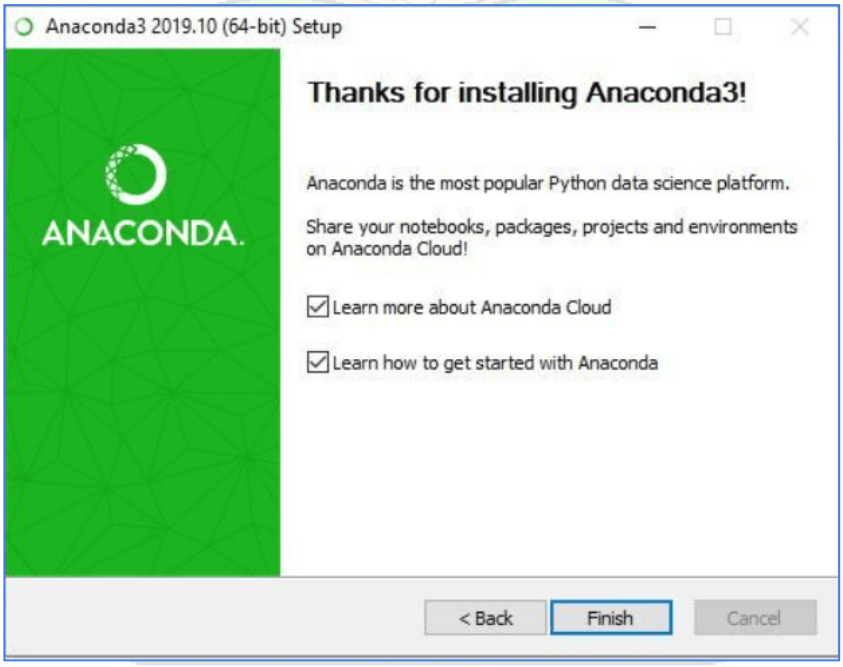
Step - 10: Click Install to start the Anaconda Installation process.



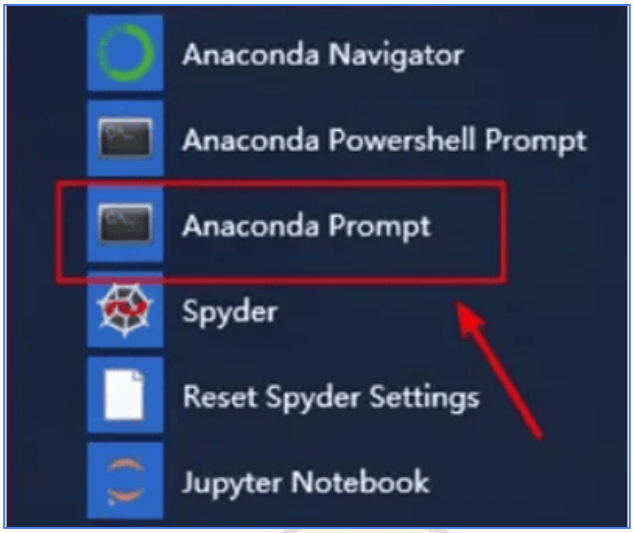
Step - 11: Recommendation to install PyCharm



Step - 12: Once the installation gets complete, click Finish to complete the process.



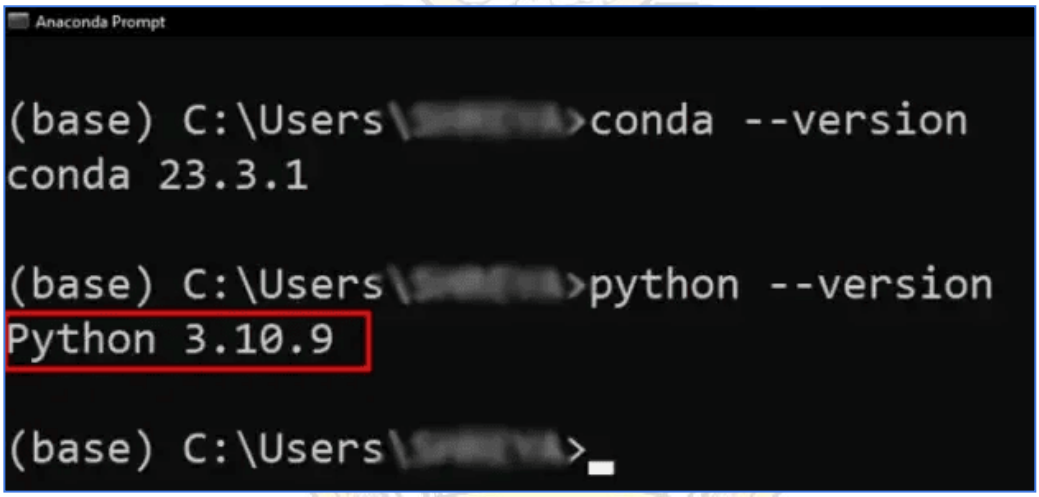
Step - 13: Click on the Start Menu and search for "Anaconda Prompt" and click to open it.



Step - 14: Run the Program to check for the Anaconda Version

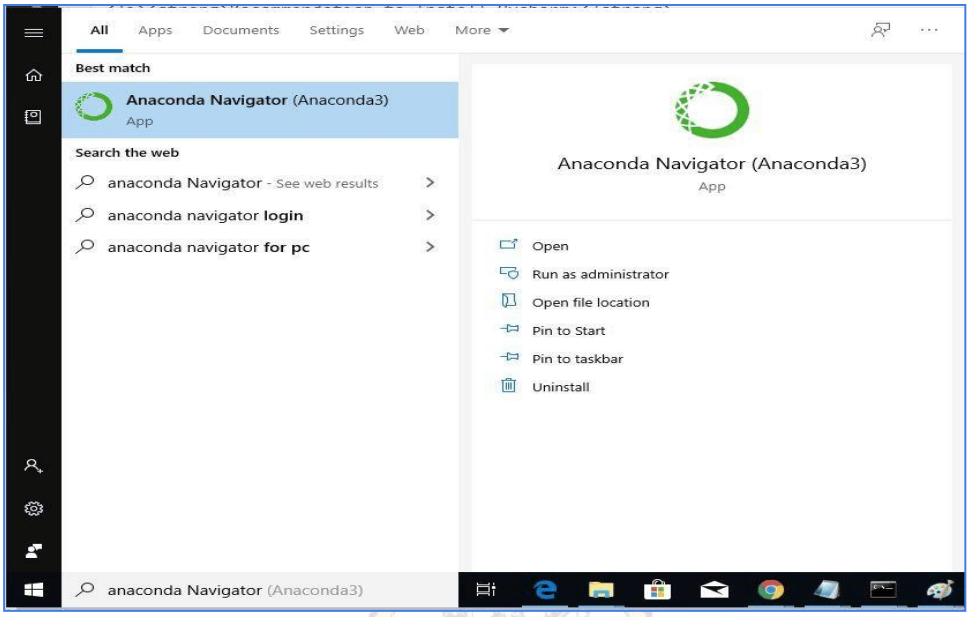
Type the following command to check for the installed version of conda:

Conda --version

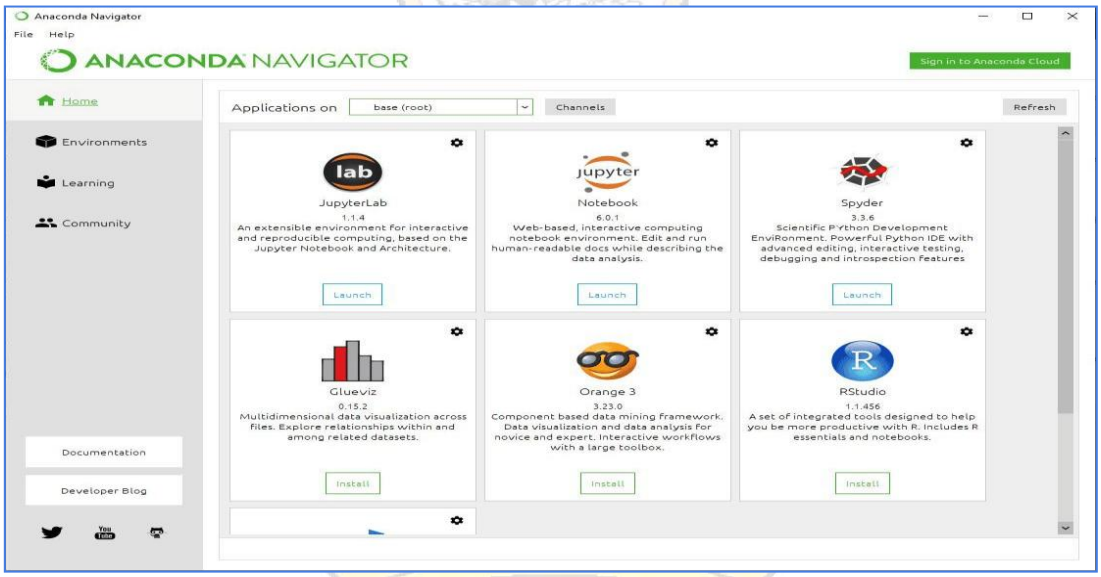


Step - 15: Access Anaconda Navigator

Once the installation process is done, Anaconda can be used to perform multiple operations. To begin using Anaconda, search for Anaconda Navigator from the Start Menu in Windows PC.



Step - 16: Explore Navigator & Features



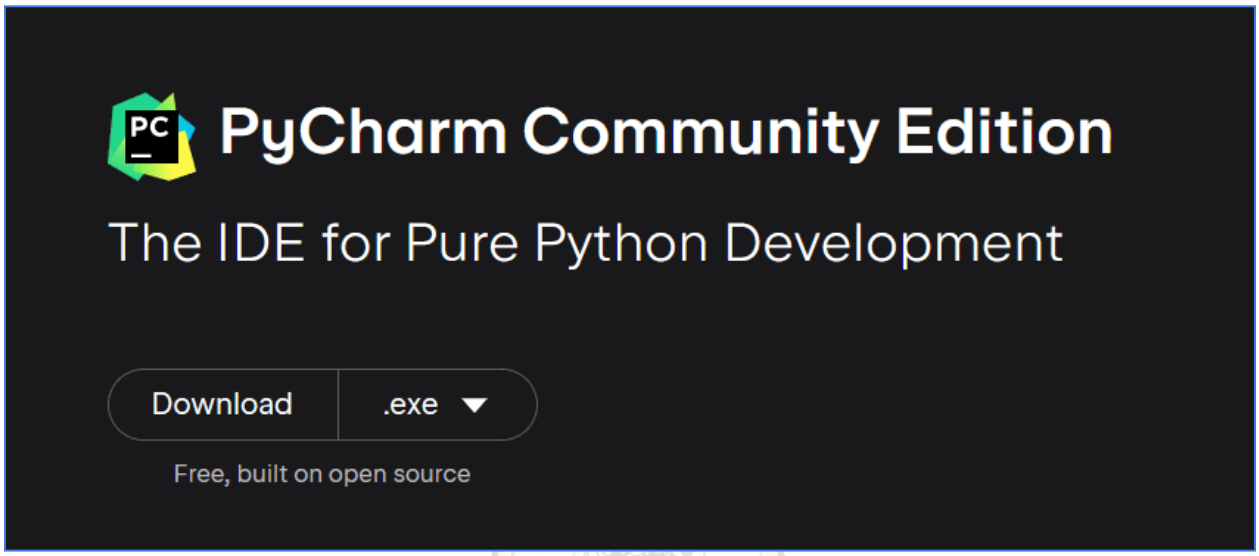
→

How to Install PyCharm:

Step 1: Download PyCharm

- Go to the JetBrains PyCharm download page

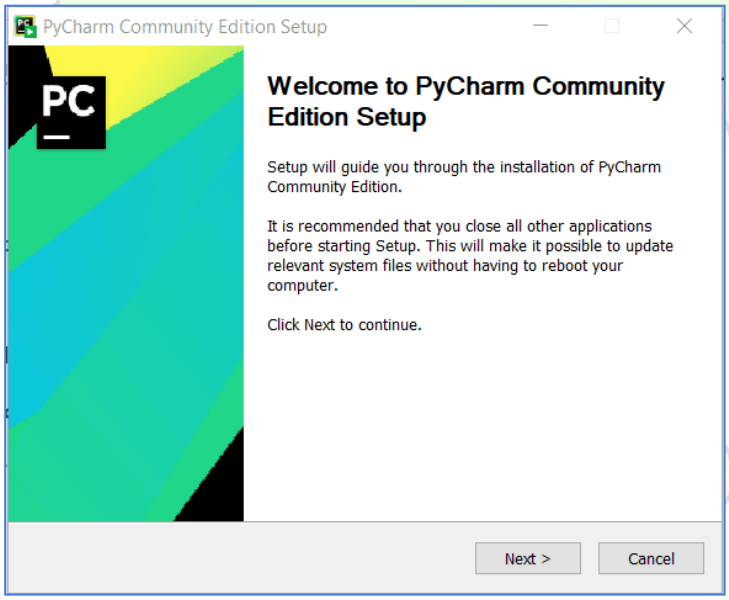
- Choose either the Community edition (free) or the Professional edition (paid).



- Download the installer according to your preference.

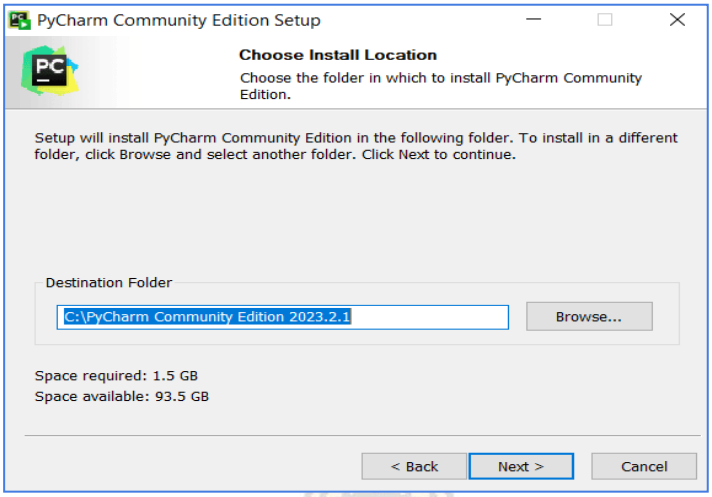
Step - 2: Run the Installer

- Locate the downloaded installer file and double-click it to run.
- Follow the on-screen instructions.



Step - 3: Choose Installation Location

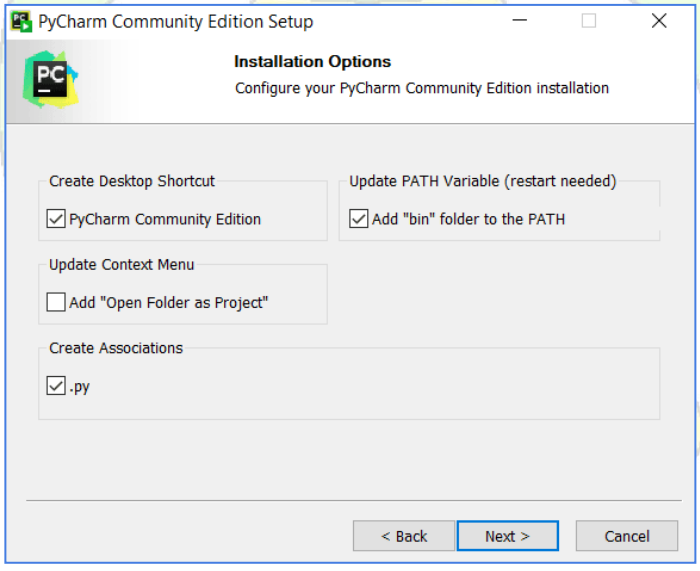
- Select the folder where you want to install PyCharm.



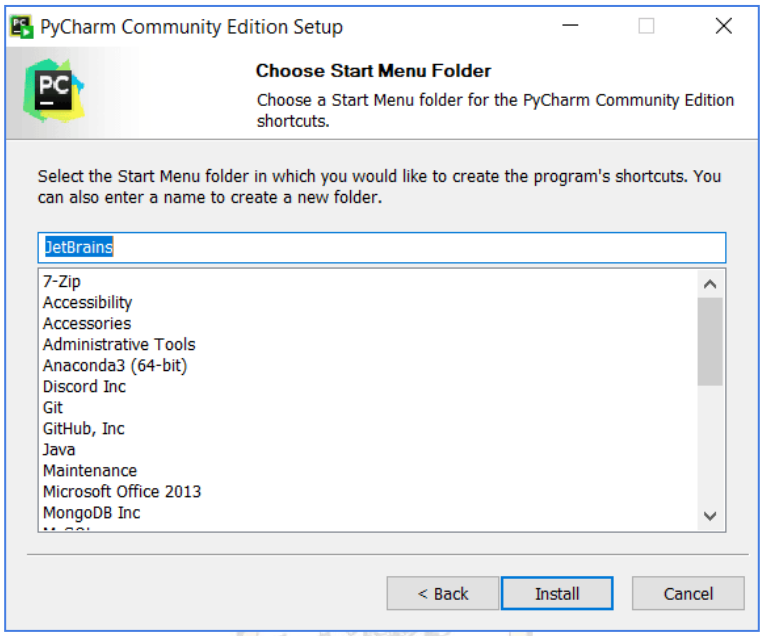
Step - 4: Select Installation Options

You can select the following options according to your preference:

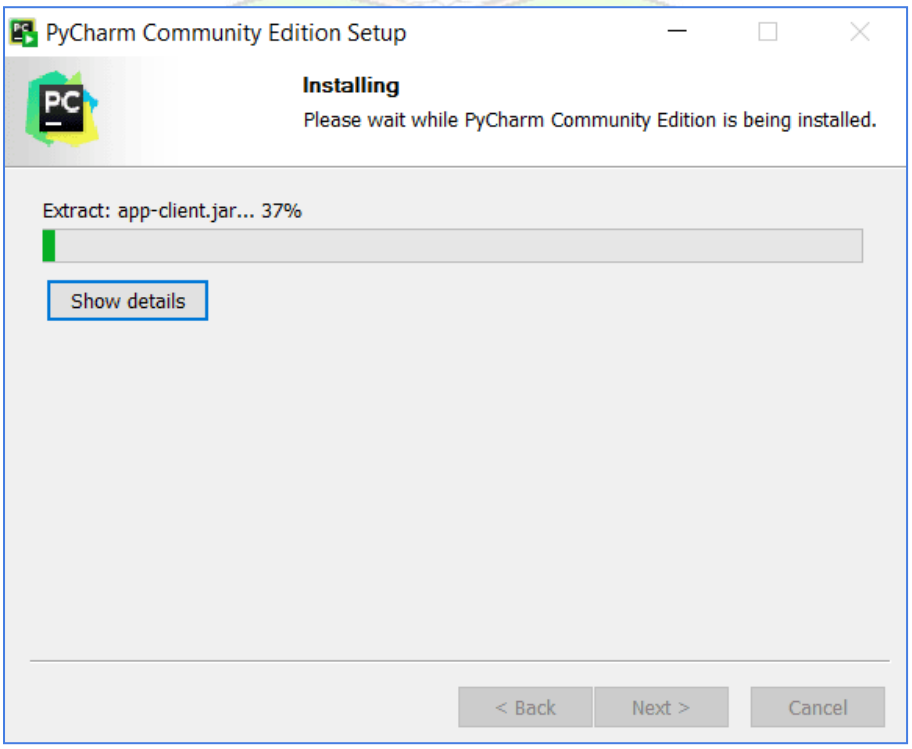
- Create Desktop Shortcut - adds a shortcut on your desktop.
- Add PyCharm to PATH - allows you to run PyCharm from the command line.
- Associate.py files with PyCharm - makes PyCharm the default editor for Python files.



- Choose folder name where your project will be saved as default.



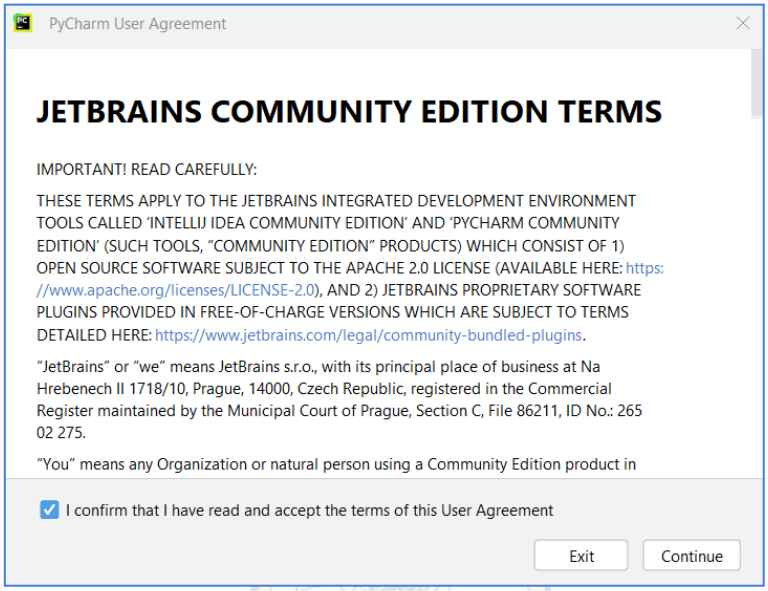
- Now it will download the PyCharm.



Step 5: Complete Installation

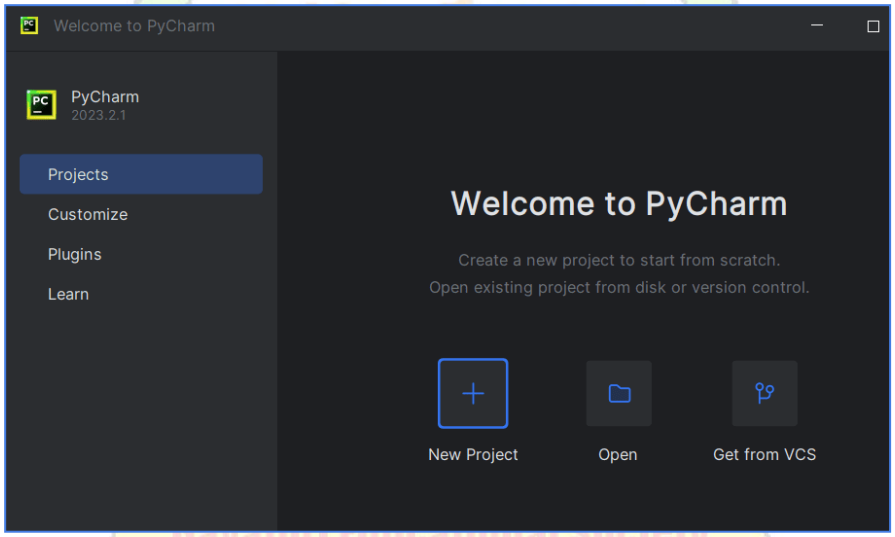
- Accept the license agreement and continue.

- PyCharm will be installed.



Step 6: Launch PyCharm

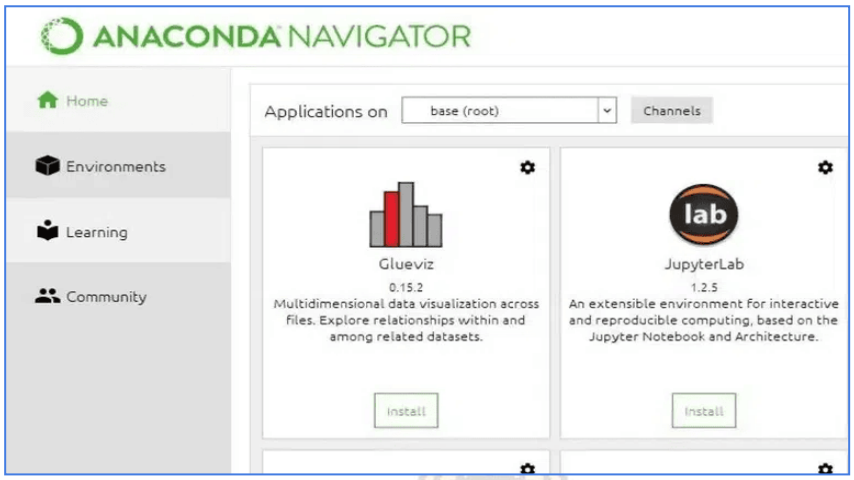
- Once installed, launch PyCharm either from the Start menu or the desktop shortcut.



→ How to open Jupyter Notebook:

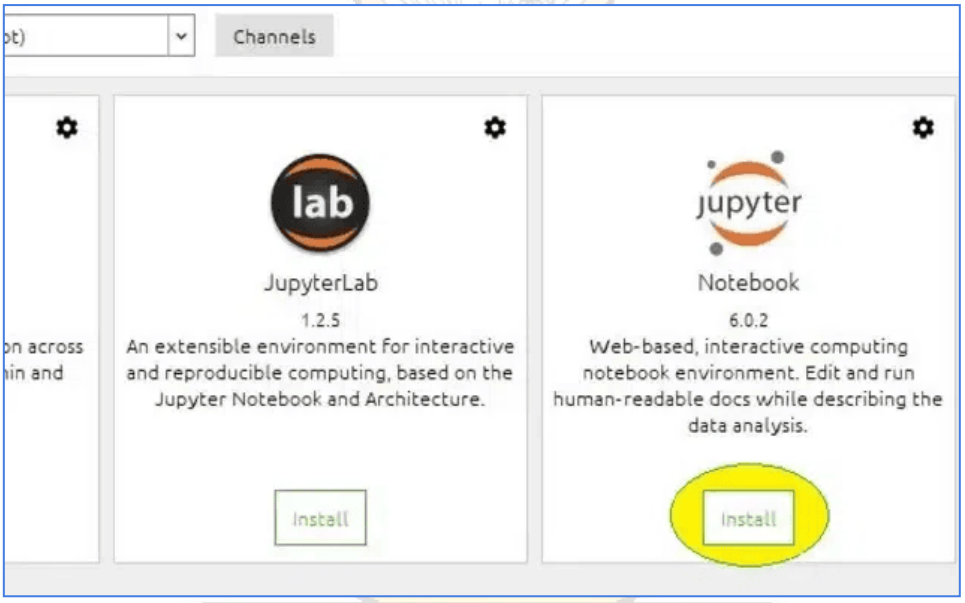
Step 1: Go to Anaconda Navigator

Firstly, Launch anaconda and click on the Install Jupyter Notebook Button.



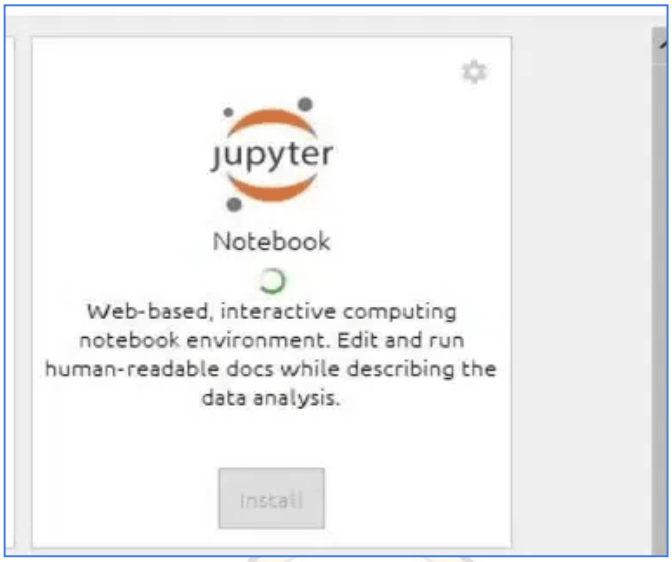
Step 2: Install Jupyter Notebook

Search for Jupyter Notebook and click on the Install button to begin with the installation process.



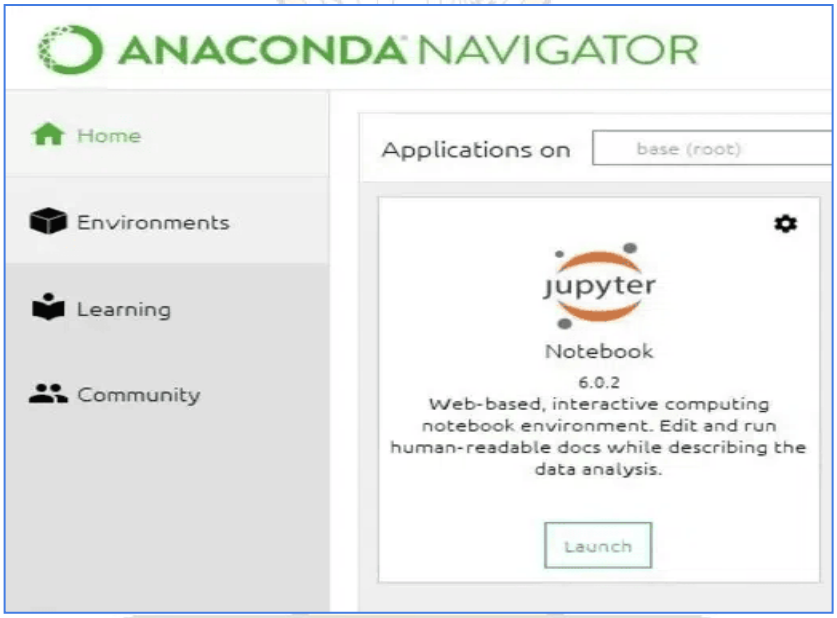
Step 3: Load Packages

Once the installation is complete, it will start loading the packages that comes along with it and click to finish the Installation.



Step 4: Launch Jupyter Notebook

Now, click on Launch button to start the Jupyter Notebook.



How to install Packages

If you are using Pycharm IDE, you can install the packages through the command prompt and follow the same syntax as above.

Type “pip install numpy” and click enter.

```
(.venv) PS D:\LT Python Project> pip install numpy
Requirement already satisfied: numpy in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (2.2.3)

[notice] A new release of pip is available: 25.1.1 -> 26.0.1
[notice] To update, run: python.exe -m pip install --upgrade pip
(.venv) PS D:\LT Python Project>
```

Type “pip install pandas” and click enter.

```
(.venv) PS D:\LT Python Project> pip install pandas
Requirement already satisfied: pandas in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (2.2.3)
Requirement already satisfied: numpy>=1.26.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from pandas) (2.2.3)
Requirement already satisfied: python-dateutil>=2.8.2 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from pandas) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from pandas) (2025.1)
Requirement already satisfied: tzdata>=2022.7 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from pandas) (2025.1)
Requirement already satisfied: six>=1.5 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from python-dateutil>=2.8.2->pandas) (1.17.0)

[notice] A new release of pip is available: 25.1.1 -> 26.0.1
[notice] To update, run: python.exe -m pip install --upgrade pip
(.venv) PS D:\LT Python Project>
```

Type “pip install matplotlib” and click enter.

```
(.venv) PS D:\LT Python Project> pip install matplotlib
Requirement already satisfied: matplotlib in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (3.10.1)
Requirement already satisfied: contourpy>=1.0.1 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (1.3.1)
Requirement already satisfied: cycler>=0.10 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (4.56.0)
Requirement already satisfied: kiwisolver>=1.3.1 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (1.4.8)
Requirement already satisfied: numpy>=1.23 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (2.2.3)
Requirement already satisfied: packaging>=20.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (24.2)
Requirement already satisfied: pillow>=8 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (11.1.0)
Requirement already satisfied: pyparsing>=2.3.1 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (3.2.1)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from matplotlib) (2.9.0.post0)
Requirement already satisfied: six>=1.5 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from python-dateutil>=2.7->matplotlib) (1.17.0)

[notice] A new release of pip is available: 25.1.1 -> 26.0.1
[notice] To update, run: python.exe -m pip install --upgrade pip
(.venv) PS D:\LT Python Project>
```

Type “pip install scikit-learn” and click enter

```
(.venv) PS D:\LT Python Project> pip install scikit-learn
Requirement already satisfied: scikit-learn in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (1.7.2)
Requirement already satisfied: numpy>=1.22.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from scikit-learn) (2.2.3)
Requirement already satisfied: scipy>=1.8.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from scikit-learn) (1.16.2)
Requirement already satisfied: joblib>=1.2.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from scikit-learn) (1.5.2)
Requirement already satisfied: threadpoolctl>=3.1.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from scikit-learn) (3.6.0)

[notice] A new release of pip is available: 25.1.1 -> 26.0.1
[notice] To update, run: python.exe -m pip install --upgrade pip
(.venv) PS D:\LT Python Project>
```

Type “pip install Flask” and click enter.

```
(.venv) PS D:\LT Python Project> pip install Flask
Requirement already satisfied: Flask in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (3.1.2)
Requirement already satisfied: blinker>=1.9.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from Flask) (1.9.0)
Requirement already satisfied: click>=8.1.3 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from Flask) (8.2.1)
Requirement already satisfied: itsdangerous>=2.2.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from Flask) (2.2.0)
Requirement already satisfied: jinja2>=3.1.2 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from Flask) (3.1.6)
Requirement already satisfied: markupsafe>=2.1.1 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from Flask) (3.0.2)
Requirement already satisfied: werkzeug>=3.1.0 in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from Flask) (3.1.3)
Requirement already satisfied: colorama in c:\users\hp\appdata\local\programs\python\python313\lib\site-packages (from click>=8.1.3->Flask) (0.4.6)

[notice] A new release of pip is available: 25.1.1 -> 26.0.1
[notice] To update, run: python.exe -m pip install --upgrade pip
(.venv) PS D:\LT Python Project>
```