

Machine Learning

With Python
Lab 1

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Topics :

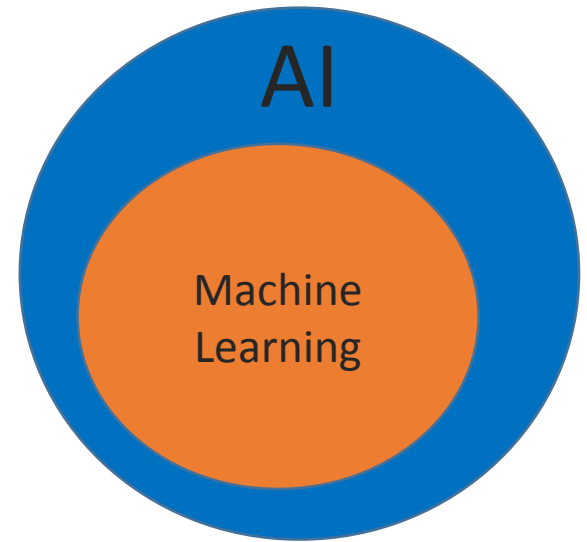
- **Introduction to Artificial intelligence**
- **Introduction to Machine Learning**
- **Programming by Python :**
 1. Download
 2. Install
 3. Create Project

Artificial intelligence

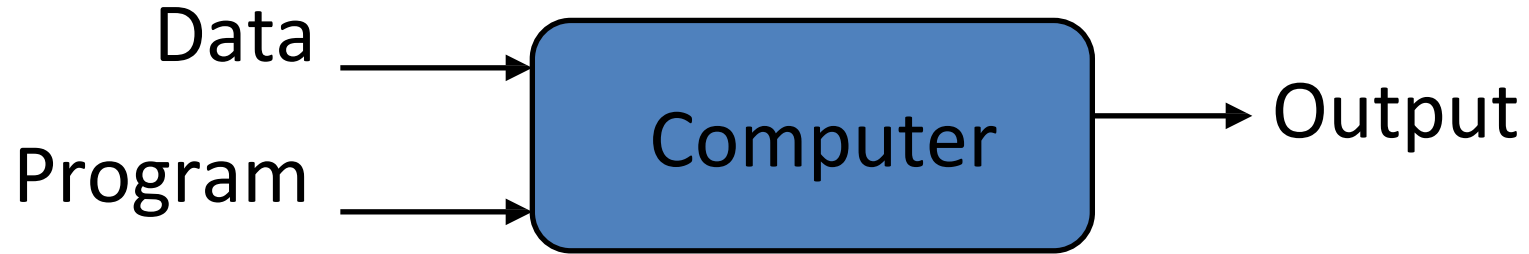
- ❑ **Artificial Intelligence (AI)** is the field of focused on creating systems or machines capable of performing tasks that typically require human intelligence. These tasks include learning, reasoning, problem-solving, perception, and natural language understanding. AI aims to simulate human cognitive processes to enable automation and decision-making in various domains.
 - machines making decisions.
 - learning new skills.
 - solving problems in a similar way to humans.
- ❑ The ability to make a decision based on pre-existed knowledge.

machine learning

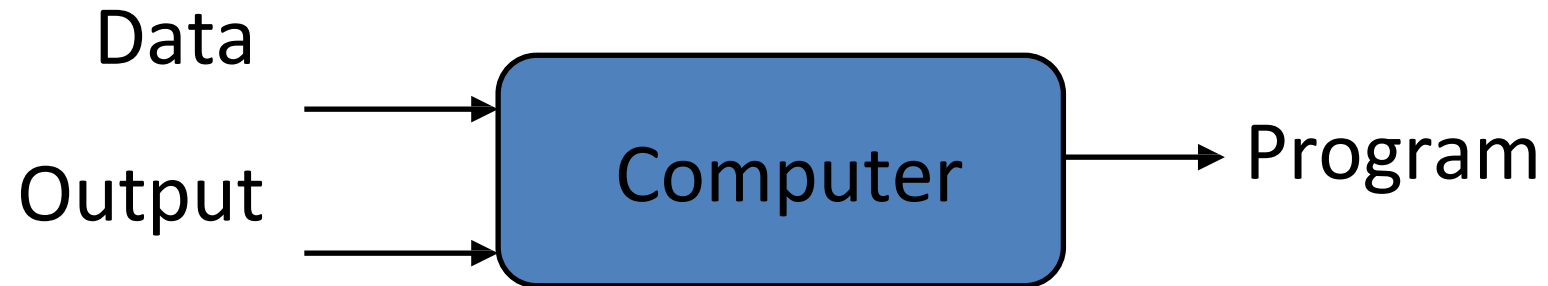
- **Machine Learning (ML)** : is a branch of Artificial Intelligence (AI) that enables computers to **self-learn** and improve over time without being explicitly programmed.
- Machine learning algorithms can detect and learn from patterns in data and make their predictions.
- It involves the development of algorithms that identify patterns, make predictions, or take decisions based on input data, adapting performance as more data becomes available.



Traditional Programming



Machine Learning

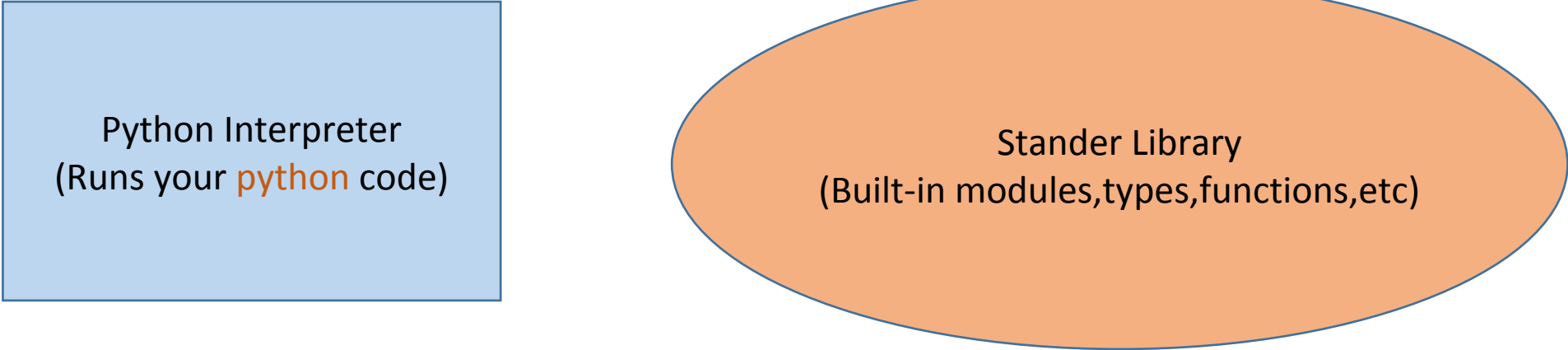


Machine learning methods

- There are different machine learning methods, the most common of which are:
 1. Supervised learning
 2. Unsupervised learning
 3. Semi-supervised learning
 4. Reinforcement learning

Python

- Python is a high-level, interpreted programming language known for its simplicity and versatility. It supports multiple programming paradigms, including **procedural**, **object-oriented**, and **functional programming**, making it a popular choice for a wide range of applications such as data analysis, machine learning, artificial intelligence.



Python Interpreter
(Runs your **python** code)

The diagram consists of two shapes: a light blue rectangle on the left and a light orange oval on the right. The rectangle contains the text 'Python Interpreter (Runs your python code)' and the oval contains the text 'Stander Library (Built-in modules,types,functions,etc)'. Both shapes have a thin blue border.

Stander Library
(Built-in modules,types,functions,etc)

Python

- To install Python and set it up for use, you typically need the following components:

1. Python Interpreter:

The core software that executes Python code. It translates high-level Python instructions into machine code that the computer can understand.

2. Package Manager (pip):

A tool included with Python installations to download, install, and manage third-party Python libraries and packages from the Python Package Index (PyPI).

3. Integrated Development Environment (IDE):

Software applications like PyCharm, VS Code, or Jupyter Notebook provide a user-friendly interface for writing, debugging, and managing Python code efficiently.

Download in windows

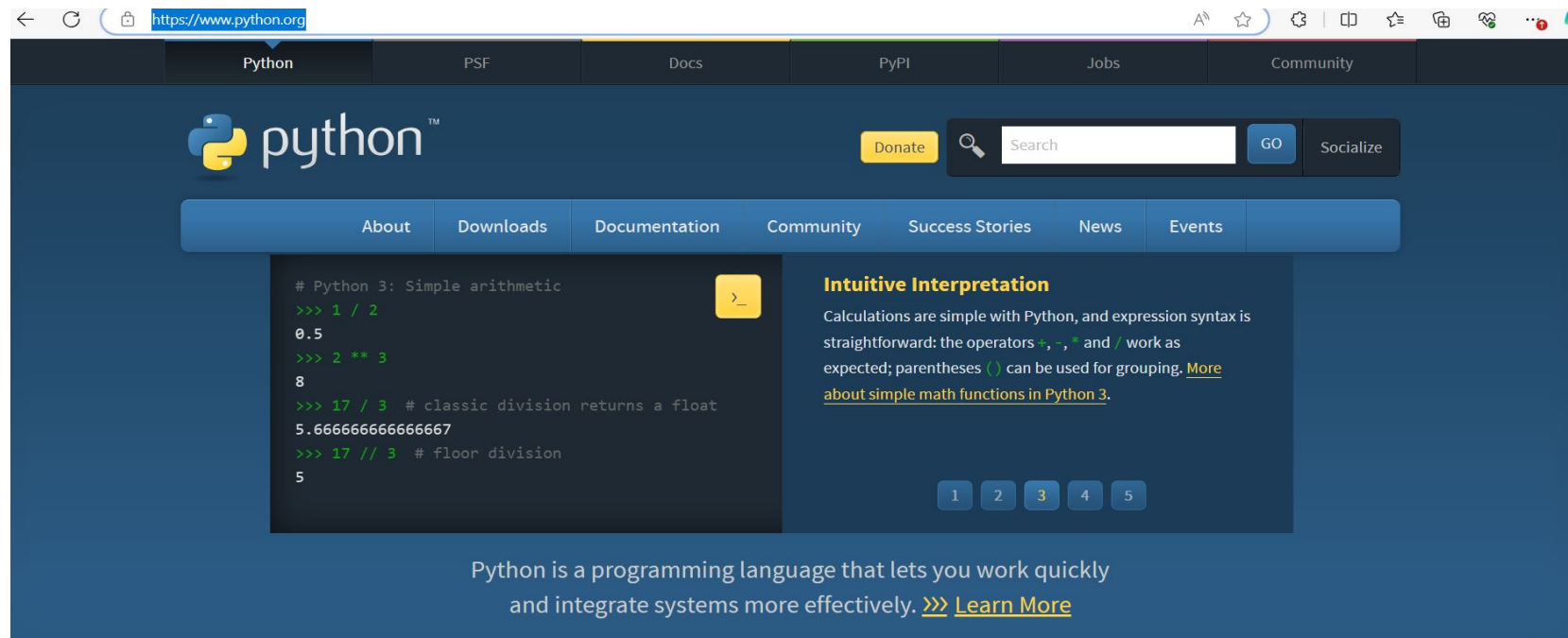
Steps to download Python on Windows

1- Open the Chrome browser

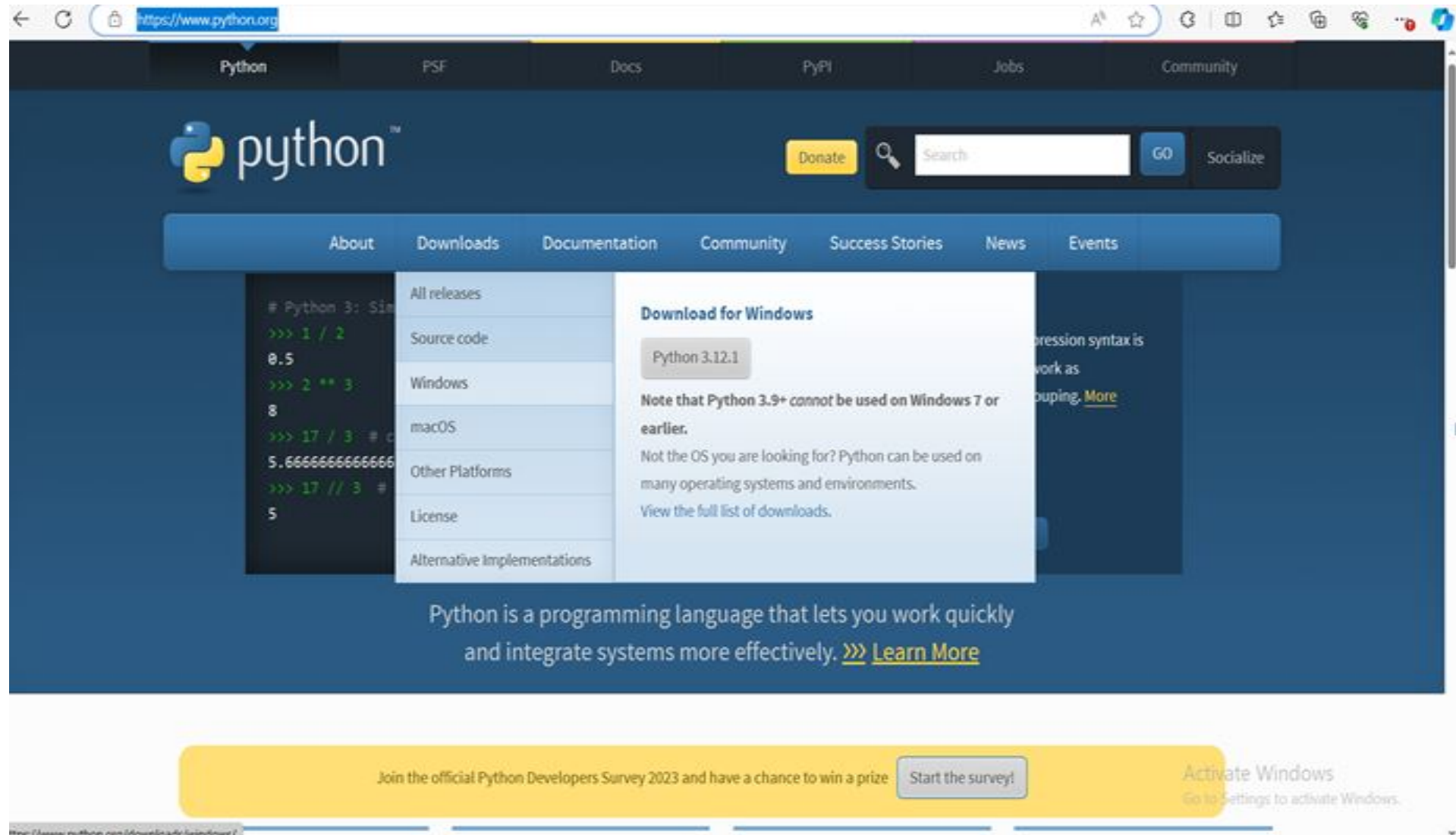
2- Go to the official Python website

<https://www.python.org/downloads/>

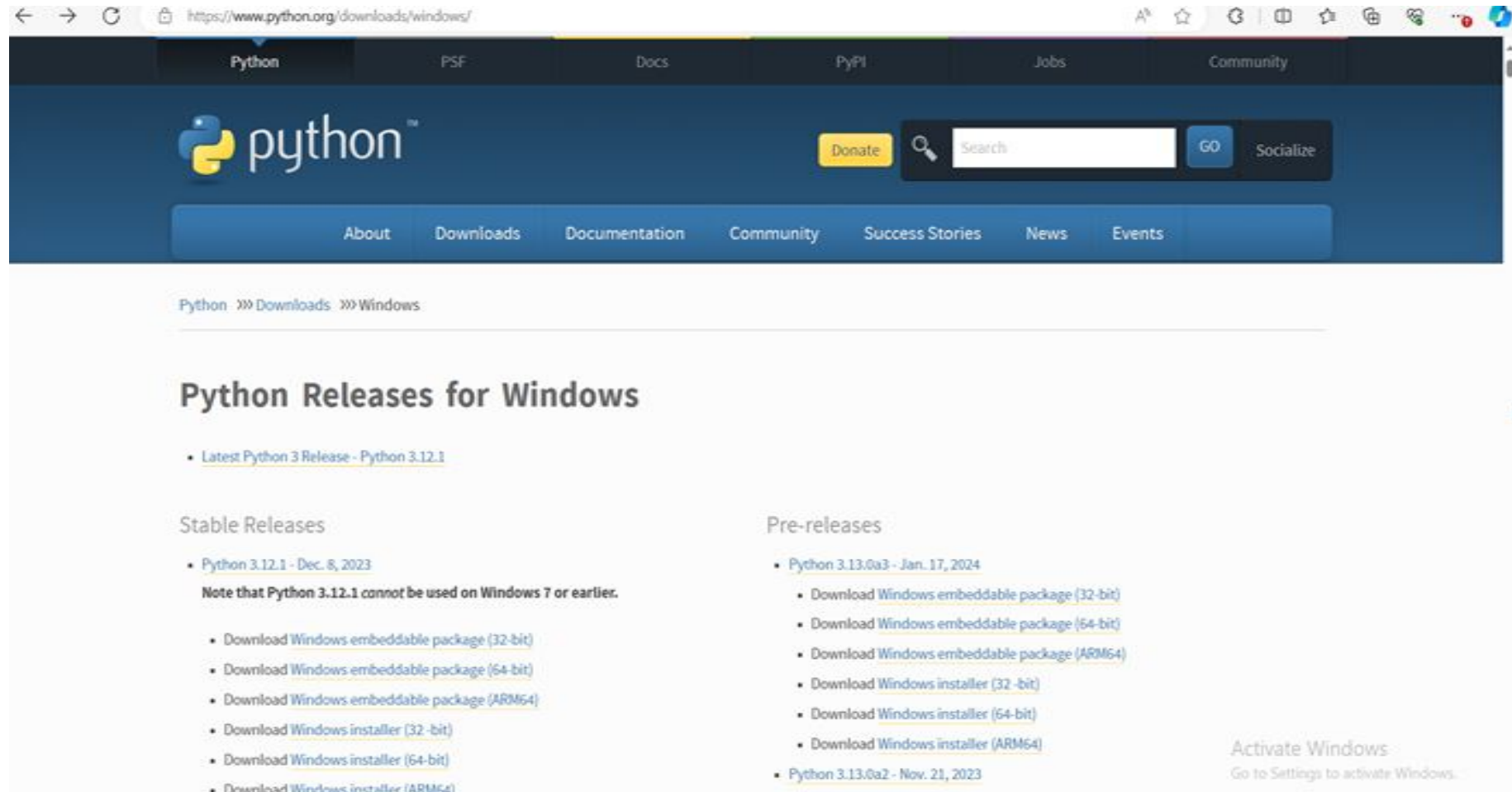
Welcome to Python.org :



- 3- windows —————> download



4- Click on the latest available version.



The screenshot shows the Python.org website's 'Downloads' section for Windows. The page title is 'Python Releases for Windows'. It features a navigation bar with links to Python, PSF, Docs, PyPI, Jobs, and Community. Below the navigation bar is a search bar and a 'Donate' button. The main content area is divided into two columns: 'Stable Releases' and 'Pre-releases'. The 'Stable Releases' section lists 'Python 3.12.1 - Dec. 8, 2023' and includes a note that it cannot be used on Windows 7 or earlier. It provides download links for Windows embeddable packages (32-bit, 64-bit, and ARM64) and Windows installers (32-bit, 64-bit, and ARM64). The 'Pre-releases' section lists 'Python 3.13.0a3 - Jan. 17, 2024' and 'Python 3.13.0a2 - Nov. 21, 2023', each with download links for Windows embeddable packages and installers. An 'Activate Windows' watermark is visible in the bottom right corner.

Python » Downloads » Windows

Python Releases for Windows

- [Latest Python 3 Release - Python 3.12.1](#)

Stable Releases

- [Python 3.12.1 - Dec. 8, 2023](#)
Note that Python 3.12.1 cannot be used on Windows 7 or earlier.
 - [Download Windows embeddable package \(32-bit\)](#)
 - [Download Windows embeddable package \(64-bit\)](#)
 - [Download Windows embeddable package \(ARM64\)](#)
 - [Download Windows installer \(32-bit\)](#)
 - [Download Windows installer \(64-bit\)](#)
 - [Download Windows installer \(ARM64\)](#)

Pre-releases

- [Python 3.13.0a3 - Jan. 17, 2024](#)
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 - [Download Windows embeddable package \(ARM64\)](#)
 - [Download Windows installer \(32-bit\)](#)
 - [Download Windows installer \(64-bit\)](#)
 - [Download Windows installer \(ARM64\)](#)
- [Python 3.13.0a2 - Nov. 21, 2023](#)

Activate Windows
Go to Settings to activate Windows.

5- Go to Files, then choose a version that is compatible with the computer system.

- [Online Documentation](#).
- [PEP 693](#), the Python 3.12 Release Schedule.
- Report bugs via [GitHub Issues](#).
- [Help fund Python directly](#) or via [GitHub Sponsors](#), and support the [Python community](#).

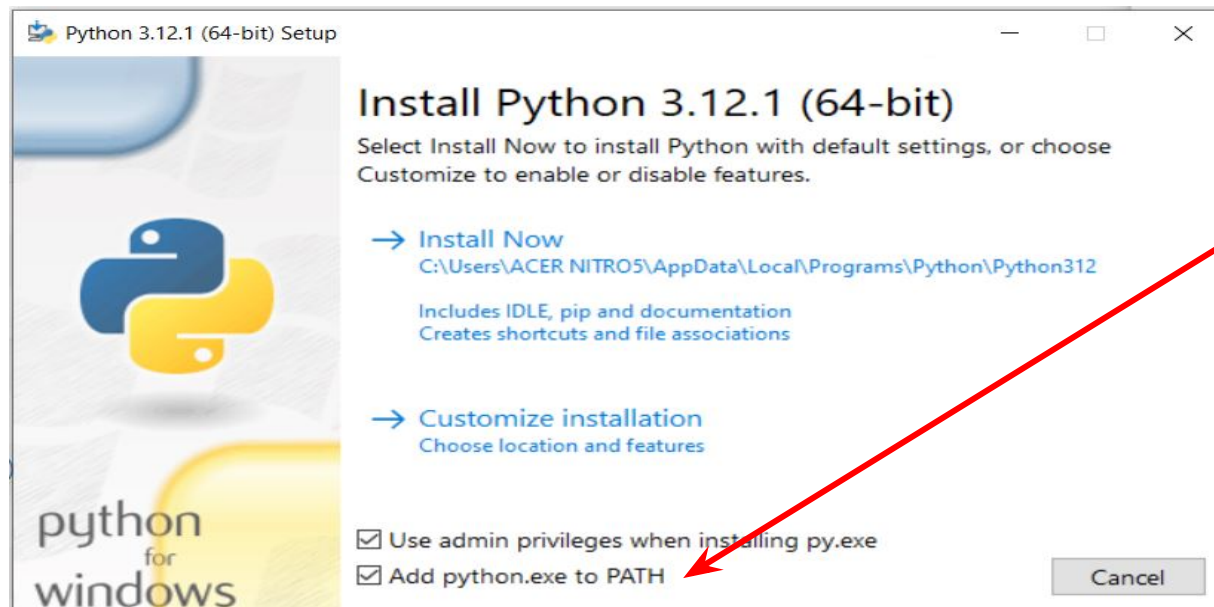
Files

Version	Operating System	Description	MD5 Sum	File Size	GPG	Sigstore
Gzipped source tarball	Source release		51c5c22dcbc698483734dff5c8028606	27053241	SIG	.sigstore
XZ compressed source tarball	Source release		50f827c800483776c8ef86e6a53831fa	20583448	SIG	.sigstore
macOS 64-bit universal2 installer	macOS	for macOS 10.9 and later	eae2d617cbd978a4a6c167924b287572	45377529	SIG	.sigstore
Windows embeddable package (32-bit)	Windows		acc28815c74facc402469e917c8f8433	9849182	SIG	.sigstore
Windows embeddable package (64-bit)	Windows		019788d34af2c60a7be45bf8273e361f	11061655	SIG	.sigstore
Windows embeddable package (ARM64)	Windows		18058aa3c8ccbf3e8fee53386d38c711	10277136	SIG	.sigstore
Windows installer (32-bit)	Windows		37a89a09138888e6331ec279d68fea8e	25253448	SIG	.sigstore
Windows installer (64-bit)	Windows	Recommended	3e3b6550e58772d324f7519bfa8066dc	26589696	SIG	.sigstore
Windows installer (ARM64)	Windows	Experimental	25fb741f175dc98d5630520f2df931ec	25806784	SIG	.sigstore

6-Download the file



7-Open the file for installation. It is necessary to mark the path to add it.



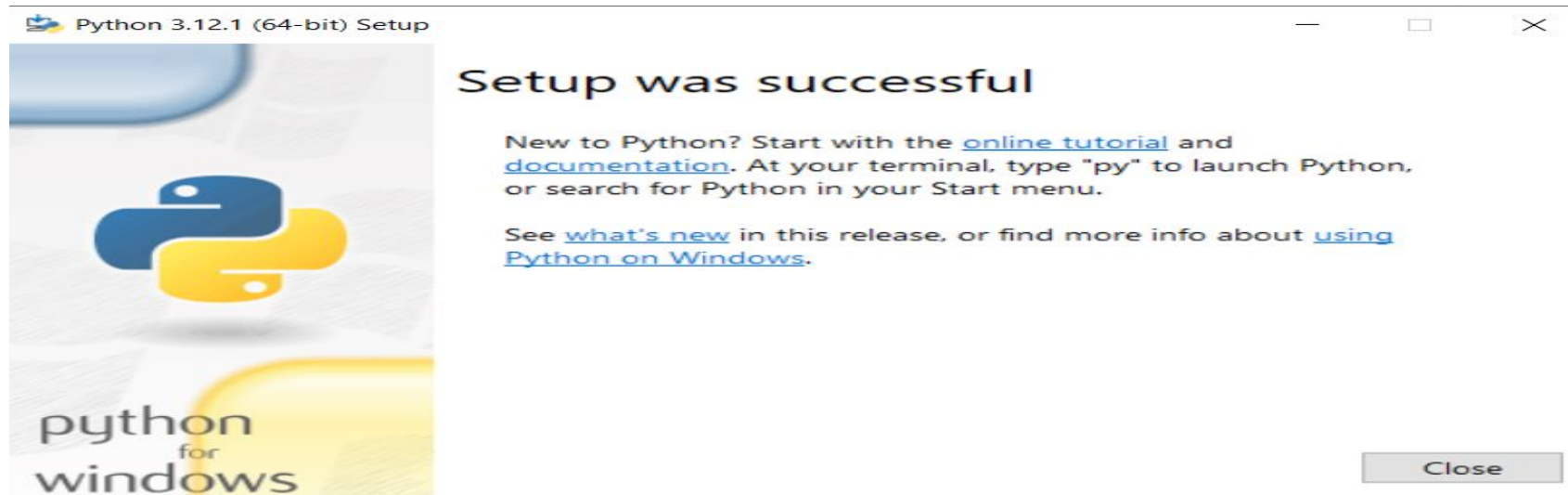
8- Click Install Now



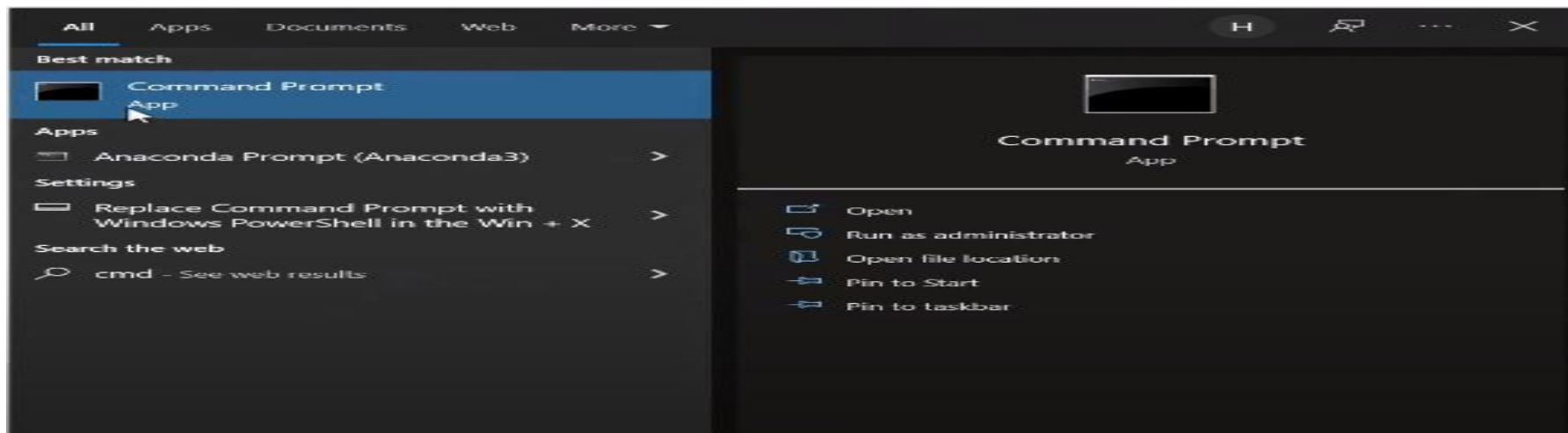
9- Wait for installation to complete



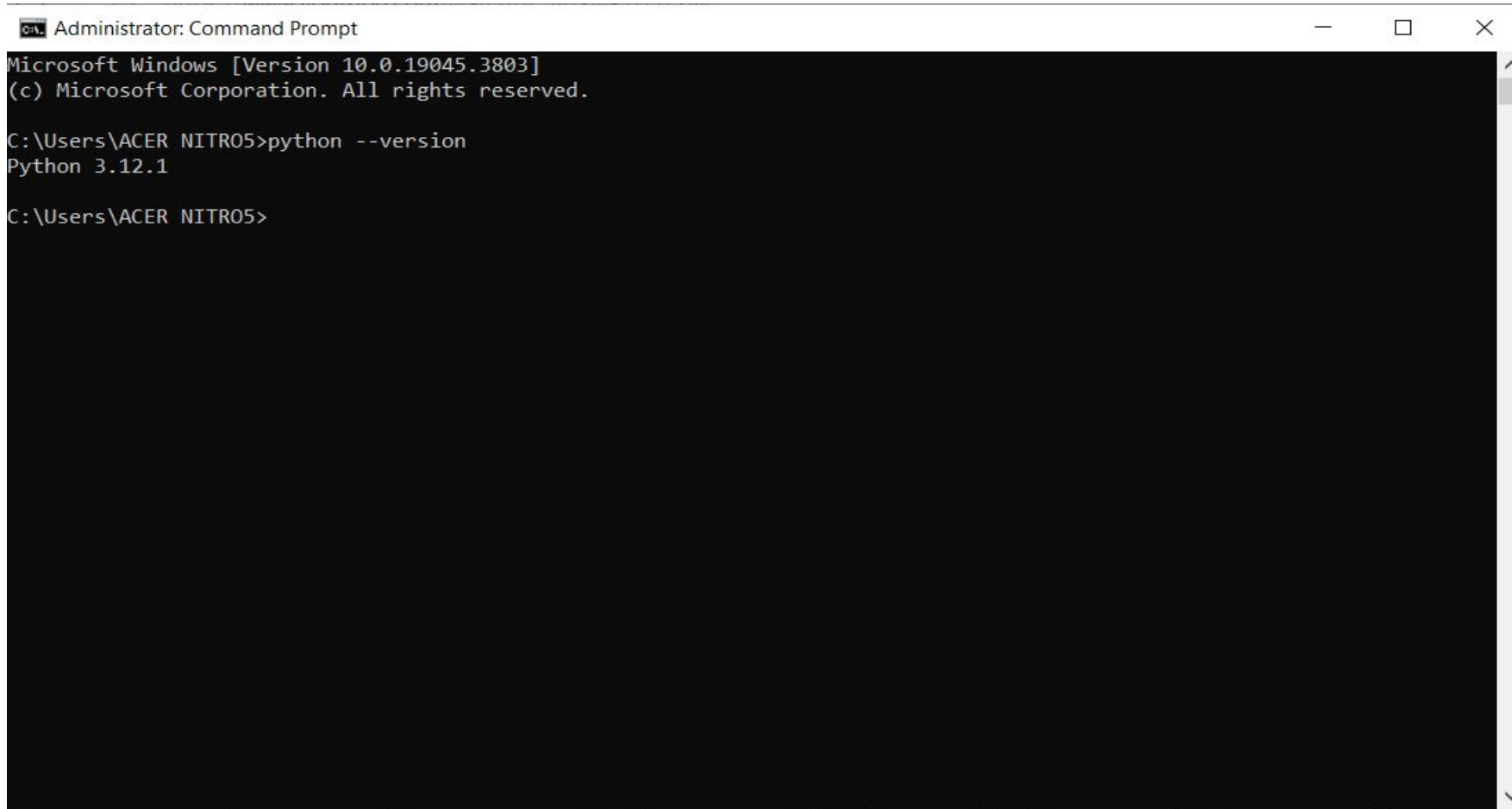
10- Click close



11- Go to cmd to make sure the language is installed.



12- Writing this instruction



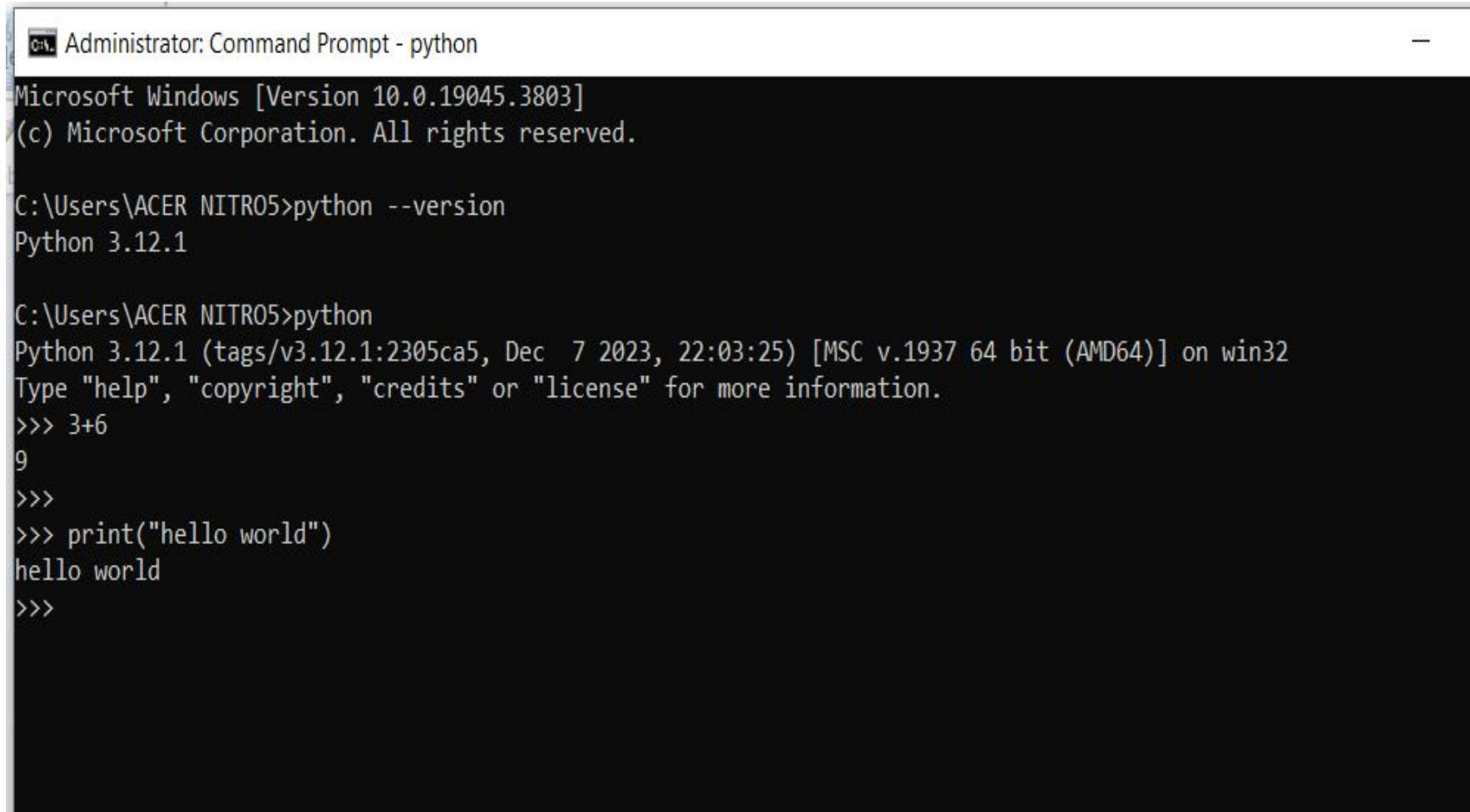
```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ACER NITRO5>python --version
Python 3.12.1

C:\Users\ACER NITRO5>
```

- Note that Windows has recognized the installed version.

13-Execute some commands by writing the following and accessing Python and the interpreter will execute line –line .

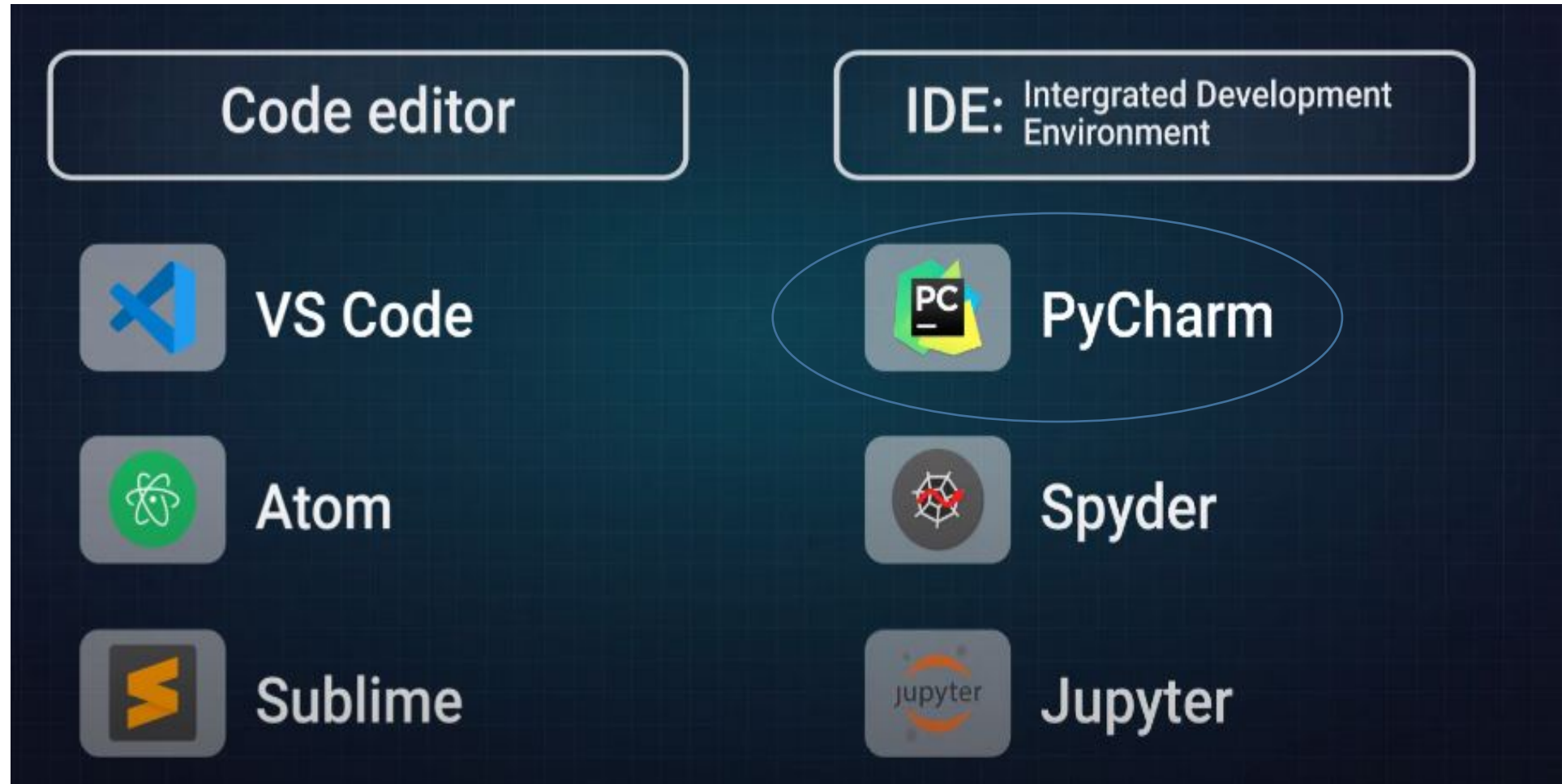


```
Administrator: Command Prompt - python
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ACER NITR05>python --version
Python 3.12.1

C:\Users\ACER NITR05>python
Python 3.12.1 (tags/v3.12.1:2305ca5, Dec 7 2023, 22:03:25) [MSC v.1937 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> 3+6
9
>>>
>>> print("hello world")
hello world
>>>
```

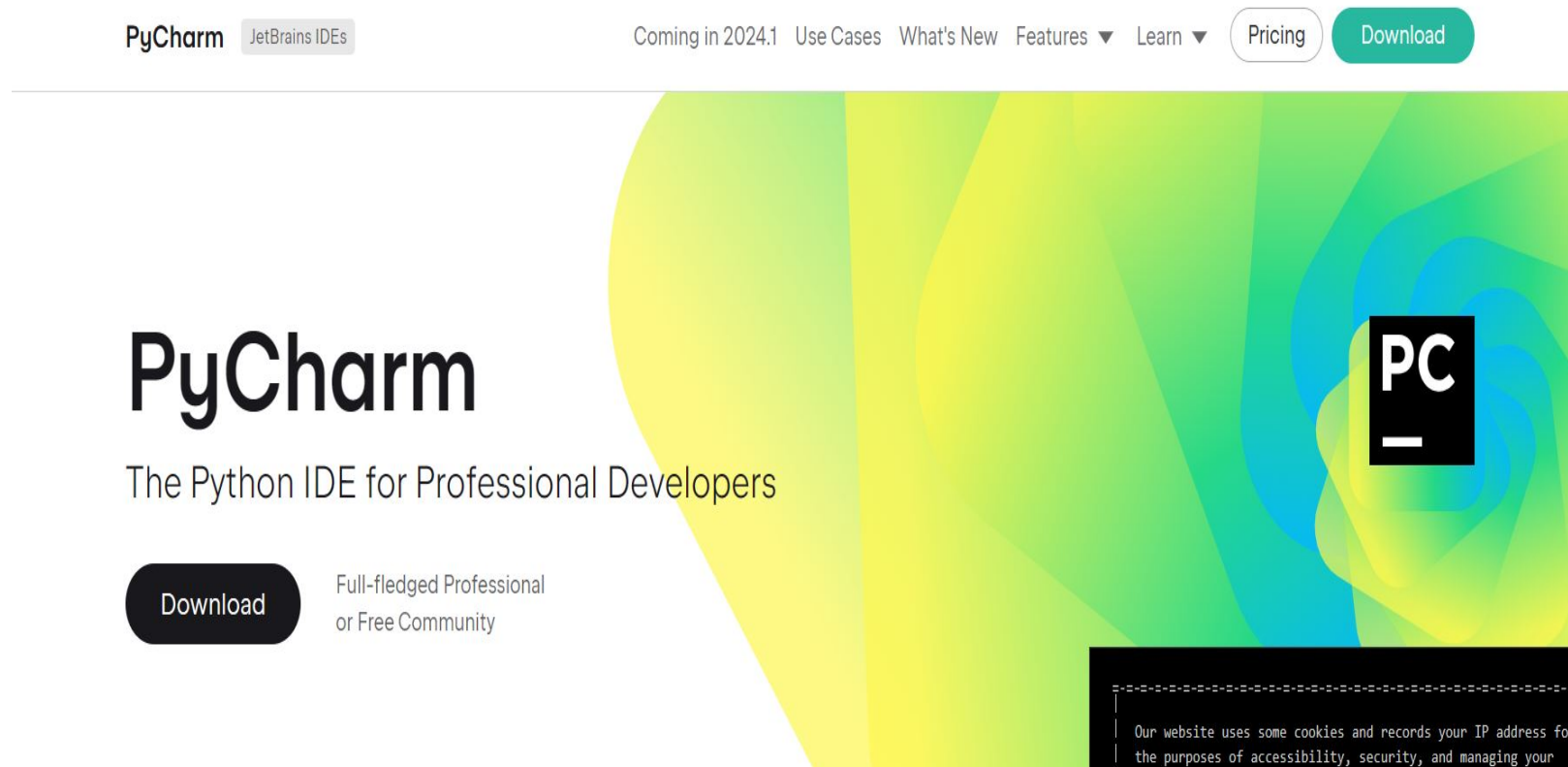
Tools



Install Pycharm

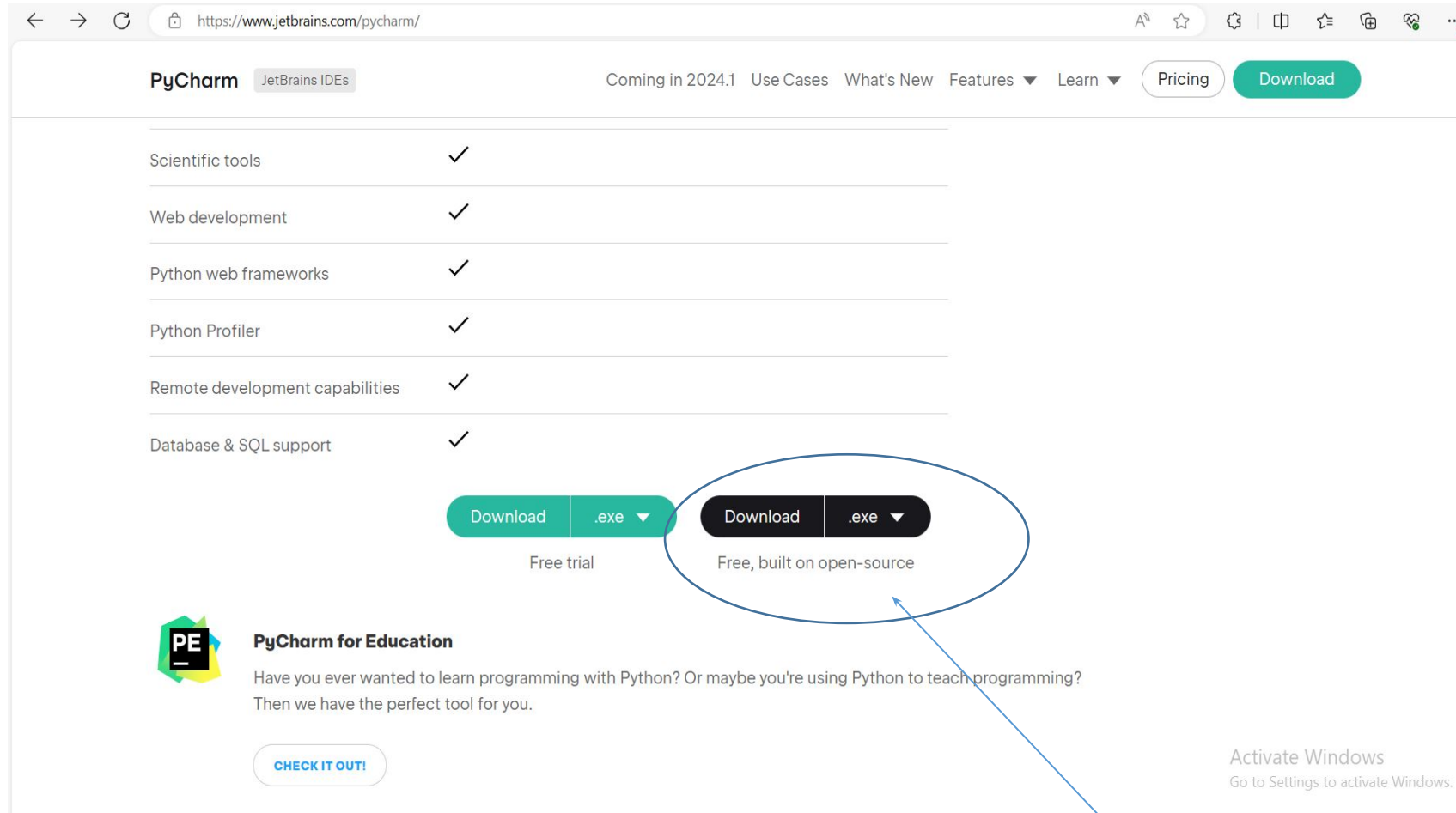
1- Go to the browser and then enter this link

<https://www.jetbrains.com//pycharm/>



Enter Download

Install Pycharm



The screenshot shows the PyCharm website with the URL <https://www.jetbrains.com/pycharm/>. The page features a navigation bar with links for "Coming in 2024.1", "Use Cases", "What's New", "Features", "Learn", "Pricing", and a "Download" button. Below the navigation bar, a list of features is displayed with checkmarks:

- Scientific tools ✓
- Web development ✓
- Python web frameworks ✓
- Python Profiler ✓
- Remote development capabilities ✓
- Database & SQL support ✓

Below the features list, there are two download options for Windows:

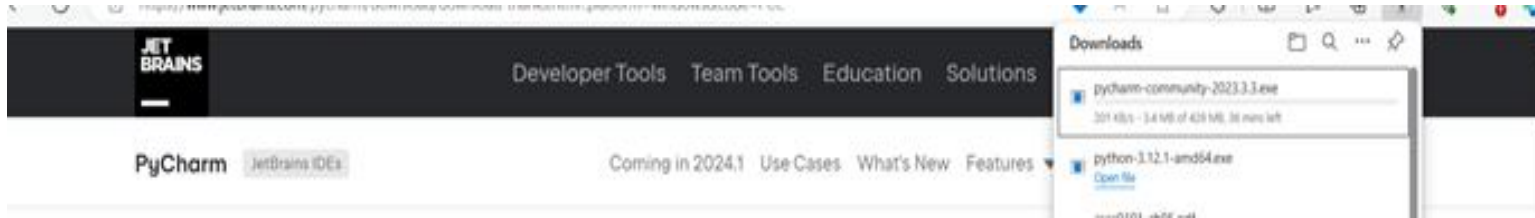
- Free trial**: A green button labeled "Download" and ".exe".
- Free, built on open-source**: A dark green button labeled "Download" and ".exe". This option is circled in blue, and a blue arrow points to it from the bottom right.

Below the download options, there is a section for **PyCharm for Education** with a "CHECK IT OUT!" button.

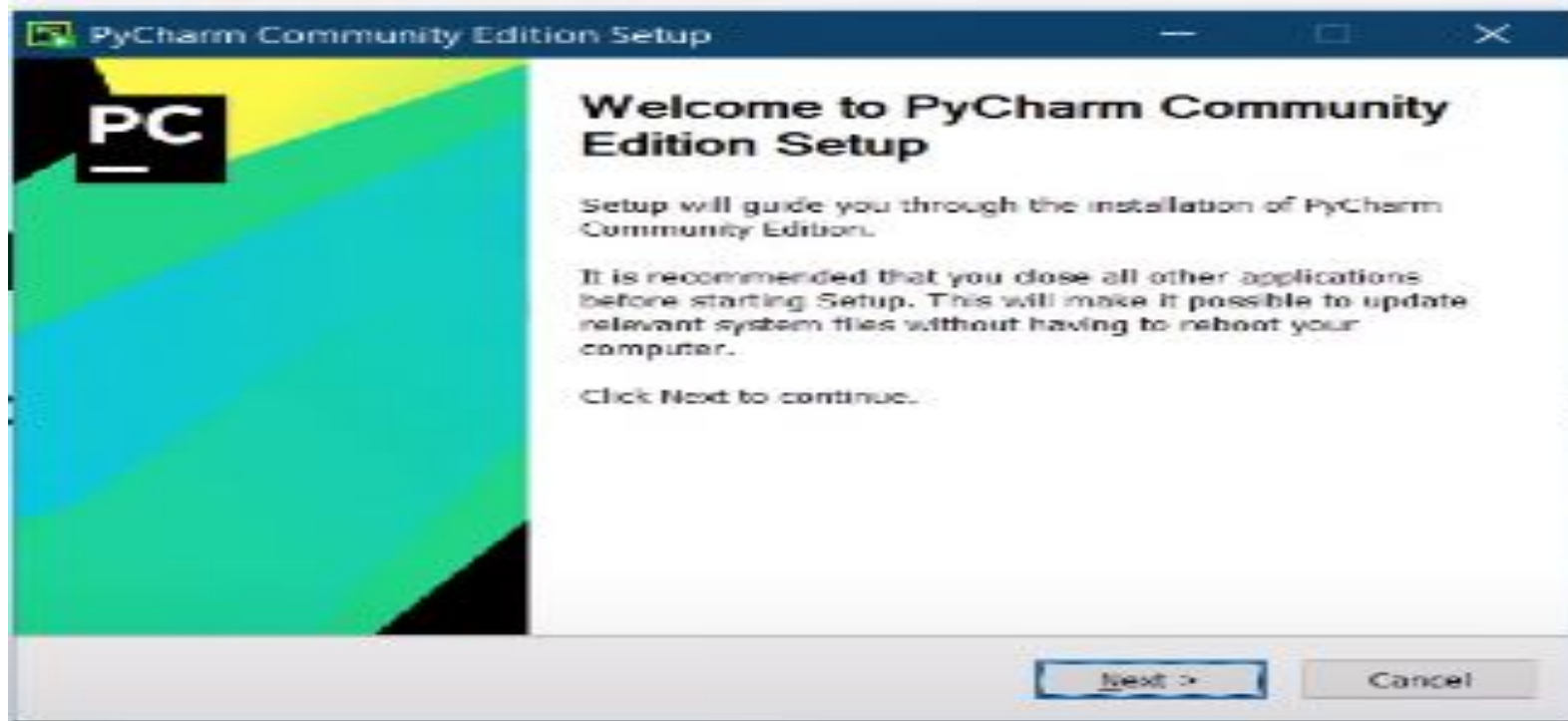
At the bottom right, there is a message: "Activate Windows. Go to Settings to activate Windows."

Enter Download

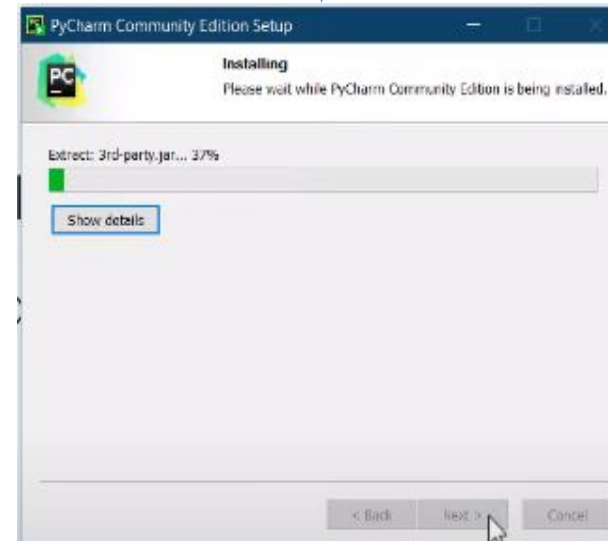
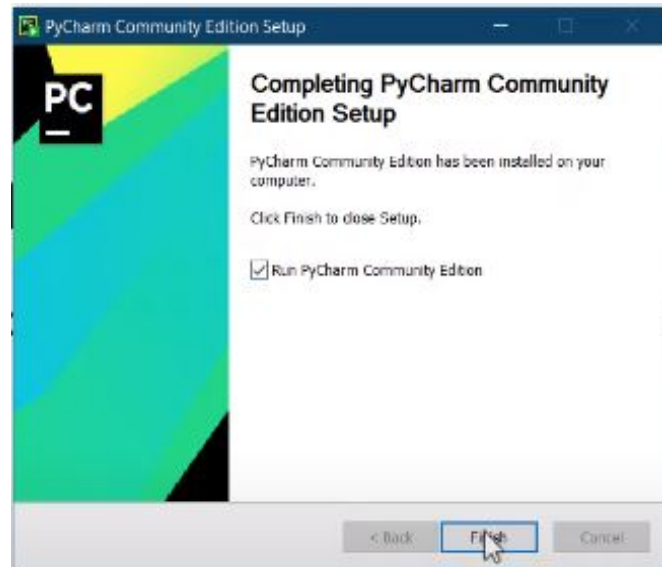
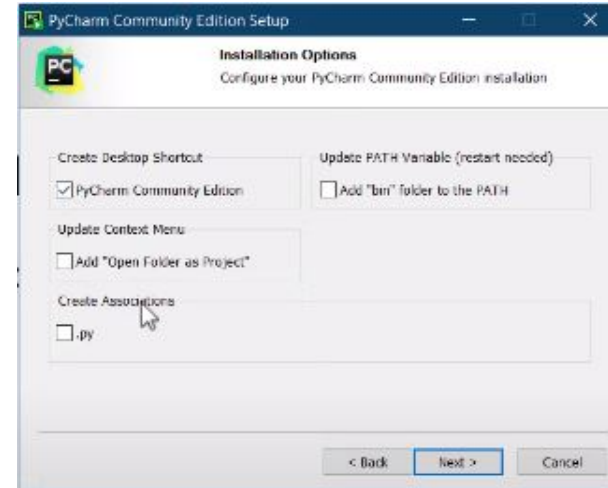
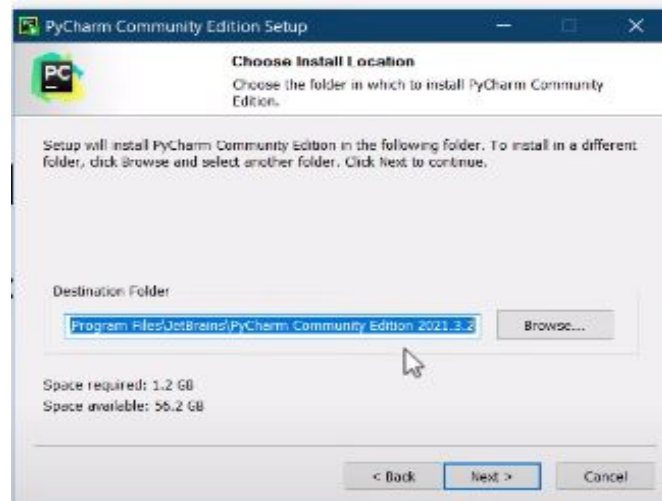
Install Pycharm



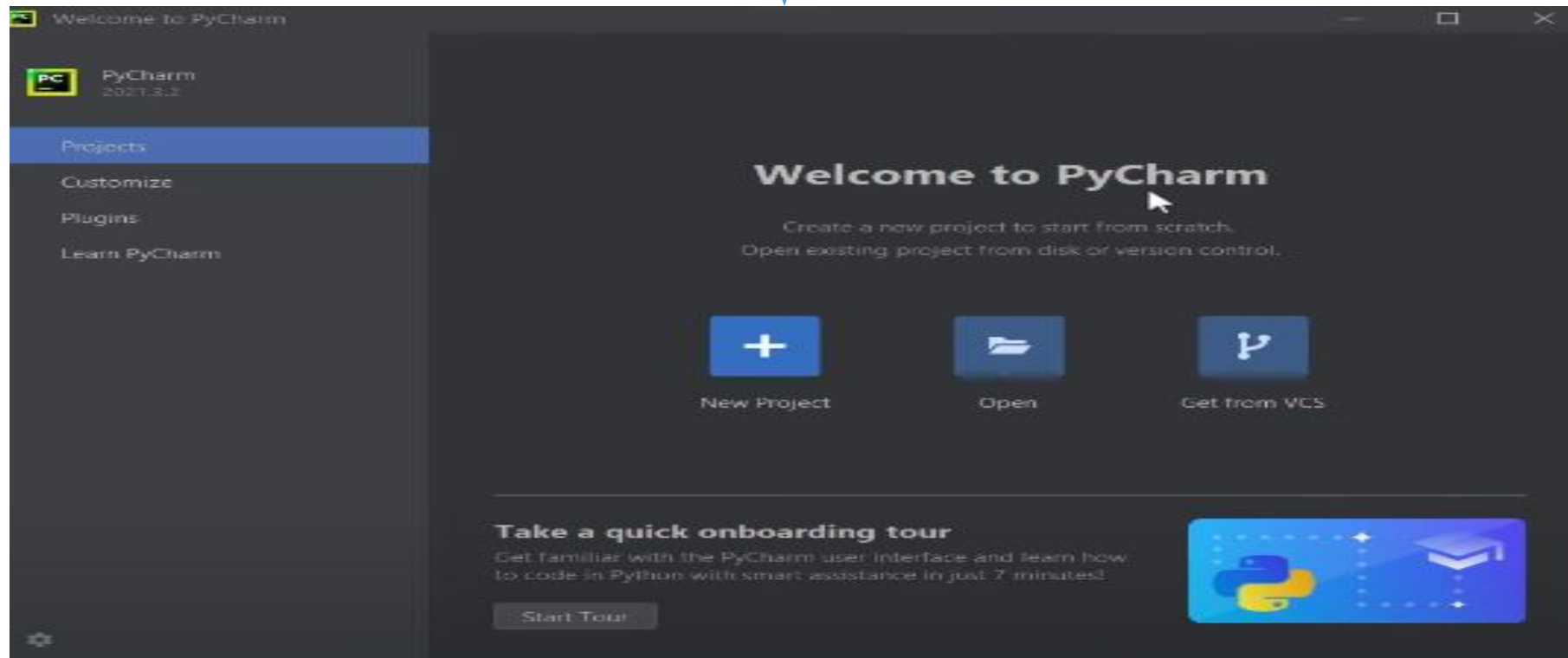
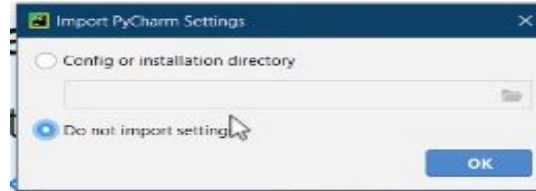
After downloading the file, install the program.



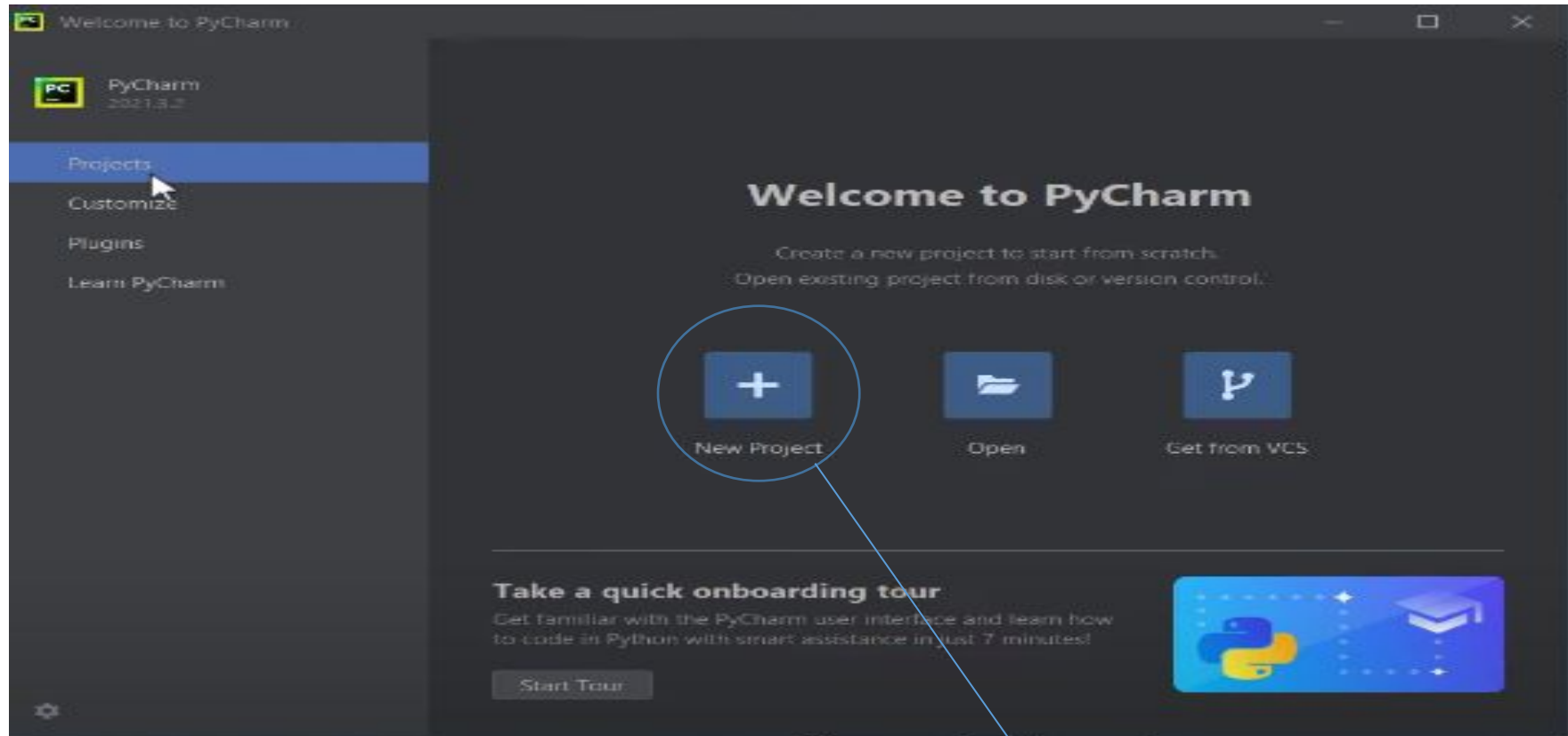
Install Pycharm



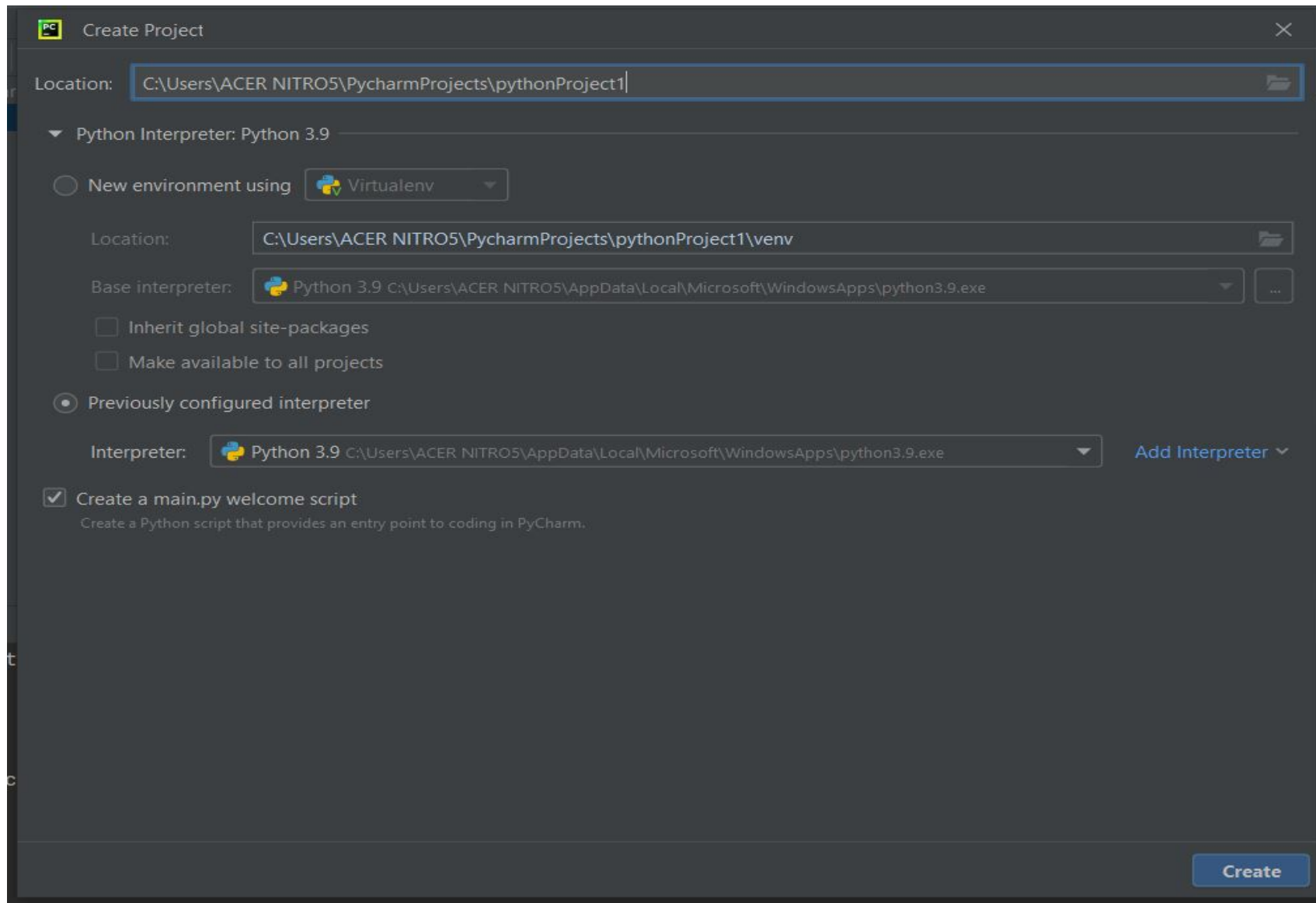
Install Pycharm



Create Project



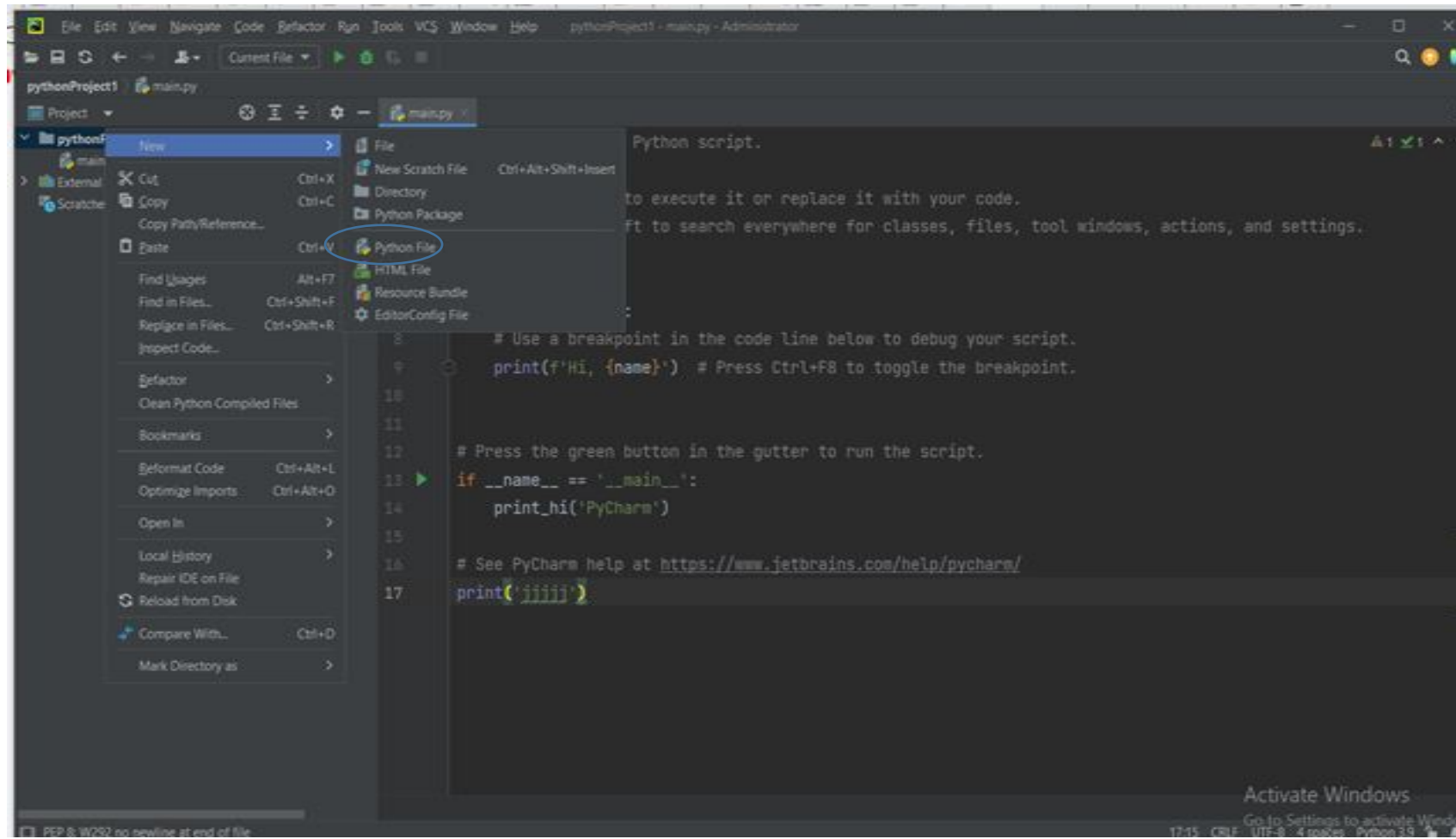
Add New Project



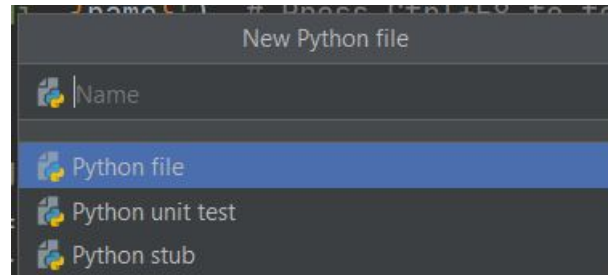
- Write the name of the project and then click on create.

Create Project File

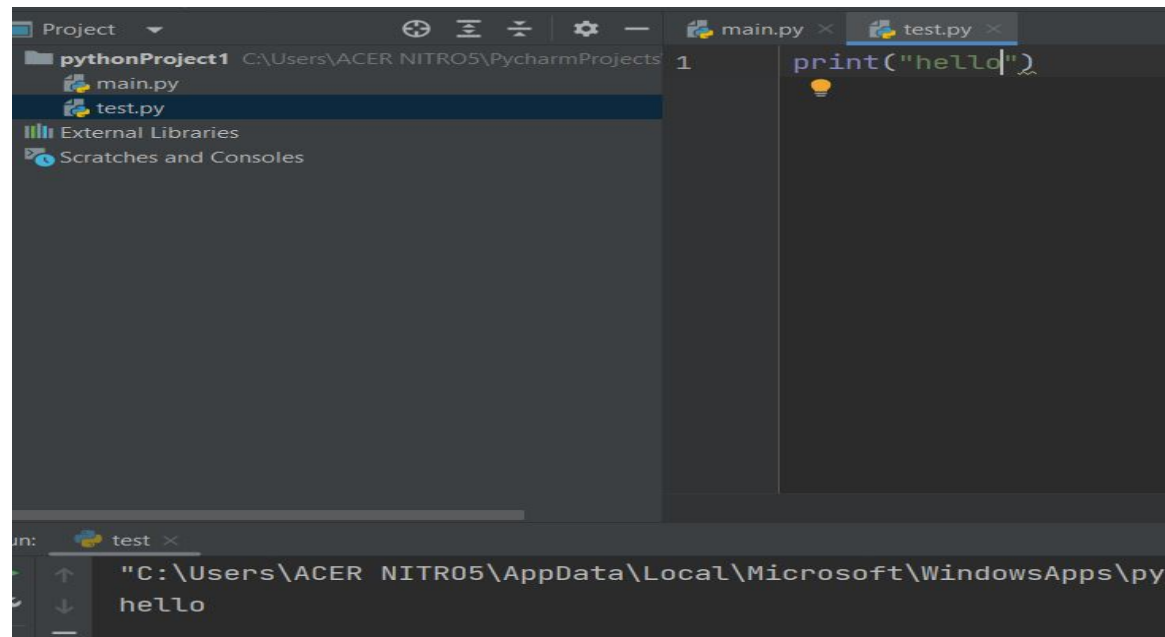
- Project Name Right-click



Create Project File



Add New



THANK YOU

