



The Islamic University of Gaza
Faculty of Engineering
Computer Engineering Department



Introduction to Computers

LAB #1

Introduction to Programming

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What is Python?

Python is a widely used high-level programming language for general-purpose programming, created by Guido van Rossum and first released in 1991. Python is a very simple, yet incredibly powerful programming language. You can use it for writing web and desktop applications, doing scientific computations, creating scripts, and more. You can use Python for almost anything. In this lab, you will learn the basics of Python syntax, functions, and creating console apps.

Python code is executed using an **interpreter**, which is a program that reads one statement from the source code, translates it to the machine code or virtual machine code, and then executes it right away.

Python is an interpreted language, which means that Python code is translated and executed by an interpreter, one statement at a time.

At first, we write our python source file, a file that has a **.py** extension. Then we use the python interpreter to interpret and run the program.

Python Versions

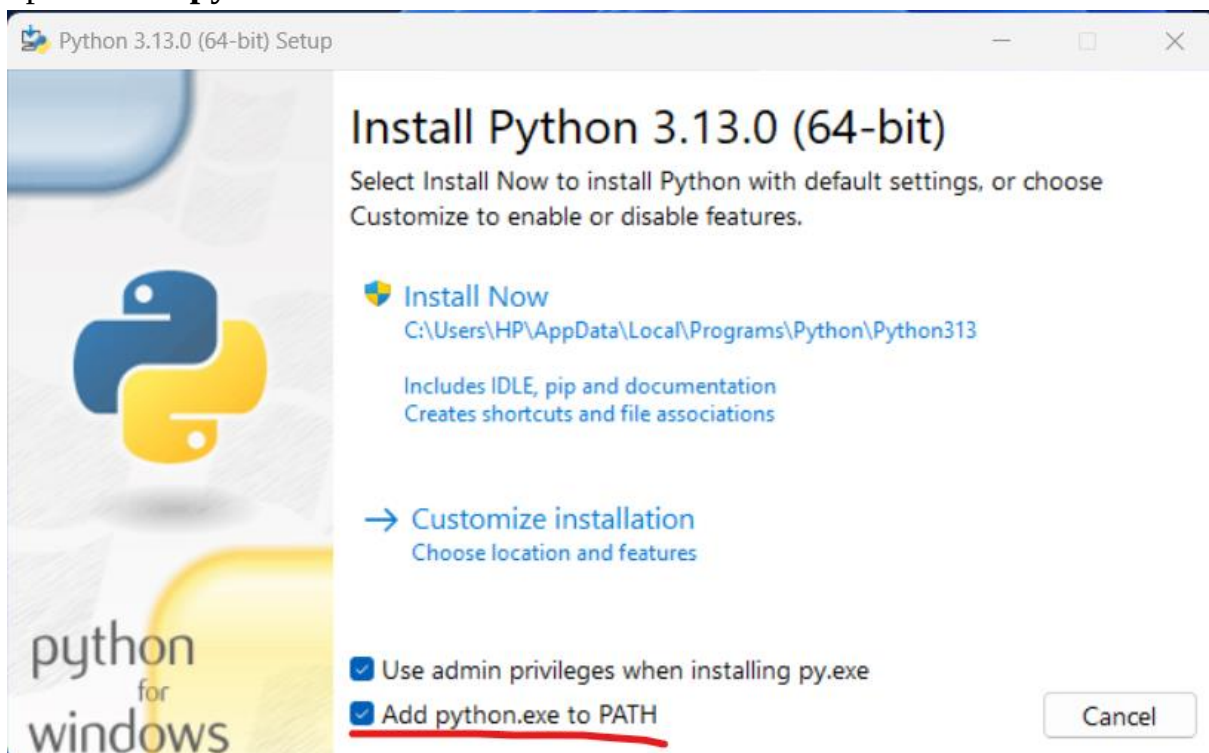
Two versions of Python are currently coexistent: Python 2 and Python 3. The programs written in Python 3 will not run in Python 2. Python 3 is a newer version, but it is not backward-compatible with Python 2. This means that if you write a program using the Python 2 syntax, it may not work with a Python 3 interpreter. Python provides a tool that automatically converts code written in Python 2 into syntax Python 3 can use. In this course, we will learn **the latest version of Python, which is 3.13 or any previous version of Python 3.**

Install Python

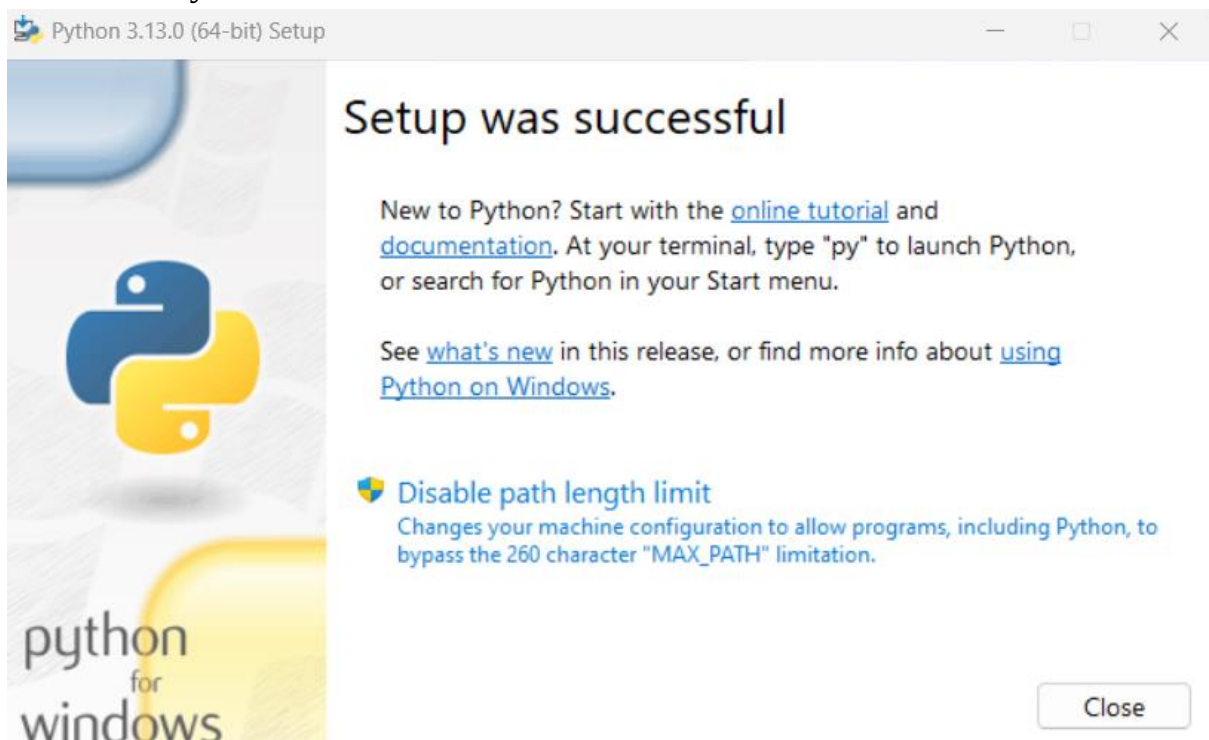
1. Go to Python's downloads page (python.org/downloads/).
2. From the page, click **download Python [latest version]** as shown below:



3. Once the download is finished, run the installer. Make sure you check the option **Add python.exe to PATH**. Then click **Install Now**:



4. After that, the installer will take a few moments to set up everything. Once it's done you will see the window below, click Close. Now you'll have Python installed on your machine.



First program

Now, you can run the Python interpreter and start executing Python code from your terminal. To open the terminal, press **Win + R**, then type **cmd**. Now run the command **python --version** to print the python version you have on your system.

If you run the command **python**, you can now start executing Python code. In the example below, we printed the message **Hello world**, and then we printed the calculation of **3 + 4 * 7**.

```
Command Prompt - python
Microsoft Windows [Version 10.0.22631.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP>python --version
Python 3.13.0

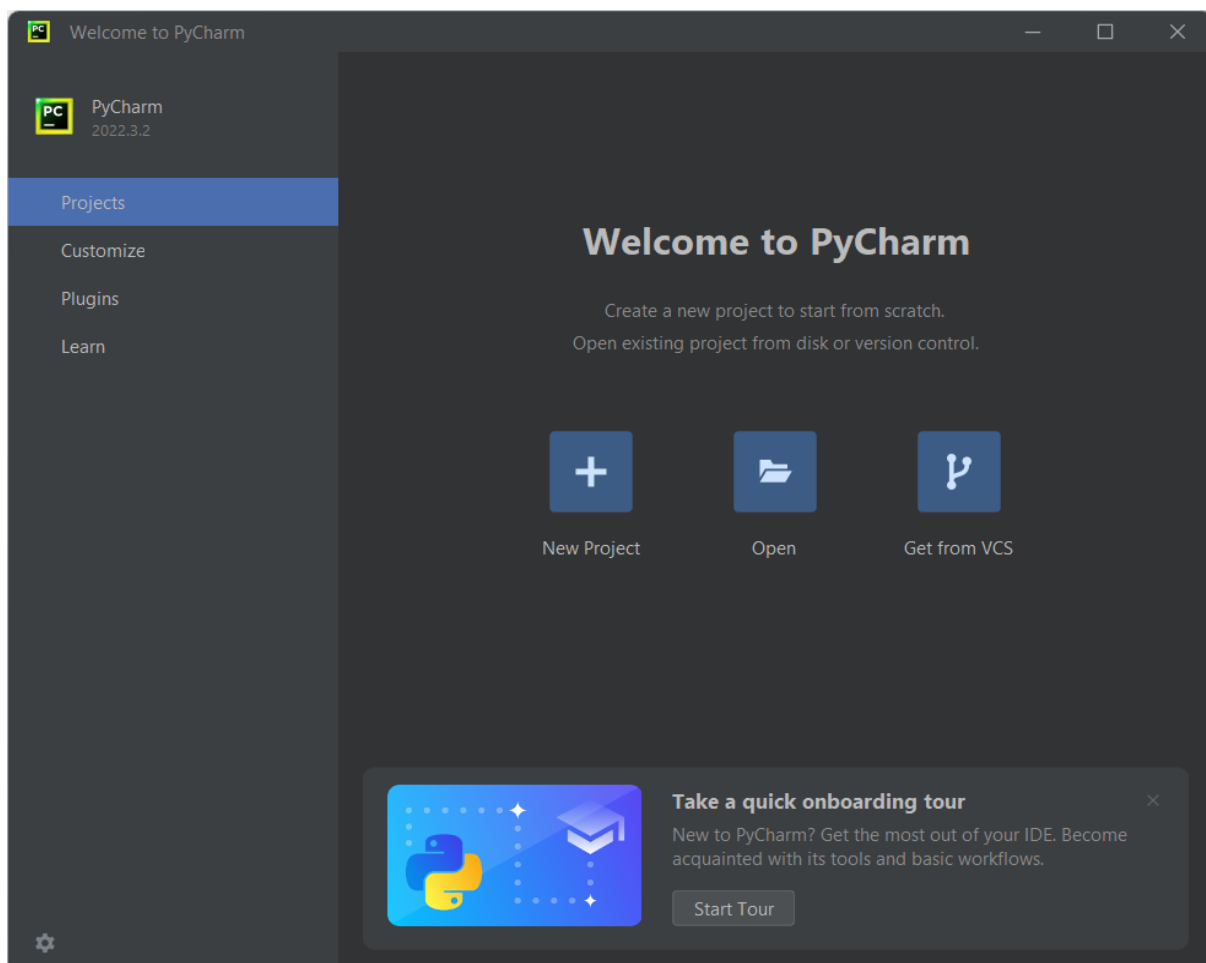
C:\Users\HP>python
Python 3.13.0 (tags/v3.13.0:60403a5, Oct 7 2024, 09:38:07) [MSC v.1941 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print("This is my first Python program")
This is my first Python program
>>> print(3 + 4 * 7)
31
>>>
```

Integrated Development Environments (IDE)

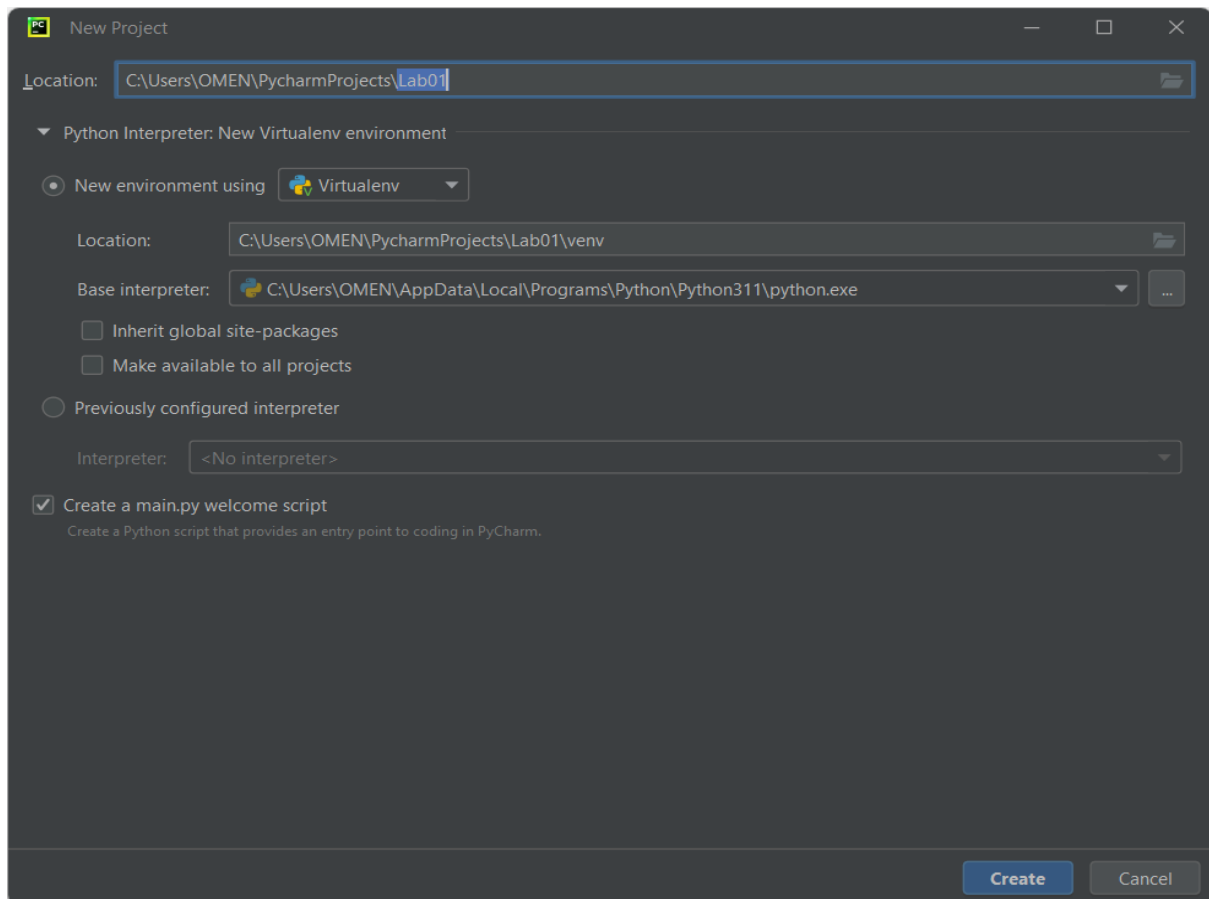
IDE is a software application that provides comprehensive facilities to computer programmers for software development. It allows programmers to compile, debug, and format the code. In this lab, we will use **PyCharm**, an IDE developed by **JetBrains**. There're two main Editions for PyCharm: **Community Edition**, and **Professional Edition**. Community edition is the free edition we will use in this lab (jetbrains.com/pycharm/download/). Professional edition, on the other hand, is not free. However, you can still get it for free if you sign up for JetBrains as long as you're a student (jetbrains.com/community/education/).

Creating First PyCharm Project

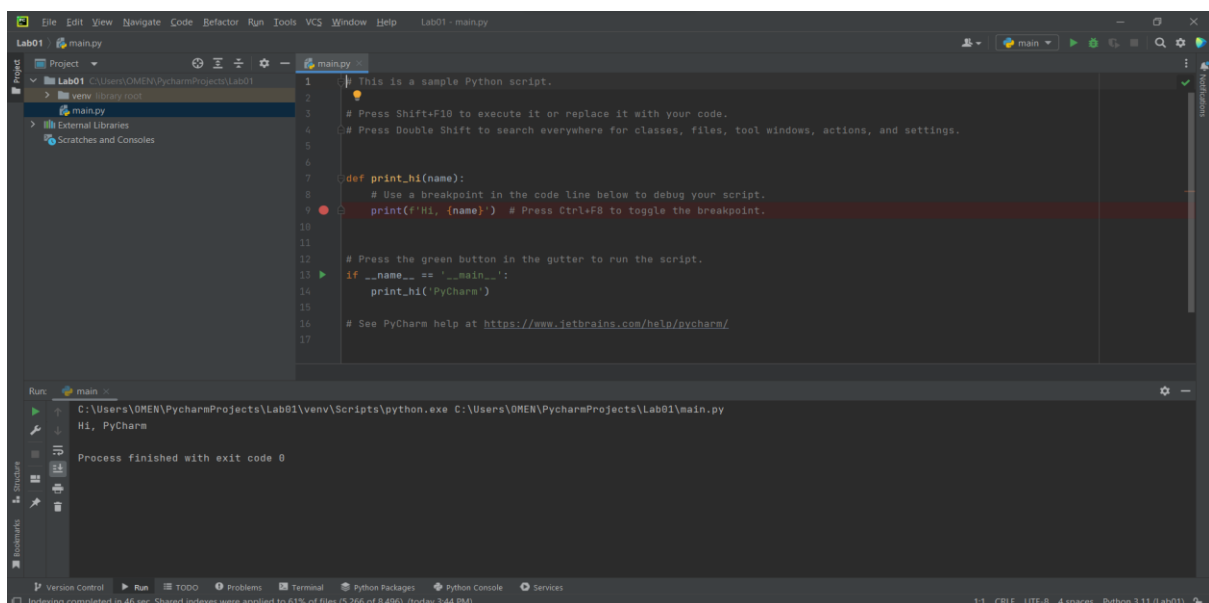
1. Open the IDE, you will see the following screen. Click on **New Project**:



2. Choose the location and name of the project. For example, **Lab01**.
 - You can uncheck the option "Create a main.py welcome script".



3. You can now write your code and run it.



Lab tasks

1. Use PyCharm IDE to write a program that calculates the result of the equation: $\frac{(5 * 6 + 4)}{(3 * 8 - 3 * 6)}$

Hint: Be careful for the order of operation (parentheses has the highest one then multiply and division and so on..)

2. Use Your CMD to print your name and University ID number

Good Luck 😊