

Software Installation (DIY)

Objectives

- Install Firefox (optional)
- Install Python software
- Install Pygame
- Install VMware workstation/fusion; download and run a linux virtual machine; run python programs in a linux virtual machine

What is your machine drinking?

Before we begin, let's just say that we're assuming you're using a 64-bit Windows machine.

If you don't know what I'm talking about, then I'm 99% sure you are using a Windows machine ... and you're in luck!

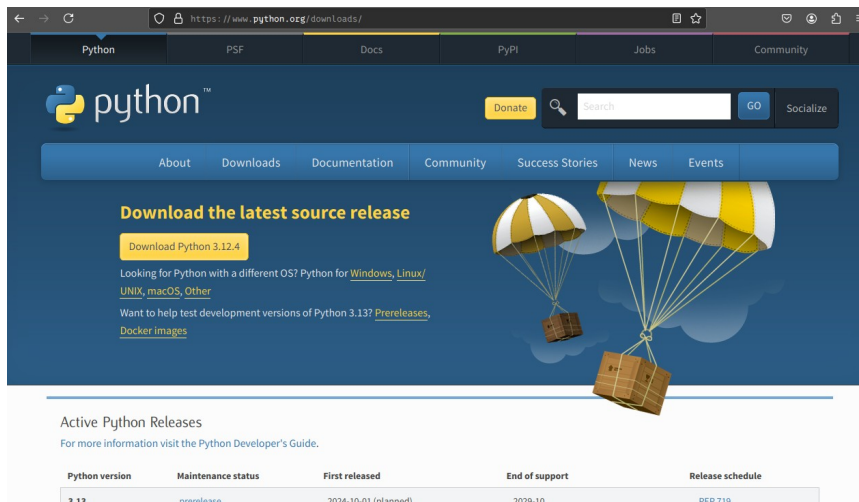
For the rest of you Mac and Linux/FC folks ... **you're on your own!**

... just kidding. We'll try to help.

Installation of Firefox

This section is optional.

My favorite browsers are Firefox (**FF**) and Chrome. You may use Microsoft Edge (**Edge**). The only reason why I'm bring this up is because if I do a screen shot of the browser you will very likely see FF:

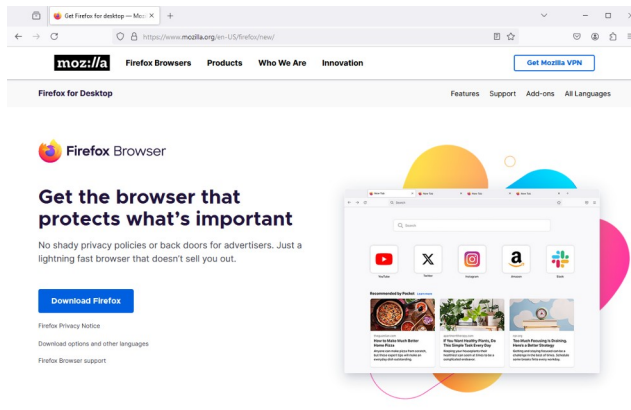


Why am I not telling you the URL of Firefox's home page? Because you should learn to hunt for things on your own.

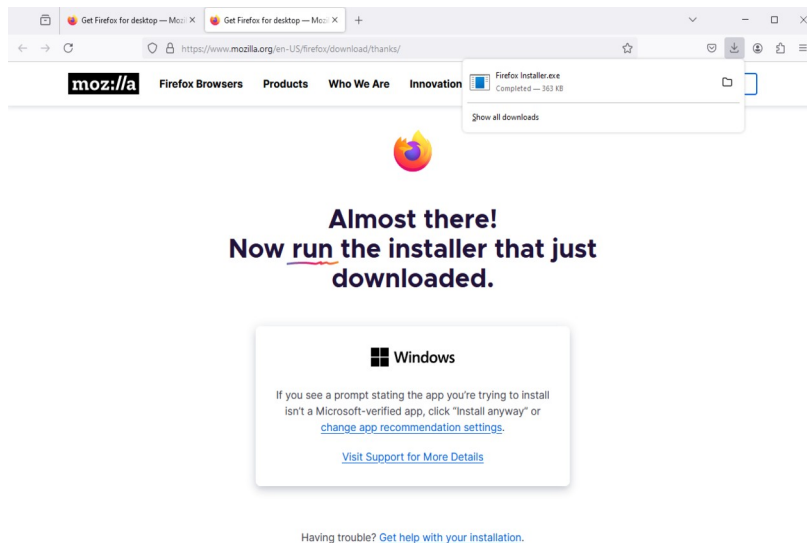
FF, Chrome and Edge are probably instead installed in your laptop. If FF is not installed in your laptop and you wish to try out FF follow the given instructions ...

If you're comfortable looking for and installing software, all I need to tell you is to look for FF and install it. If you feel uncomfortable about that, please read on.

First open your IE. Go to "www.google.com". Search for "Firefox". Click on the link that gives you the home page of FF (it should be the first). FF's home should look like this:



Click on “Download Firefox” and you should see this:



Run the installer program. Follow the instructions. To run the installation program manually, you need to double-click on this icon.

In general, during the installation process you accept the default choices. You usually do that by clicking on “Next”. You might need to agree with some license agreement. When you're done you probably have to click on “Finish”. On your Desktop you will see

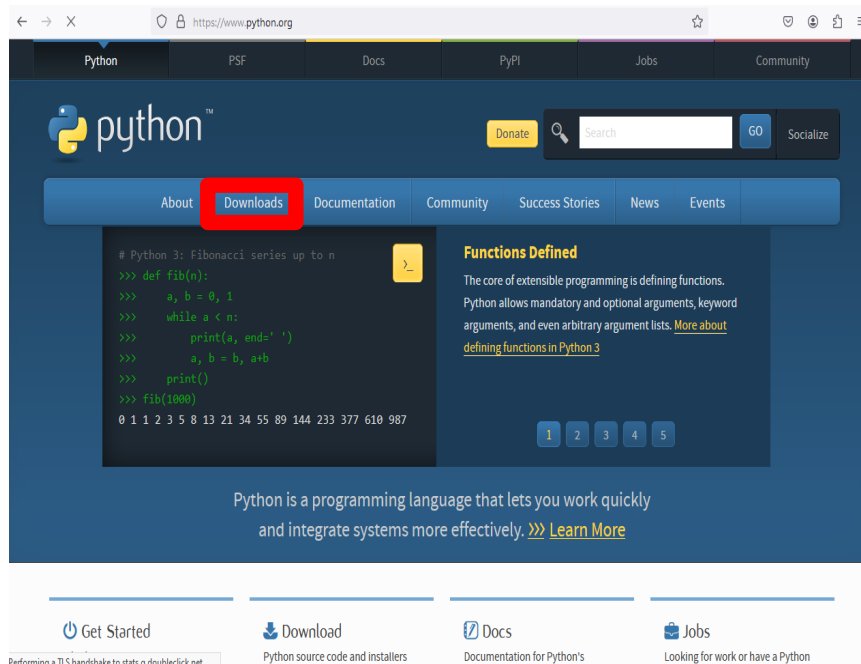


You double-click on this icon to run firefox. Of course after you're done installing FF, you can get rid of the installation program.

Installation of Python

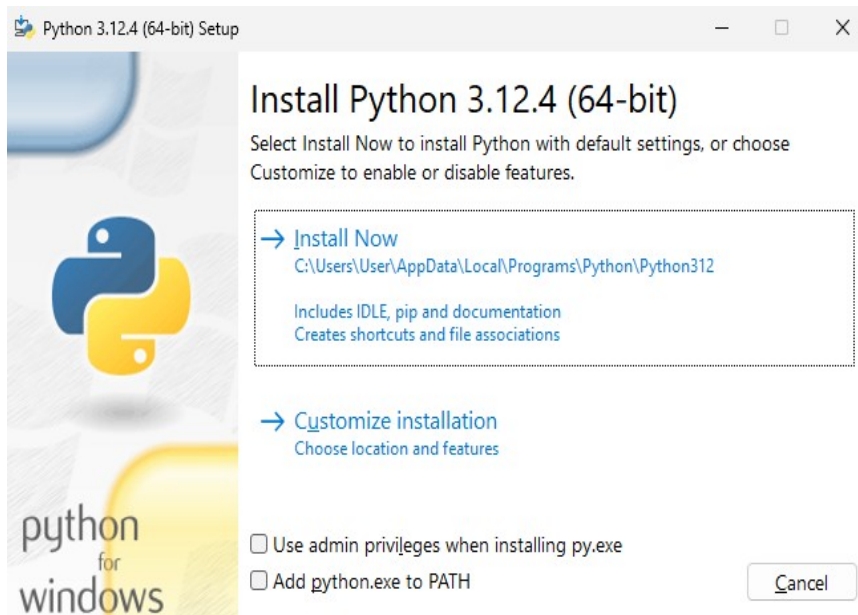
The Python software does not come with your PC or notebook by default if you're using the Windows operating system. Here's how you make your PC understand Python.

First you need to find the home page of Python. Google for “python” and find it. It should look like this:

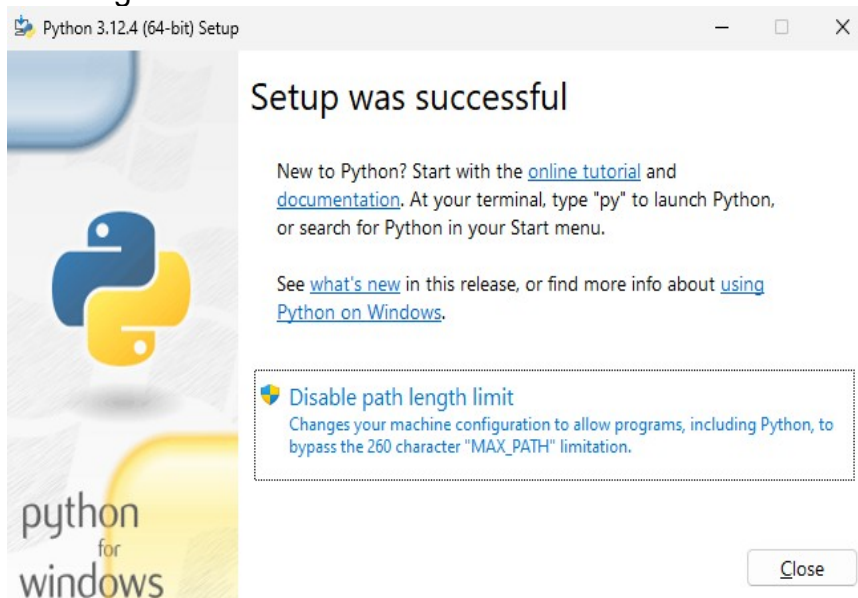


Hover mouse over Downloads, and click the “Python 3.12.4” link under “Download for Windows,” to install Python 3.12.4.

This will download the python installation setup, which, when opened, will look like this:

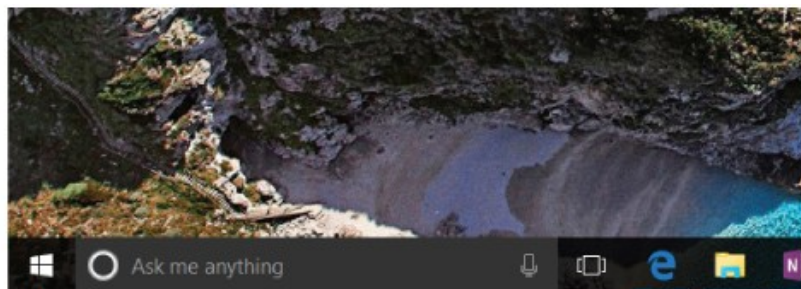


Click on “Install Now” and you will see this after it’s done installing:



Click on “Close” ... and you're done! You now have the Python software on your computer.

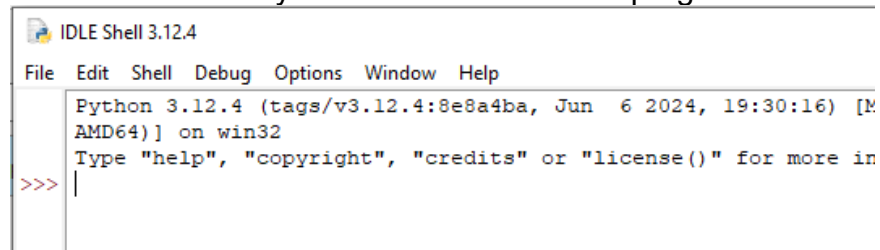
When you open the start menu:



you should be able to find your python:

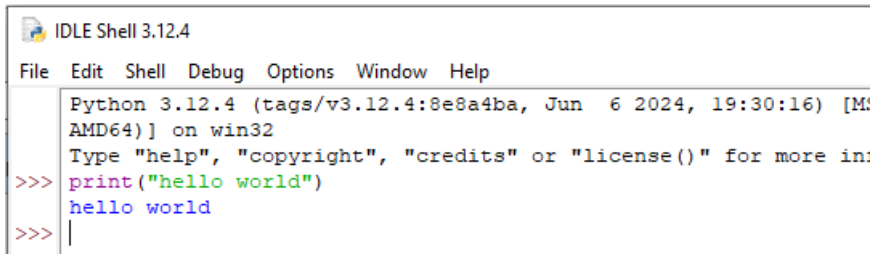


Click on IDLE and you'll see the IDLE Shell program:



Let's test your python software.

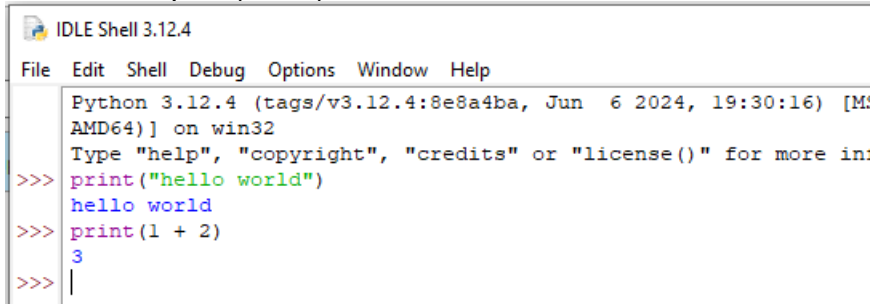
Enter `print("hello world")` into the shell and press the enter key. You'll see this:



```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
Python 3.12.4 (tags/v3.12.4:8e8a4ba, Jun 6 2024, 19:30:16) [MS
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more in:
>>> print("hello world")
hello world
>>> |
```

The shell says hello world to you.

Next, enter `print(1 + 2)` in the shell:



```
IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
Python 3.12.4 (tags/v3.12.4:8e8a4ba, Jun 6 2024, 19:30:16) [MS
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more in:
>>> print("hello world")
hello world
>>> print(1 + 2)
3
>>> |
```

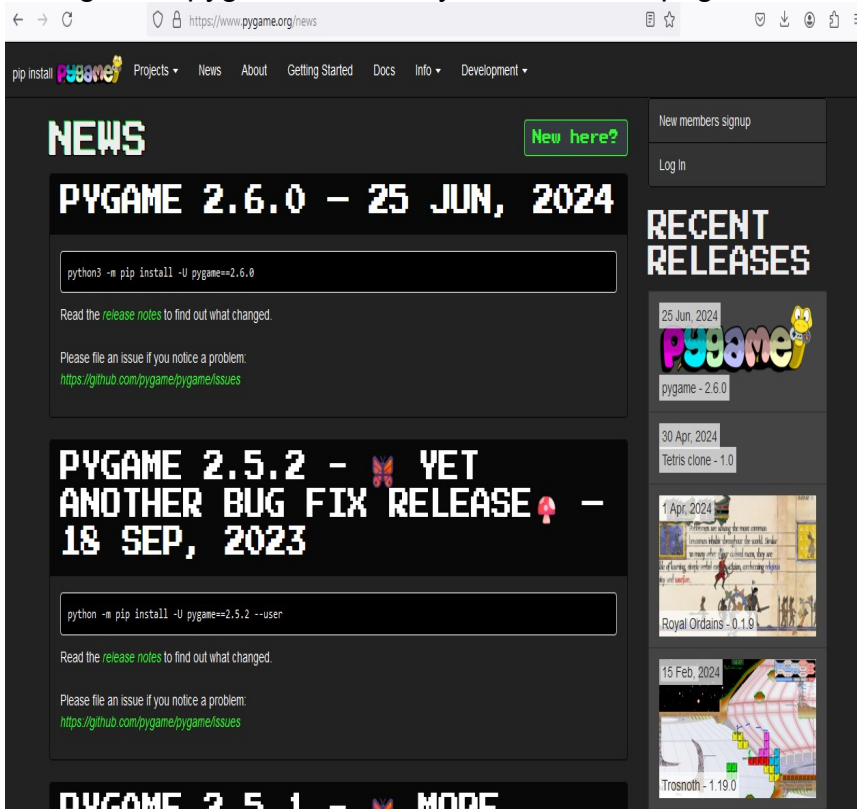
and the shell says 3 to you.

Congratulations! Your python software is working.

WARNING: There might be other versions of python already installed in your laptop. (Maybe you downloaded a program that uses Python.) Make sure you run the correct version that you want!

Installation of PyGame

PyGame is a python library for game development. First Google for “pygame” to find PyGame's home page:



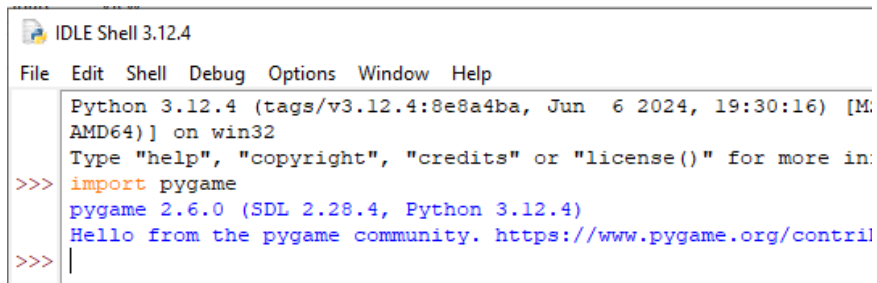
You can browse the website for more information on pygame and also on how to install pygame. I'll show you a different way of installing pygame ...

Open your IDLE shell again. Enter the following and then press the enter key:

```
import os
os.system("python pip -m install -U pygame --user")
```

Python should print 0. If you see the 0, it means that python has no problems installing pygame.

Let's test our pygame. Open IDLE shell again and enter `import pygame`:



```

IDLE Shell 3.12.4
File Edit Shell Debug Options Window Help
Python 3.12.4 (tags/v3.12.4:8e8a4ba, Jun 6 2024, 19:30:16) [M
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more in
>>> import pygame
pygame 2.6.0 (SDL 2.28.4, Python 3.12.4)
Hello from the pygame community. https://www.pygame.org/contri
>>> |

```

Python prints the pygame version. This means that pygame is successfully installed. If python has problems installing pygame, you'll get an error message when you try to import pygame.

To uninstall a library you do

```
import os
os.system("python pip -m uninstall pygame --user")
```

By the way you only need to do import os once. For instance

```
import os
os.system("python pip -m install -U pygame -user")
os.system("python pip -m install -U pyperclip -user")
```

Exercise. Install the emoji library. Then run this example in IDLE:

```
from emoji import emojiize
print(emojiize(":thumbs_up:"))
```

There's a similar library called emojis. Install it and then run this example:

```
import emojis
emojified = emojis.encode(":snake: in my boot!")
print(emojified)
```

Finally, uninstall the emoji and emojis libraries.

Exercises. Depending on the version of your Microsoft Windows, the python libraries are usually installed in one of the following folders:

```
C:/Users/yliow/AppData/Roaming/Python/Python312/site-packages
C:/Users/yliow/AppData/Local/Python/Python312/site-packages
```

(with my user name replaced by yours and the python version 312 might be different depending on which version you downloaded.) Open these folders and then install the emoji library and check where emoji is installed. Then,

uninstall emoji and check that it's removed.

Linux

Programming python on Microsoft Windows is fine. But I prefer to write python programs in linux using a linux virtual machine.

- Go to my website <http://yliow.github.io>.
- Scroll down and look for the Software section on the web page (or just search for software on the web page).
- Look for “Software downloads for classes” and click on the README and follow the instructions on running a linux platform. You will need to (1) download and install some software and you’ll need to (2) go over some tutorials on how to use the linux platform. Specifically the instructions will direct you to:
 - Install VMware workstation if you are using a Microsoft Windows machine or install VMware Fusion if you have a Mac laptop.
 - Install 7zip (or any good decompression software that can decompress 7z files).
 - Download our Fedora virtual machine onto your laptop.
 - After the above, you are ready to go over the following tutorials:
 - [vmwareplayer.pdf](#): how to use VMware workstation/fusion to run a linux platform
 - [unix1.pdf](#): how to use linux commands
 - [emacs.pdf](#): how to use the emacs text editor to write programs

After the above, you can run Python commands in the following ways.

Interactive mode: To run python interactively, open your bash shell and run enter python to run the python shell:

```
[student@localhost ~]$ python
Python 3.7.9 (default, Aug 19 2020, 17:05:11)
[GCC 9.3.1 20200408 (Red Hat 9.3.1-2)] on linux
Type "help", "copyright", "credits" or "license"
for more information.
>>>
```

and then enter python commands:

```
[student@localhost ~]$ python
```

```
Python 3.7.9 (default, Aug 19 2020, 17:05:11)
[GCC 9.3.1 20200408 (Red Hat 9.3.1-2)] on linux
Type "help", "copyright", "credits" or "license"
for more information.
>>> print("hello world")
hello world
>>> print(1 + 2)
3
>>>
```

To end the python shell and go back to the bash shell, enter Ctrl-d (i.e., hold the control key and press d).

Batch mode: To run a python program, use your editor to write and save this program with filename `first.py`:

```
print("hello world")
print(1 + 2)
```

Next, run your `first.py` program in the bash shell by entering `python first.py`:

```
[student@localhost ~]$ python first.py
hello world
3
[student@localhost ~]$
```