

Ferramentas (para IMFVJ1)

- Python 3.10
- Visual Studio Code
- P5.PyPI
- Biblioteca Python> Pygame
- Biblioteca Python> Numpy

Instalação do Python 3.10

<https://www.python.org/downloads/release/python-3100/>

installer python 3.10

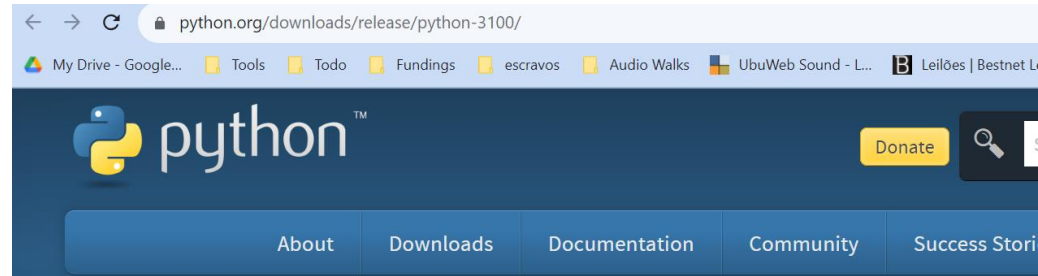
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[www.python.org](#) > [downloads](#) > [release](#) ▾

Python Release Python 3.10.0 | Python.org

Python 3.10.0. Release Date: Oct. 4, 2021. This is the stable release
3.10.0 is the newest major release of the Python programming lang



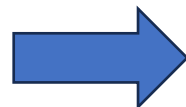
Python 3.10.0

Release Date: Oct. 4, 2021



Release	Operating system	Description
Gzipped source tarball	Source release	
XZ compressed source tarball	Source release	
macOS 64-bit universal2 installer	macOS	for macOS 10.9 and later (updated for macOS 12 Monterey)
Windows embeddable package (32-bit)	Windows	
Windows embeddable package (64-bit)	Windows	
Windows help file	Windows	
Windows installer (32-bit)	Windows	
Windows installer (64-bit)	Windows	Recommended

MD5 Sum	File Size	GPG
729e36388ae9a832b01cf9138921b383	25007016	SIG
3e7035d272680f80e3ce4e8eb492d580	18726176	SIG
8575cc983035ea2f0414e25ce0289ab8	39735213	SIG
dc9d1abc644dd78f5e48edae38c7bc6b	7521592	SIG
340408540eeff359d5eaf93139ab90fd	8474319	SIG
9d7b80c1c23cfb2cecd63ac4fac9766e	9559706	SIG
133aa48145032e341ad2a000cd3bfff503	27194856	SIG
c3917c08a7fe85db7203da6dcaa99a70	28315928	SIG



Install Python 3.10.0 (64-bit)

Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

→ Install Now

C:\Users\ruifi\AppData\Local\Programs\Python\Python310

Includes IDLE, pip and documentation
Creates shortcuts and file associations

→ Customize installation

Choose location and features

☐ Install launcher for all users (recommended)

☒ Add Python 3.10 to PATH

Advanced Options

☒ Install for all users

☒ Associate files with Python (requires the py launcher)

☒ Create shortcuts for installed applications

☒ Add Python to environment variables

☒ Precompile standard library

☐ Download debugging symbols

☐ Download debug binaries (requires VS 2017 or later)

Customize install location

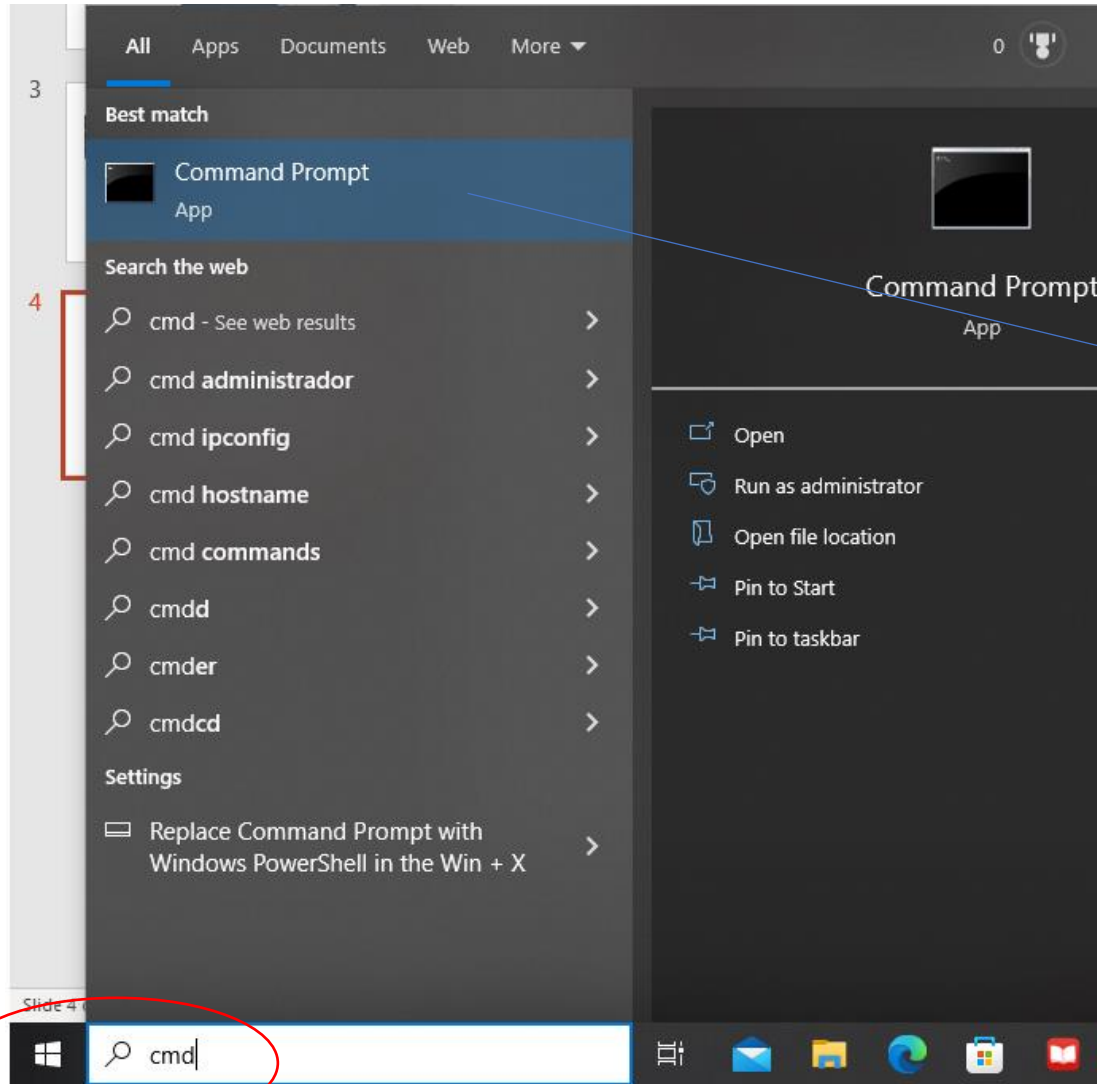
C:\Program Files\Python310

Browse

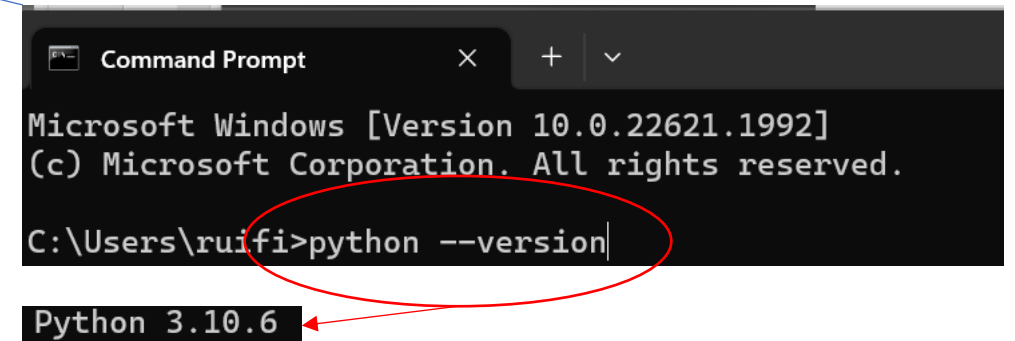
Back

Install

Cancel



python --version



3.10

Instalação biblioteca Pygame e numpy

2- usar o comando **python -m pip install -U pygame --user**

```
C:\Users\ruifi>python -m pip install -U pygame --user
```

Collecting pygame

Downloading pygame-2.1.2-cp310-cp310-win_amd64.whl (8.4 MB)
----- 8.4/8.4 MB 18.6 M/s eta 0:00:00

Installing collected packages: pygame

Successfully installed pygame-2.1.2

4-usar o comando **pip install numpy**

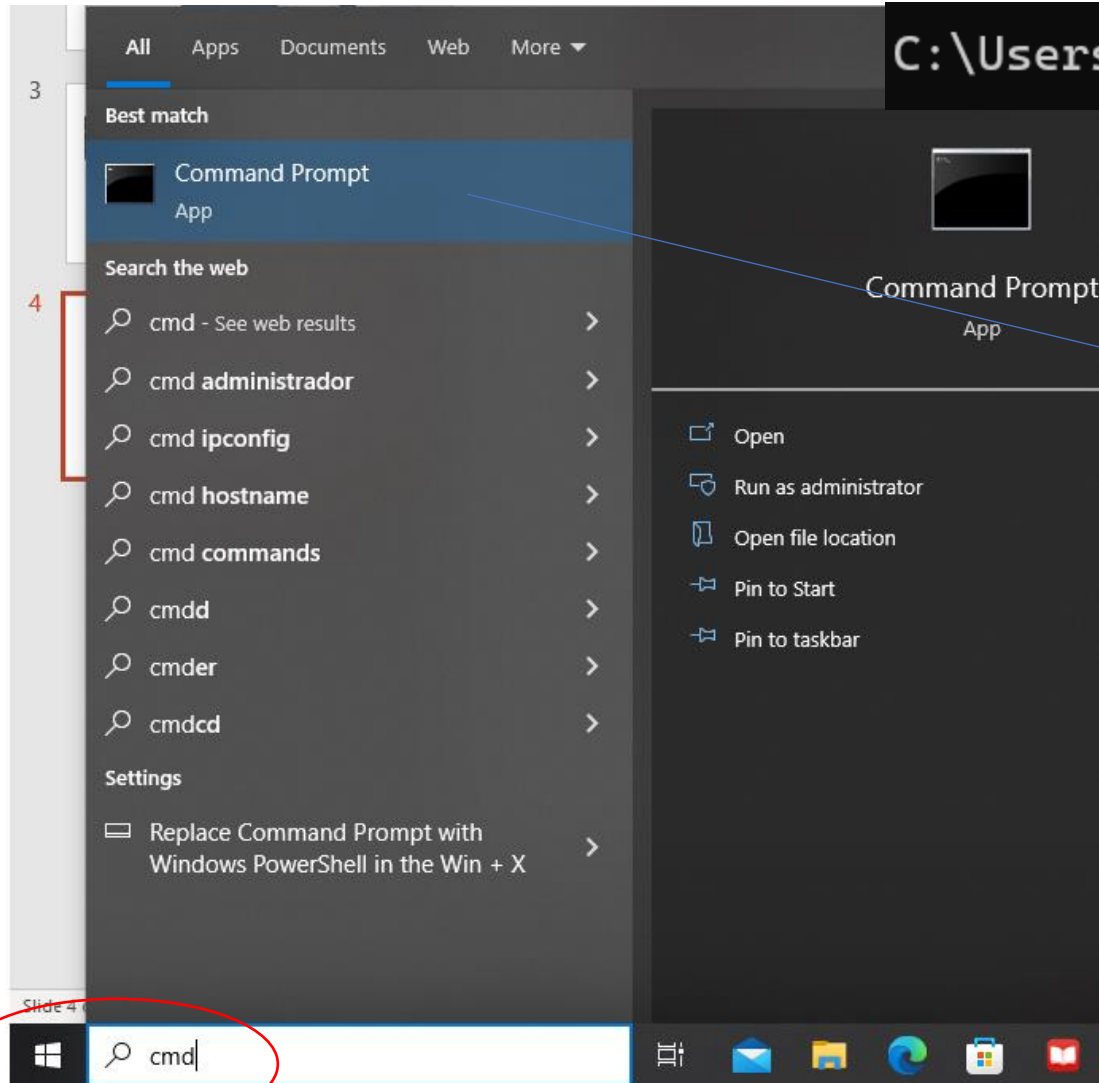
```
C:\Users\ruifi>pip install numpy
```

Collecting numpy

Downloading numpy-1.23.3-cp310-cp310-win_amd64.whl (14.6 MB)
----- 14.6/14.6 MB 40.9 MB/s eta 0:00:00

Installing collected packages: numpy

Successfully installed numpy-1.23.3



Testar

usar o comando **python -m pygame.examples.aliens**

```
C:\Users\ruifi>python -m pygame.examples.aliens|
```

o output deverá ser uma janela com o jogo aliens

```
C:\Users\Administrator>python -m pygame.examples.aliens  
pygame 2.1.2 (SDL 2.0.18, Python 3.10.7)  
Hello from the pygame  
community. https://www.pygame.org/contribute.html
```


Instalação da biblioteca **P5**

P5 for Python (p5.PyPI)

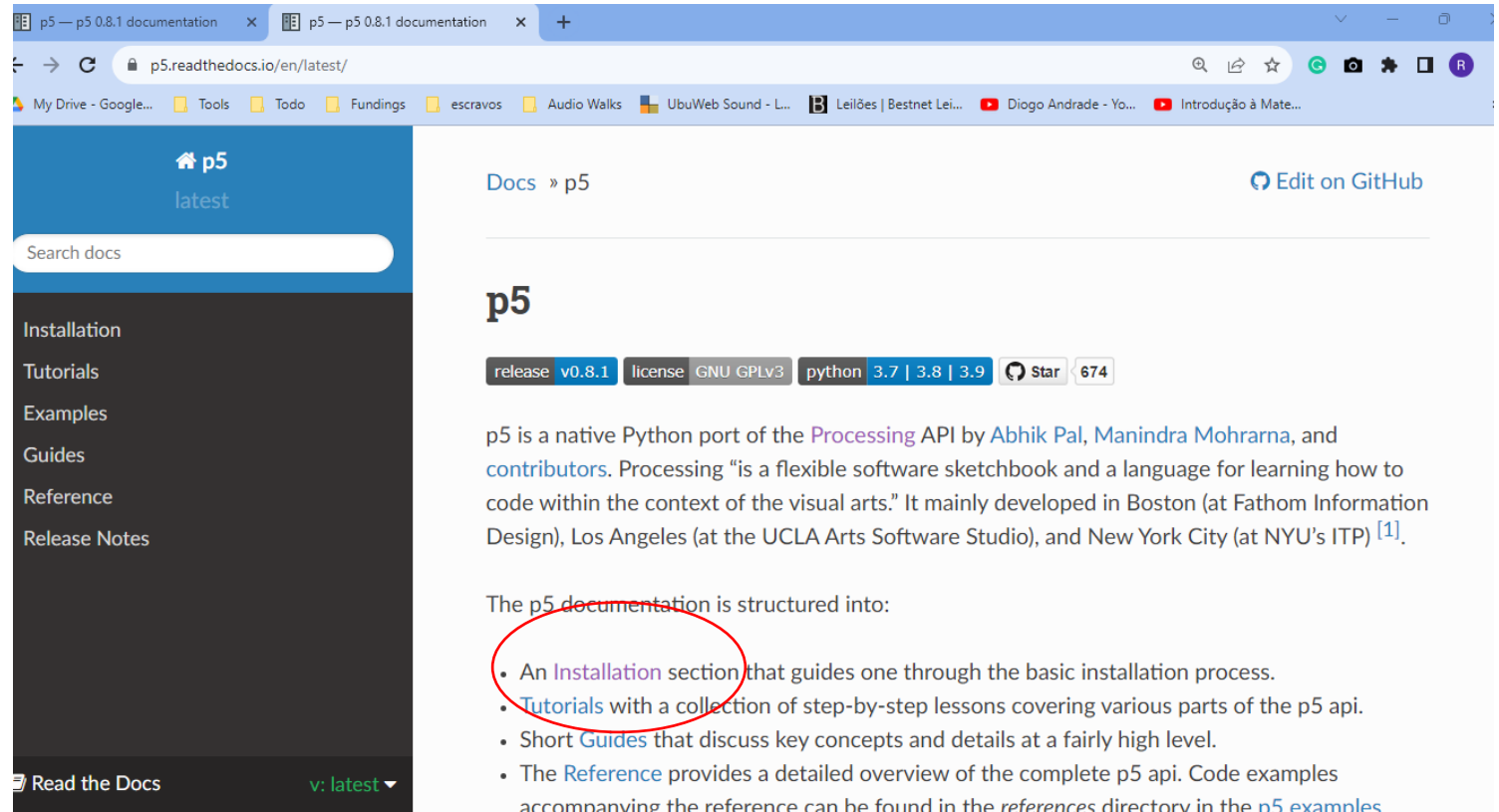
O que é o p5?

p5 is a native Python port of the [Processing](#) API by Abhik Pal, Manindra Mohrarna, and contributors. Processing “is a flexible software sketchbook and a language for learning how to code within the context of the visual arts.” It mainly developed in Boston (at Fathom Information Design), Los Angeles (at the UCLA Arts Software Studio), and New York City (at NYU’s ITP) [\[1\]](#).

Source: <https://p5.readthedocs.io/en/latest/>

pypi.org

https://p5.readthedocs.io/en/latest/



The screenshot shows the p5.js documentation website. The browser address bar displays 'p5.readthedocs.io/en/latest/'. The page has a blue header with the p5 logo and 'latest' text. A search bar is present. A dark sidebar on the left contains links: Installation, Tutorials, Examples, Guides, Reference, and Release Notes. The main content area shows the 'p5' title, version 'v0.8.1', and a list of links: release, license, GNU GPLv3, python, 3.7 | 3.8 | 3.9, Star, and 674. The text describes p5 as a native Python port of the Processing API. Below this, a red circle highlights the 'Installation' link in a list of links: An Installation section that guides one through the basic installation process. Tutorials with a collection of step-by-step lessons covering various parts of the p5 api. Short Guides that discuss key concepts and details at a fairly high level. The Reference provides a detailed overview of the complete p5 api. Code examples accompanying the reference can be found in the references directory in the p5 examples.

Docs » p5 [Edit on GitHub](#)

p5

release **v0.8.1** license GNU GPLv3 python 3.7 | 3.8 | 3.9 [Star](#) 674

p5 is a native Python port of the [Processing](#) API by [Abhik Pal](#), [Manindra Mohrarna](#), and [contributors](#). Processing “is a flexible software sketchbook and a language for learning how to code within the context of the visual arts.” It mainly developed in Boston (at Fathom Information Design), Los Angeles (at the UCLA Arts Software Studio), and New York City (at NYU’s ITP) ^[1].

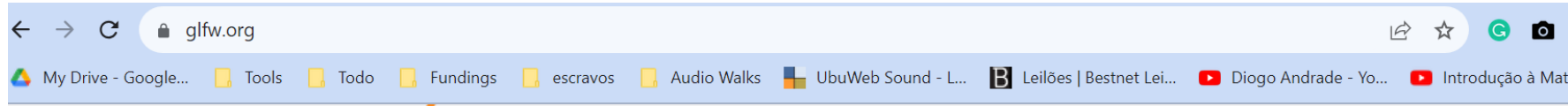
The p5 documentation is structured into:

- An [Installation](#) section that guides one through the basic installation process.
- [Tutorials](#) with a collection of step-by-step lessons covering various parts of the p5 api.
- Short [Guides](#) that discuss key concepts and details at a fairly high level.
- The [Reference](#) provides a detailed overview of the complete p5 api. Code examples accompanying the reference can be found in the *references* directory in the [p5 examples](#)

https://p5.readthedocs.io/en/latest/install.html

Passo 1 .1– Instalar GLFW – download do binário para windows

GLFW is an Open Source, multi-platform library for OpenGL



GLFW is an Open Source, multi-platform library for OpenGL, OpenGL ES and Vulkan development on the desktop. It provides a simple API for creating windows, contexts and surfaces, receiving input and events.

GLFW is written in C and supports Windows, macOS, X11 and Wayland.

GLFW is licensed under the [zlib/libpng license](#).



Gives you a window and OpenGL context with just **two function calls**



Support for OpenGL, OpenGL ES, Vulkan and related options, flags and extensions

Download GLFW 3.3.8

Released on July 22, 2022

Clone

GLFW 3.4 progress

Windows pre-compiled binaries

These packages contain the GLFW header files, [documentation](#) and release mode static libraries, DLLs and import libraries for Visual C++ 2010-2019 and the 2022 preview, MinGW-w64 and plain MinGW.

Binaries for Visual C++ 2010 and plain MinGW are only available in the 32-bit package.

64-bit Windows binaries

32-bit Windows binaries

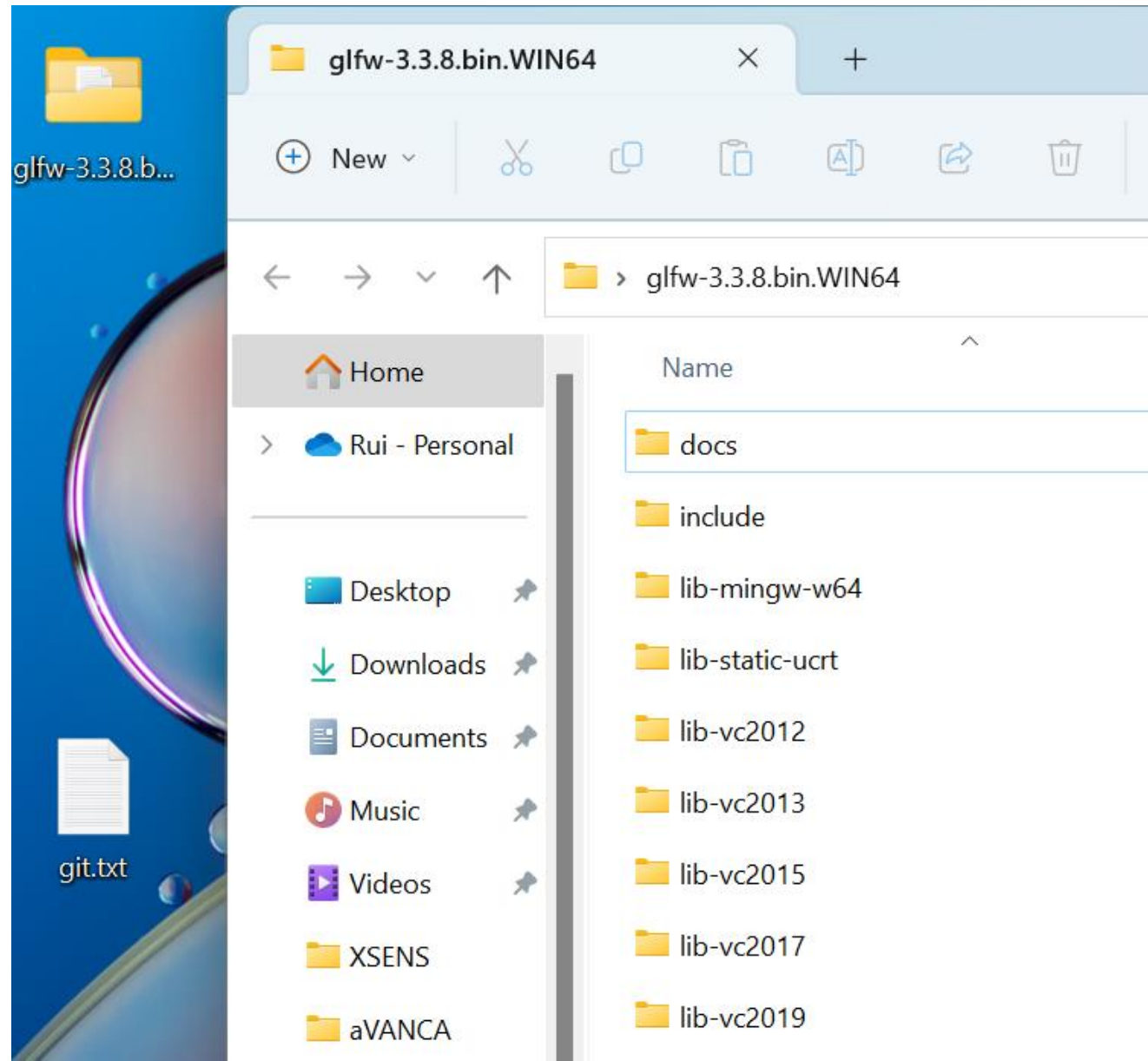
Version 3.3.8 release

Posted on July 22, 2022

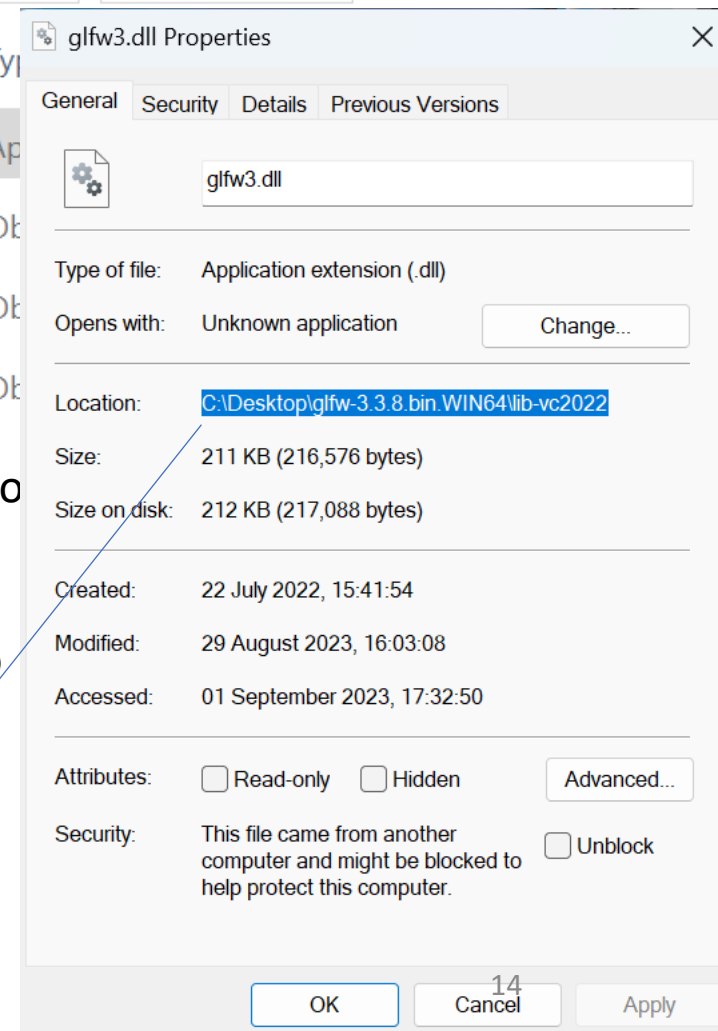
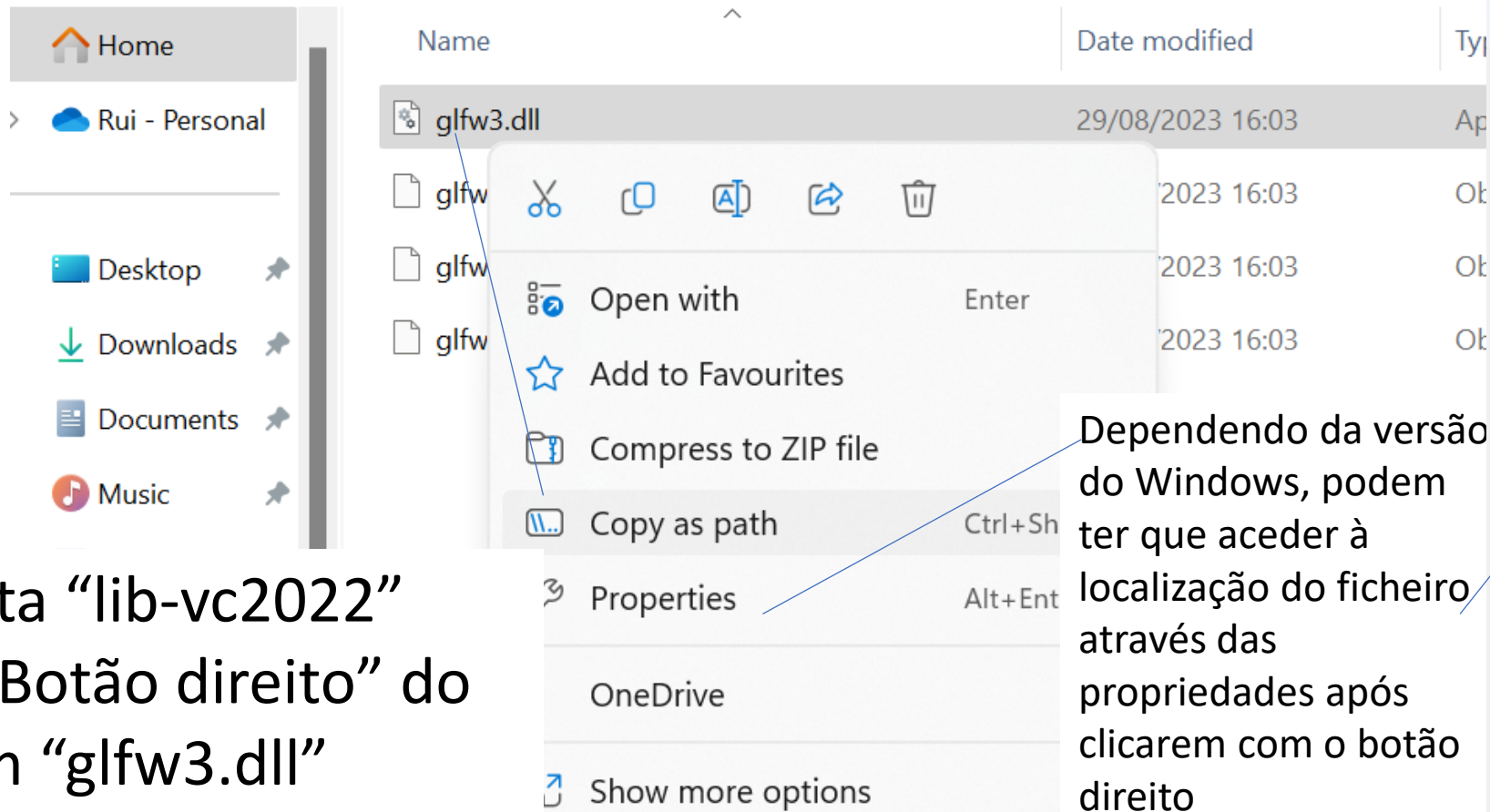
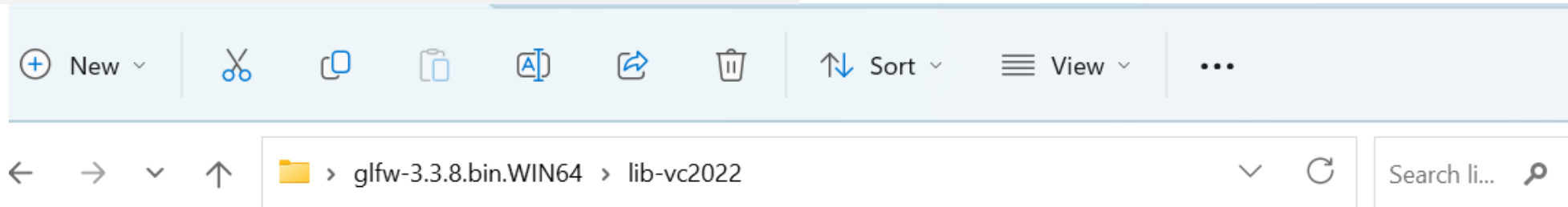
GLFW 3.3.8 is **available for download**.

This is a bug fix release. It adds fixes for

Passo 1.2 – Instalar **GLFW** - Descompactar para uma pasta no vosso sistema



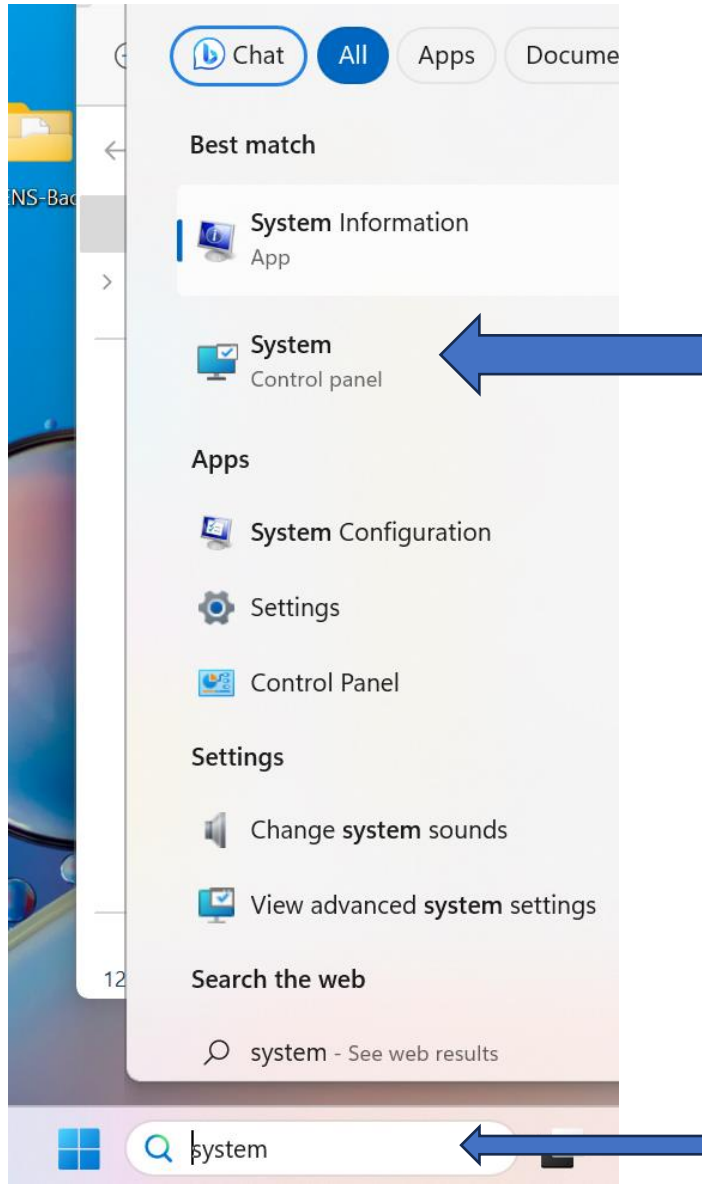
Passo 1.3– Instalar GLFW – copiar o directório de glfw3.dll



Na pasta “lib-vc2022”
Fazer “Botão direito” do
rato em “glfw3.dll”
Selecionar “Copy as Path”

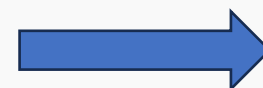
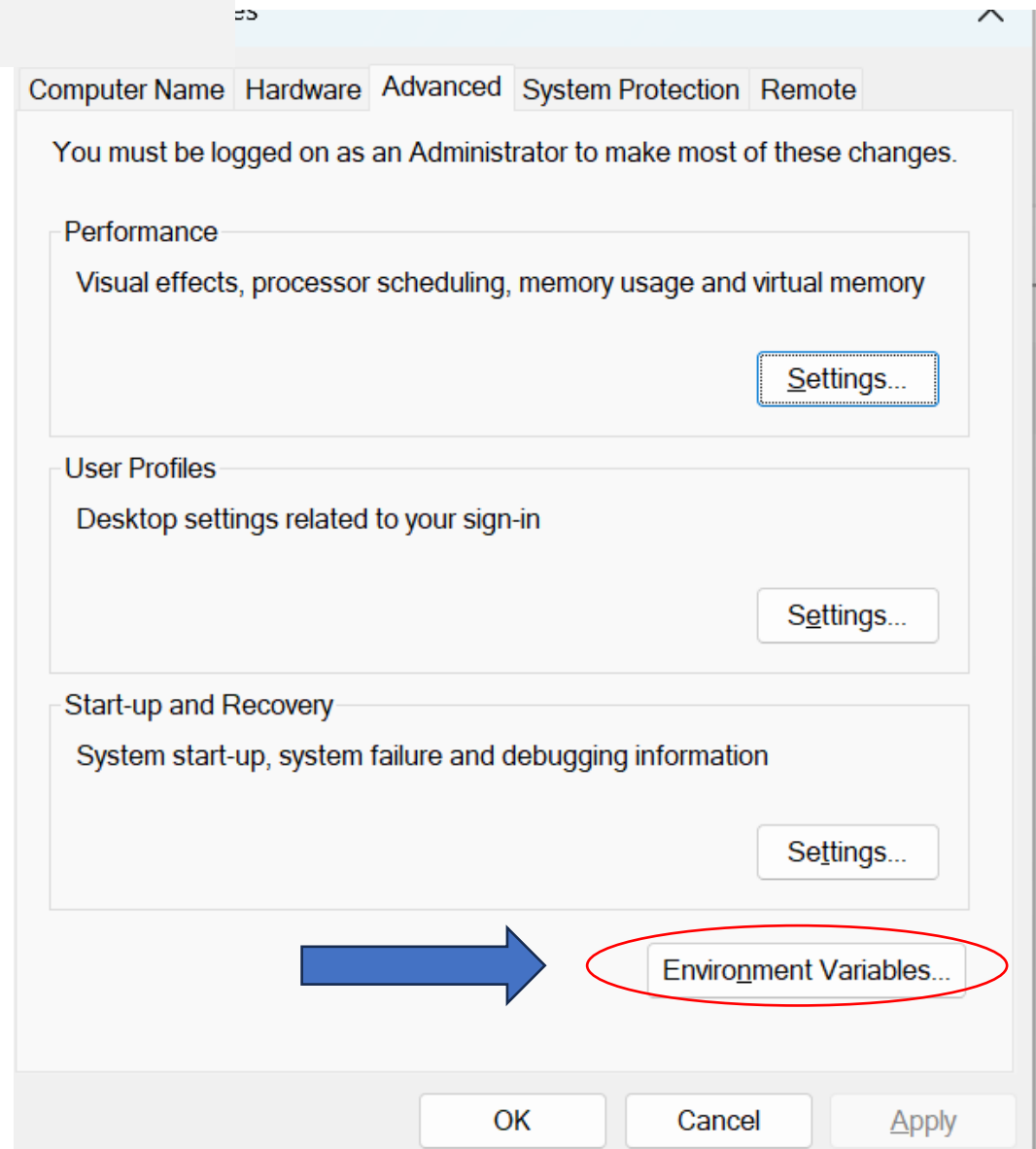
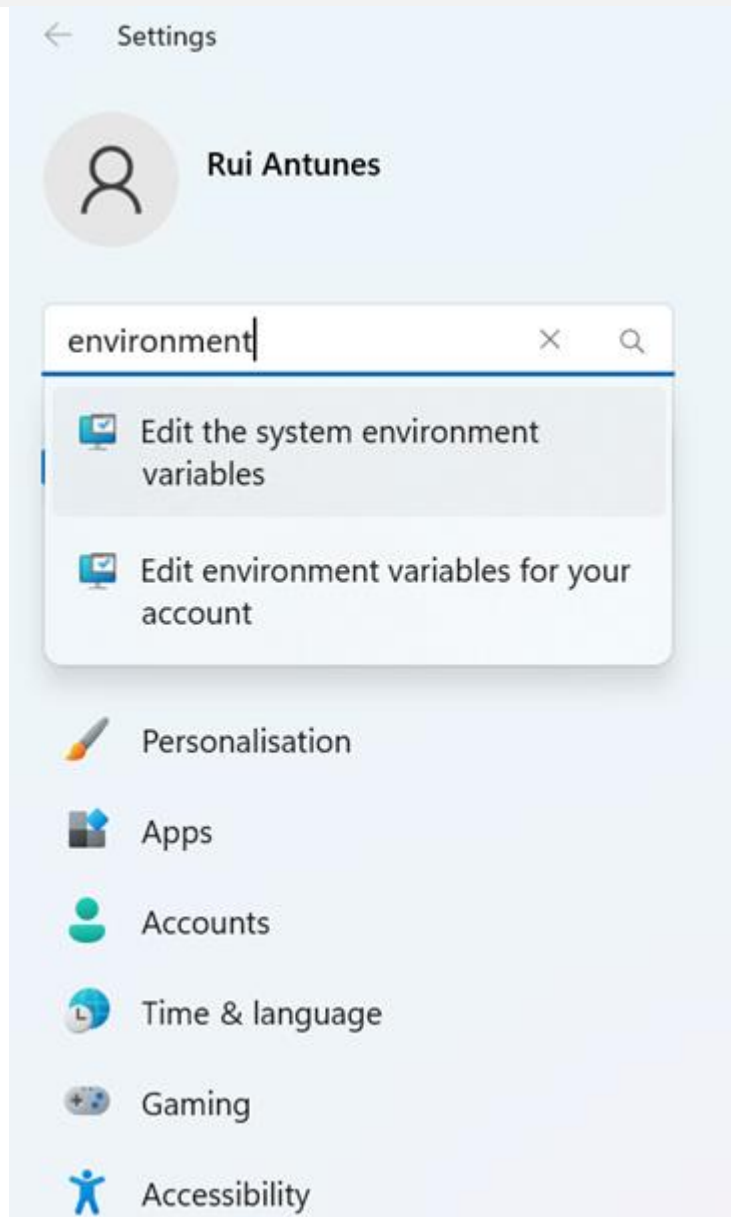
Dependendo da versão
do Windows, podem
ter que aceder à
localização do ficheiro
através das
propriedades após
clikarem com o botão
direito

Passo 1.4– Instalar GLFW – adicionar o directório à **path** do sistema às **variáveis de ambiente**



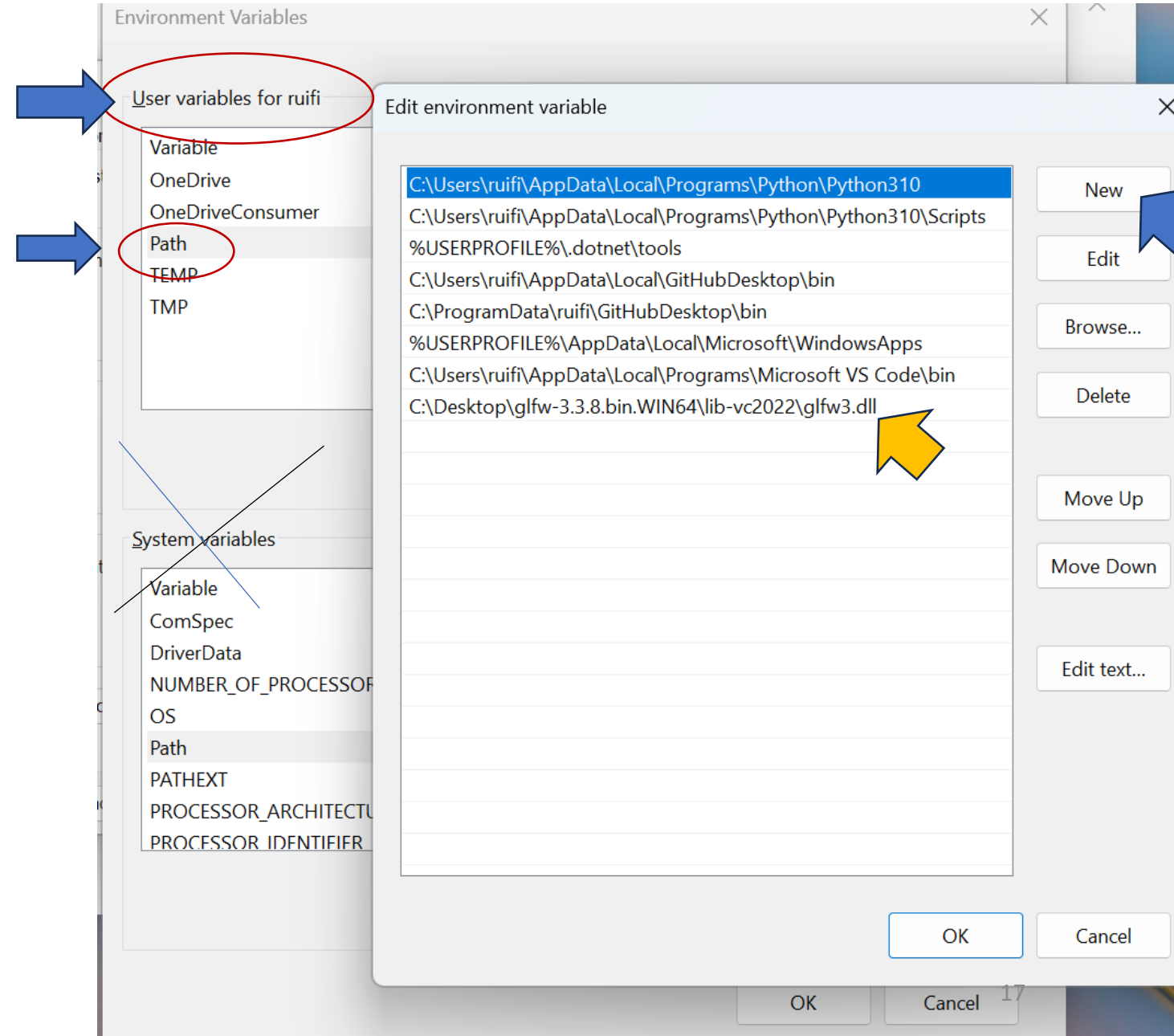
Passo 1.4.B– Instalar GLFW – adicionar o directório à path do sistema

As variáveis de ambiente

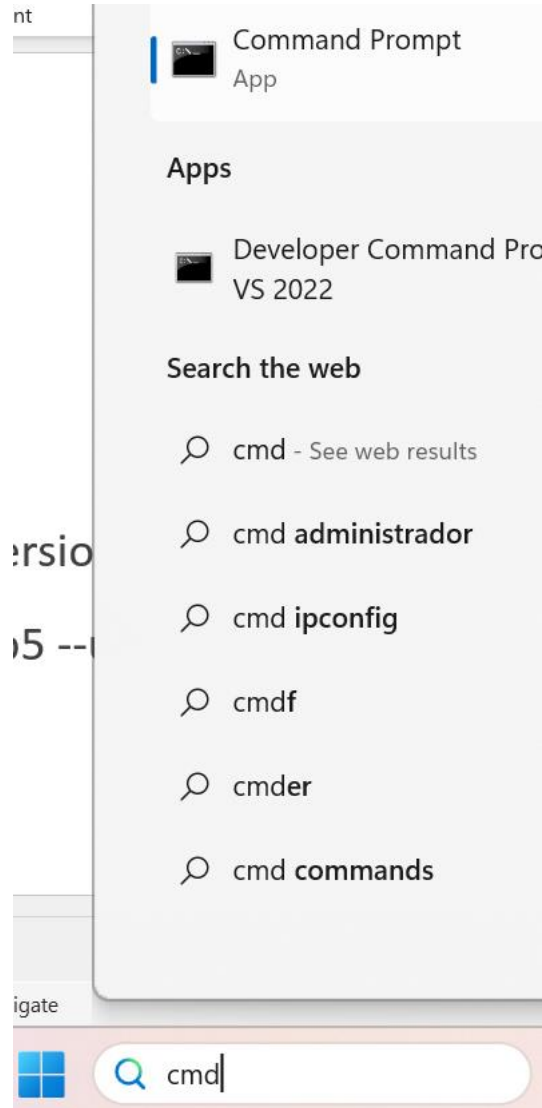


Passo 1.4.B– Instalar GLFW – adicionar o directório à path do sistema

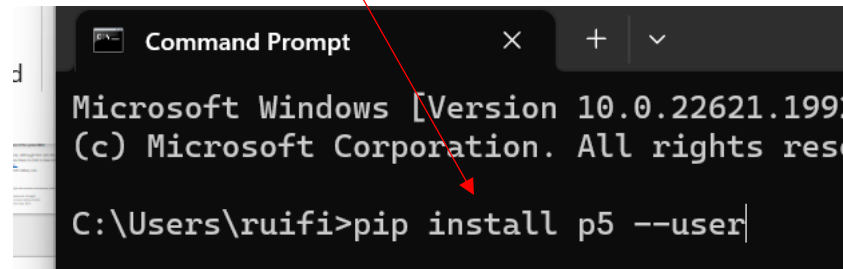
As variáveis de ambiente



Instalar o P5



Pip install p5 --user

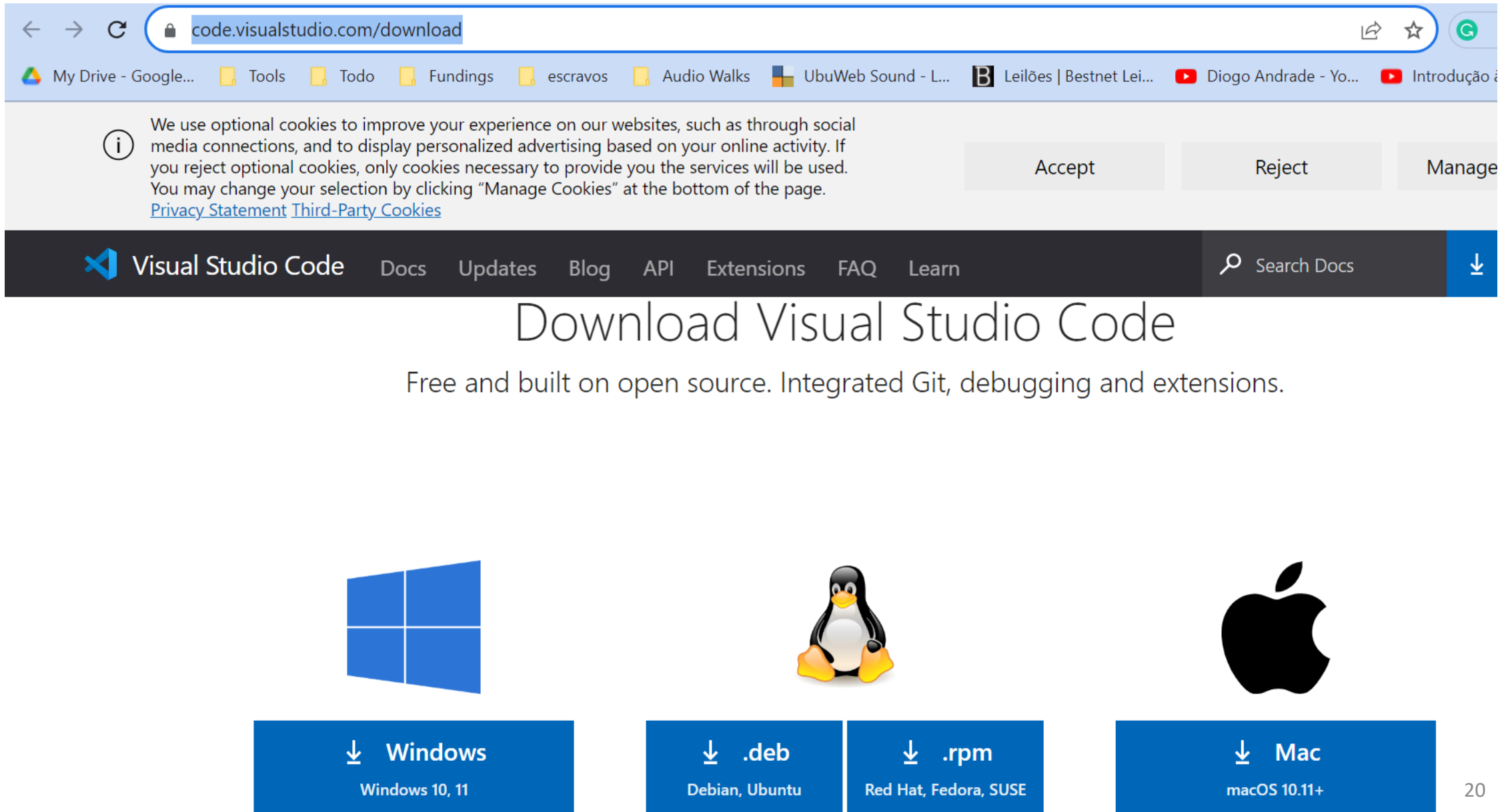


Nota:

pip defaults to installing Python packages to a system directory (such as /usr/local/lib/python3.4). This requires root access. --user makes pip install packages in your home directory instead, which doesn't require any special privileges.

Instalação do Visual Studio Code

https://code.visualstudio.com/download



The image is a screenshot of a web browser displaying the Visual Studio Code download page. The browser's address bar shows the URL 'https://code.visualstudio.com/download'. Below the address bar, there are several open tabs, including 'My Drive - Google...', 'Tools', 'Todo', 'Fundings', 'escravos', 'Audio Walks', 'UbuWeb Sound - L...', 'Leilões | Bestnet Lei...', 'Diogo Andrade - Yo...', and 'Introdução à...'. A cookie consent banner is visible, stating: 'We use optional cookies to improve your experience on our websites, such as through social media connections, and to display personalized advertising based on your online activity. If you reject optional cookies, only cookies necessary to provide you the services will be used. You may change your selection by clicking "Manage Cookies" at the bottom of the page. [Privacy Statement](#) [Third-Party Cookies](#)'. The banner has three buttons: 'Accept', 'Reject', and 'Manage'. Below the banner is a dark navigation bar with the Visual Studio Code logo and the text 'Visual Studio Code'. To the right of the logo are links for 'Docs', 'Updates', 'Blog', 'API', 'Extensions', 'FAQ', and 'Learn'. Further right is a search bar labeled 'Search Docs' and a download icon. The main content area has a large heading 'Download Visual Studio Code' and a subheading 'Free and built on open source. Integrated Git, debugging and extensions.' Below this, there are three columns of download options. The first column is for Windows, featuring the Windows logo and a button labeled 'Windows' with 'Windows 10, 11' below it. The second column is for Linux, featuring the Tux penguin logo and two buttons: '.deb' (for 'Debian, Ubuntu') and '.rpm' (for 'Red Hat, Fedora, SUSE'). The third column is for Mac, featuring the Apple logo and a button labeled 'Mac' with 'macOS 10.11+' below it.

code.visualstudio.com/download

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Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.




↓ Windows
Windows 10, 11

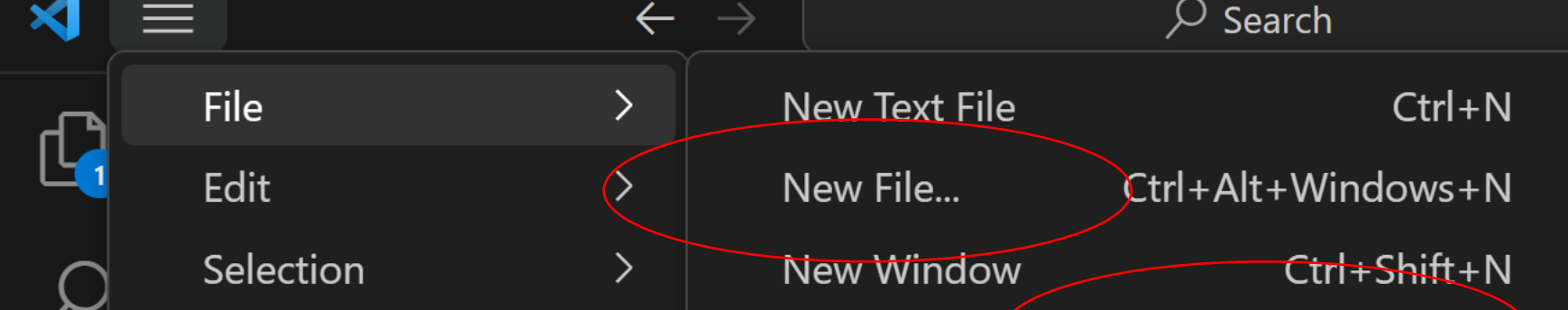


↓ .deb
Debian, Ubuntu

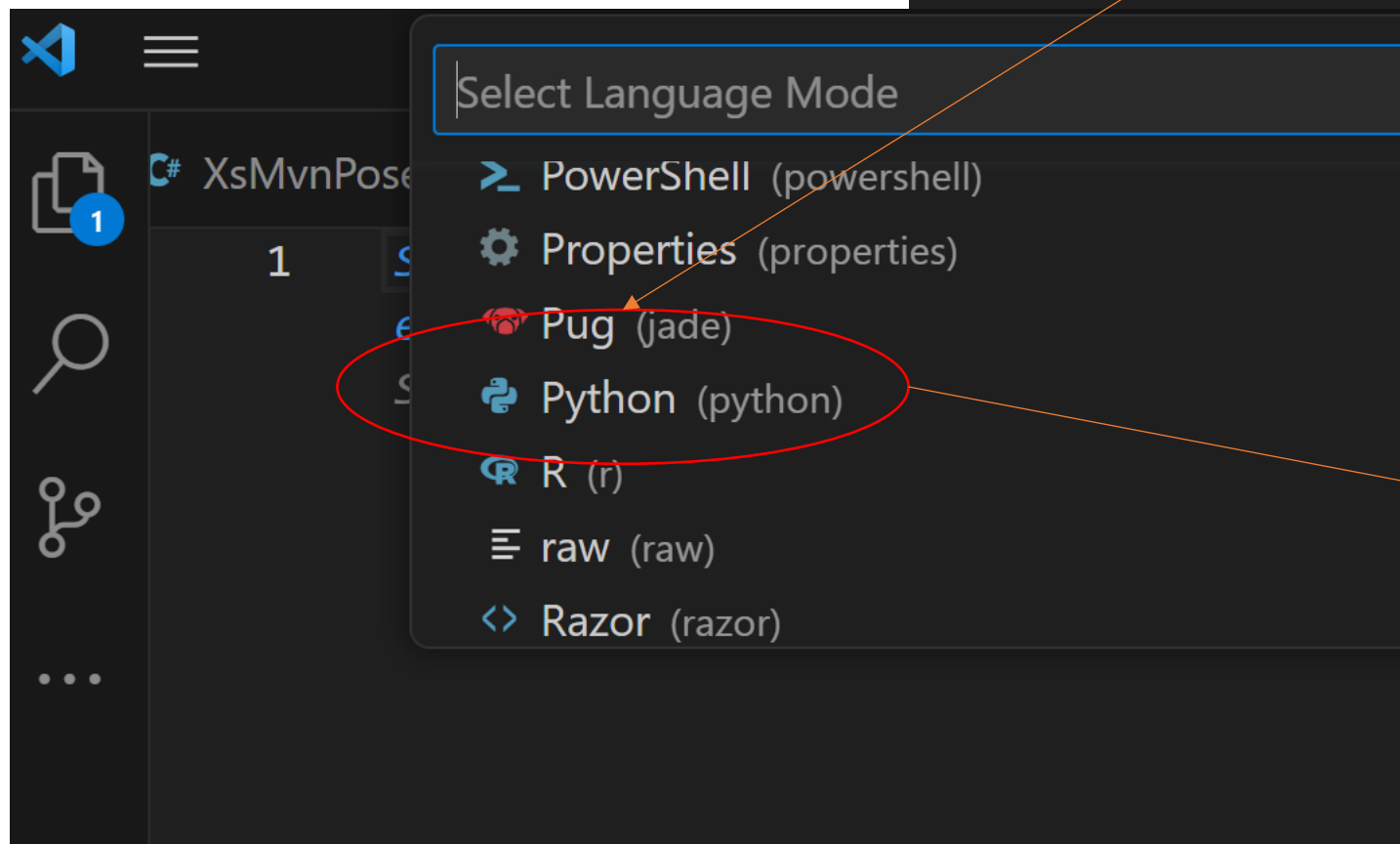
↓ .rpm
Red Hat, Fedora, SUSE



↓ Mac
macOS 10.11+



1 *Select a language, or fill with template, or open a editor to get started.
Start typing to dismiss or don't show this again.*



No canto inferior direito irá aparecer uma janela a dizer para instalar uma extensão. Confirme a instalação.

O código do programa

Copiar os seguintes comandos para o editor, depois gravar o ficheiro com a extensão “.py”

```
from p5 import *
```

```
def draw():
```

```
    background(255)
```



```
    stroke(0)
```



```
    fill(150)
```


```
    rect((50, 50), 75, 100)
```








```
if __name__ == '__main__':
```


```
    run()
```







 Search










1





3





EXTE...

python

Python

436ms

IntelliSense (Pylance), L...
Microsoft

Python Indent

6.1M

Correct Python indent...
Kevin Rose


Install





Python Exte...

6.1M


C# XsMvnPose.cs

C# XsStreamReader.cs

 **ex1.py**



Run Python File

C: > Users > ruifi > XSENS > Assets > Xsens > MvnLive > Scripts >  ex1.py > ...

```
1  from p5 import *
2
3  def setup():
4      size(640, 360)
5      no_stroke()
6      background(204)
7
8  def draw():
9      if mouse_is_pressed:
10         fill(random_uniform(255), random_uniform(12
```

23

<https://pypi.org/project/p5/>

Guardar por exemplo
como ex1.py
em C:/Users

```
from p5 import *
def setup():
    size(640, 360)
    no_stroke()
    background(204)

def draw():
    if mouse_is_pressed:
        fill(random_uniform(255), random_uniform(127), random_uniform(51), 127)
    else:
        fill(255, 15)

    circle_size = random_uniform(low=10, high=80)
    circle((mouse_x, mouse_y), circle_size)

def key_pressed(event):
    background(204)
# p5 supports different backend to render sketches, viz "vispy" for both 2D and 3D sketches a
sketches # Default renderer is set to "vispy"
run(renderer="vispy")
```


Verificar as variáveis de sistema Em Propriedades do Sistema:

A

File Edit View Help

System Summary

Hardware Resources

Components

Software Environment

System Drivers

Environment Variables

Print Jobs

Network Connections

Running Tasks

Loaded Modules

Services

Program Groups

Start-up Programs

OLE Registration

Windows Error Reporting

Variable	Value	Username
ComSpec	%SystemRoot%\system32\cmd.exe	<SYSTEM>
DriverData	C:\Windows\System32\Drivers\DriverData	<SYSTEM>
NUMBER_OF_PROCESS...	4	<SYSTEM>
OneDrive	C:\Desktop\OneDrive	LAPTOP-U78S...
OneDriveConsumer	C:\Desktop\OneDrive	LAPTOP-U78S...
OS	Windows_NT	<SYSTEM>
Path	C:\Windows\system32;C:\Windows;C:\Windows\...	<SYSTEM>
Path	%USERPROFILE%\AppData\Local\Microsoft\Win...	NT AUTHORITY...
Path	C:\Users\ruifi\AppData\Local\Programs\Python\...	LAPTOP-U78S...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH...	<SYSTEM>
PROCESSOR_ARCHITEC...	AMD64	<SYSTEM>
PROCESSOR_IDENTIFIER	Intel64 Family 6 Model 140 Stepping 1, GenuineI...	<SYSTEM>
PROCESSOR_LEVEL	6	<SYSTEM>
PROCESSOR_REVISION	8c01	<SYSTEM>
PSModulePath	%ProgramFiles%\WindowsPowerShell\Modules;...	<SYSTEM>
TEMP	%SystemRoot%\TEMP	<SYSTEM>

User