

First, go to the PyTorch official website and check for stable PyTorch CUDA support:

**NOTE:** Latest PyTorch requires Python 3.8 or later. For more details, see Python section below.

PyTorch Build	Stable (2.2.1)		Preview (Nightly)	
Your OS	Linux	Mac	Windows	
Package	Conda	Pip	LibTorch	Source
Language	Python		C++ / Java	
Compute Platform	CUDA 11.8	CUDA 12.1	ROCm 5.7	CPU
Run this Command:	<pre>pip3 install torch torchvision torchaudio --index-url https://download.pytorch.org/whl/cu121</pre>			

[Previous versions of PyTorch >](#)

Here you can see for stable pytorch(2.2.1) the support is cuda 11.8 or cuda 12.1 for latest pytorch .

If your computer already has Nvidia and its drivers installed, you have to follow the steps below:

(if your pc don't have nvidea graphics driver go to [3\(click here\)](#) )

1) First type **nvidia-smi** in cmd prompt.

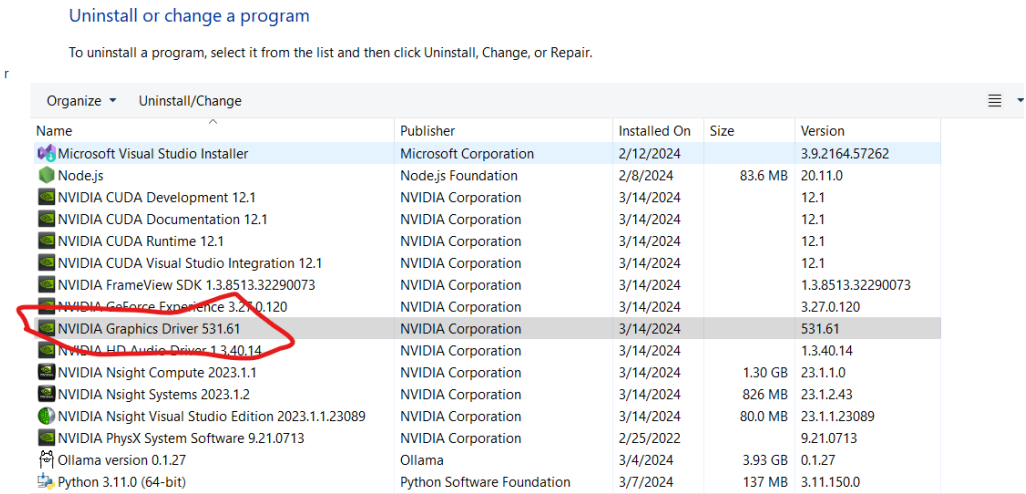
```
C:\Users\miraj>nvidia-smi
Thu Mar 14 19:48:56 2024

+-----+
| NVIDIA-SMI 531.61                 Driver Version: 531.61   CUDA Version: 12.1   |
+-----+-----+-----+-----+-----+-----+
| GPU Name                               TCC/WDDM | Bus-Id  Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf              Pwr:Usage/Cap |     /          |      /          |
+-----+-----+-----+-----+-----+-----+
|  0  NVIDIA GeForce RTX 3070 L... WDDM | 00000000:01:00.0 Off |          |
| N/A   43C   P8              10W /  N/A | 72MiB / 8192MiB |          |
+-----+-----+-----+-----+-----+-----+

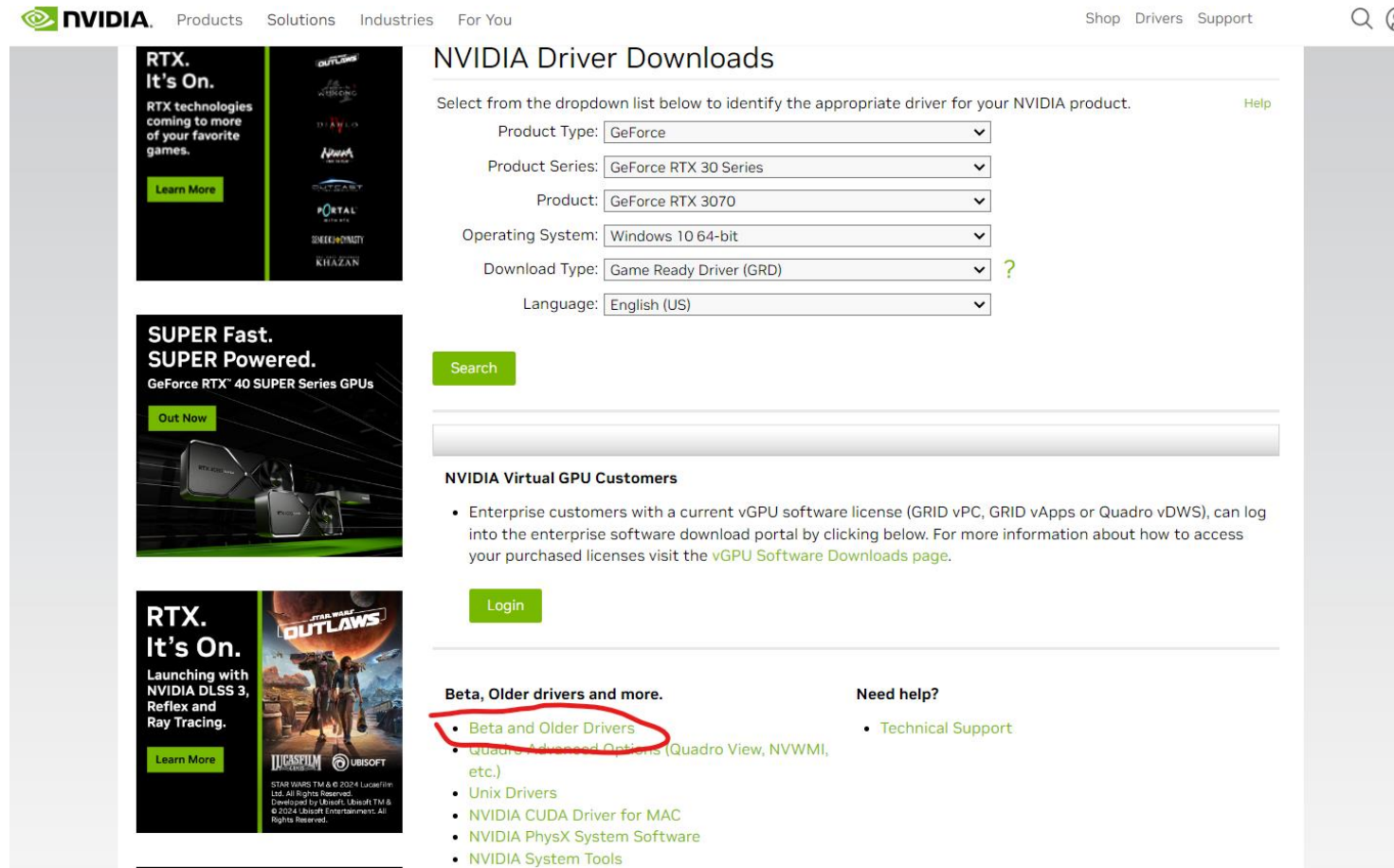
Processes:
+-----+-----+-----+-----+-----+-----+
| GPU  GI  CI           PID  Type  Process name                      GPU Memory |
|  ID   ID   ID                  |                 | Usage       |
+-----+-----+-----+-----+-----+-----+
|  0   N/A N/A           5472  C+G  ...Programs\Microsoft VS Code\Code.exe  N/A         |
+-----+-----+-----+-----+-----+-----+
```

Here, by default, my device has Nvidia graphics drivers, which provide a CUDA-compatible version of 12.1, compatible with the PyTorch version.

2) If your CUDA version does not match with the PyTorch supported version, you need to uninstall the graphics driver first and restart your PC.



3 After uninstalling go to this link <https://www.nvidia.com/download/index.aspx?lang=en-us>



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Product:

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### Beta, Older drivers and more.

- [Beta and Older Drivers](#)
- [Quadro Advanced Options \(Quadro View, NVWMI, etc.\)](#)
- [Unix Drivers](#)
- [NVIDIA CUDA Driver for MAC](#)
- [NVIDIA PhysX System Software](#)
- [NVIDIA System Tools](#)

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Click on beta and older drivers

3) Provide the details of the GPU according to your computer. You can check your GPU details in the Task Manager under the Performance section.

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**Product Type:**

GeForce

**Product Series:**

GeForce RTX 30 Series

**Product:**

GeForce RTX 3070

**Operating System:**

Windows 11

**Windows Driver Type:**

DCH ?

**Language:**

English (US)

**~~Recommended/Beta:~~**

Studio Driver ?

[Search](#)

Then Click on Search

You will find many versions here.

Search		
Name	Version	Release Date
+ NVIDIA Studio Driver WHQL	551.61	February 22, 2024
+ NVIDIA Studio Driver WHQL	551.23	January 24, 2024
+ NVIDIA Studio Driver WHQL	546.33	December 12, 2023
+ NVIDIA Studio Driver WHQL	546.01	November 1, 2023
+ NVIDIA Studio Driver WHQL	537.58	October 10, 2023
+ NVIDIA Studio Driver WHQL	537.42	September 21, 2023
+ NVIDIA Studio Driver WHQL	536.99	August 8, 2023
+ NVIDIA Studio Driver WHQL	536.67	July 18, 2023
+ NVIDIA Studio Driver WHQL	536.40	June 29, 2023
+ NVIDIA Studio Driver WHQL	535.98	May 30, 2023
+ NVIDIA Studio Driver WHQL	531.61	April 13, 2023
+ NVIDIA Studio Driver WHQL	531.41	March 21, 2023
+ NVIDIA Studio Driver WHQL	528.49	February 8, 2023
+ NVIDIA Studio Driver WHQL	528.24	January 23, 2023
+ NVIDIA Studio Driver WHQL	528.02	January 5, 2023
+ NVIDIA Studio Driver WHQL	527.56	December 8, 2022
+ NVIDIA Studio Driver WHQL	526.98	November 16, 2022
+ NVIDIA Studio Driver WHQL	522.30	October 18, 2022
+ NVIDIA Studio Driver WHQL	517.40	September 20, 2022
+ NVIDIA Studio Driver WHQL	516.94	August 9, 2022

We have to check which Studio Driver provides CUDA 12.1 compatibility. (Why CUDA 12.1? Because the stable version of PyTorch supports CUDA 12.1.)

3) Let's select the Studio Driver and verify whether CUDA 12.1 is available or not.

Version	Release Date
NVIDIA Studio Driver WHQL	February 22, 2024
NVIDIA Studio Driver WHQL	January 24, 2024
NVIDIA Studio Driver WHQL	December 12, 2023
NVIDIA Studio Driver WHQL	November 1, 2023
NVIDIA Studio Driver WHQL	October 10, 2023
NVIDIA Studio Driver WHQL	September 21, 2023
NVIDIA Studio Driver WHQL	August 8, 2023
NVIDIA Studio Driver WHQL	July 18, 2023
NVIDIA Studio Driver WHQL	June 29, 2023
NVIDIA Studio Driver WHQL	May 30, 2023
NVIDIA Studio Driver WHQL	April 13, 2023
NVIDIA Studio Driver WHQL	March 21, 2023

**Release Highlights:**

NVIDIA Studio Drivers provide artists, creators, and 3D developers the best performance and reliability when working with creative applications. To achieve the highest level of reliability, Studio Drivers undergo extensive testing against multi-app creator workflows and multiple revisions of the top creative applications from Adobe to Autodesk and beyond.

**Applications**

The March NVIDIA Studio Driver provides optimal support for the latest new creative applications and updates announced at NVIDIA GTC including NVIDIA Canvas 1.4 and a myriad of new functionality for NVIDIA Omniverse. In addition, this NVIDIA Studio Driver also introduces support for the new RTX Video Super Resolution for GeForce RTX 40 and 30 Series GPUs.

**Fixed Bugs**

- Adobe application stability issues using 531.18 [4008751]
- Encscape crash at startup with 531.18 [4008190]
- Beamr - Issue with AV1 encoding in PTD=0 mode [3981172]
- Derivative TouchDesigner - NVAR: crash when using multi-person tracking [3808674]
- [Forza Horizon 5] Rainbow like artifacts in game after driver update [3839021]
- [Dental with RTX] "Background application may frame rate" setting is getting engaged while game is in focus [3907352]

I have selected this version. Now, let's click on the Studio version, and you will be redirected to the next page.

Then Go to the additional information .

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Launching with NVIDIA DLSS 3, Reflex and Ray Tracing.



NVIDIA Studio Driver

Version: 531.41 WHQL

Release Date: 2023.3.21

Operating System: Windows 10 64-bit, Windows 11

Language: English (US)

File Size: 852.69 MB

Download

Release Highlights

Supported Products

Additional Information

NVIDIA Studio Drivers provide artists, creators, and 3D developers the best performance and reliability when working with creative applications. To achieve the highest level of reliability, Studio Drivers undergo extensive testing against multi-app creator workflows and multiple revisions of the top creative applications from Adobe to Autodesk and beyond.

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- Forza Horizon 5 Rainbow like artifacts in game after driver update [3839021]

Click on the NVIDIA Studio Driver Release Notes

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## NVIDIA Studio Driver

**Version:** 531.41 WHQL  
**Release Date:** 2023.3.21  
**Operating System:** Windows 10 64-bit, Windows 11  
**Language:** English (US)  
**File Size:** 852.69 MB

[Download](#)

Release Highlights	Supported Products	Additional Information
<ul style="list-style-type: none"><li><a href="#">NVIDIA Studio Driver Release Notes (v531.41)</a></li><li><a href="#">Control Panel User's Guide</a></li></ul>		



Press Ctrl+F and type "CUDA" to see which version of CUDA the Studio Driver provides.

us.download.nvidia.com/Windows/531.41/531.41-win10-win11-nsd-release-notes.pdf

NVIDIA Release Notes Win10

7 / 39 | 100% |

cuda 1/3

This release supports the following APIs:

- ▶ Open Computing Language (OpenCL™ software) 3.0 for NVIDIA® Maxwell™ and later GPUs
- ▶ OpenGL® 4.6
- ▶ Vulkan® 1.3
- ▶ DirectX 11
- ▶ DirectX 12

## 2.3 Software Module Versions

- ▶ HD Audio Driver — 1.3.40.14
- ▶ NVIDIA PhysX System Software — 9.21.0713
- ▶ GeForce Experience — 3.27.0.112
- ▶ **CUDA — 12.1**
- ▶ DCH NVIDIA Control Panel — 8.1.964.0

## 2.4 What's New in the NVIDIA Studio Driver Version 531.41 WHQL

### 2.4.1 NVIDIA Studio Driver

NVIDIA Studio Drivers provide artists, creators, and 3D developers the best performance and reliability when working with creative applications. To achieve the highest level of reliability, Studio Drivers undergo extensive testing against multi-app creator workflows and multiple revisions of the top creative applications from Adobe to Autodesk and beyond.

2 4 1 1 Applications

This Studio Driver provides CUDA 12.1, so I am downloading it. (You should also download the setup and restart your PC.)

Now after setup of the studio driver go to this link <https://developer.nvidia.com/cuda-toolkit-archive>

Here, you have to download the same version of the CUDA Toolkit which is provided by the Studio Driver. So, I am downloading CUDA Toolkit version 12.1.

Previous releases of the CUDA Toolkit, GPU Computing SDK, documentation and developer drivers can be found [below](#), and be sure to check [www.nvidia.com/drivers](https://www.nvidia.com/drivers) for more recent production drivers appropriate for your hardware.

[Download Latest CUDA Toolkit](#)

[Learn More about C](#)

### Latest Release

[CUDA Toolkit 12.4.0 \(March 2024\)](#), [Versioned Online Documentation](#)

### Archived Releases

[CUDA Toolkit 12.3.2 \(January 2024\)](#), [Versioned Online Documentation](#)

[CUDA Toolkit 12.3.1 \(November 2023\)](#), [Versioned Online Documentation](#)

[CUDA Toolkit 12.3.0 \(October 2023\)](#), [Versioned Online Documentation](#)

[CUDA Toolkit 12.2.2 \(August 2023\)](#), [Versioned Online Documentation](#)

[CUDA Toolkit 12.2.1 \(July 2023\)](#), [Versioned Online Documentation](#)

[CUDA Toolkit 12.2.0 \(June 2023\)](#), [Versioned Online Documentation](#)

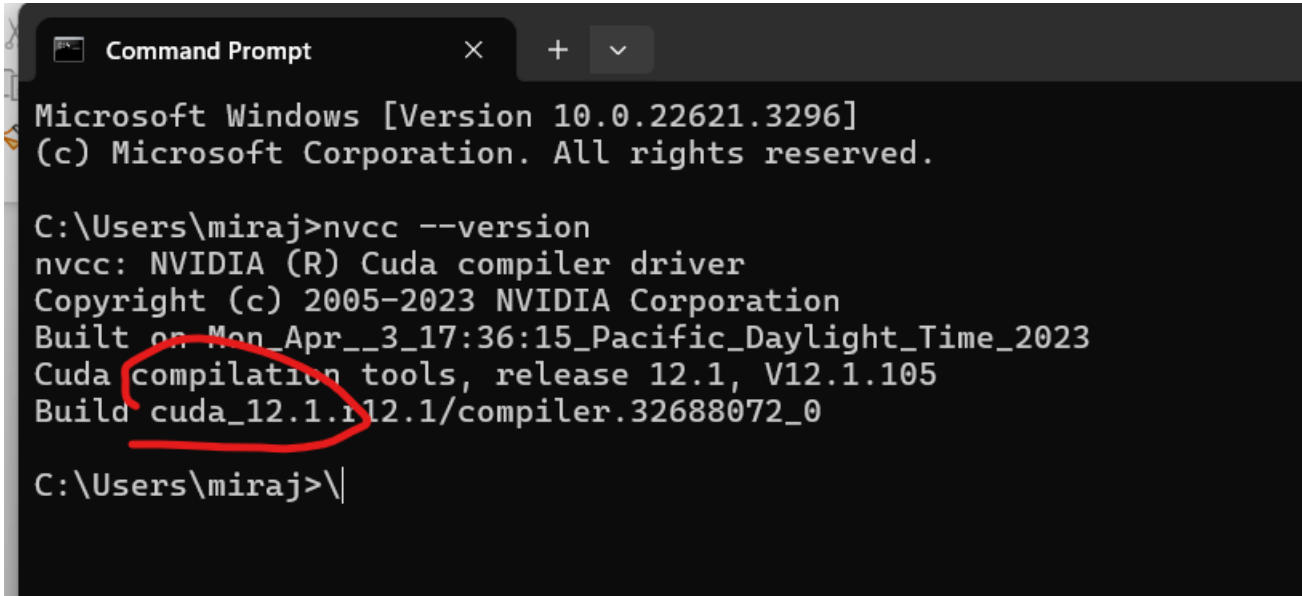
[CUDA Toolkit 12.1.1 \(April 2023\)](#), [Versioned Online Documentation](#)

[CUDA Toolkit 12.1.0 \(February 2023\)](#), [Versioned Online Documentation](#)

After

downloading this and do setup.

To check if the CUDA Toolkit is working, type `nvcc --version` in the command prompt.



```
Command Prompt
Microsoft Windows [Version 10.0.22621.3296]
(c) Microsoft Corporation. All rights reserved.

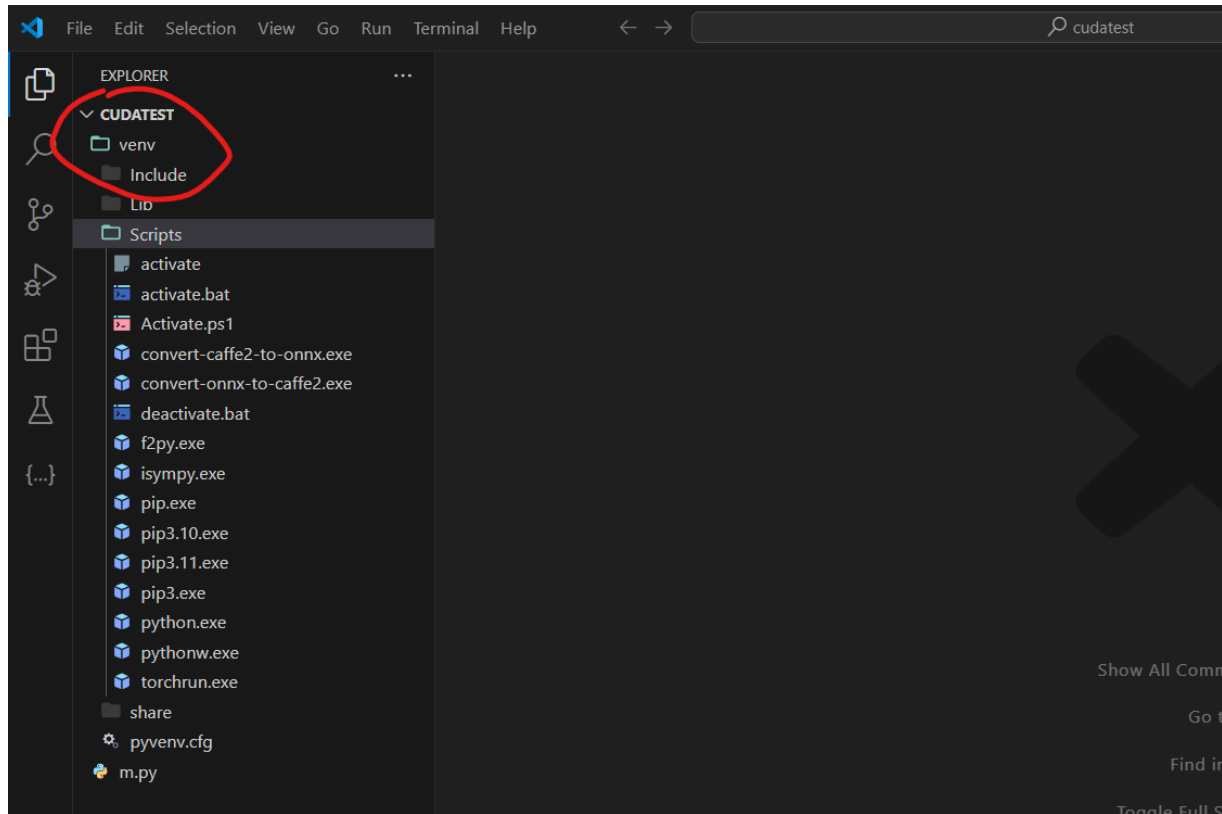
C:\Users\miraj>nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2023 NVIDIA Corporation
Built on Mon Apr__3_17:36:15_Pacific_Daylight_Time_2023
Cuda compilation tools, release 12.1, V12.1.105
Build cuda_12.1.112.1/compiler.32688072_0

C:\Users\miraj>|
```

Here everything is going perfect.

Now you are ready now make a virtual env on your pc

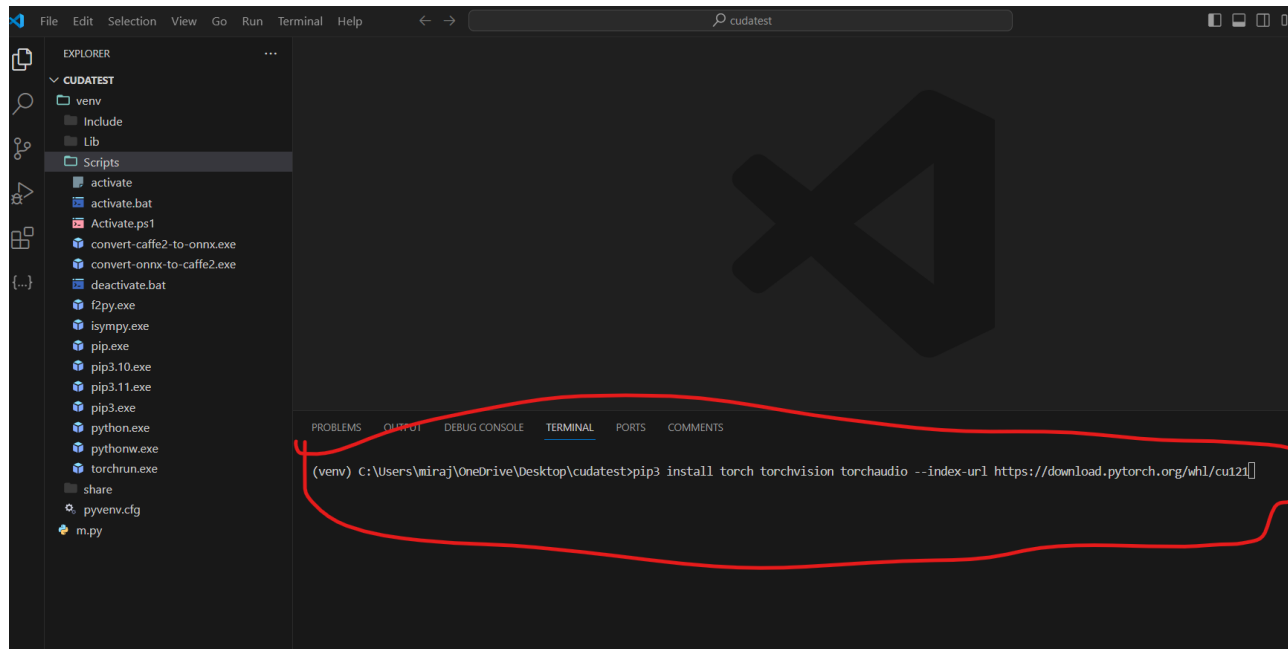
You can use `python -m venv ./venv` to make virtual environment using python



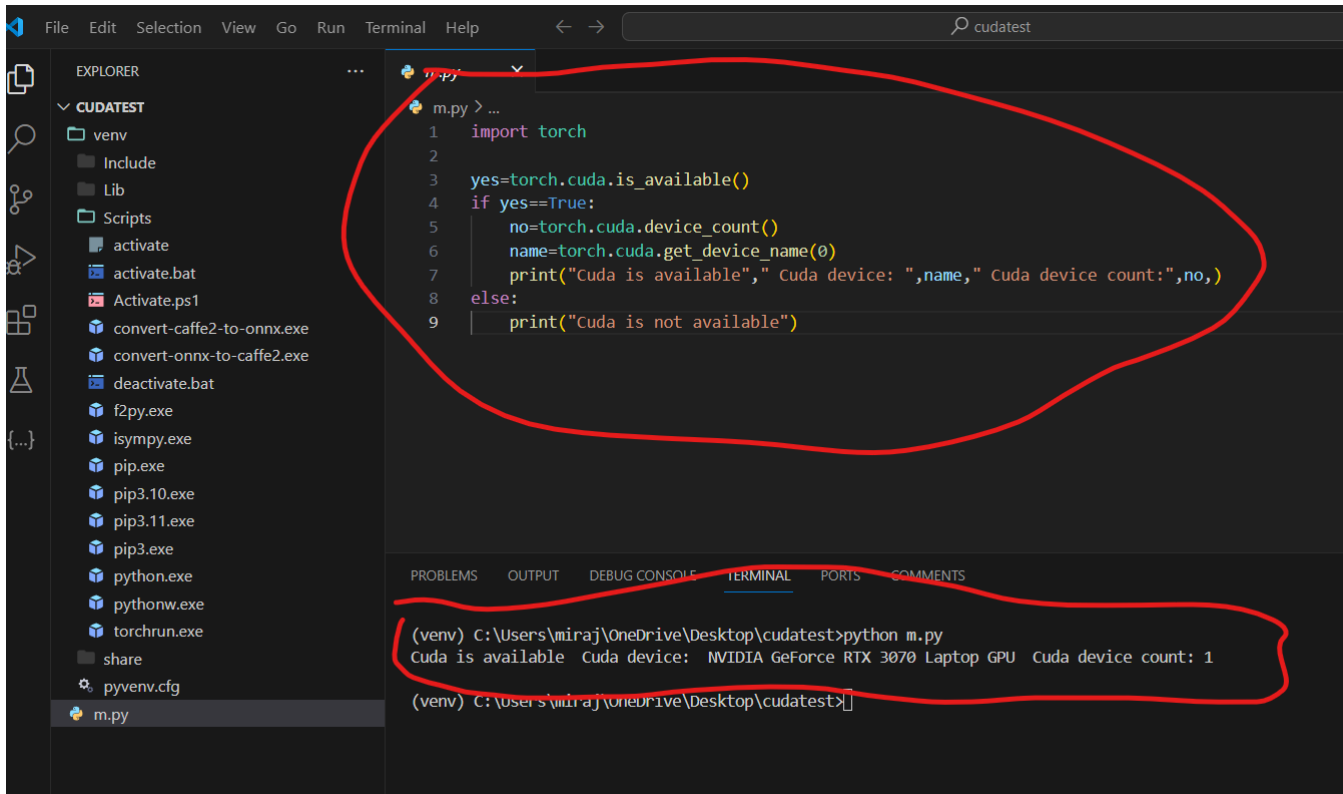
After making virtual environment activate it.

Now finally you can run this code in cmd prompt in your virtual environment

PyTorch Build	Stable (2.2.1)	Preview (Nightly)		
Your OS	Linux	Mac	Windows	
Package	Conda	Pip	LibTorch	Source
Language	Python		C++ / Java	
Compute Platform	CUDA 11.8	CUDA 12.1	ROCm 5.7	CPU
Run this Command:	<code>pip3 install torch torchvision torchaudio --index-url https://download.pytorch.org/whl/cu121</code>			



After successfully installing Python, you can check if CUDA is available or not by running a Python script like this:



The screenshot shows a Visual Studio Code editor window with a file explorer on the left and a code editor in the center. The file explorer shows a project named 'CUDATEST' with a 'venv' folder and various files. The code editor shows a Python script named 'm.py' with the following code:

```
1 import torch
2
3 yes=torch.cuda.is_available()
4 if yes==True:
5     no=torch.cuda.device_count()
6     name=torch.cuda.get_device_name(0)
7     print("Cuda is available"," Cuda device: ",name," Cuda device count:",no,)
8 else:
9     print("Cuda is not available")
```

The terminal output at the bottom shows the command to run the script and the resulting output:

```
(venv) C:\Users\miraj\OneDrive\Desktop\cudatest>python m.py
Cuda is available Cuda device: NVIDIA GeForce RTX 3070 Laptop GPU Cuda device count: 1
(venv) C:\Users\miraj\OneDrive\Desktop\cudatest>
```

The code is :

```
import torch

yes=torch.cuda.is_available()
if yes==True:
    no=torch.cuda.device_count()
    name=torch.cuda.get_device_name(0)
    print("Cuda is available"," Cuda device: ",name," Cuda device count:",no,)
else:
    print("Cuda is not available")
```

"Please follow me on LinkedIn <https://www.linkedin.com/in/miraj-deep-bhandari-624bb0263/> . I am sharing notes on generative AI, LLM, deep learning, and many more topics."

(you download 2019 version and install all c++ distributions and packages if cuda is not deteted <https://visual-studio-2019.en.lo4d.com/windows> )