**Documentation: Setting Up a Python Virtual Environment and Fixing Activation Issues**

**1. Verify Python Installation**

1. Checked which Python version is installed using:

bash

where python

* + Output:

makefile

C:\Users\cwolter\AppData\Local\Programs\Python\Python310\python.exe

* + This confirmed that Python 3.10 was installed and accessible.

1. Ensured Python was correctly added to the system PATH.

**2. Navigate to the Project Directory**

1. Used cd to navigate to the intended project directory:

bash

cd C:\Users\cwolter\Documents\IDEAS

1. Verified that this path existed before proceeding.

**3. Create a Virtual Environment**

1. Attempted to create a virtual environment in the IDEAS folder:

bash

python -m venv .venv

1. Checked if the virtual environment was successfully created by listing directory contents:

bash

dir C:\Users\cwolter\Documents\IDEAS\

* + Expected output included a .venv folder.

**4. Activating the Virtual Environment**

1. Tried activating the environment using:

bash

C:\Users\cwolter\Documents\IDEAS\.venv\Scripts\activate

1. Checked if .venv actually existed by running:

bash

dir C:\Users\cwolter\Documents\IDEAS\

* + If the .venv folder was missing, the environment was not created correctly.

**5. Fixing Virtual Environment Issues**

1. If the virtual environment did not exist, it was recreated:

bash

rmdir /s /q C:\Users\cwolter\Documents\IDEAS\.venv

python -m venv C:\Users\cwolter\Documents\IDEAS\.venv

1. Verified the environment creation by checking if .venv now appeared in:

bash

dir C:\Users\cwolter\Documents\IDEAS\

1. Activated the virtual environment again:
   * For Command Prompt:

bash

C:\Users\cwolter\Documents\IDEAS\.venv\Scripts\activate

**6. Verify Python is Using the Virtual Environment**

1. Checked which Python executable is being used:

bash

where python

* + Expected output:

makefile

C:\Users\cwolter\Documents\IDEAS\.venv\Scripts\python.exe

1. If it was still pointing to the global Python installation, the environment was not properly activated.

**7. Ensuring MATLAB Can Use the Virtual Environment**

1. Ran the following command inside MATLAB:

matlab

pyenv('Version', 'C:\Users\cwolter\Documents\IDEAS\.venv\Scripts\python.exe', 'ExecutionMode', 'OutOfProcess');

1. If MATLAB showed "Access Denied," fixed permissions by running:

bash

icacls "C:\Users\cwolter\Documents\IDEAS\.venv" /grant Everyone:F /T /Q

1. Verified PyTorch installation by running:

bash

C:\Users\cwolter\Documents\IDEAS\.venv\Scripts\python.exe -c "import torch; print(torch.\_\_version\_\_)"