# Artificial Intelligence

## Assignment 0

**Dahuin Jung**

School of Computer Science and Engineering

Soongsil University

2024

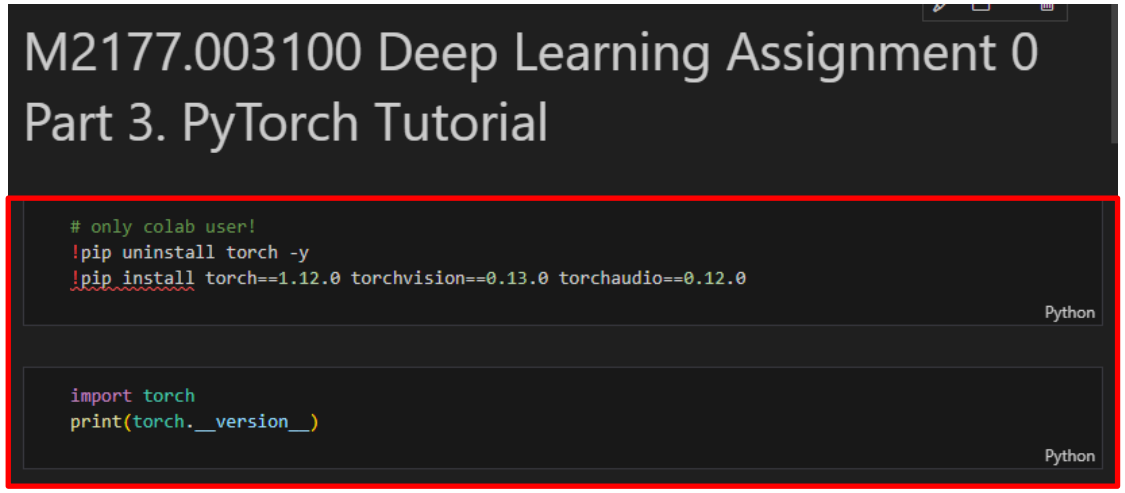
# Assignment Objective

- Part 0  Requirements
- Part 1  Local & Colab Setup
- Part 2 Python Basics
  - Basic data types (Containers, Lists, Dictionaries, Sets, Tuples)
  - Functions, Classes
- Part 3  Numpy and Matplotlib
  - Arrays, Array indexing, Broadcasting, Plotting
- Part 4 PyTorch Tutorial
  - Problem: Implementing training/ testing codes for PyTorch model

# How to install assignment files

- Assignment files
  - env/
  - Assignmento-1_Python_Basics.ipynb
  - Assignmento-2_Numpy_Matplotlib.ipynb
  - Assignmento-3_PyTorch_Tutorial.ipynb
  - CollectSubmission.sh
- Install assignment files
  - Please extract the downloaded file.

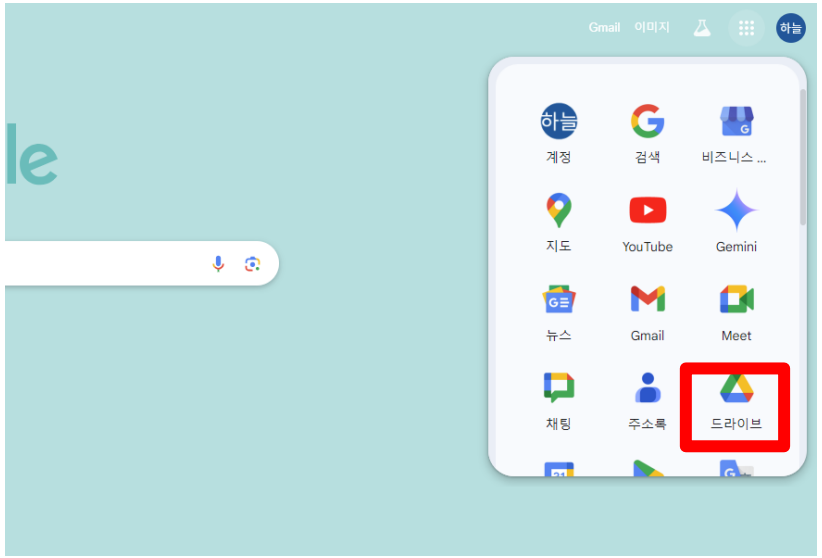
# Pre-announcement

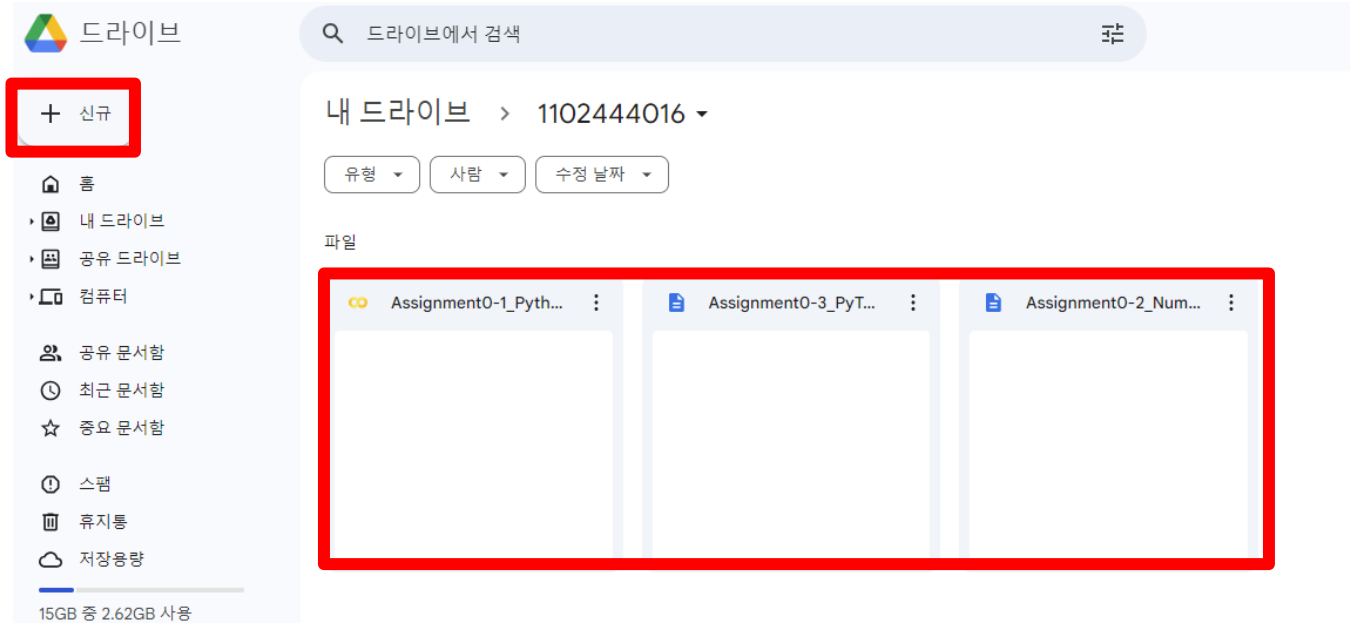



- Only Google Colab users should run this section. Local users can either delete or comment it out.

# Colab Setup

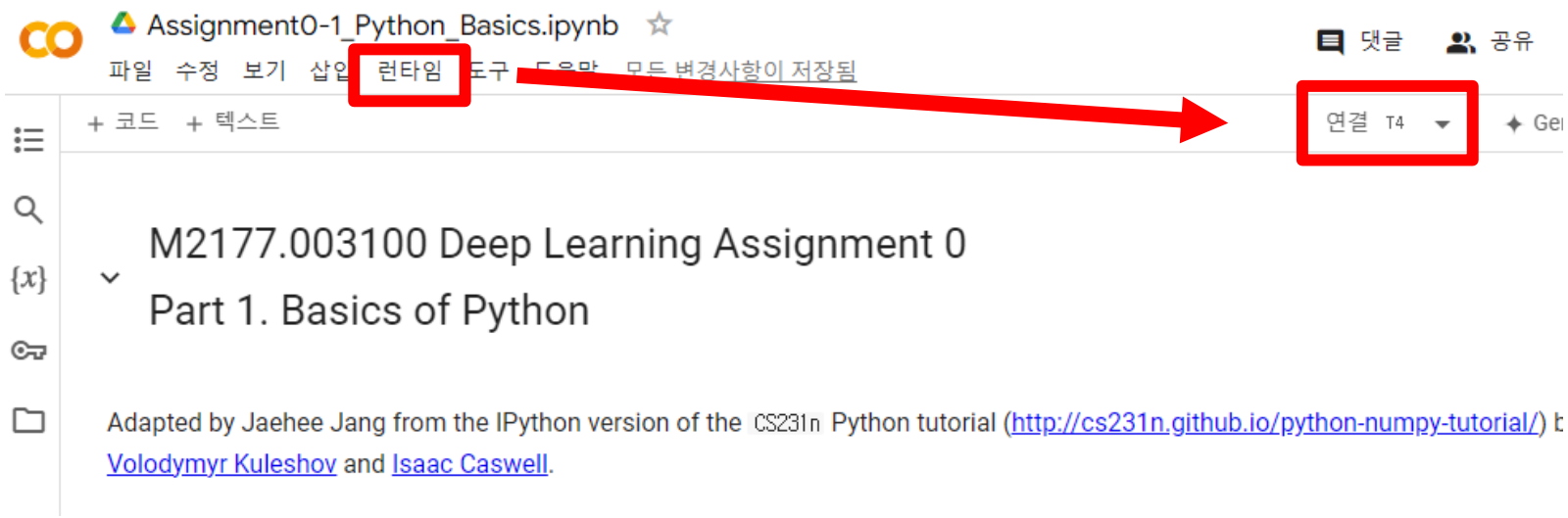
- Step 1 Access Google Drive and create a folder.
  - **Folder name : (student_id)_(subject)**
  - **Ex) 1102444016**
- Step 2 Upload ONLY .ipynb files to the created folder.



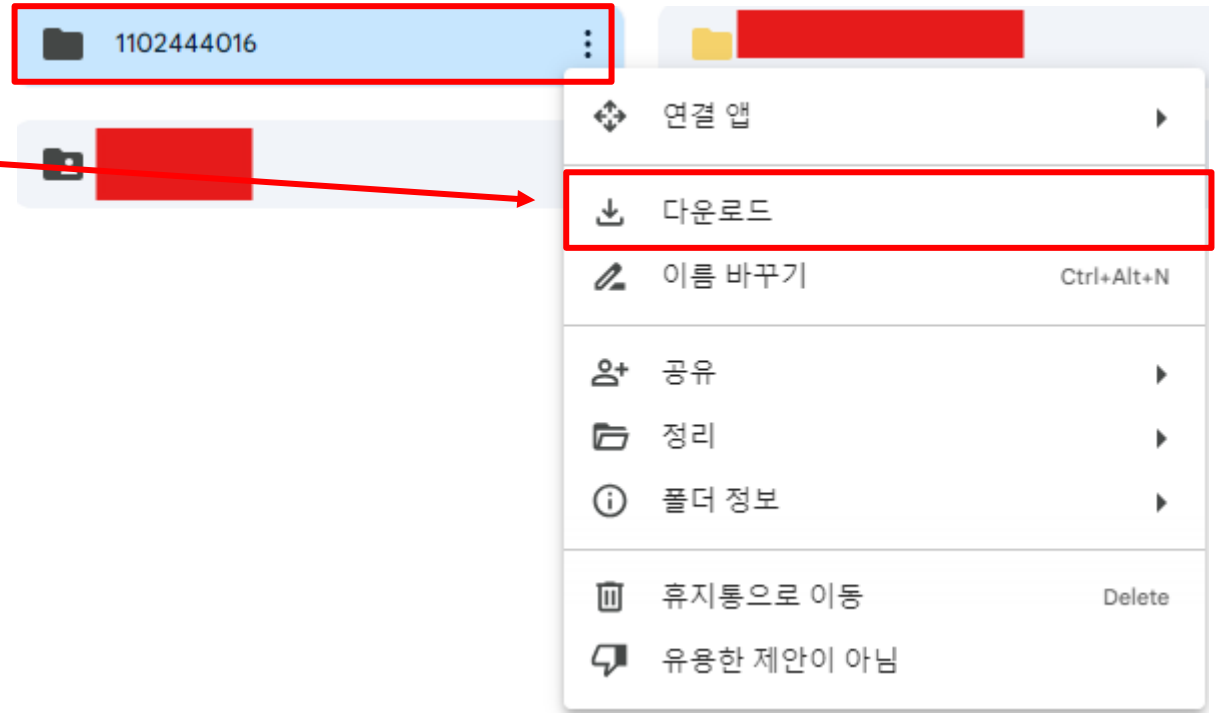
# Colab Setup

- Step 1: Runtime > Change runtime type
  - Change the hardware accelerator to T4.
- Step 2: verify that the changes have been made as shown in the red box(T4)
  - You can now use it like a regular Jupyter Notebook.
- Please make sure to save your changes.



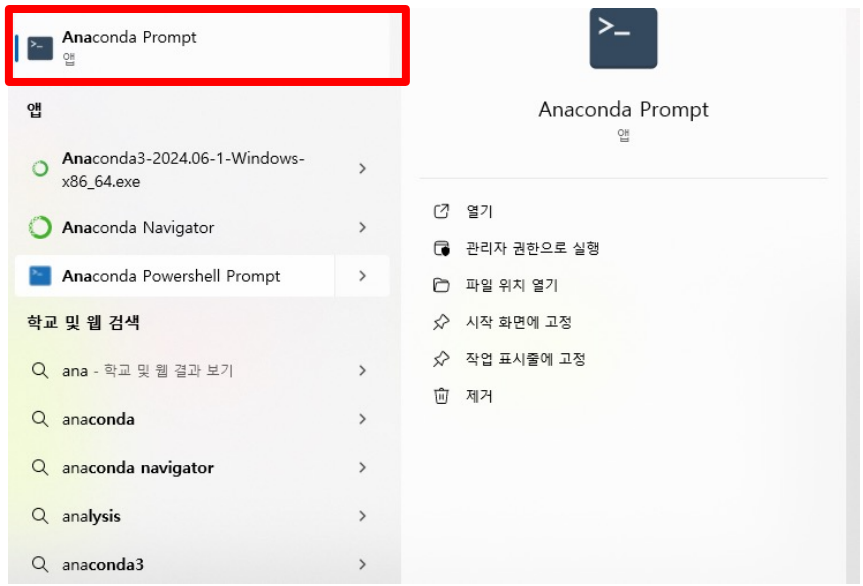
# Colab Setup

- Submitting your work(Colab)
  - Go into the Google Drive folder you created earlier.
  - Folder name : student-id
  - Download
  - Upload the downloaded zip file on LMS.
  - DO NOT clear the final outputs



# Local setup

- Step 1 Anaconda Download
  - https://www.anaconda.com/download/success (download)




- Step 2 Join to Anaconda prompt and activate AI-24
  - 1. conda env create -f environment.yml(Use the cd command to navigate to the env folder and then run this command.)

```
(base) C:\Users\ssu_hai\Desktop\인공지능\Assignment0>cd env

(base) C:\Users\ssu_hai\Desktop\인공지능\Assignment0\env>conda env create -f environment.yml
```

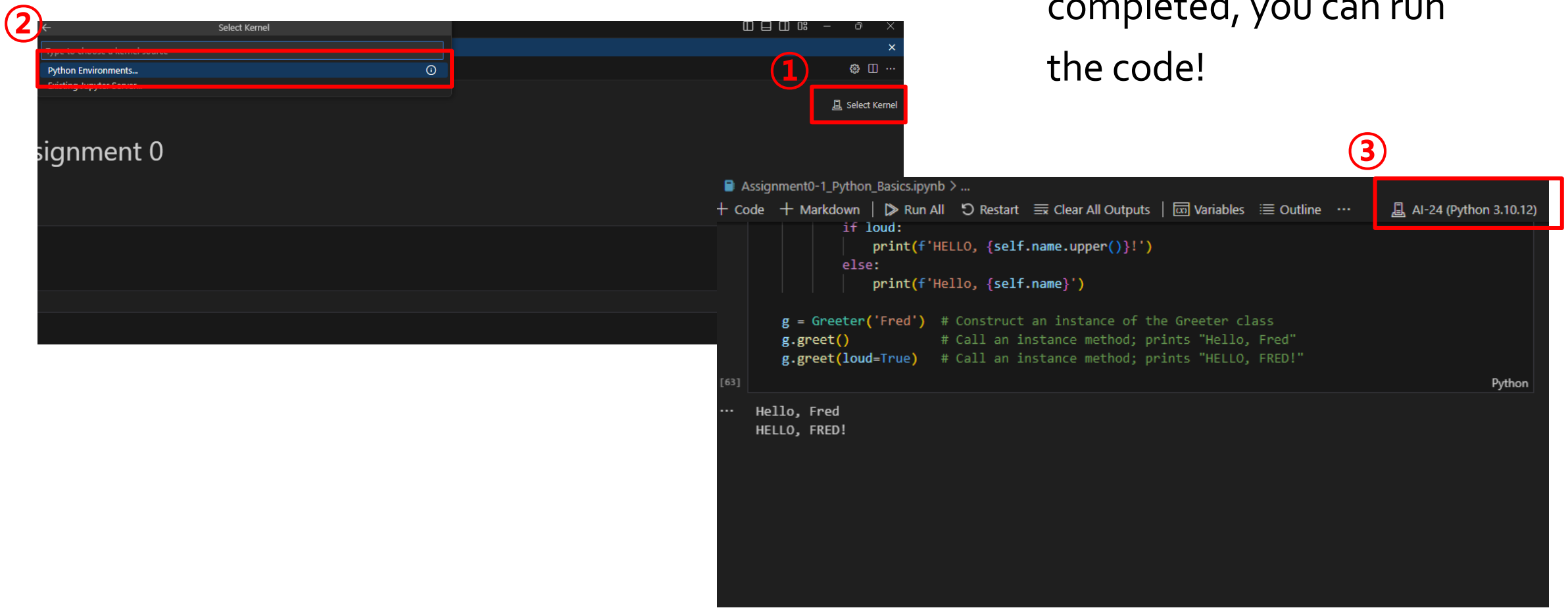
  - 2. conda activate AI-24

```
(base) C:\Users\ssu_hai>conda activate AI-24

(AI-24) C:\Users\ssu_hai>
```

# Local setup

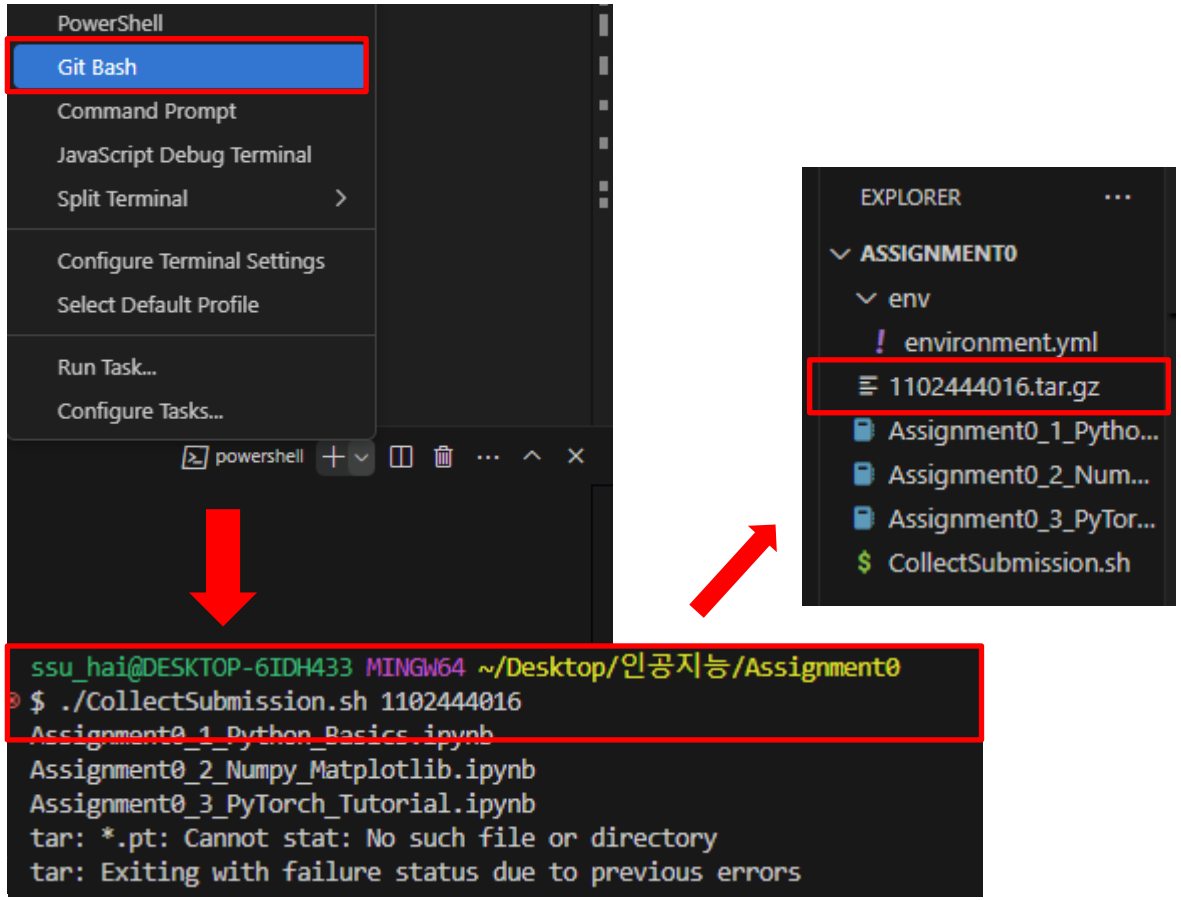
- Step 3 Verification of activation




- Once steps 1 to 3 are completed, you can run the code!

# Local setup


- Submitting your work
  - After you are done
    - Open Git Bash in VSCode or download it locally.
    - $ ./CollectSubmission.sh 1102444016 (student-id)
    - Upload the (student-id).tar.gz on LMS
  - DO NOT clear the final outputs



# Output Examples

- ###TO DO### is only in Assignmento-3_PyTorch_Tutorial.ipynb

```
Train Epoch: 9 [00000/60000 (0%)]     Loss: 0.291984
Train Epoch: 9 [06400/60000 (11%)]    Loss: 0.291847
Train Epoch: 9 [12800/60000 (21%)]    Loss: 0.277419
Train Epoch: 9 [19200/60000 (32%)]    Loss: 0.361615
Train Epoch: 9 [25600/60000 (43%)]    Loss: 0.284308
Train Epoch: 9 [32000/60000 (53%)]    Loss: 0.187955
Train Epoch: 9 [38400/60000 (64%)]    Loss: 0.320377
Train Epoch: 9 [44800/60000 (75%)]    Loss: 0.405238
Train Epoch: 9 [51200/60000 (85%)]    Loss: 0.279186
Train Epoch: 9 [57600/60000 (96%)]    Loss: 0.162448
Train Epoch: 10 [00000/60000 (0%)]    Loss: 0.296218
Train Epoch: 10 [06400/60000 (11%)]   Loss: 0.380556
Train Epoch: 10 [12800/60000 (21%)]   Loss: 0.293848
Train Epoch: 10 [19200/60000 (32%)]   Loss: 0.253909
Train Epoch: 10 [25600/60000 (43%)]   Loss: 0.397972
Train Epoch: 10 [32000/60000 (53%)]   Loss: 0.228490
Train Epoch: 10 [38400/60000 (64%)]   Loss: 0.326564
Train Epoch: 10 [44800/60000 (75%)]   Loss: 0.237349
Train Epoch: 10 [51200/60000 (85%)]   Loss: 0.334854
Train Epoch: 10 [57600/60000 (96%)]   Loss: 0.227650

Test set: Average loss: 0.2893, Accuracy: 9193/10000 (91.93%)
```

# Important Notes

- Please read the notes on the notebooks carefully
- Googling first before mailing TAs

- TA email: 11024444016@soongsil.ac.kr


Thank You!