Assignment 02 work with VS Code_Hanqi Li

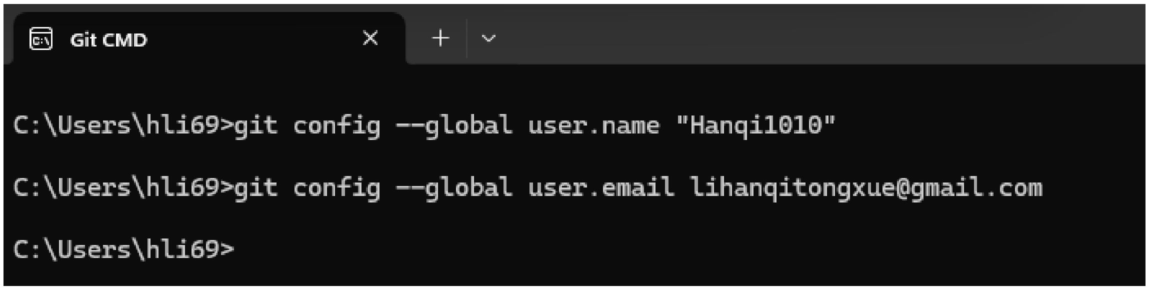
▼ Overview

This assignment will give you the instruction to set up your assignment repository on github.com and work with git in VSCode. Submit a report with screen captures of each step in the following instruction:

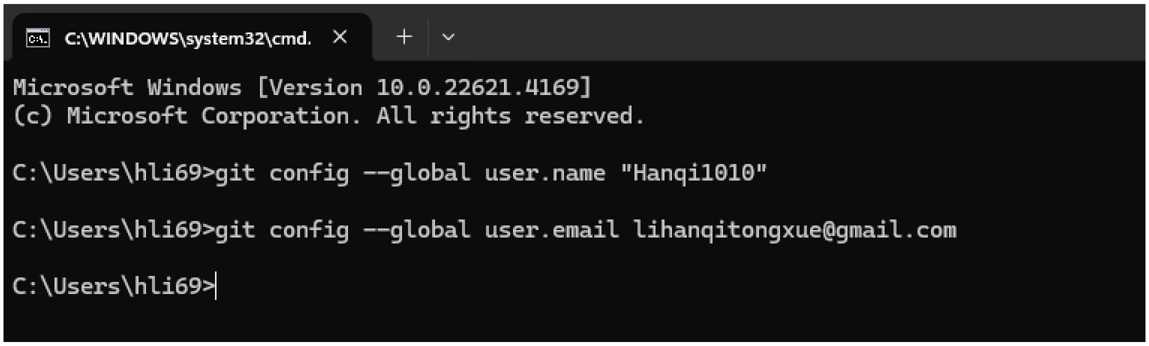
▼ Prerequisite

- You need to have both VS Code and git installed on your computer
- If you just installed git and did nothing, you need to run "git config" to set up the git environment
- You only need to run "git config" once
- open a command prompt and run the following code. (replace the name and email with yours)
- Use the email to create an account on github

```
git config --global user.name "John Doe"
git config --global user.email johndoe@example.com
```



```
C:\Users\hli69>git config --global user.name "Hanqi1010"

C:\Users\hli69>git config --global user.email lihanqitongxue@gmail.com

C:\Users\hli69>
```

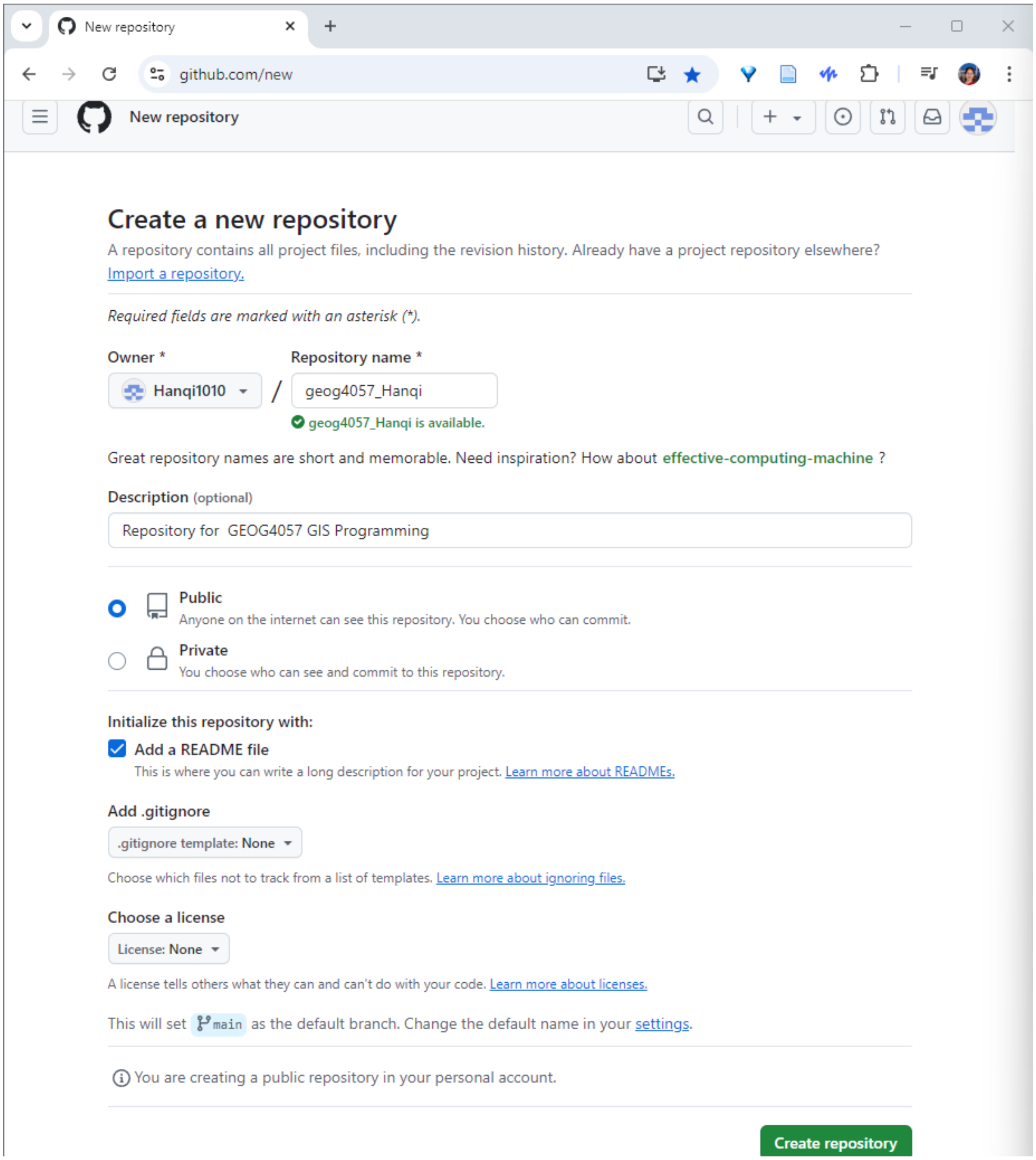


```
Microsoft Windows [Version 10.0.22621.4169]
(c) Microsoft Corporation. All rights reserved.

C:\Users\hli69>git config --global user.name "Hanqi1010"

C:\Users\hli69>git config --global user.email lihanqitongxue@gmail.com

C:\Users\hli69>
```

▼ Create a github.com repository

- Create a github.com account if you have not (use the email that you used in the git config command)
- In your github.com dashboard, click create a public repository
- Name it "geog4057_yourname"
- Open the repository and click the green "Code" button
- Check the HTTPS url
- Copy the URL to the clipboard for the next step

  https://github.com/Hanqi1010/geog4057_Hanqi.git



Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Required fields are marked with an asterisk (*).

Owner * Hanqi1010 / Repository name * geog4057_Hanqi

✓ geog4057_Hanqi is available.

Great repository names are short and memorable. Need inspiration? How about effective-computing-machine ?

Description (optional)

Repository for GEOG4057 GIS Programming

● Public
Anyone on the internet can see this repository. You choose who can commit.

○ Private
You choose who can see and commit to this repository.

Initialize this repository with:

☑ Add a README file
This is where you can write a long description for your project. Learn more about READMEs.

Add .gitignore

.gitignore template: None

Choose which files not to track from a list of templates. Learn more about ignoring files.

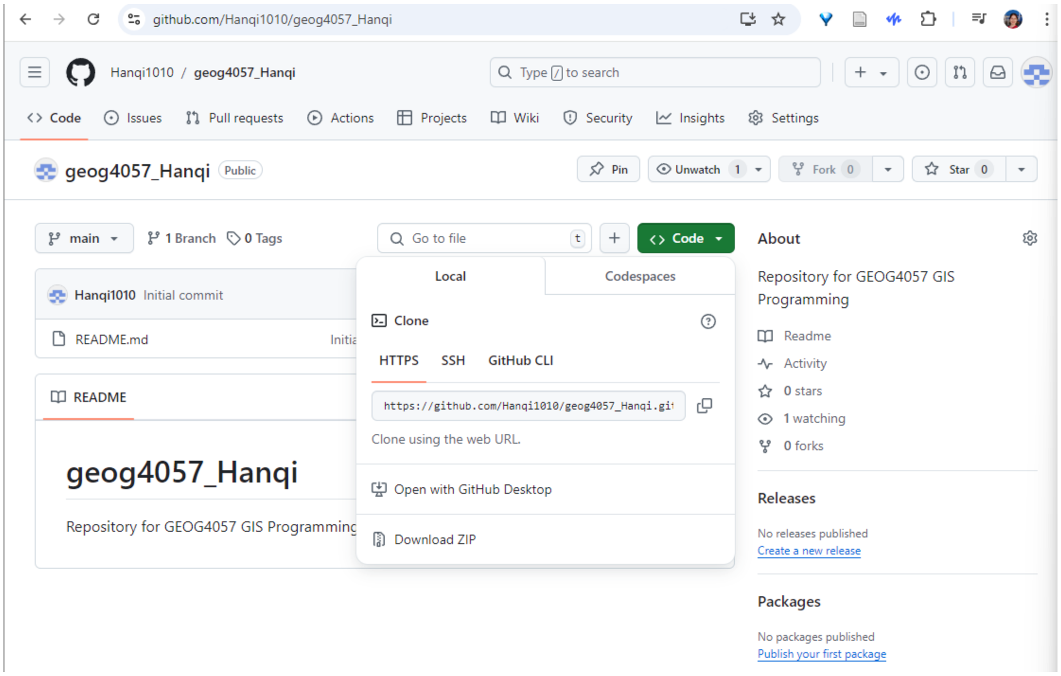
Choose a license

License: None

A license tells others what they can and can't do with your code. Learn more about licenses.

This will set `main` as the default branch. Change the default name in your settings.

ⓘ You are creating a public repository in your personal account.



geog4057_Hanqi

Repository for GEOG4057 GIS Programming

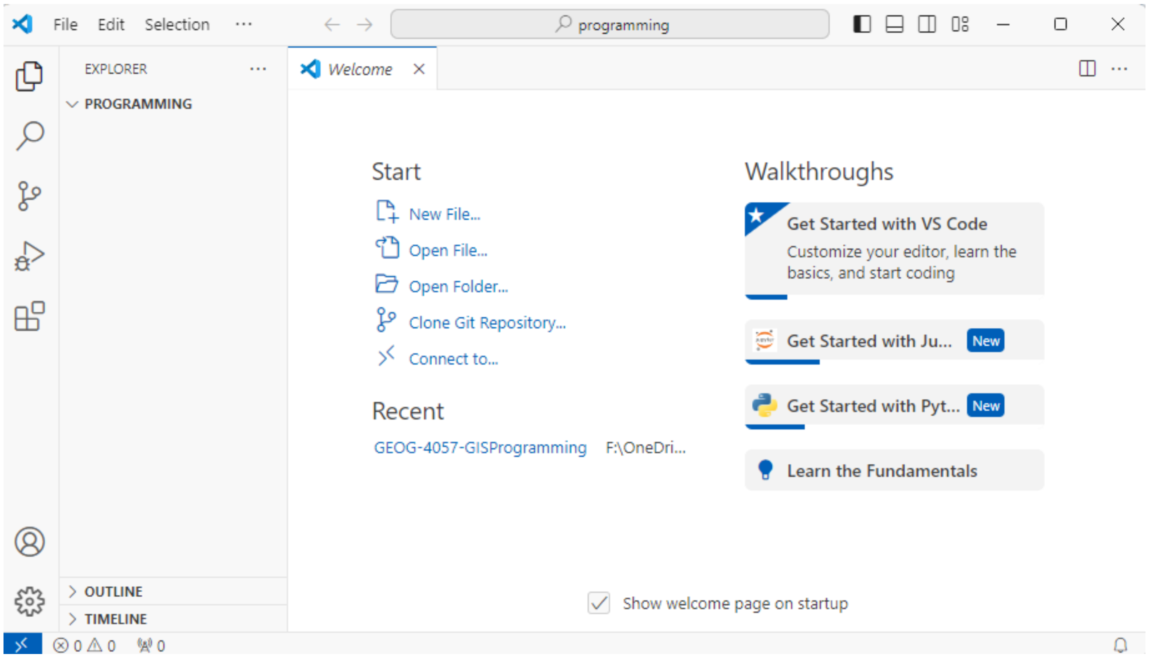
https://github.com/Hanqi1010/geog4057_Hanqi.gi

Clone using the web URL.

Repository for GEOG4057 GIS Programming

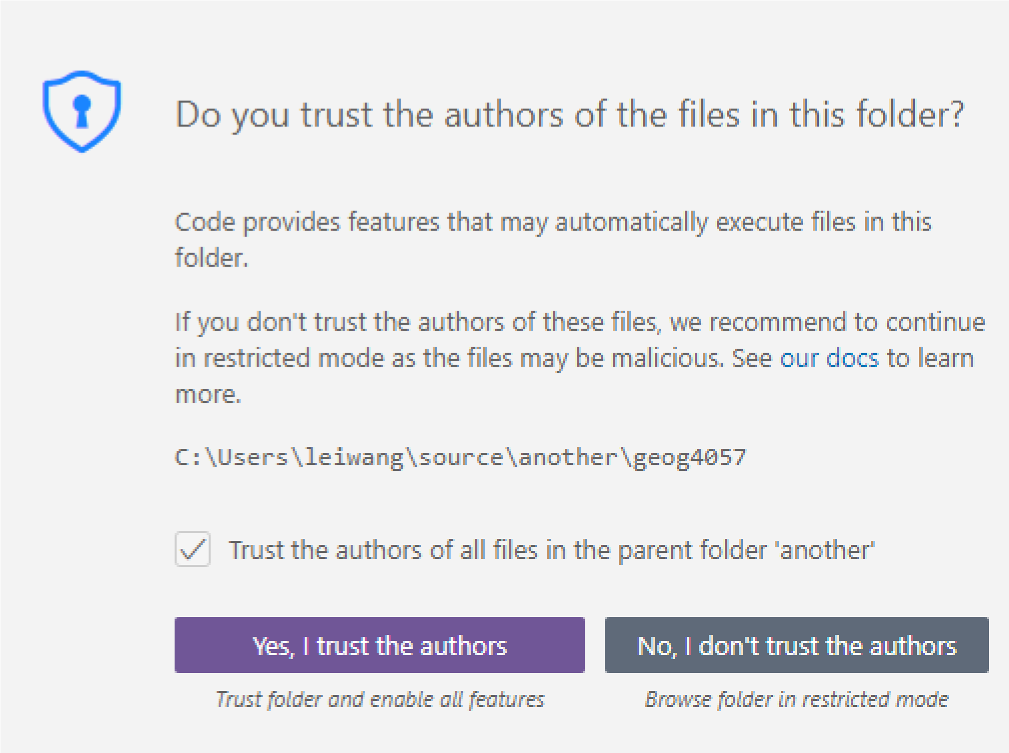
▼ Open a folder as the workspace in VS Code

- Find your Documents folder and create a new folder called "programming"
- Run VS Code
- In menu File→Open Folder
- Find the "programming" folder and open it
- The folder is empty for now.



▼ Synchronize a local repository with github.com

- Press ctrl+shift+p to call the command palette
- type "git clone"
- Past the URL from Step 1 to here to clone the repository.
- If you are asked to open the clone repository in VS Code, answer "YES"
- Click trust if you see the page like below



Do you trust the authors of the files in this folder?

Code provides features that may automatically execute files in this folder.

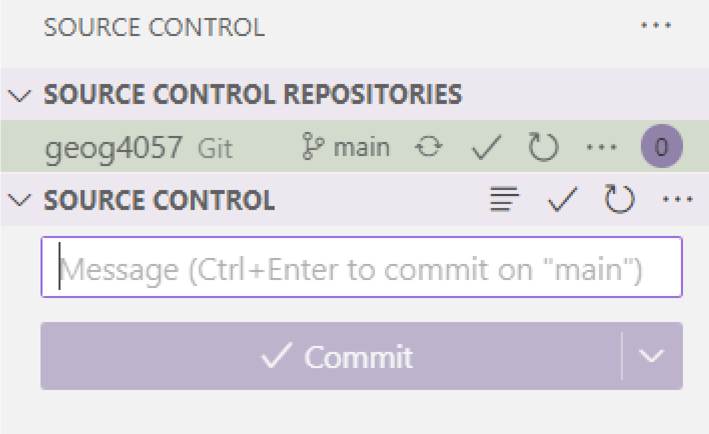
If you don't trust the authors of these files, we recommend to continue in restricted mode as the files may be malicious. See our docs to learn more.

```
C:\Users\leiwang\source\another\geog4057
```

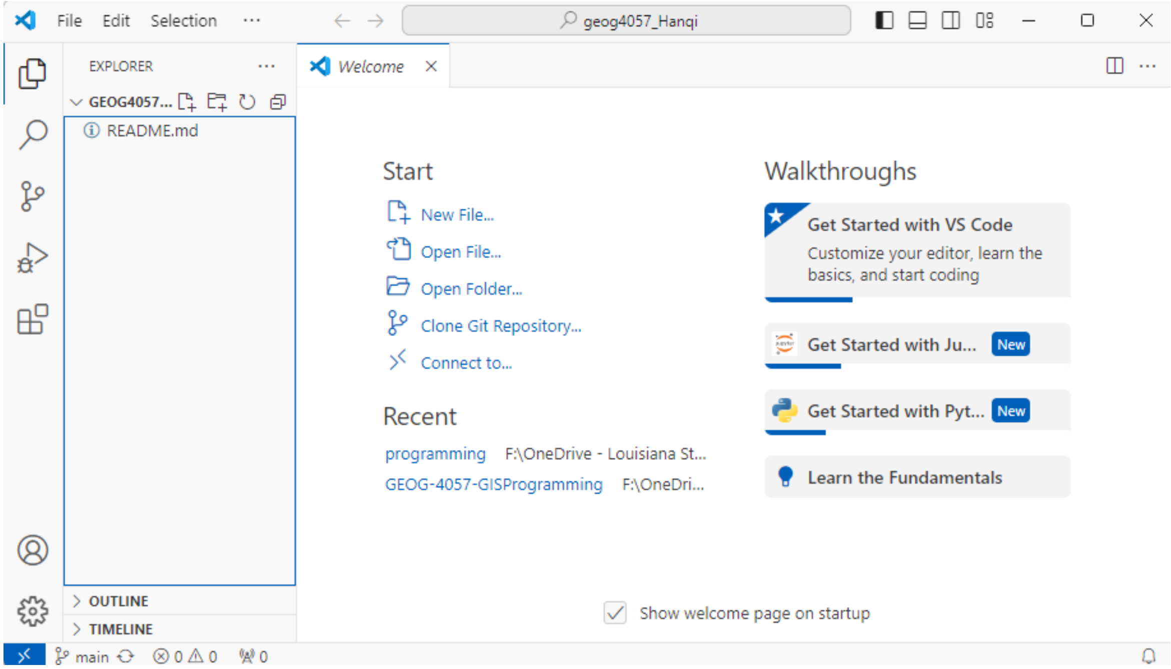
☑ Trust the authors of all files in the parent folder 'another'

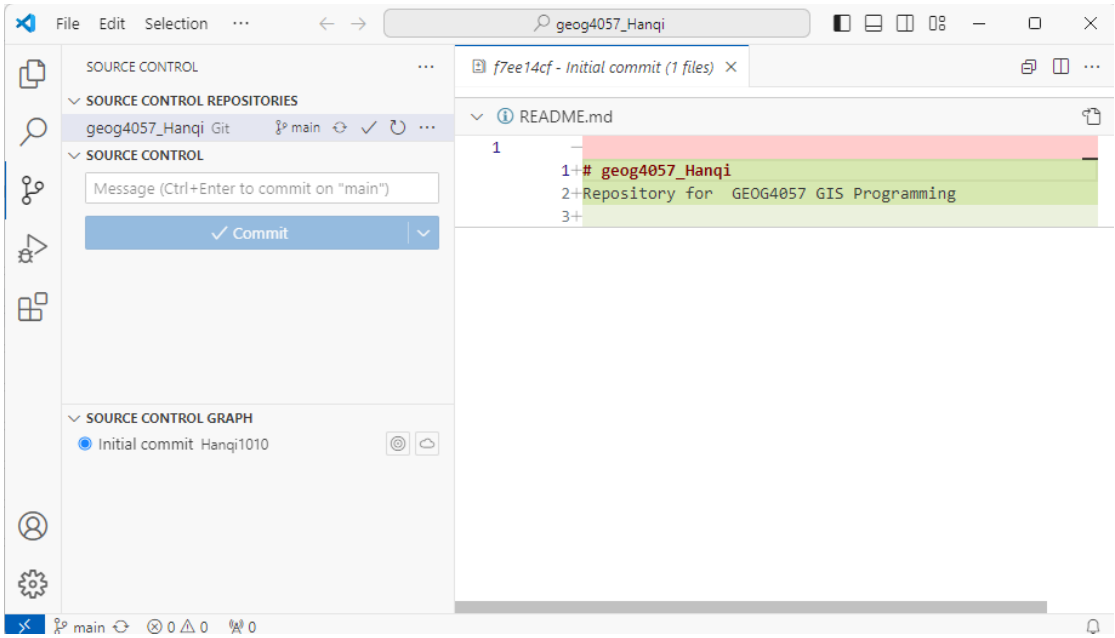
Yes, I trust the authors
Trust folder and enable all features
No, I don't trust the authors
Browse folder in restricted mode

- Now you should have a copy of the repository on your computer and opened by VS Code
- Check the Source control section in VS Code, it should look like



SOURCE CONTROL
SOURCE CONTROL REPOSITORIES
geog4057 Git
main
0
SOURCE CONTROL
Message (Ctrl+Enter to commit on "main")
✓ Commit

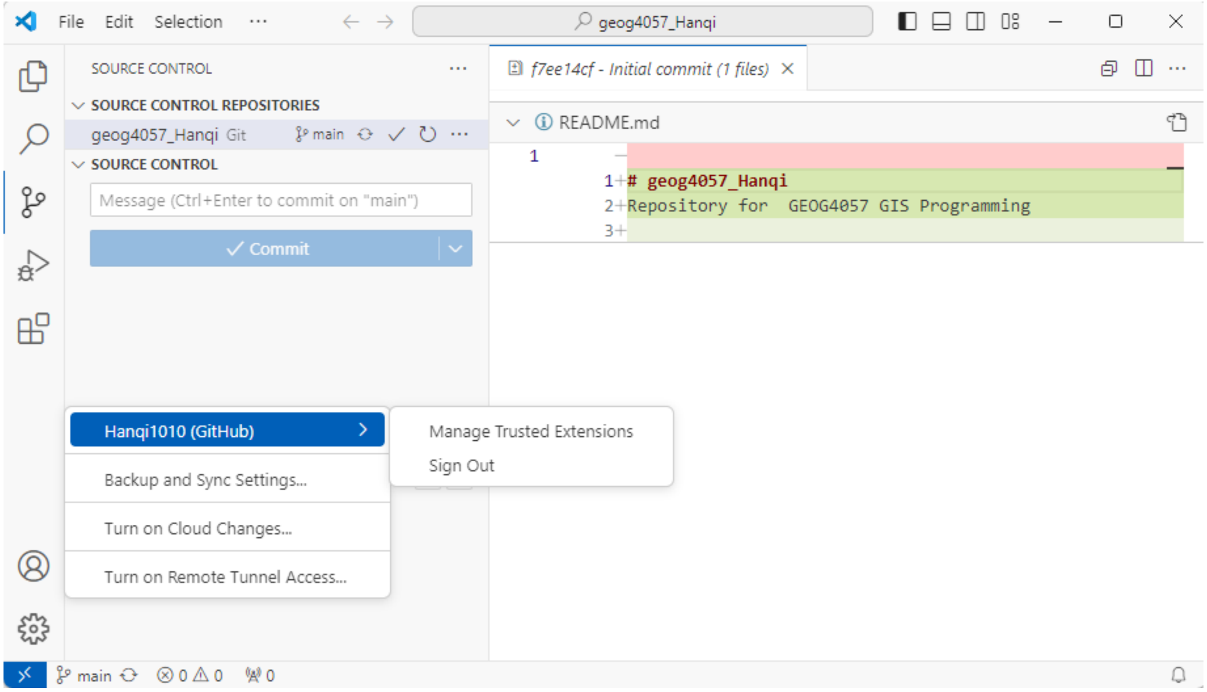




```
1 -
  1+# geog4057_Hanqi
  2+Repository for  GEOG4057 GIS Programming
  3+
```

▼ Log in your github account in VS Code

- In the lower left of the Activity bar
- Click the Accounts button
- Log in with your github account there
- Once it is done, you should be able to synchronize your changes to github


File
Edit
Selection
geog4057_Hanqi
SOURCE CONTROL
SOURCE CONTROL REPOSITORIES
geog4057_Hanqi Git
main
SOURCE CONTROL
Message (Ctrl+Enter to commit on "main")
✓ Commit
f7ee14cf - Initial commit (1 files)
README.md
Hanqi1010 (GitHub)
Manage Trusted Extensions
Sign Out
Backup and Sync Settings...
Turn on Cloud Changes...
Turn on Remote Tunnel Access...
main
0
0
0

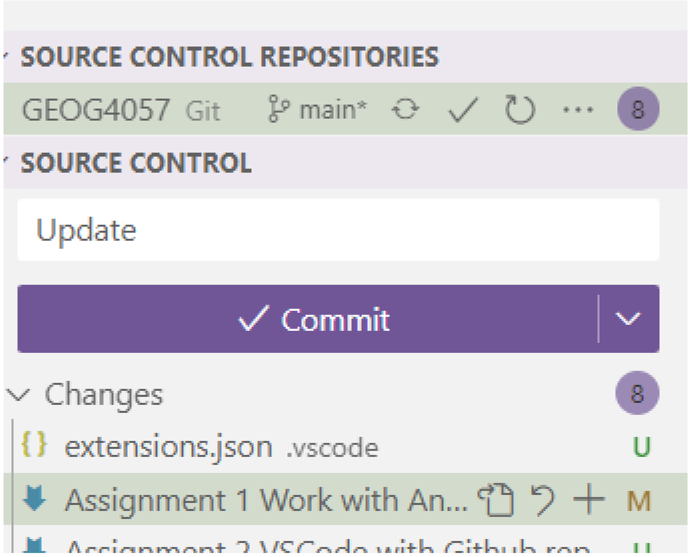
```
# geog4057_Hanqi
Repository for  GEOG4057 GIS Programming
```

▼ Create your first jupyter notebook and synchronize it to github.com

- Make sure you have the extension "jupyter" installed in VS Code
- Use the key combination ctrl+shift+p to call the command palette and put "new folder" and enter
- Rename the folder as "Assignment 2"
- Again, use the key combination ctrl+shift+p to call the command palette and put "create new" to find "Create New Jupyter notebook"
- The notebook will be automatically created with the name "untitled-1.ipynb"
- Turn on autosave: ctrl+shift+p → "autosave" and enter. This will toggle the autosave option
- Manual save: Ctrl-s or in the menu→File→Save, to save the notebook to your current folder
- In the notebook, click "Kernels" and select "ArcPyClone" (the one you did in the first assignment) as the kernel
- In the first cell, try to run the following code:

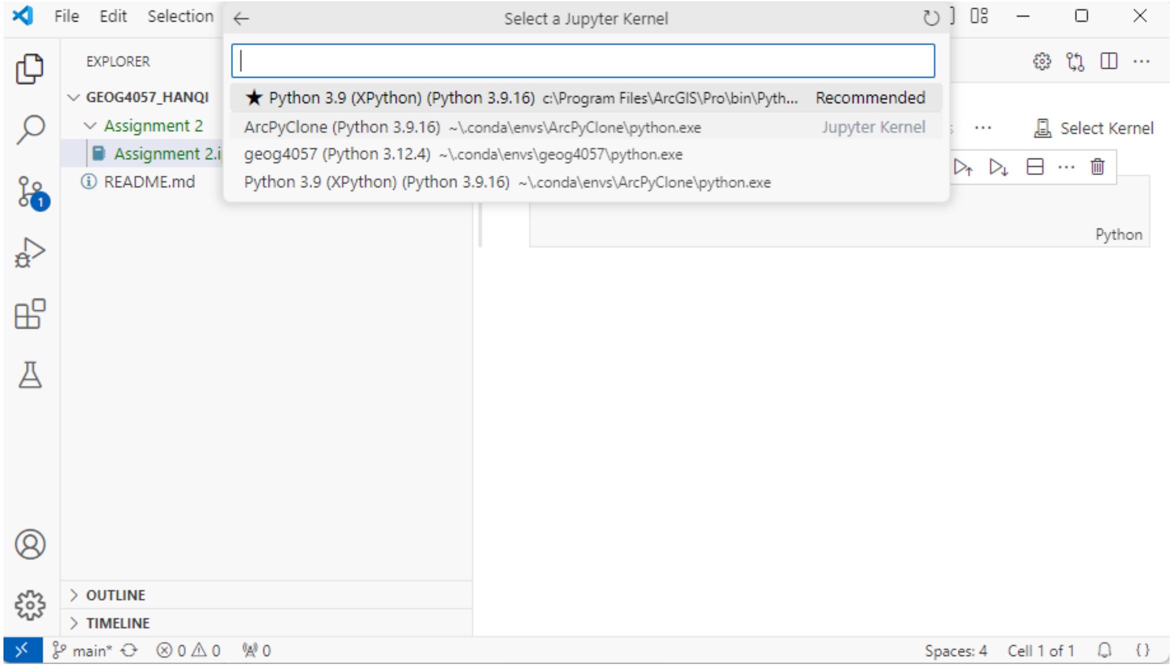
```
import arcpy
print(arcpy.GetInstallInfo()['Version'])
```

- The notebook has been saved by VS Code. It should have an "U" letter next to it in the Explorer window
- These are uncommitted changes
- Click Source Control
- Type some message in the Commit message box


SOURCE CONTROL REPOSITORIES
GEOG4057 Git
main*
8
SOURCE CONTROL
Commit
Changes
8
extensions.json .vscode
U
Assignment 1 Work with An...
M
Assignment 2 VSCode with Github rep...
U

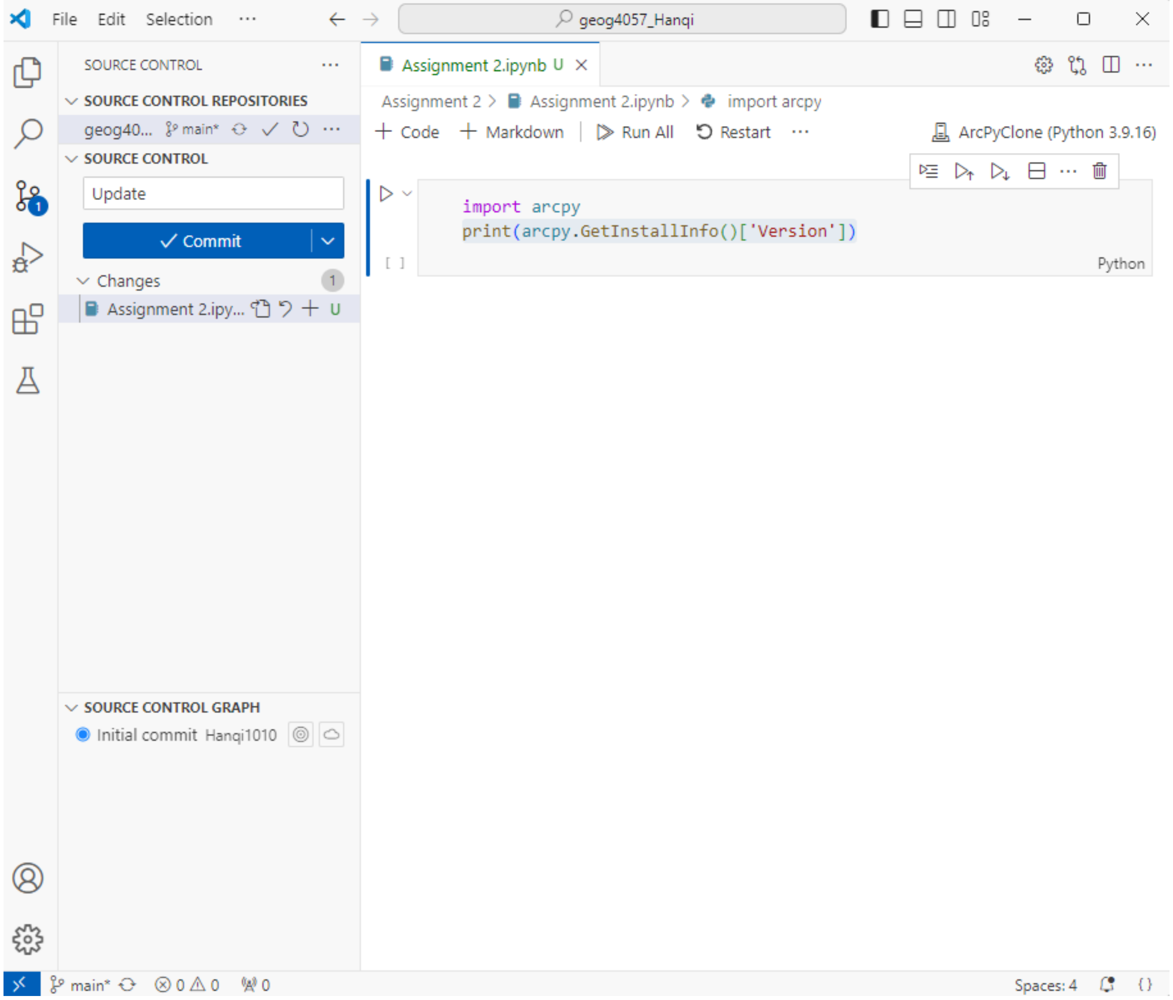
Update

- Click Commit
- Click the Sync Changes button to synchronize the changes to the server



Select a Jupyter Kernel

★ Python 3.9 (XPython) (Python 3.9.16) c:\Program Files\ArcGIS\Pro\bin\Pyth... Recommended
ArcPyClone (Python 3.9.16) ~\.conda\envs\ArcPyClone\python.exe Jupyter Kernel
geog4057 (Python 3.12.4) ~\.conda\envs\geog4057\python.exe
Python 3.9 (XPython) (Python 3.9.16) ~\.conda\envs\ArcPyClone\python.exe



Update

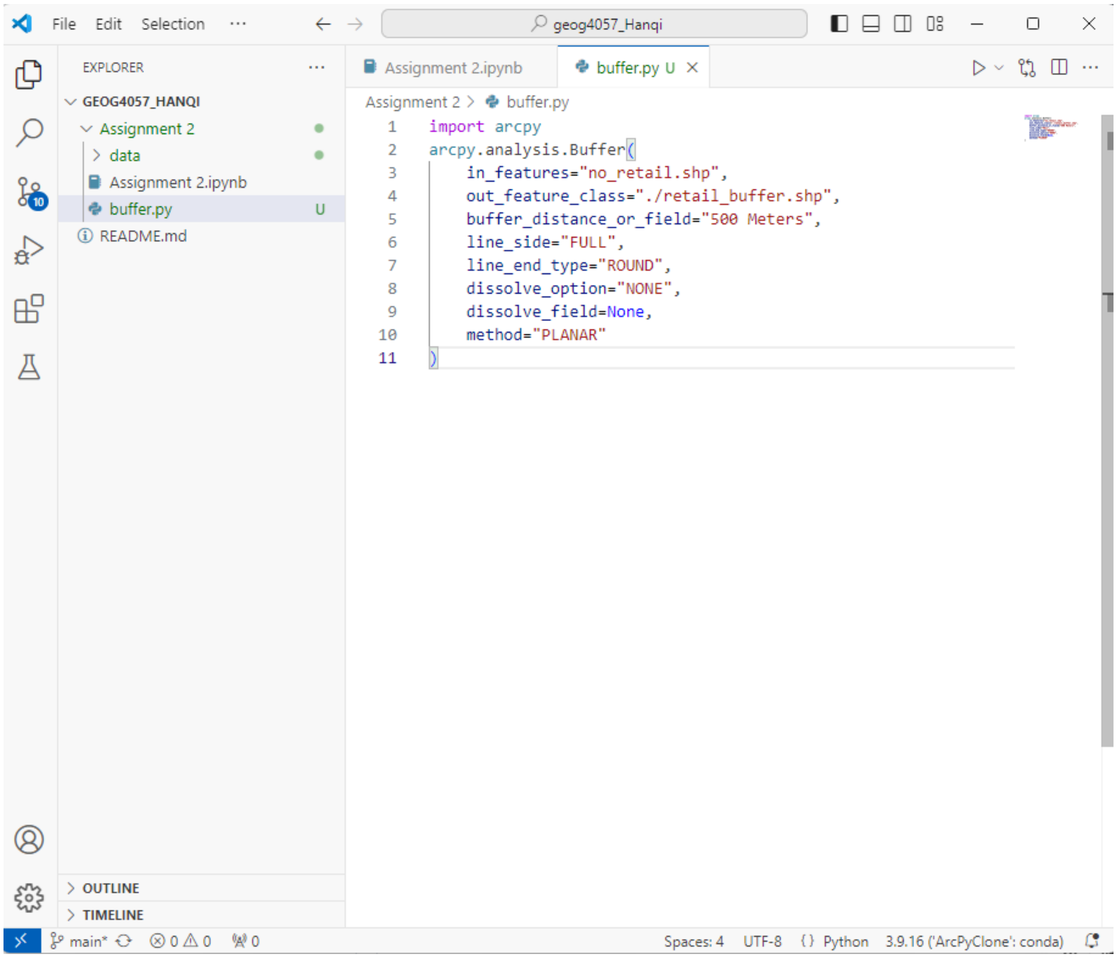
```
import arcpy
print(arcpy.GetInstallInfo()['Version'])
```

▼ Create your first python script in the repository

- Use the key combination ctrl+shift+p to call the command palette and put "create new" to find "create new file"
- Rename the file to buffer.py
- Open the buffer.py
- Press shift-ctrl-p to call the command palette and type to find "python: select interpreter"
- Select "ArcPyClone" (the environment you cloned in the first assignment, which might be with a different name)
- From the geog4057/data folder, find the shapefile "no_retail" and copy it (all the files with the same name) to your "assignment 2" folder
- Put the following code in the script:

```
import arcpy
arcpy.analysis.Buffer(
    in_features="no_retail.shp",
    out_feature_class="./retail_buffer.shp",
    buffer_distance_or_field="500 Meters",
    line_side="FULL",
    line_end_type="ROUND",
    dissolve_option="NONE",
    dissolve_field=None,
    method="PLANAR"
)
```

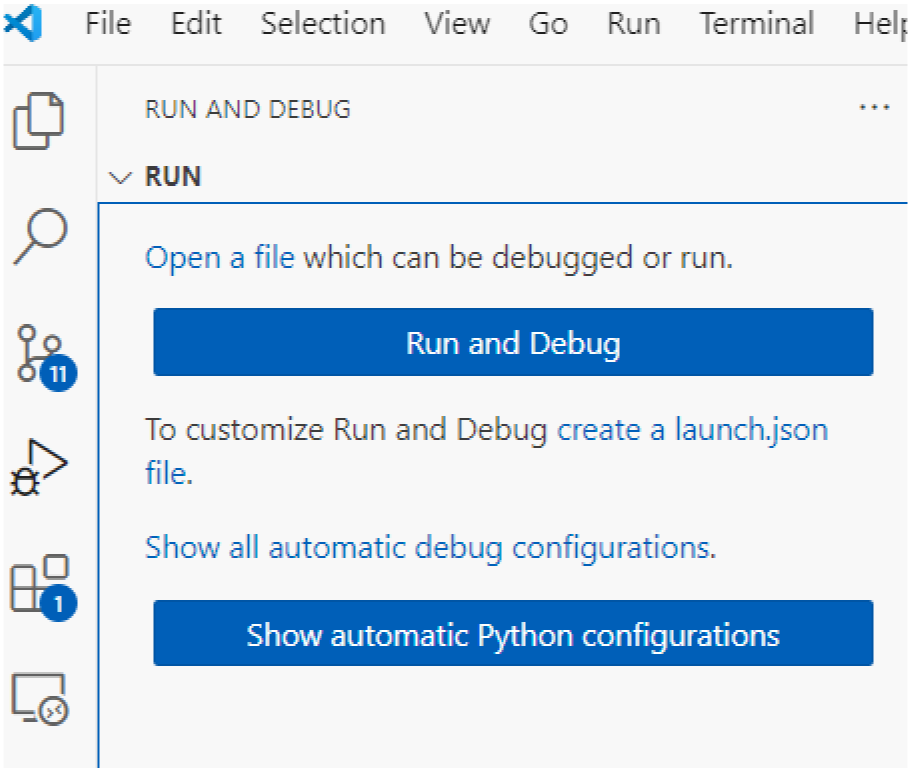
- Save the script file (if you have turned on the autosave option, it will be saved automatically)



```python
import arcpy
arcpy.analysis.Buffer(
    in_features="no_retail.shp",
    out_feature_class="./retail_buffer.shp",
    buffer_distance_or_field="500 Meters",
    line_side="FULL",
    line_end_type="ROUND",
    dissolve_option="NONE",
    dissolve_field=None,
    method="PLANAR"
)
```

▼ Run the python script with debugger

- From the activities bar, click the "Run and Debug" button



Open a file which can be debugged or run.

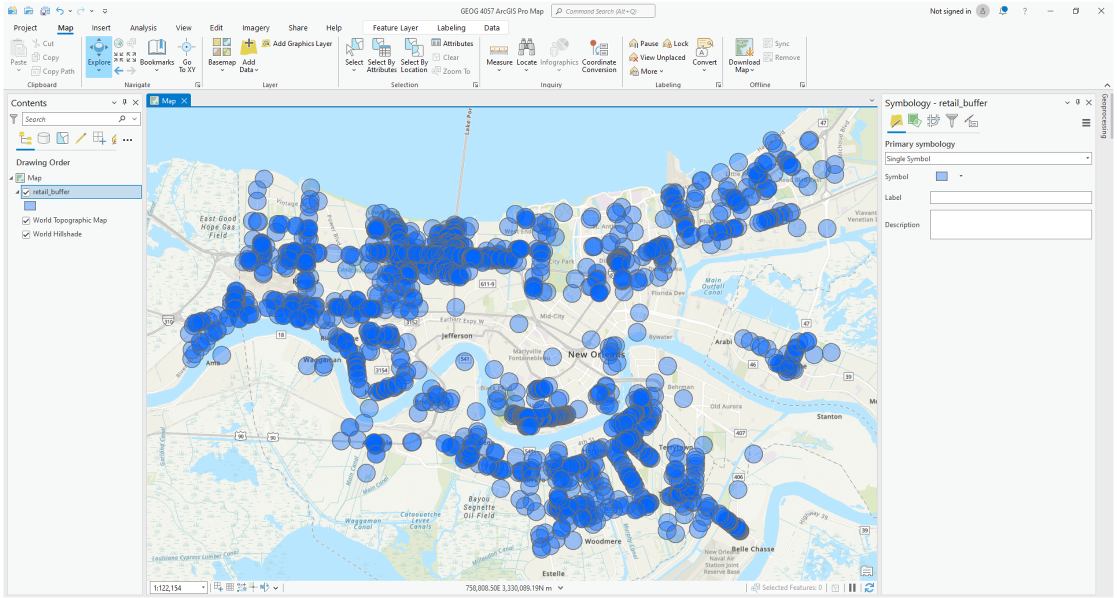
To customize Run and Debug create a launch.json file.

Show all automatic debug configurations.

- In the dialog, click "create a launch.json file"
- Select python debugger
- Select "debug the currently active Python file"
- A new file "launch.json" will be created under your VS Code workspace root folder
- In the launch.json file, add one line to enable your current folder as the launch folder

```
"cwd": "${fileDirname}",
```

- You can now close the json file and return to your "buffer.py" file
- Press the F5 button on your keyboard to start the debugger
- Wait for a while, and you should see the new shapefile is added to your current folder
- Add the buffer shapefile to an ArcGIS Pro map and capture the map into your report



▼ Run the script from a terminal

- Change the python script so that the output will use a different name from the last step

```
import arcpy
arcpy.analysis.Buffer(
    in_features="no_retail.shp",
    out_feature_class="./retail_buffer_1.shp",
    buffer_distance_or_field="500 Meters",
    line_side="FULL",
    line_end_type="ROUND",
    dissolve_option="NONE",
    dissolve_field=None,
    method="PLANAR"
)
```

- If you do not see the terminal in VS Code, go to menu→View→Terminal to show it
- Check the current folder name
- Use the "cd" command to change the directory to your assignment 2 folder

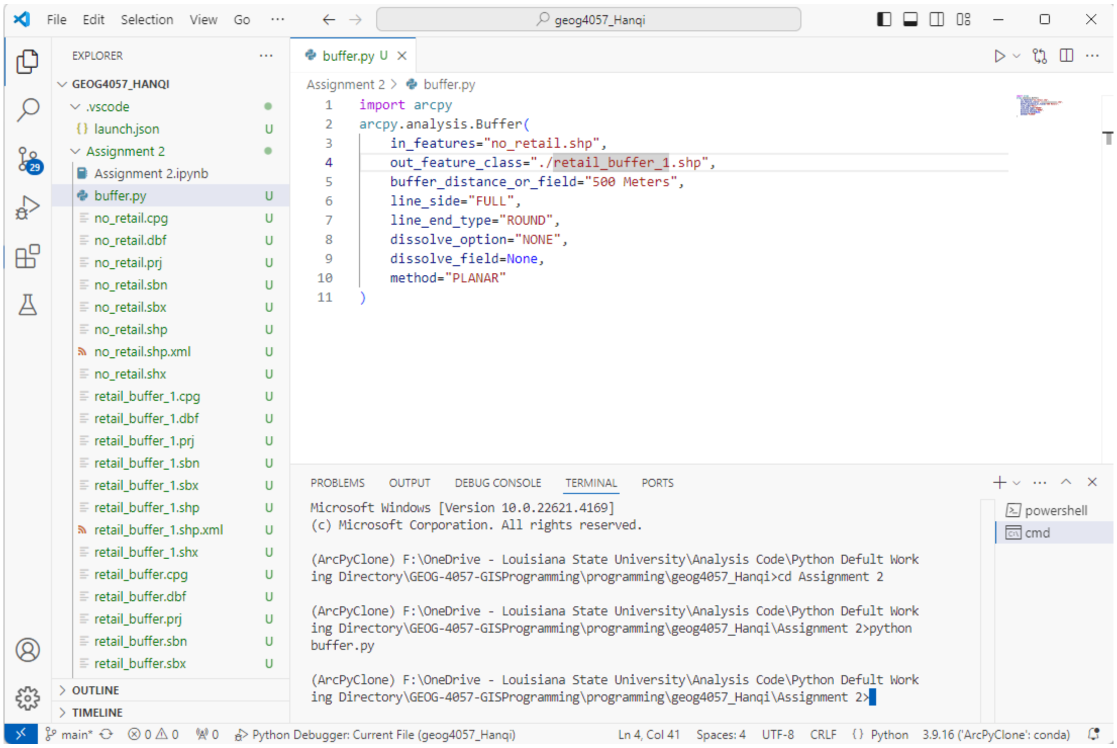
- For example, if you are at "c:/", use "cd Users" to change the directory to "C:/users"

- Check the environment name

- If your current environment of the terminal is not ArcPyClone (or something your named when you cloned the ArcGIS environment), you "conda activate ArcPyClone" to activate it

- type "python buffer.py"

- The code should run and give you an output in the assignment 2 folder called "retail_buffer_1.shp"



```python
import arcpy
arcpy.analysis.Buffer(
    in_features="no_retail.shp",
    out_feature_class="./retail_buffer_1.shp",
    buffer_distance_or_field="500 Meters",
    line_side="FULL",
    line_end_type="ROUND",
    dissolve_option="NONE",
    dissolve_field=None,
    method="PLANAR"
)
```

```
Microsoft Windows [Version 10.0.22621.4169]
(c) Microsoft Corporation. All rights reserved.

(ArcPyClone) F:\OneDrive - Louisiana State University\Analysis Code\Python Defult Work
ing Directory\GEOG-4057-GISProgramming\programming\geog4057_Hanqi>cd Assignment 2

(ArcPyClone) F:\OneDrive - Louisiana State University\Analysis Code\Python Defult Work
ing Directory\GEOG-4057-GISProgramming\programming\geog4057_Hanqi\Assignment 2>python
buffer.py

(ArcPyClone) F:\OneDrive - Louisiana State University\Analysis Code\Python Defult Work
ing Directory\GEOG-4057-GISProgramming\programming\geog4057_Hanqi\Assignment 2>
```

▼ Synchronize the workspace with your github repository

- Go to the Source control button in the activities bar

- In the message bar, type "Assignment 2"

- Press Commit

- Press Sync Changes

▼ Submit your github repository url. The TA will check the synchronized codes in the folder: assignment 2

https://github.com/Hanqi1010/geog4057_Hanqi/tree/main