



**CPSC 200**

# **INTRO SESSION**



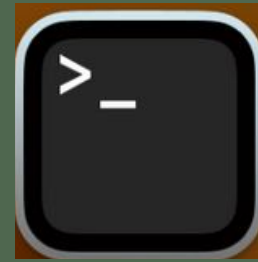
**The Zoo, Linux Commands & VSCode**

# THE ZOO

- **A computer cluster at Yale running a version of Linux**
  - **It is physically located in AKW and each machine is named after an animal, hence the name**
- **You can access the zoo from your local computer or other device using the shell**

**[Link to the Zoo website](#)**





# THE SHELL



- **A text based user interface for Unix systems**
- **Helps users and applications interact with each other, as well as other machines**
- **For the purpose of this class, we are using a shell to navigate through folders as you would on Finder or File Explorer and perform common tasks, like copying files, moving files, deleting files, etc.**
- **For Mac: you can use the built in terminal app**
- **For Windows: will need to install Windows Terminal if not already installed or you can use a built in terminal in a developing environment (like VSCode)**

# HELPFUL SHELL COMMANDS

- **ls** – lists folders/files in your current directory
- **pwd** – displays current working directory
- **cd \*directory\_name\*** – changes your working directory to the directory\_name
  - Think of directory name like folder name
- **cd ..** – changes directory one level higher (go-back)
- **rm \*file\_name\*** – remove or delete file/folder
- **mv \*file\_name\* \*destination\*** – move file to destination
- **clear** – visually clears your shell
- **ctrl + c** – terminate whatever is running right now
- **scp \*file\_name\* \*source\_directory\*:\*~\*target\_file\_path\***
  - secure copy of file/folder from source to target directory
- **ssh \*net\_id\*@node.zoo.cs.yale.edu** – accessing your zoo account
  - Note: if zoo is being buggy, try ssh to a specific zoo computer (hippo, tick, etc.)



# ACCESSING THE ZOO

```
ssh *net_id*@node.zoo.cs.yale.edu
```

- Will prompt you to put in your netId password
  - Note: when you type in your password it will not display you typing but trust it is working
  - If your netId password is wrong, it'll still prompt a duo push and it'll look like it worked, so double check your password is correct if you are having problems accessing the zoo
- Duo Push Authentication

# RETRIEVING HW

1) ssh into the zoo

2) cd into the cpsc 200 directory (once in zoo, type `cd /c/cs200/hws`)

3) copy the hw file into your zoo directory or locally on your computer

- `scp hw0 *netId*@node.zoo.cs.yale.edu:~*target_path*`

- The `target_path` is where you want to save the file

- i.e. `[...]@node.zoo.cs.yale.edu:~/myCS200Folder/hw0Stuff`

- This example command assumes that in my zoo account I have a folder called "myCS200Folder" and within that folder I have another one called "hw0Stuff". I am copying the hw to that location



# SETTING UP VSCODE

Purpose of this is to set up your VSCode so you can access the Zoo via the developing environment

1) Download Visual Studio Code

2) Open up VSCode, download Remote SSH extension

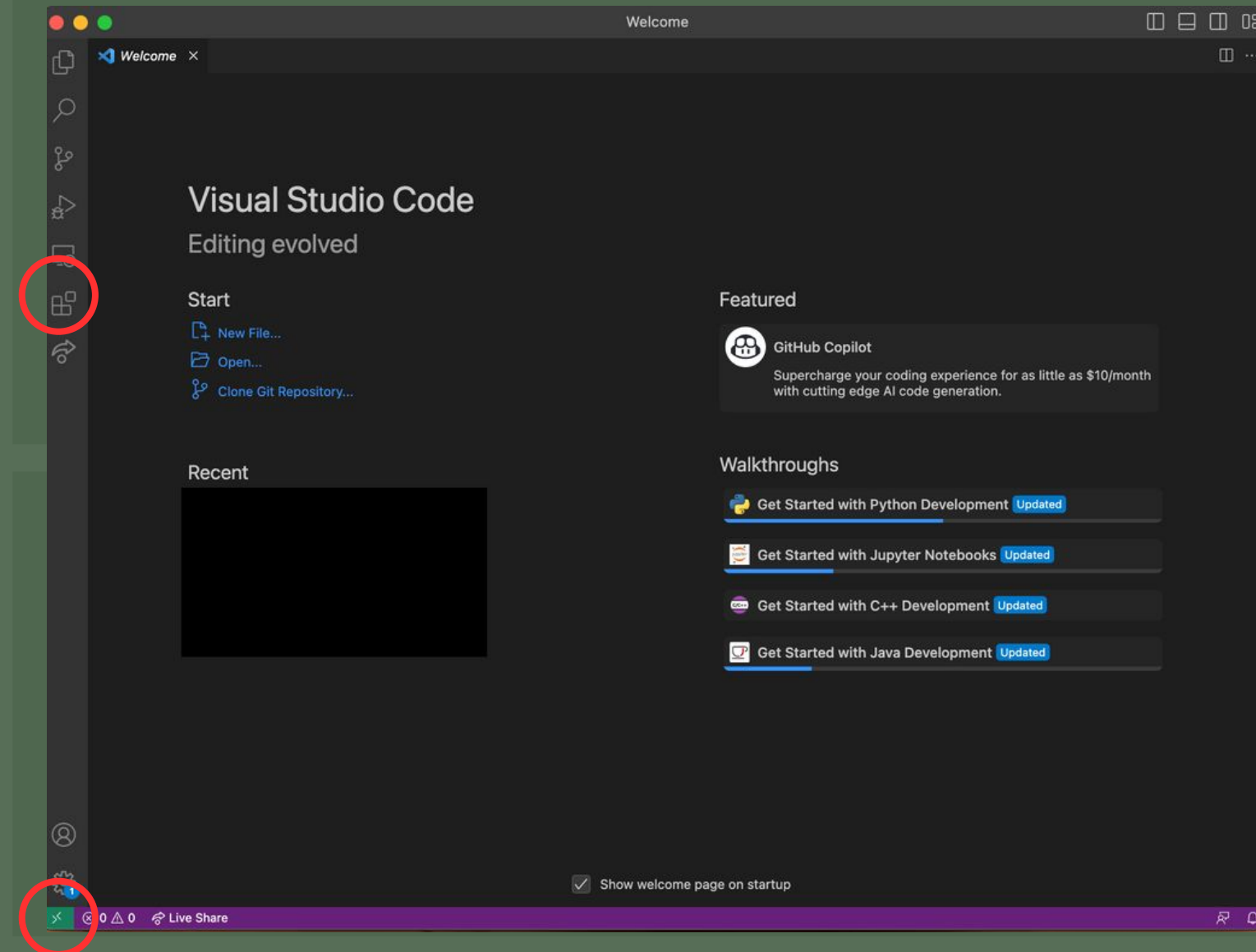
3) Click the "><" button on the bottom left corner

4) Click "Connect to Host"

5) Click "Add New SSH Host"

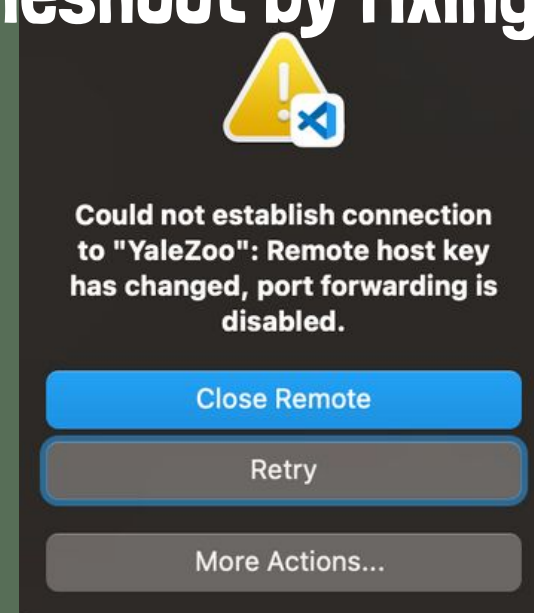
6) Enter "[netID]@node.zoo.cs.yale.edu"

7) Now when you want to go to zoo, you can just click on this button and press the zoo



# TROUBLESHOOTING ZOO

- Sometimes the zoo is buggy, you can go to the zoo website to see if there are specific computer nodes that are unavailable/buggy
- When in doubt, try again (sometimes doing it 4 times lets you in)
- If you see this pop up, or see the "WARNING REMOTE HOST IDENTIFICATION HAS CHANGED" error in the output, troubleshoot by fixing the known\_host issue (next slide)





# HOST KEY TROUBLESHOOTING

1) When you see the pop up, click More Actions

2) Go to the "Output" tab and scroll to find where it tells you the correct host key is:

```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@   WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!   @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
IT IS POSSIBLE THAT SOMEONE IS DOING SOMETHING NASTY!
Someone could be eavesdropping on you right now (man-in-the-middle attack)!
It is also possible that a host key has just been changed.
The fingerprint for the ED25519 key sent by the remote host is
```

3) Copy the long key, it's going to be something like a long string of letters and numbers

4) Open the terminal application

5) enter "cd .ssh"

6) enter "vim known\_hosts" (Vim Commands Cheat Sheet)

7) enter "i" – you can now make edits to the file

8) Navigate to where it has long key fingerprints, and replace whatever is already written with the copied key

9) Once done, press "esc" then enter ":wq" to save the changes and exit

## HELPFUL LINKS

- **Zoo Info by Prof. Aspnes**
- **Reference this doc for Unix on Windows**
  - **Helpful video: 1**
- **Unix tutorial for beginners**

## WHEN YOU RUN INTO ZOO PROBLEMS

- **Go to the zoo website and submit a support ticket!**
- **They are usually very fast about getting back to you**

## FOR HELP

- **Post on ED, fastest way to get questions answered!**