Intro to MEDS Computational Servers

BREN COMPUTE TEAM:
BRAD, KAT, CUDDY, GARRETT

OFFICE HOURS:
TUESDAY & FRIDAY FROM 2:30-3:30PM (ZOOM: HTTPS://UCSB.ZOOM.US/J/84743497043)

CONTACT:

#COMPUTE IN MEDS SLACK OR EMAIL COMPUTE@BREN.UCSB.EDU

Getting Help

Email: compute@bren.ucsb.edu

#compute channel in Slack

Office Hours on Tuesdays & Fridays from 2:30 - 3:30 pm PST (https://ucsb.zoom.us/j/84743497043)

Bren Compute Team Knowledgebase: bren.zendesk.com

Overview

1. Learn purpose of using computational servers
2. Go over folder structure of server
3. Access file manager via CyberDuck
4. Access IDE for server via a webpage
5. Set up GitHub credentials on server account
6. Learn how to read in data from courses folder
7. Run a background job

What is a computational server?

A piece of hardware that shares a vast amount of computing resources (CPU, RAM, etc) over a network.

You can think of it as a **multiuser computer** that's more powerful and has more storage than your typical computer.

MEDS Computational Servers

We have two computational servers running Posit Workbench:

workbench-1.bren.ucsb.edu

- This server will primarily be used for courses.
- Instructors will upload data to their folder in the /courses/ folder for students to use.

workbench-2.bren.ucsb.edu

- This server will primarily be used for capstone + as a backup in case workbench-1 fails.

CPU
(central processing unit)
= each stovetop is 1 core

- Processes the data

Hard Drive (storage)
= refrigerator / cabinets

- Long term data storage

RAM
(random access memory)
= countertops

- Temporary data storage for quick access

GPU
(graphics processing unit)
= oven

- Can help accelerate data processing

Purpose of a computational server

Access larger CPU and memory footprints

Users can access resources from any device

Leverage computing resources more efficiently

Data is stored in one place where multiple users can access it (avoids redundancy)

Ensure software versions are standardized

Important for reproducibility

Server is online 24/7 – except for maintenance

So, you can leave a job running while your local computer is off

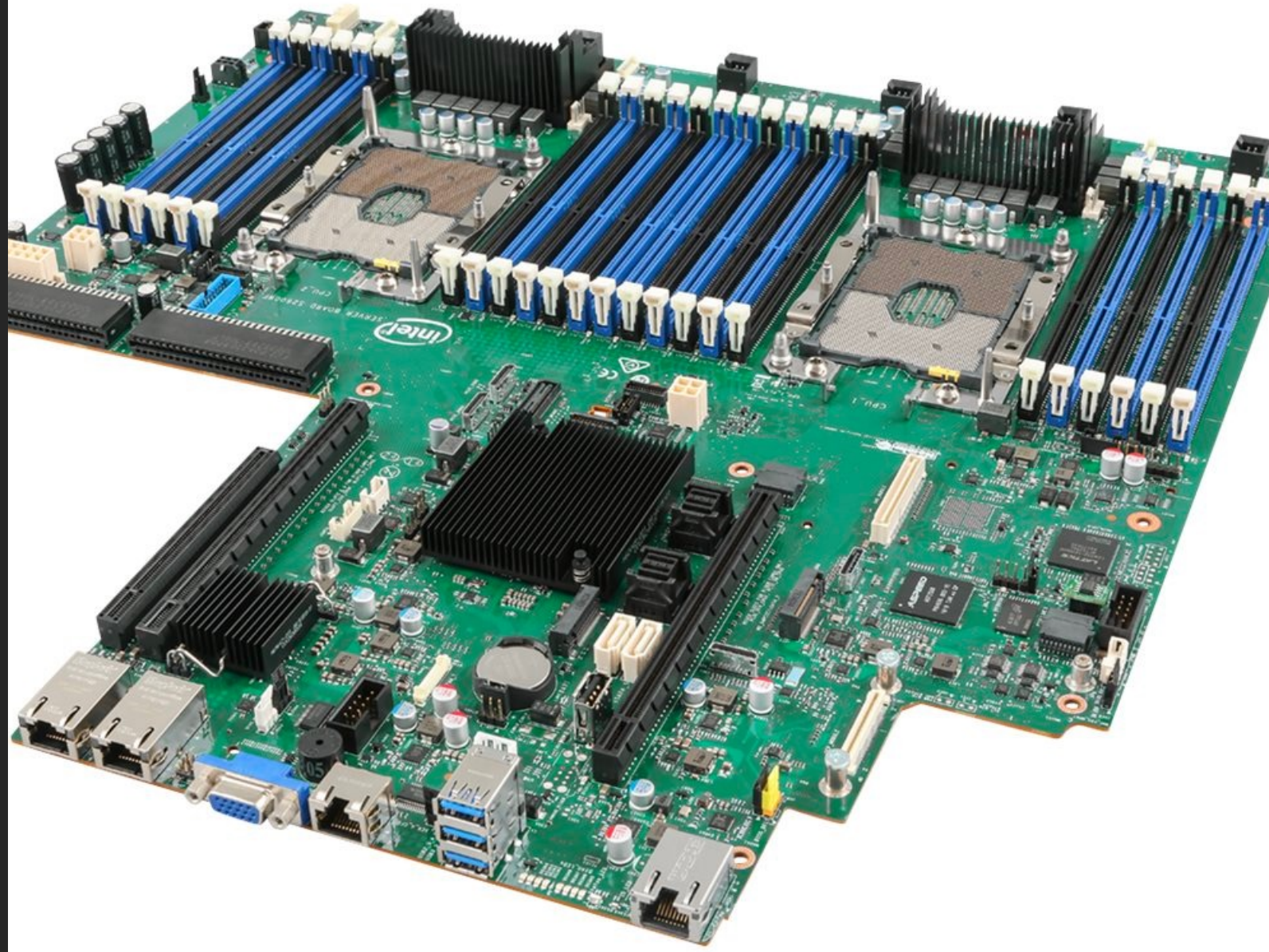
MEDS Computational Server Hardware

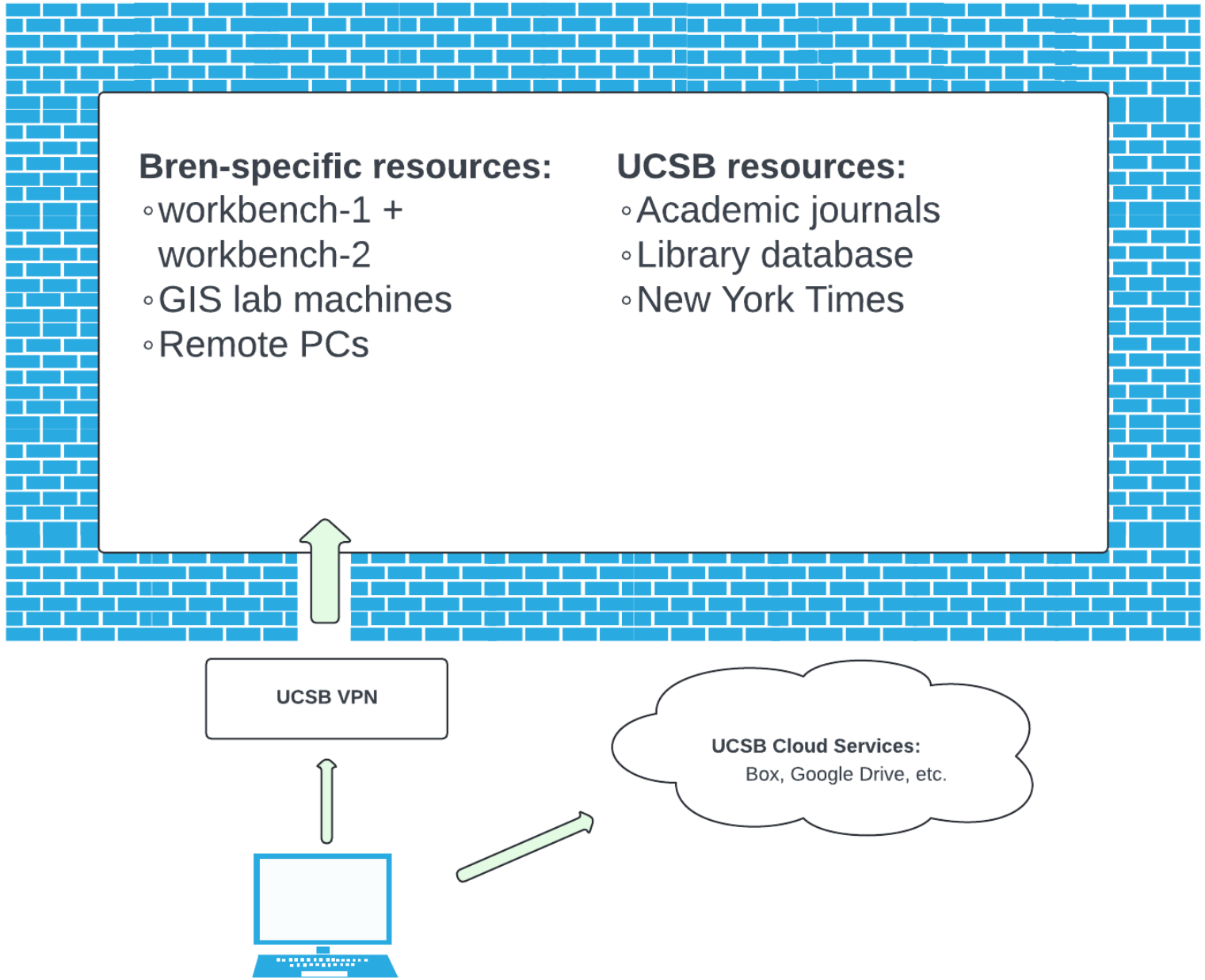
Intel 2U Server - R2312WFTZSR

System Configuration:

- Two Intel Xeon Gold 6226R 16-Core 2.9GHz Base Frequency CPUs
- 768 GB DDR4 Registered ECC RAM (24x32GB)
- Two 500GB Enterprise SATA Boot Solid State Drives (Mirrored)
- Four 7.6TB Enterprise SATA Solid State Drives (2xMirrored)

Location: Bren Hall

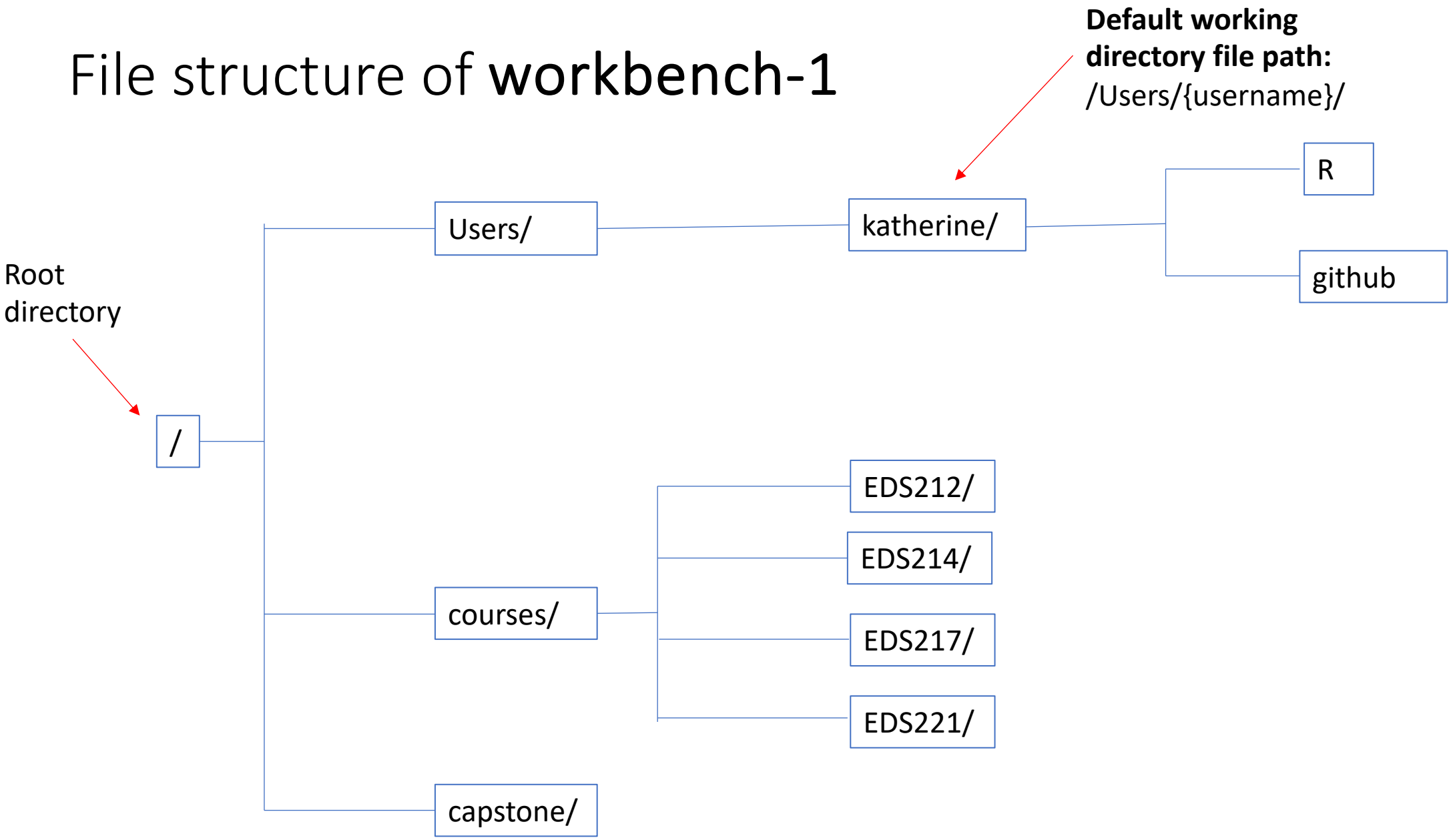




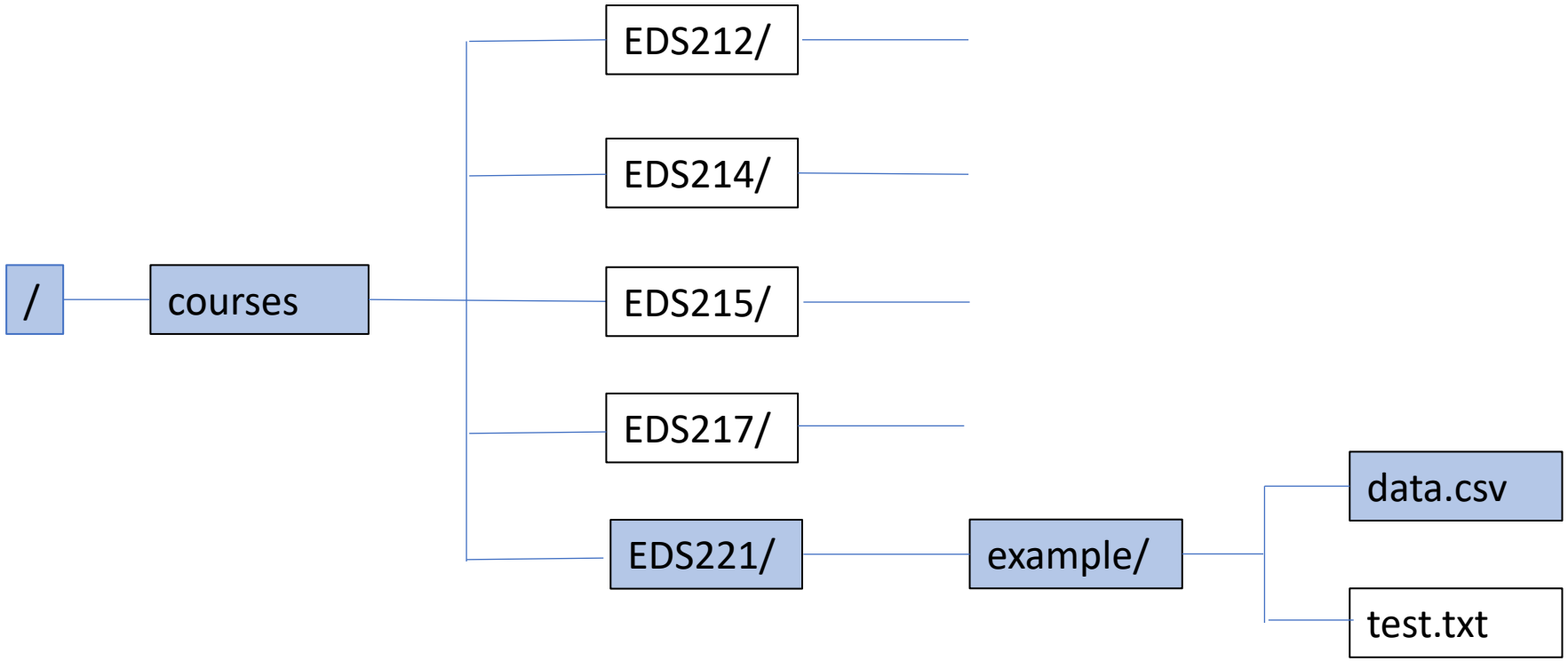
Important:

If you're off campus, you need to turn on your UCSB VPN!

File structure of **workbench-1**

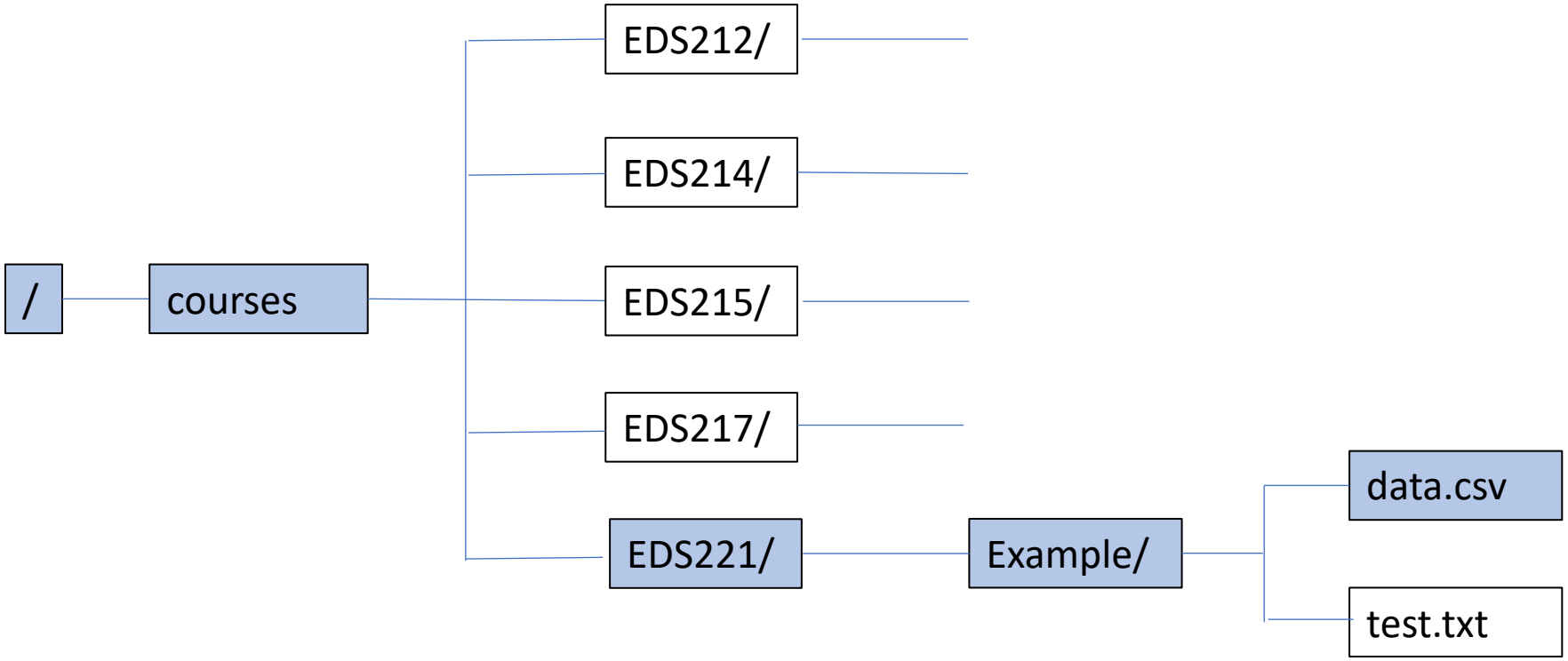


Summer courses directory on workbench-1



File Path Example: "/courses/EDS221/example/data.csv"

Summer courses directory on workbench-1




```r
library(tidyverse)
```

```r
data = read_csv("/courses/EDS221/example/data.csv")
```

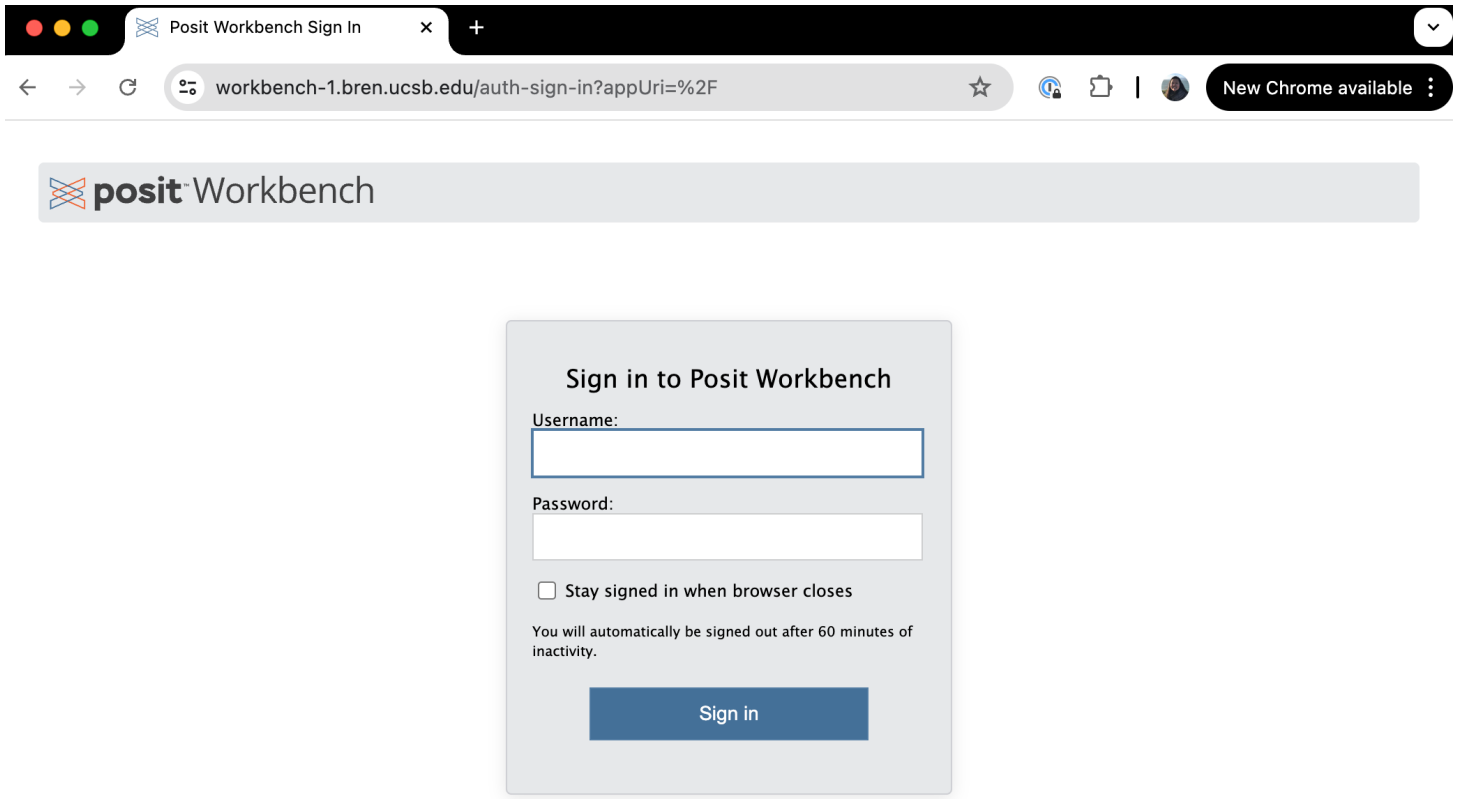
Accessing IDE via webpage (https)

Workbench-1 (primarily courses)

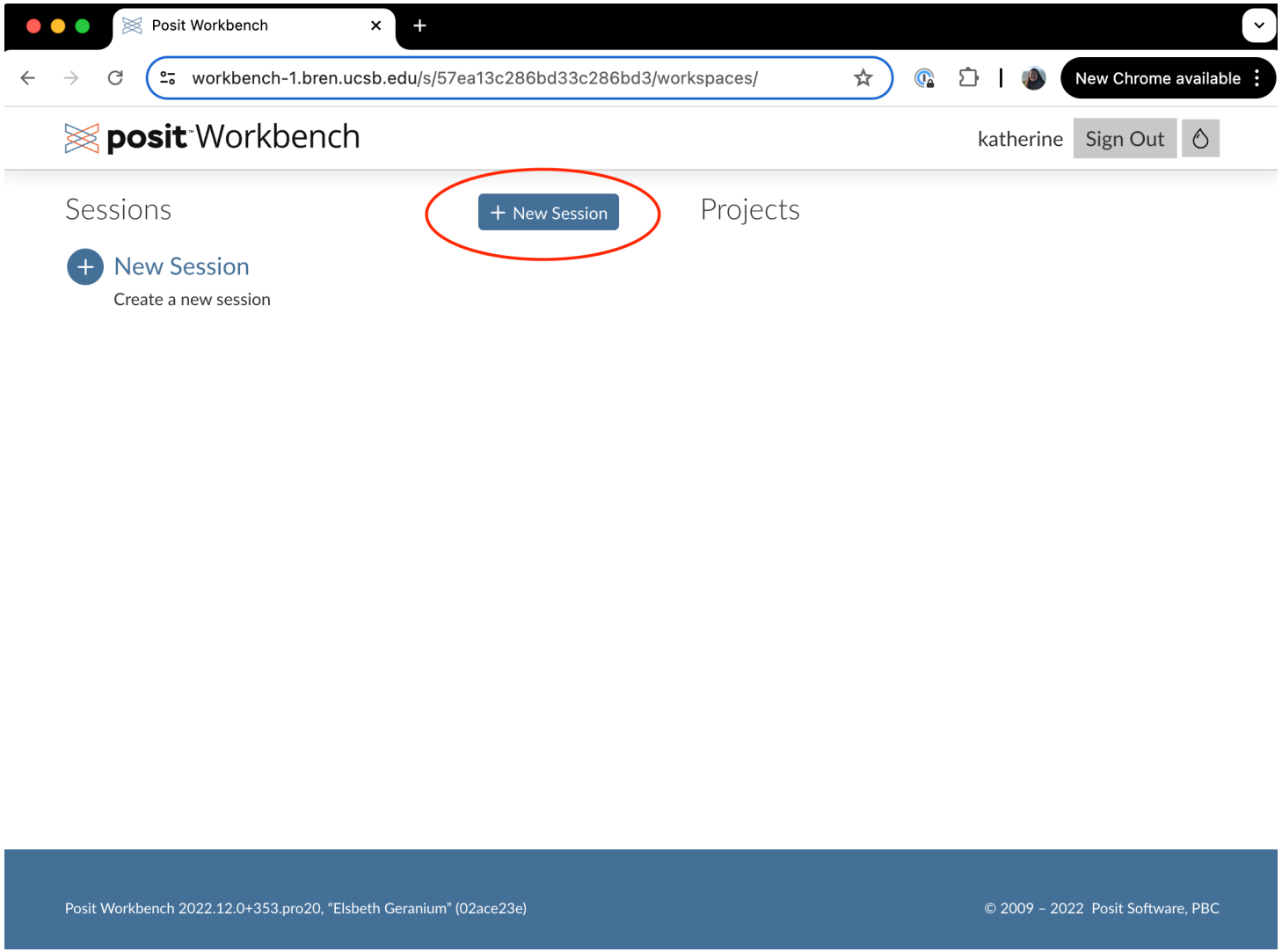
- https://workbench-1.bren.ucsb.edu/

Workbench-2 (overflow + capstone)

- https://workbench-2.bren.ucsb.edu/

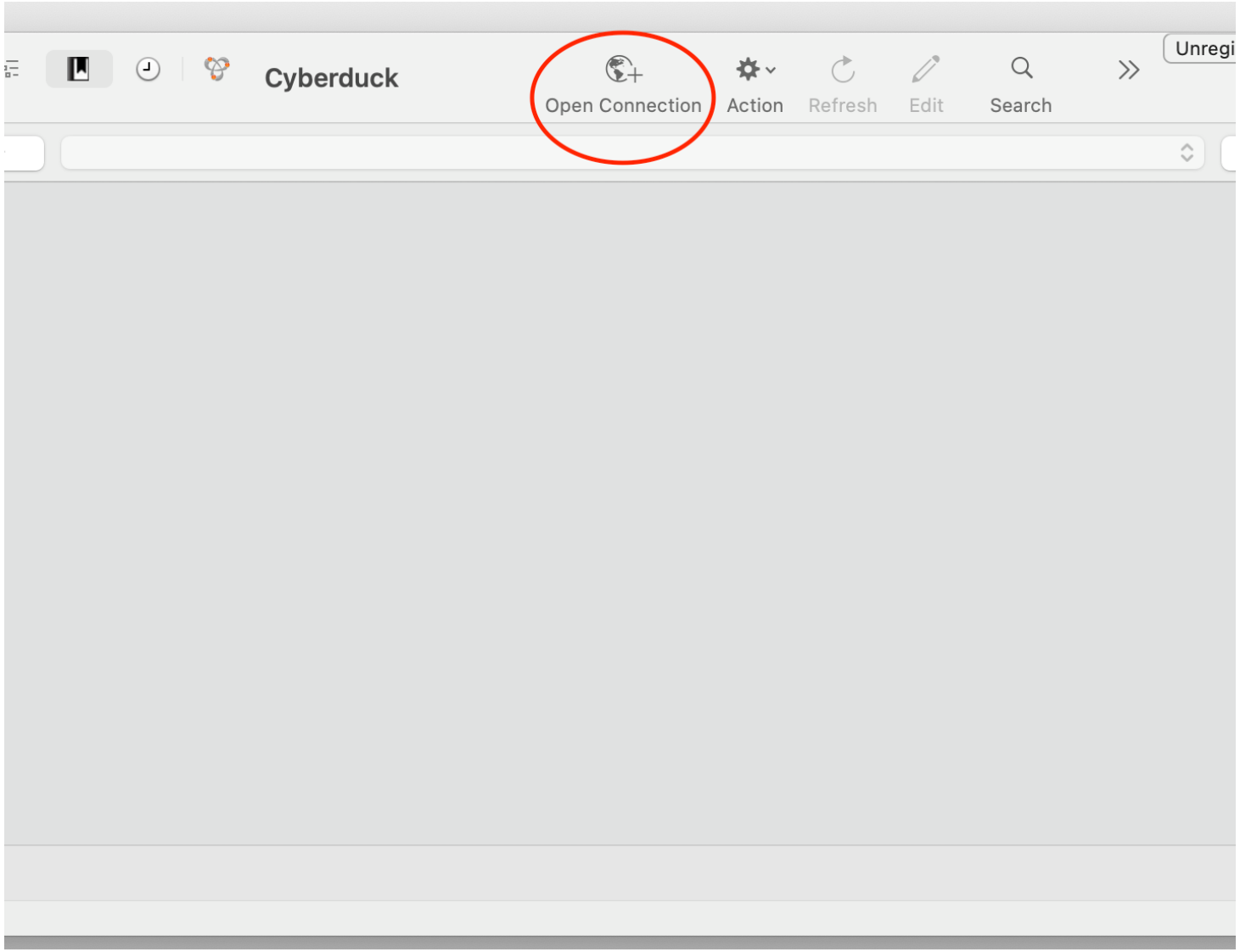


Accessing IDE via webpage (https)



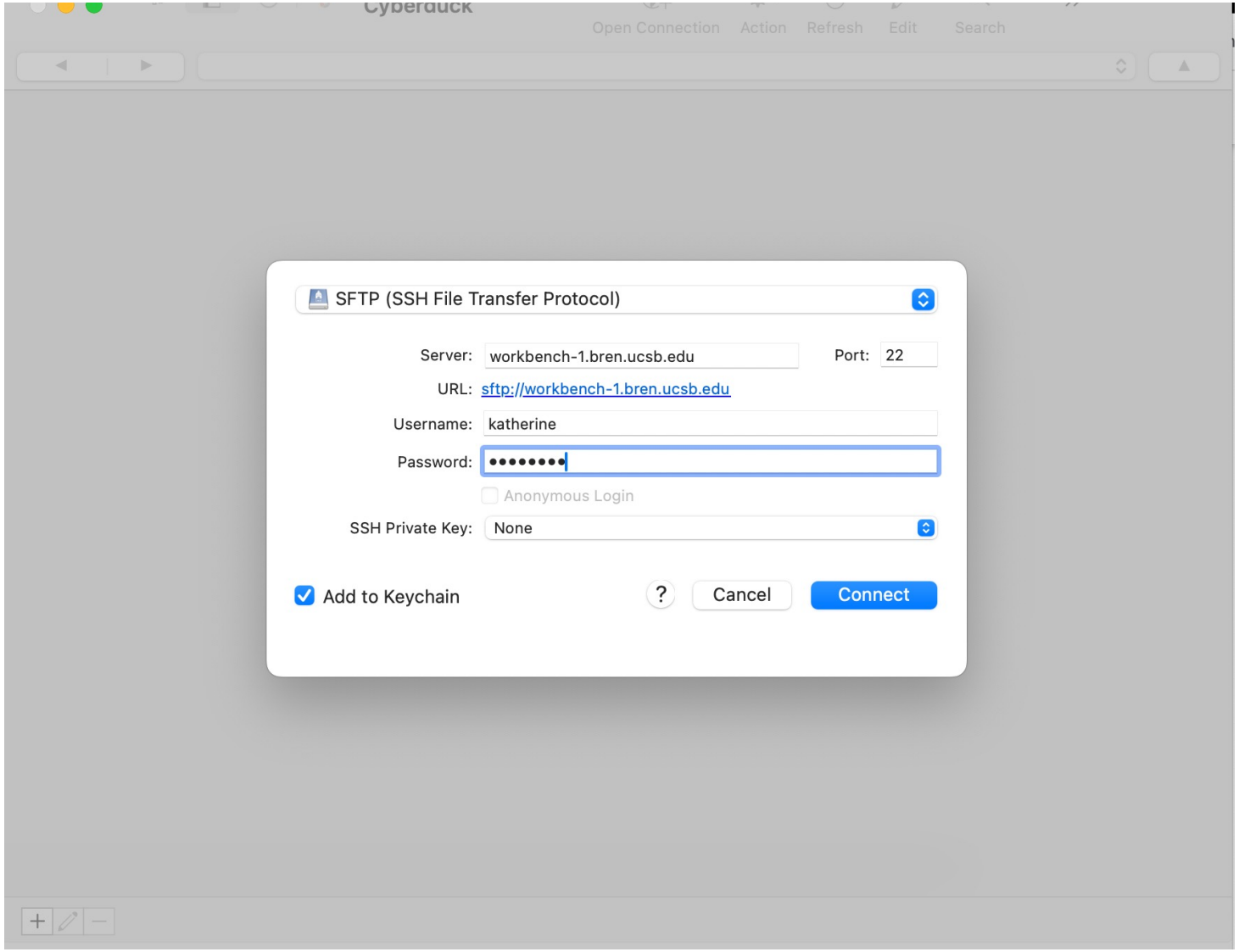
Transferring files via CyberDuck

- Download CyberDuck here if you haven't already
- Launch CyberDuck
- Select "Open Connection"



Transferring files via CyberDuck

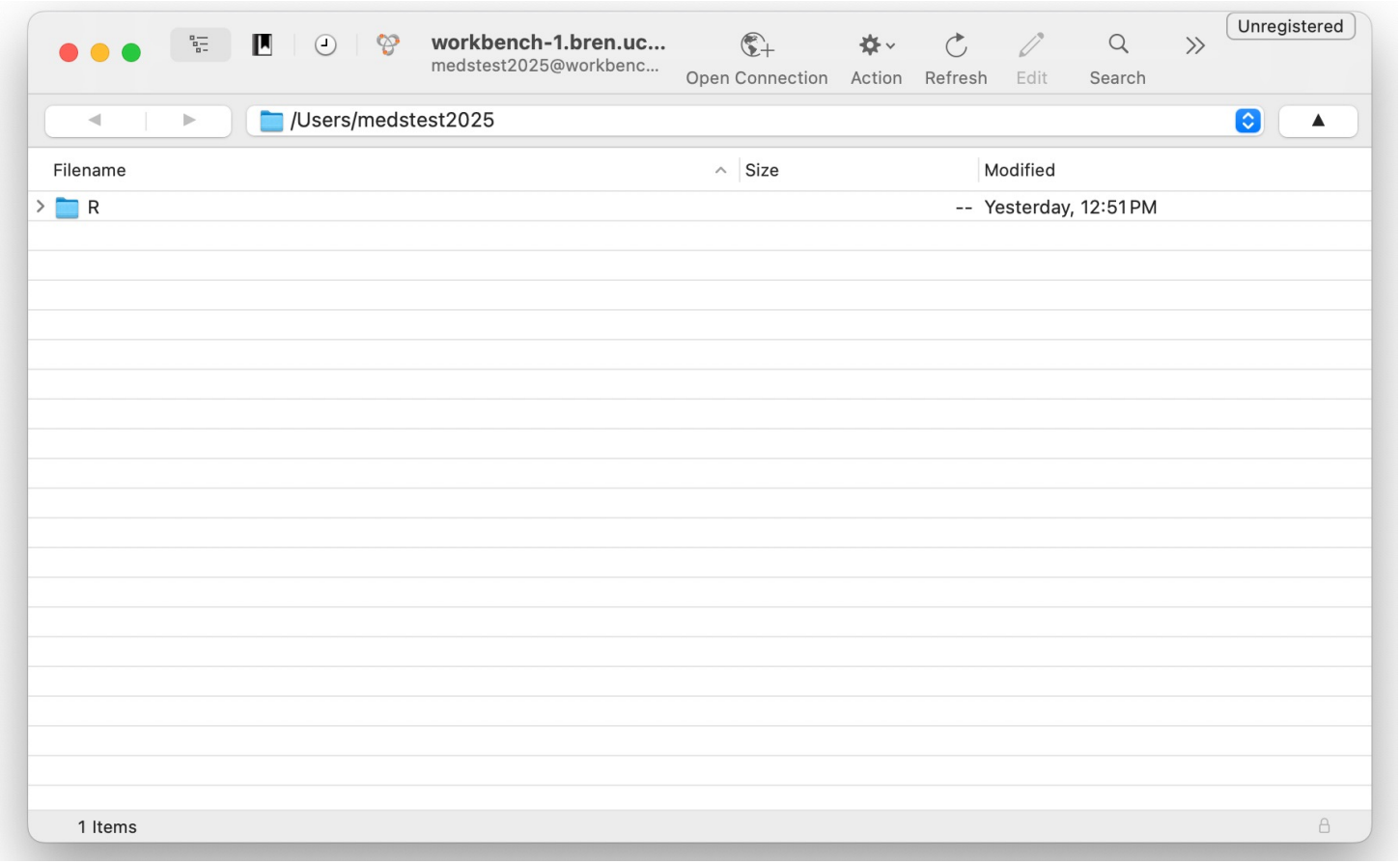
- Choose SFTP in the first field (important step!)
- Type in the server address that you want to connect to and use Port 22
- Fill out your Bren username and the password
- Select Connect



2. Transferring files via CyberDuck

Drops you into your default working directory: /Users/{username}/

This will be your “File Explorer” or “Finder” for the server.



Let’s try it out!