Welcome to 107A

Our room is absurd

Today

- **What is 107A?**
- Course Policies
- Am I enrolled in 107A? Will I be?
- Who am I?
- (if time) Some Unix Content

What is CS107A?

- A class that meets twice a week in which we will do:
  - A small warmup activity (usually incorporating an icebreaker question)
  - A short lecture on the important topics in 107 that week
  - Practice problems either as a class or in small groups

What is CS107A?

- A class that meets twice a week in which we will do:
  - A small warmup activity (usually incorporating an icebreaker question)
  - A short lecture on the important topics in 107 that week
  - Practice problems either as a class or in small groups
- An extra resource for 107 content
  - In addition to 107 Helper Hours, I hold 107A-specific office hours that are only open to you in which we can go over 107 assignments, practice problems, exams, etc
  - All 107 materials including slides and in class exercises + solutions will be posted on the 107A website
  - I will try to record the lecture portion of class, but no guarantees

What is CS107A?

- A class that meets twice a week in which we will do:
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  - A short lecture on the important topics in 107 that week
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- A community!
  - 107 is a lot of work, but it's a lot more work when you do it alone

Today

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- **Course Policies**
- Am I enrolled in 107A? Will I be?
- Who am I?
- (if time) Short Exercise / Get to know each other

Course Policies

- Attendance is mandatory at **both** sections every week!
- You have to attend all but 2 mandatory sections (mandatory = starting next week)
- You have to pass 107 in order to pass 107A
- If you have to miss class for any reason, let me know within 2 days and we can work something out
    - If you miss more than 2, I will also have to keep ACE leadership in the loop
- That's it!

Class Meeting Time

- We had an unexpected room/time shuffle late last quarter
- This time is less than ideal for many reasons
- Please fill out this form to help us decide whether to stick with it or not

https://forms.gle/FPapyfjTW4BF1L6e7

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Am I enrolled in 107A? Will I be?

- No one is enrolled yet - you need a permission number from me
- All non-grad students should receive an enrollment number by the end of the week
- All grad students should too as long as there isn't any rush of undergrads interested in the course

web.stanford.edu/class/cs107a/

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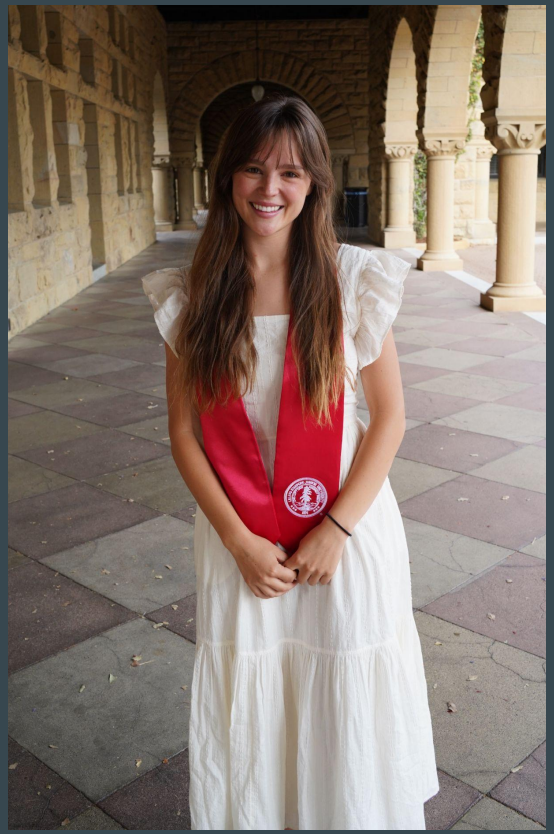
I’m Frankie, the 107A instructor



- CS undergrad (systems) + CS coterm (security)

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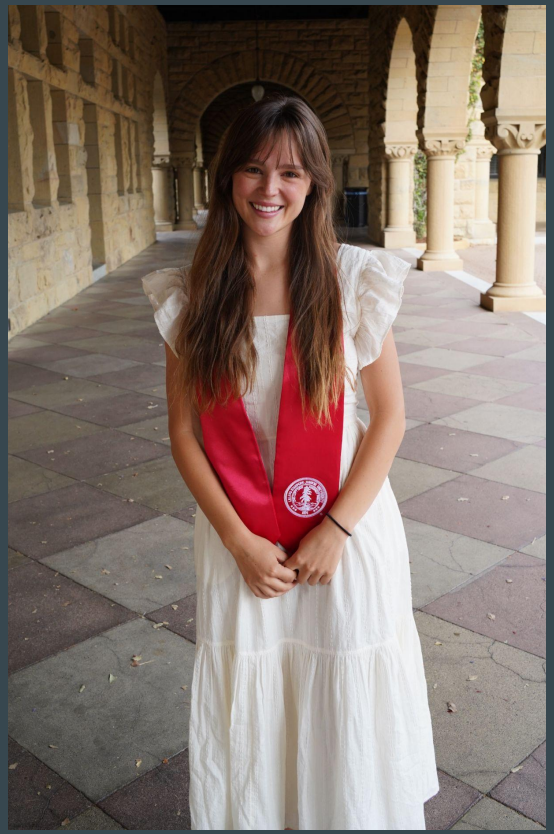

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  - CS106B section leader for 3 years
  - CS106L lecturer last year

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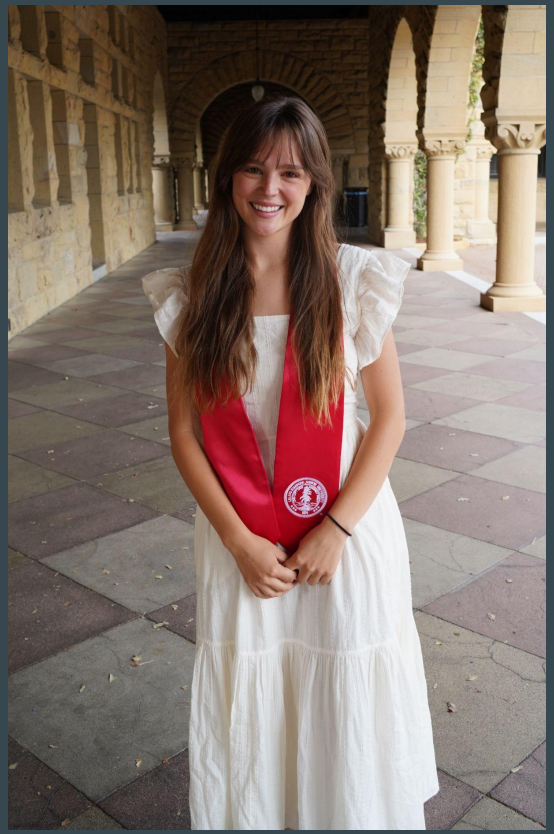

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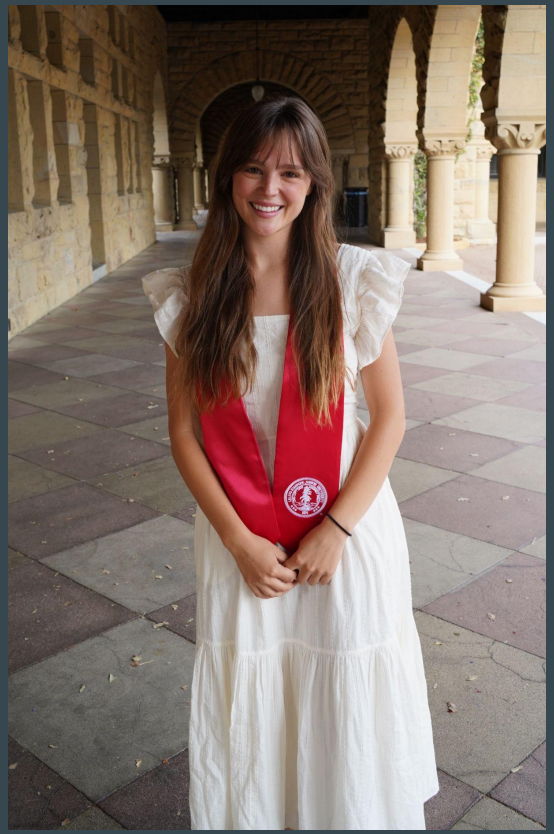

- CS undergrad (systems) + CS coterm (security)
- I love to teach! Besides 107A this year...
  - CS106B section leader for 3 years
  - CS106L lecturer last year
- I’m from Minnesota
- I love hiking, canoeing, hockey, making dinner and eating the leftovers for lunch the next day and ***in class participation***

Today

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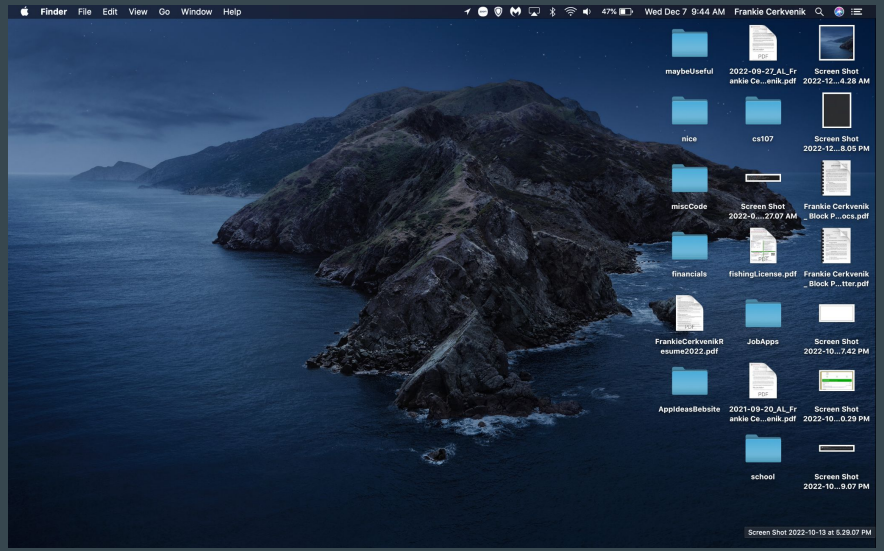
Today Part 2 (Unix)

- The command line
- Stanford's Myth machines
- Access the myth machines through ssh
- (if time) Talk about UNIX
  - Learn about file paths
  - Learn some useful commands you will use over and over!

What is the command line?

- The way you use your computer now is really nice!
  - You have a mouse, a pretty desktop, little folder icons representing where your files are
- The command line is a text-based way to use your computer
  - Which is worse in most cases, but better for running code!

```
~                          -zsh ...                          ~
➜  ~ cd Desktop
➜  Desktop ls
2021-09-20_AL_Frankie Cerkvenik.pdf
2022-09-27_AL_Frankie Cerkvenik.pdf
AppIdeasBebsite
Frankie Cerkvenik _ Block Party - Block Party CIIAA - Google Docs.pdf
Frankie Cerkvenik _ Block Party - Employee Offer Letter.pdf
FrankieCerkvenikResume2022.pdf
JobApps
Screen Shot 2022-06-22 at 11.27.07 AM.png
Screen Shot 2022-10-13 at 5.29.07 PM.png
Screen Shot 2022-10-22 at 12.30.29 PM.png
➜  Desktop
```

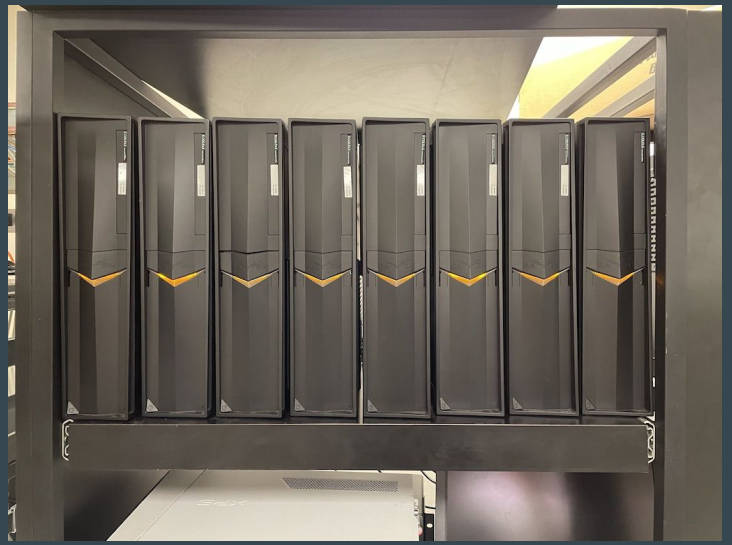


Quick Demo - Terminal app on Mac

What are the Myth machines?

- Computers in Gates basement! Room B08
- That you have access to :)
- And we will be using in this class to run all of our code

The Myth machines ->



ty Andrew Benson's slides for the pic

UNIX and Linux

- UNIX and Linux are both operating systems - programs that run on every computer to define its basic functionality (Macs run MacOS!)
- The Myth machines use **Linux**, which was inspired by UNIX, so you might hear those terms interchangeably
- Operating systems define a set of commands that we can use from the command line (like `cd` and `ls`)
- In addition to using these commands, you will be implementing several of them throughout this quarter! **You** will become the OS-architect

How do I connect to the myth machines? `ssh`

- You don't have to go all the way to Gates to use these computers
- You can connect to them via the internet using a program called `ssh` ("Secure Shell") that we run from the command line
- To connect to your "account" on the myth machines, run

```
ssh <your_SUNetID>@myth.stanford.edu
```

- It should ask for you password, enter it (the cursor won't move, just keep typing)

Quick Demo - Myth

The two most important UNIX commands + one more

- **`ls [PATH]`**
  - Means “list” - it will list out all the files and folders in the specified directory
  - You can run just **`ls`** and it will list all the files in the current directory
  - Or run **`ls PATH`** and it will list all the files in the directory given by **`PATH`**
- **`cd PATH`**
  - Means “change directory”,
  - It will move you from your current directory into the one given by **`PATH`**
- **`mkdir [PATH/]name`**
  - Means “make directory”
  - Will make a folder called name in the path given by **`PATH`**, or in the current directory if none is given

File Paths

- When we say "**directory**", think folder - its a file with other files in it!
- A **file path** specifies an exact route to a specific file or directory
  - **`~/Desktop/example_file.txt`** says that in the **`~`** directory, there is a folder called `Desktop`, which has a file called `example_file.txt` in it
- File paths can be **relative** or **absolute**
- Absolute paths start with special directory names, either **`~`** or **`/`**
  - **`~`** is the home directory, where you usually start in myth, **`/`** is the root directory
- Relative paths specify paths within the current directory you are in
  - **`Desktop/example_file.txt`** is a relative path. If we are currently in **`~`**, it would refer to **`~/Desktop/example_file.txt`**. If we were currently in **`~/Documents`**, it would refer to **`~/Documents/Desktop/example_file.txt`**
- Special relative paths: **`.`** means "current directory" and **`..`** means "parent directory"

Demo - make your 107A folder

Demo - draw Frankie’s file tree

Exercise:

```
cp -r /afs/ir/class/cs107a/WWW/lecture_code/wk1_1 .
```

Exercise - groups of 5ish

1. Go around in a circle and introduce yourselves and say where you live. For each member of your group, create a textfile called THEIR_NAME.txt in the appropriate subdirectory of the `campus` directory

   Example: if Frankie lives in McFarland, create
   `CS107A/wk1_1/campus/east_campus/frankie.txt`

2. Challenge: if two people live in the same dorm, create a subdirectory on the appropriate place titled dorm_name and move their textfiles into that directory.

   Example: if Frankie and Jerry live in Wilbur, move
   `CS107A/wk1_1/campus/east_campus/frankie.txt` and
   `CS107A/wk1_1/campus/east_campus/jerry.txt` to
   `CS107A/wk1_1/campus/east_campus/wilbur`

Command-line quick-reference

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- `cd PATH`
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- `mkdir [PATH/]name`
  - Means “make directory”
  - Will make a folder called name in the path given by `PATH`, or in the current directory if none is given
- `touch [PATH/]name`
  - Will make a **file** called name in the path given by `PATH`, or in the current directory if none is given
- `cp [-r] PATH_SRC PATH_DEST`
  - Means “copy”
  - Will copy the file specified by `PATH_SRC`, or everything in the directory specified by `PATH_SRC` if -r to the folder specified by `PATH_DEST`

Recap

- To pass 107A: attend class + pass 107
- Fill out OH + Class Time form!
- In 107, we do all our work on the Myth machines
- You can remotely log into the Myth machines using `ssh SUNET@myth.stanford.edu` in terminal
- Since we can only access the Myth machines through terminal, you will have to learn how to navigate using the command line
- `cd, ls, mkdir, emacs` are all commands you should get comfortable with!