Accessing and Using CAEN

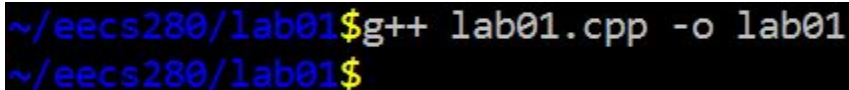# Computer Aided Engineering Network (CAEN)

- CoE's computing resources
  - i.e., remote computers you can borrow
- Establish connection to computer through CLI
  - You can't plug a monitor into these servers from your bedroom
- Why use CAEN
  - Faster (much faster)
  - It's similar to the Autograder environment (MacOS and Window are NOT; this causes   )
  - More secure
  - You won't lose your files if you lose you computer
  - We'll ask you if you're using CAEN first in OH
- CAEN is great obviously but how do we get there?

Command Line Interface (CLI)

- Interface for a computer without a GUI (graphical user interface)
    - Think without moving your mouse and clicking

`Max@DESKTOP-U2OIF15:~$`

- Run programs by from a prompt:
    - Calling their name
    - Providing them arguments
    - Example: g++ [flags] [arg1] [arg2] ...
- Everything you know how to do on your computer can be done on the CLI
    - (maybe not photo editing - easily)
    - *project 2

`~/eecs280/lab01$g++ lab01.cpp -o lab01`
`~/eecs280/lab01$`

    - If you need a GUI for CAEN look into VNC (see quick reference docs on the drive)

How do you open your CLI?

- MacOS
  - Search 'Terminal' in spotlight, and run it
- Windows
  - Currently support is in beta on the latest version
  - If you're up-to-date: search 'bash,' and run it
  - Temporary options will be explained in the next slide
- Linux
  - Open your terminal
  - ...
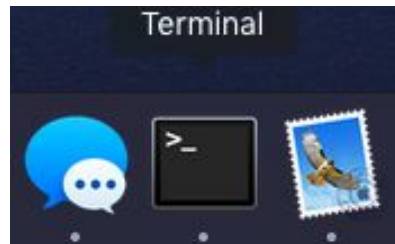
Secure SHell (SSH)

- Program to connect to remote computers
- CAEN is found at: **login.engin.umich.edu**
- Run in the command line:

  - ssh [USERNAME@]IP

    ```
    Max@DESKTOP-U2OIF15:~$ ssh mxsmith@login.engin.umich.edu
    ```

- For not up to date Windows users only:

  - PuTTy is a GUI that provides ssh capabilities, download here
  - Change the hostname to CAEN's IP and click open

How do you get your file there?

- SFTP with Sublime
  - See Piazza post 14
  - There are other options for SFTP, use at own risk
- SCP local_source remote_destination
  - You can download files by switching paths:
    - SCP remote_source local_destination
  - Path formatted for remote computer :
    - IP:PATH_TO_FILE
  - (No go on PuTTy)
- MFILE (http://mfile.umich.edu/)
  - Just upload and download via an old website
  - Very slow. Please only use this as a temporary solution to get started
  - Using one of the other options will save you TONS of time in the long term