Lab 1: 9/7/23 - Anand Srinivasan Darwin Do

In order to enable ssh:

- “sudo raspi-config”
- Go to interface options, shh, enable shh

Enable SSH Keys on pi:

- https://pimylifeup.com/raspberry-pi-ssh-keys/
- Used ssh-keygen to generate a pair of public/private keys on our personal computer
- Manually moved the public key contents to the authorized_keys file in ~/.ssh

Generate an SSH key for use with GitHub so you don't need to enter your creds to pull/push [see GitHub docs below] and add to your GitHub keys.

- Use ssh-keygen to create ssh key (do not give key a password)
- Paste key into github (via settings, ssh and gpg keys)
- **NOTE:** We had to set up our git username/email addresses in the global git config to be able to push correctly with our keys

Bash script to update ip address and push to git:

```
#!/bin/bash

cd /home/student334/cpsc334/raspberrypi

hostname -I > ip.md

git add ip.md
git commit -m "update ip"
git push
```

Bash Script Takeways:

- We first accidentally used the “append” (>>) command instead of a standard redirect causing our IP addresses to pile up in the text file.

Call script in /etc/rc.local

- Because we had extra time, we decided to experiment with running our script on boot
- We tried putting an invocation of our script into /etc/rc.local
- To access: sudo nano /etc/rc.local
- But this caused weird permission issues as the system runs commands in /etc/rc.local as root

Lab 2: 9/14/23 - Anand Srinivasan Darwin Do

Manual SCP from Pi -> laptop:

- Finding the IP address of Darwin's laptop with `ifconfig` was really easy as he only had 2 network interface cards on his laptop. Anand's Macbook contained 10+ NICs and we had to manually look through them until we found something that looked right.
- We both had to enable ssh on our laptops
    - Darwin: Enabled sshd daemon with `systemctl enable sshd`
    - Anand: Enabled SSH in Mac settings
- We had to copy the Pi's public SSH key generated in the last lab to our laptop's authorized_keys file
- Steps for sending files from Pi to Laptop using SCP:
    - Find IP of laptop and host username to send file to
    - Ensure that the Pi's public SSH key is in host's authorized_keys
    - Use SCP to copy file over
        - Syntax: `scp file_name host_username@hostip:<path_to_write_file>`
    - To automatically perform this task, the above command can be written in a bash file and regularly scheduled with cron or some other timer service

Bash script to copy ip.md -> laptop takeaways:

- We used https://crontab.guru/ to "read" our cron schedule before testing

Disabling 10-minute push cycle:

- We weren't a fan the 10-minute push workflow because this requires hardcoding the IP of your development device into the Pi script which can be unstable. We prefer the method of pushing the Pi's IP address to Github on boot as all that requires is for the Pi to have a working internet connection on boot

Darwin's Update fiasco:

- In an attempt to install a newer version of vim on the Pi, Darwin ran a `sudo apt-get full-upgrade` to fully upgrade his system. Upon reboot, his networking drivers failed to load the wlan0 interface and no amount of network service tweaking could bring it back. The decision was made to fully re-image the Pi which was done on a later date.