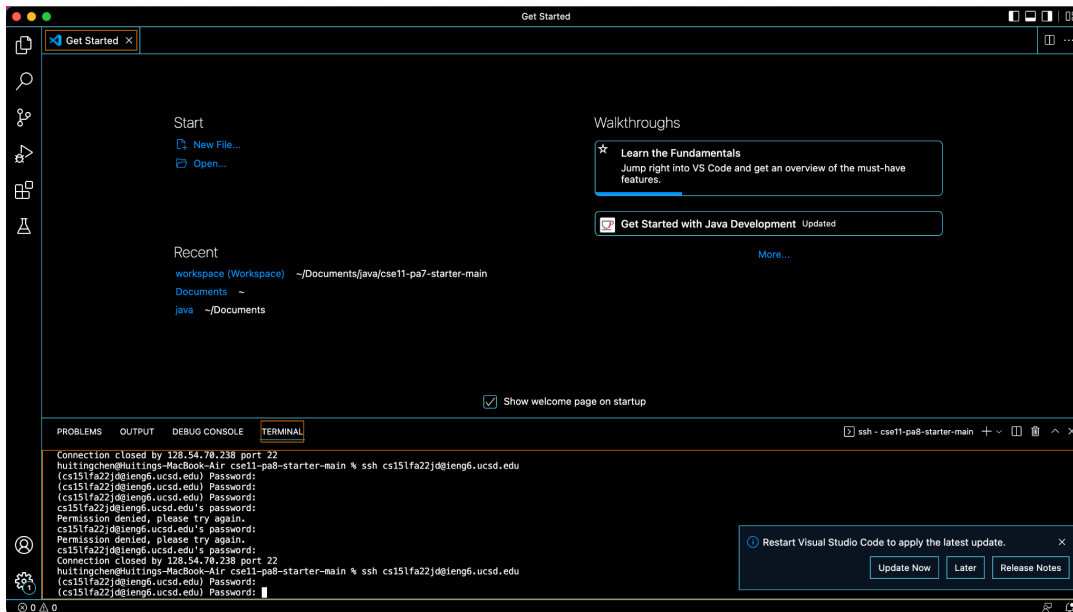


Week1 Lab Report

Install VScode



I have already installed my VScode in my previous CSE class. This is a screenshot of my VScode.

Remotely Connecting

```
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22ta10@ieng6.ucsd.edu
(cs15lfa22ta10@ieng6.ucsd.edu) Password:
Last failed login: Thu Sep 29 09:37:35 PDT 2022 from its-cseb260-35.ucsd.edu on ssh:notty
There were 5 failed login attempts since the last successful login.
Last login: Thu Sep 29 08:52:03 2022 from its-cseb260-35.ucsd.edu
Hello cs15lfa22ta10, you are currently logged into ieng6-203.ucsd.edu

You are using 0% CPU on this system

Cluster Status
Hostname    Time    #Users  Load  Averages
ieng6-201   11:00:01  19  0.02, 0.07, 0.12
ieng6-202   11:00:01  16  0.00, 0.05, 0.05
ieng6-203   11:00:01  18  0.13, 0.19, 0.14

Thu Sep 29, 2022 11:00am - Prepping cs15lfa22
[cs15lfa22ta10@ieng6-203]:~:37$
```

I failed to log in to my own account, so I use another one. I successfully connected to a remote computer by typing “ssh cs15lfa22ta10@ieng6.ucsd.edu” in the terminal.

Trying Some Comments

```
Thu Sep 29, 2022 11:00am - Prepping cs15lfa22
[cs15lfa22ta10@ieng6-203]::~37$ cd
[cs15lfa22ta10@ieng6-203]::~38$ cd
[cs15lfa22ta10@ieng6-203]::~38$ pwd
/home/linux/ieng6/cs15lfa22/cs15lfa22ta10
[cs15lfa22ta10@ieng6-203]::~39$ ls
hello.txt newDir perl5
[cs15lfa22ta10@ieng6-203]::~40$ cd /home/linux/ieng6/cs15lfa22/cs15la22ta10
-bash: cd: /home/linux/ieng6/cs15lfa22/cs15la22ta10: No such file or directory
[cs15lfa22ta10@ieng6-203]::~41$ cat hello.txt
Hi! Welcome to CSE15L Fall 22
[cs15lfa22ta10@ieng6-203]::~42$ cp
cp: missing file operand
Try 'cp --help' for more information.
[cs15lfa22ta10@ieng6-203]::~43$ cp hello.txt
cp: missing destination file operand after 'hello.txt'
Try 'cp --help' for more information.
[cs15lfa22ta10@ieng6-203]::~44$ mkdir
mkdir: missing operand
Try 'mkdir --help' for more information.
[cs15lfa22ta10@ieng6-203]::~45$ mkdir -
[cs15lfa22ta10@ieng6-203]::~46$
```

[illegible]

```

cs151fa22ba cs151fa22ck cs151fa22de cs151fa22ee cs151fa22fg cs151fa22gm cs151fa22ll cs151fa22ha cs151fa22ih cs151fa22no cs151fa22nv cs151fa22pc cs151fa22q cs151fa22zz
cs151fa22be cs151fa22cl cs151fa22ds cs151fa22ee cs151fa22gg cs151fa22hb cs151fa22iu cs151fa22m cs151fa22nb cs151fa22nd cs151fa22pd cs151fa22qg public
cs151fa22bf cs151fa22cm cs151fa22et cs151fa22fa cs151fa22gh cs151fa22ho cs151fa22iv cs151fa22kc cs151fa22mq cs151fa22nx cs151fa22pe cs151fa22ql
[cs151fa22ta]@leng6-203:~$ ls -la
[cs151fa22ta]@leng6-203:~$ ls -l
-rw-r--r-- 1 cs151fa22ta0 leng6_cs151fa22 311 Sep 20 11:15 WhereAmI.java
-rwxr-xr-x 0 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 11:19
-rw-r--r-- 1 cs151fa22ta0 leng6_cs151fa22 810 Sep 20 11:18 .bash_history
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 30 Sep 20 11:15 hello.txt
-rwxr-xr-x 2 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 11:13
-rw-r--r-- 1 cs151fa22ta0 leng6_cs151fa22 1349 Sep 20 11:12 .modulesbegenv
-rwxr-xr-x 463 cs151fa22 leng6_cs151fa22 36804 Sep 20 08:06
-rwxr-xr-x 2 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:52 .ssh
-rwxr-xr-x 2 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:46 newDir
-rwxr-xr-x 3 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:45 perl5
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 0 Sep 20 15:29 .notd
-rwxr-xr-x 3 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:29 .local
-rwxr-xr-x 3 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:29 .config
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:29 .cache
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 200 Sep 21 14:47 .zshrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 401 Sep 21 14:47 .zshenv
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1931 Sep 21 14:47 .zprofile
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1961 Sep 21 14:47 .profile
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 837 Sep 21 14:47 .procmailrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 433 Sep 21 14:47 .login
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 155 Sep 21 14:47 .locallogin
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1692 Sep 21 14:47 .kshrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1931 Sep 21 14:47 .cshrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1721 Sep 21 14:47 .bashrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 975 Sep 21 14:47 .bash_profile
[cs151fa22ta]@leng6-203:~$ cd
~
~$ ls -la
-rw-r--r-- 1 cs151fa22ta0 leng6_cs151fa22 311 Sep 20 11:15 WhereAmI.java
-rwxr-xr-x 0 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 11:19
-rw-r--r-- 1 cs151fa22ta0 leng6_cs151fa22 810 Sep 20 11:18 .bash_history
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 30 Sep 20 11:15 hello.txt
-rwxr-xr-x 2 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 11:13
-rw-r--r-- 1 cs151fa22ta0 leng6_cs151fa22 1349 Sep 20 11:12 .modulesbegenv
-rwxr-xr-x 463 cs151fa22 leng6_cs151fa22 36804 Sep 20 08:06
-rwxr-xr-x 2 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:52 .ssh
-rwxr-xr-x 2 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:46 newDir
-rwxr-xr-x 3 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:45 perl5
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 0 Sep 20 15:29 .notd
-rwxr-xr-x 3 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:29 .local
-rwxr-xr-x 3 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:29 .config
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 4096 Sep 20 15:29 .cache
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 200 Sep 21 14:47 .zshrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 401 Sep 21 14:47 .zshenv
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1931 Sep 21 14:47 .zprofile
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1961 Sep 21 14:47 .profile
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 837 Sep 21 14:47 .procmailrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 433 Sep 21 14:47 .login
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 155 Sep 21 14:47 .locallogin
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1692 Sep 21 14:47 .kshrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1931 Sep 21 14:47 .cshrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 1721 Sep 21 14:47 .bashrc
-rwxr-xr-x 1 cs151fa22ta0 leng6_cs151fa22 975 Sep 21 14:47 .bash_profile
[cs151fa22ta]@leng6-203:~$ cd /
/
/ $ ls -la
drwxr-xr-x 1 root root 4096 Sep 20 11:15 .
drwxr-xr-x 1 root root 4096 Sep 20 11:15 ..
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .bash_history
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .bash_logout
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .bash_profile
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .bashrc
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .cshrc
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .kshrc
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .local
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .locallogin
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .login
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .modulesbegenv
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .notd
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .procmailrc
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .profile
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .zprofile
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .zshrc
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 .zshenv
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 WhereAmI.java
-rwxr-xr-x 1 root root 4096 Sep 20 11:15 newDir

```

```

huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % pwd
/Users/huitingchen/Documents/java/cse11-pa8-starter-main
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ls
CompareLists.java      HelloWorld.java         RandomWord.java       lib
HelloGoodbye.java      Percolation.java       algs4.jar             person.java
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % cd
huitingchen@Huitings-MacBook-Air ~ % % ls
Applications  Desktop      Documents    Downloads    Library      Movies       Music        Pictures     Public
huitingchen@Huitings-MacBook-Air ~ % % pwd
/Users/huitingchen
huitingchen@Huitings-MacBook-Air ~ % % mkdir
usage: mkdir [-pv] [-m mode] directory ...
huitingchen@Huitings-MacBook-Air ~ % % cp
usage: cp [-R [-H] [-L] [-P]] [-fi] [-n] [-apvXc] source_file target_file
cp [-R [-H] [-L] [-P]] [-fi] [-n] [-apvXc] source_file ... target_directory
huitingchen@Huitings-MacBook-Air ~ % % cd User
cd: no such file or directory: User
huitingchen@Huitings-MacBook-Air ~ % % cd Documents
huitingchen@Huitings-MacBook-Air Documents % % cd java/cse11-pa8-starter-main
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % % cp
usage: cp [-R [-H] [-L] [-P]] [-fi] [-n] [-apvXc] source_file target_file
cp [-R [-H] [-L] [-P]] [-fi] [-n] [-apvXc] source_file ... target_directory
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % % mkdir
usage: mkdir [-pv] [-m mode] directory ...
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main %

```

I used the pwd command to check the current directory in the remote computer and the ls command to see all the files exist. Then I used the cd command to get the home directory and see what files each directory contains. I also tried these commands on my own computer and found that the command ran in the remote computer shows the files in the remote computer while the command ran in my computer shows the files in my computer.

Moving Files With SCP

```

huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % scp WhereAmI.java cs15lfa22ta10@ieng6.ucsd.edu:~/
(cs15lfa22ta10@ieng6.ucsd.edu) Password:
WhereAmI.java
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22ta10@ieng6.ucsd.edu
(cs15lfa22ta10@ieng6.ucsd.edu) Password:
Last login: Thu Sep 29 11:41:13 2022 from 69.196.40.172
Hello cs15lfa22ta10, you are currently logged into ieng6-203.ucsd.edu

You are using 0% CPU on this system

Cluster Status
Hostname    Time      #Users  Load  Averages
ieng6-201   11:45:01   14  0.00,  0.04,  0.10
ieng6-202   11:45:01    7  0.06,  0.06,  0.07
ieng6-203   11:45:01   18  0.02,  0.07,  0.12

Thu Sep 29, 2022 11:48am - Prepping cs15lfa22
[cs15lfa22ta10@ieng6-203]:~:131$ ls
- WhereAmI.class WhereAmI.java cs15lfa22ta10 hello.txt newDir perl5 ssh
[cs15lfa22ta10@ieng6-203]:~:132$ javac WhereAmI.java
[cs15lfa22ta10@ieng6-203]:~:133$ java WhereAmI
Linux
cs15lfa22ta10
/home/linux/ieng6/cs15lfa22/cs15lfa22ta10
/home/linux/ieng6/cs15lfa22/cs15lfa22ta10
[cs15lfa22ta10@ieng6-203]:~:134$

```

When I tried to move WhereAmI.java to the remote computer, there was not a row under “Password:” showing the file’s information. But when I connect to the remote computer by ssh, I find that WhereAmI.java exists in the remote computer. I am not sure if this is correct.

Setting an SSH key

```
Connection to ieng6.ucsd.edu closed.
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/huitingchen/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /Users/huitingchen/.ssh/id_rsa
Your public key has been saved in /Users/huitingchen/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:FVzZA4Xc3uTe6/viLJjYUM+wg/Fjj/lhGKMyxLz9Bc huitingchen@Huitings-MacBook-Air.local
The key's randomart image is:
+---[RSA 3072]-----+
|
| ..ooB.
| ..+ + .
| . . =
| ..o . o
| S=o= ..
| o . o.E+o o
| =o..=.Xo .
| ...+o B.oo..
| .o . ..o+++
+---[SHA256]-----+
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22jd@ieng6.ucsd.edu
(cs15lfa22jd@ieng6.ucsd.edu) Password:
Last login: Fri Sep 30 20:17:00 2022 from 128.54.162.41
Hello cs15lfa22jd, you are currently logged into ieng6-202.ucsd.edu

You are using 0% CPU on this system

Cluster Status
Hostname      Time      #Users  Load  Averages
ieng6-201    20:20:01    11 0.16, 0.06, 0.06
ieng6-202    20:20:01    11 0.01, 0.03, 0.05
ieng6-203    20:20:01    18 0.02, 0.04, 0.05

Fri Sep 30, 2022 8:20pm - Prepping cs15lfa22
[cs15lfa22jd@ieng6-202]:~:2$ mkdir .ssh
[cs15lfa22jd@ieng6-202]:~:3$ exit
logout
Connection to ieng6.ucsd.edu closed.
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main %
```

```
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % scp /Users/huitingchen/.ssh/id_rsa.pub cs15lfa22jd@ieng6.ucsd.edu:~/.ssh/authorized_keys
(cs15lfa22jd@ieng6.ucsd.edu) Password:
id_rsa.pub
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22jd@ieng6.ucsd.edu
Last login: Fri Sep 30 20:24:44 2022 from 128.54.162.41
Hello cs15lfa22jd, you are currently logged into ieng6-202.ucsd.edu

You are using 0% CPU on this system

Cluster Status
Hostname      Time      #Users  Load  Averages
ieng6-201    20:25:01    11 0.00, 0.02, 0.05
ieng6-202    20:25:01    11 0.02, 0.06, 0.05
ieng6-203    20:25:01    19 0.03, 0.04, 0.05

Fri Sep 30, 2022 8:28pm - Prepping cs15lfa22
[cs15lfa22jd@ieng6-202]:~:4$
```

The process of creating a public key and private key goes well. In the second part, I failed at first because I tried to store my public key in cs15lfa22. Then as I find that I don't know the password of cs15lfa22, I realize that I should store the key in cs15lfa22jd.

Optimizing Remote Running

```
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22jd@ieng6.ucsd.edu "cat WhereAmI.java"
class WhereAmI {
    public static void main(String[] args) {
        System.out.println(System.getProperty("os.name"));
        System.out.println(System.getProperty("user.name"));
        System.out.println(System.getProperty("user.home"));
        System.out.println(System.getProperty("user.dir"));
    }
}
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % scp WhereAmI.java cs15lfa22jd@ieng6.ucsd.edu:~/
WhereAmI.java
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22jd@ieng6.ucsd.edu "cat WhereAmI.java"
class WhereAmI {
    public static void main(String[] args) {
        System.out.println(System.getProperty("os.name"));
        System.out.println(System.getProperty("user.name"));
        System.out.println(System.getProperty("user.home"));
        System.out.println(System.getProperty("user.dir"));
        System.out.println("Make a Change");
    }
}
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22jd@ieng6.ucsd.edu "javac WhereAmI"
error: Class names, 'WhereAmI', are only accepted if annotation processing is explicitly requested
1 error
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22jd@ieng6.ucsd.edu "javac WhereAmI.java"
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main % ssh cs15lfa22jd@ieng6.ucsd.edu "java WhereAmI"
Linux
cs15lfa22jd
/home/linux/ieng6/cs15lfa22/cs15lfa22jd
/home/linux/ieng6/cs15lfa22/cs15lfa22jd
Make a Change
huitingchen@Huitings-MacBook-Air cse11-pa8-starter-main %
```

After I change the file in my computer, I use scp to move it to the remote computer and then use ssh to run it on the remote computer. It prints out its location in the remote computer and the change I made.

I really don't know how to put this into GitHub in the form of a doc. I guess it is because this is a google doc and I can't store docs on my computer. So I download this as a pdf then upload the pdf to GitHub.