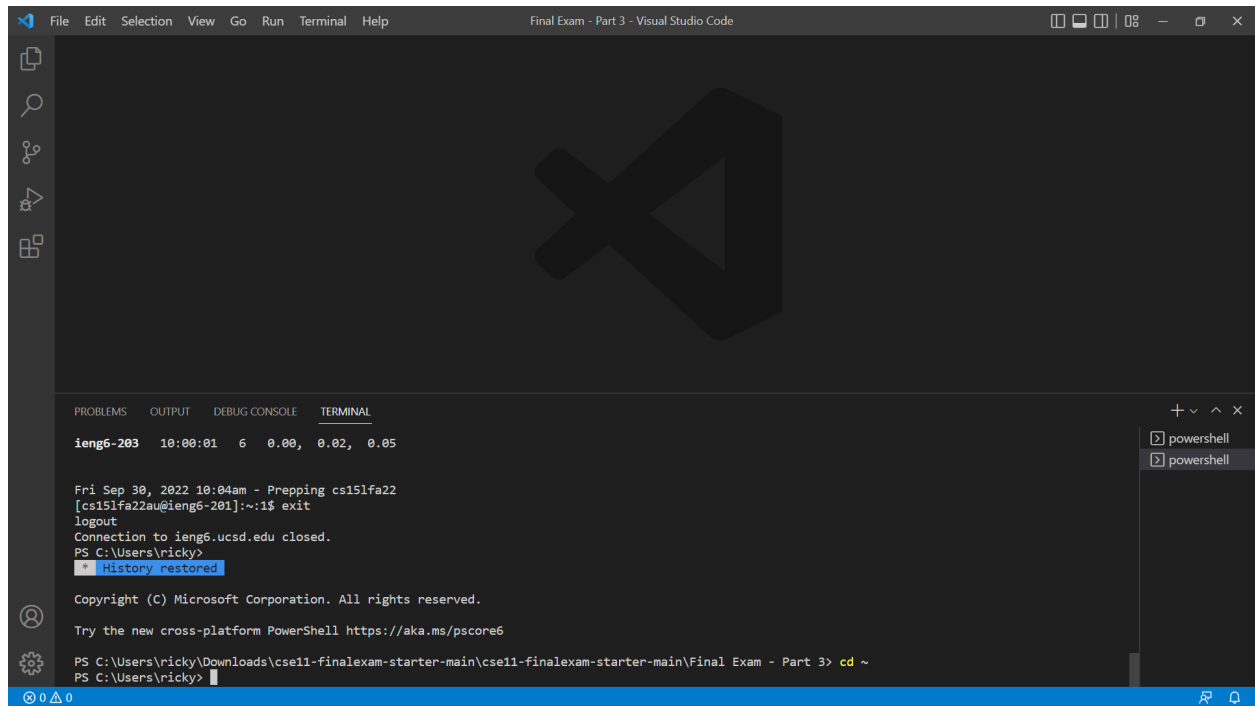


Ricky Li

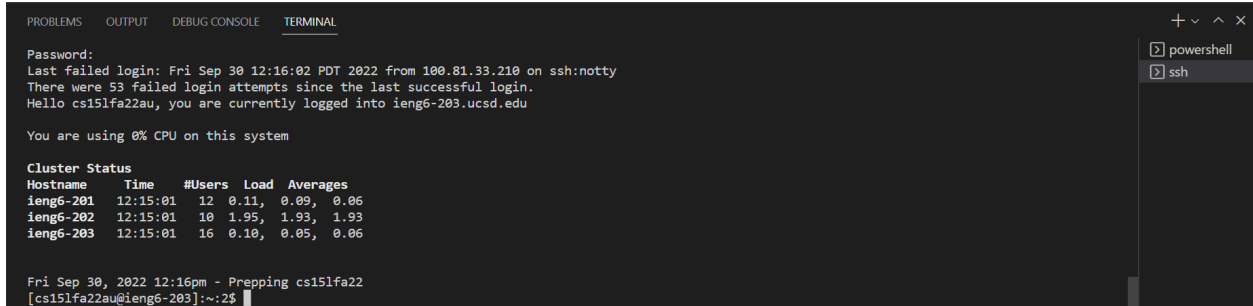
Joe Politz

30 September 2022

CSE 15L Lab Report



- For the VSCode part, I didn't have to do anything because I already used VSCode for cse11 last quarter but you can go to the visual studio code website and follow the instructions to download.



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Password:
Last failed login: Fri Sep 30 12:16:02 PDT 2022 from 100.81.33.210 on ssh:notty
There were 53 failed login attempts since the last successful login.
Hello cs151fa22au, 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   12:15:01   12  0.11,  0.09,  0.06
ieng6-202   12:15:01   10  1.95,  1.93,  1.93
ieng6-203   12:15:01   16  0.10,  0.05,  0.06

Fri Sep 30, 2022 12:16pm - Prepping cs151fa22
[cs151fa22au@ieng6-203]:~:2$
```

For remotely connecting, I personally downloaded OpenShell onto my laptop, then I requested to change my password through the ucsd system in order to log in to my remote cse account. It wouldn't let me connect during lab hours but once I got back home and changed my password again I went through. I logged in using the ssh command followed by the name of my account Ex. "ssh cs151fa22zz@ieng6.ucsd.edu"

It will then prompt you for your password. Typing the password is difficult because it doesn't show you any inputs. The server will tell you that the authenticity of the host cannot be established then ask you if you still want to connect to the host.

Looking like this

The authenticity of host 'ieng6-202.ucsd.edu (128.54.70.227)' can't be established.

RSA key fingerprint is SHA256:ksruYwhnYH+sySHnHAtLUHngrPEyZTDI/1x99wUQcec.

Are you sure you want to continue connecting (yes/no/[fingerprint])?

After you say yes, you will then be prompted to input your password again

```

-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1692 Sep  8 16:11 .kshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1931 Sep  8 16:11 .cshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1721 Sep  8 16:11 .bashrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  975 Sep  8 16:11 .bash_profile
[cs15lfa22au@ieng6-203]:~:7$ ls /home/linux/ieng6/cse15lfa22abc
ls: cannot access /home/linux/ieng6/cse15lfa22abc: No such file or directory
[cs15lfa22au@ieng6-203]:~:8$ ls home/linux/ieng6/cse15lfa22abc
ls: cannot access home/linux/ieng6/cse15lfa22abc: No such file or directory
[cs15lfa22au@ieng6-203]:~:9$ cd
[cs15lfa22au@ieng6-203]:~:10$ ls
perl5
[cs15lfa22au@ieng6-203]:~:11$ ls -lat
total 108
-rw-r--r-- 1 cs15lfa22au ieng6_cs15lfa22 1316 Sep 30 12:16 .modulesbegenv
-rw----- 1 cs15lfa22au ieng6_cs15lfa22    5 Sep 30 10:05 .bash_history
drwxr-s--- 6 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:05 .
-rw-r----- 1 cs15lfa22au ieng6_cs15lfa22    0 Sep 30 10:04 .motd
drwxr-sr-x 2 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:04 perl5
drwxr-sr-x 3 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:04 .local
drwxr-sr-x 3 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:04 .config
drwxr-sr-x 3 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:04 .cache
drwxr-sr-x 464 cs15lfa22 ieng6_cs15lfa22 36864 Sep 30 08:06 ..
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  290 Sep  8 16:11 .zshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  481 Sep  8 16:11 .zshenv
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1931 Sep  8 16:11 .zprofile
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1961 Sep  8 16:11 .profile
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  837 Sep  8 16:11 .procmailrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  431 Sep  8 16:11 .login
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  155 Sep  8 16:11 .locallogin
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1692 Sep  8 16:11 .kshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1931 Sep  8 16:11 .cshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1721 Sep  8 16:11 .bashrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  975 Sep  8 16:11 .bash_profile

```

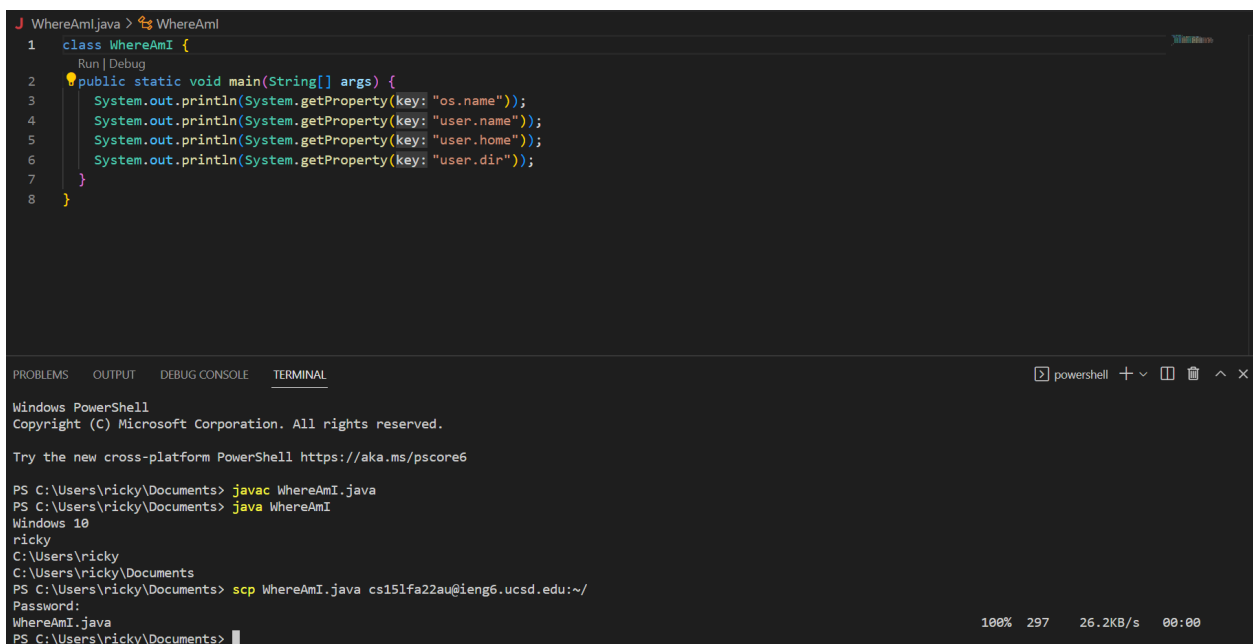
```

drwxr-sr-x 3 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:04 .local
drwxr-sr-x 3 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:04 .config
drwxr-sr-x 3 cs15lfa22au ieng6_cs15lfa22 4096 Sep 30 10:04 .cache
drwxr-sr-x 464 cs15lfa22 ieng6_cs15lfa22 36864 Sep 30 08:06 ..
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  290 Sep  8 16:11 .zshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  481 Sep  8 16:11 .zshenv
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1931 Sep  8 16:11 .zprofile
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1961 Sep  8 16:11 .profile
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  837 Sep  8 16:11 .procmailrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  431 Sep  8 16:11 .login
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  155 Sep  8 16:11 .locallogin
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1692 Sep  8 16:11 .kshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1931 Sep  8 16:11 .cshrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22 1721 Sep  8 16:11 .bashrc
-rwxr-x--- 1 cs15lfa22au ieng6_cs15lfa22  975 Sep  8 16:11 .bash_profile
[cs15lfa22au@ieng6-203]:~:12$ cp /home/linux/ieng6/cse15lfa22/public/hello.txt ~/
cp: cannot stat '/home/linux/ieng6/cse15lfa22/public/hello.txt': No such file or directory
[cs15lfa22au@ieng6-203]:~:13$ cp /home/linux/ieng6/cs15lfa22/public/hello.txt ~/
[cs15lfa22au@ieng6-203]:~:14$ cat /home/linux/ieng6/cs15lfa22/public/hello.txt ~/
Hi! Welcome to CSE15L Fall 22
cat: /home/linux/ieng6/cs15lfa22/cs15lfa22au/: Is a directory
[cs15lfa22au@ieng6-203]:~:15$ █

```

I ran

- `ls -lat`
 - This command lists/shows all the recently edited files
- `ls -a`
 - This command lists all the hidden files
- `cd ~`
 - `cd` stands for change directory and the little `~` in front changes the directory to the very beginning usually where it says User then your profile
- `cp /home/linux/ieng6/cs15lfa22/public/hello.txt ~/`
 - `Cp` as far as I know stands for class path and I assume that
- `cat /home/linux/ieng6/cs15lfa22/public/hello.txt ~/`
 - This command printed out the txt file `hello.txt` on the remote server which outputted “Hi! Welcome to CSE15L Fall 22”



```
J WhereAmI.java > WhereAmI
1 class WhereAmI {
2     public static void main(String[] args) {
3         System.out.println(System.getProperty(key: "os.name"));
4         System.out.println(System.getProperty(key: "user.name"));
5         System.out.println(System.getProperty(key: "user.home"));
6         System.out.println(System.getProperty(key: "user.dir"));
7     }
8 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\ricky\Documents> javac WhereAmI.java
PS C:\Users\ricky\Documents> java WhereAmI
Windows 10
ricky
C:\Users\ricky
C:\Users\ricky\Documents
PS C:\Users\ricky\Documents> scp WhereAmI.java cs15lfa22au@ieng6.ucsd.edu:~/
Password:
WhereAmI.java
PS C:\Users\ricky\Documents>
```

```
J WhereAml.java > WhereAml
1 class WhereAml {
  Run | Debug
2 public static void main(String[] args) {
3   System.out.println(System.getProperty(key: "os.name"));
4   System.out.println(System.getProperty(key: "user.name"));
5   System.out.println(System.getProperty(key: "user.home"));
6   System.out.println(System.getProperty(key: "user.dir"));
7 }
8 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Hostname	Time	#Users	Load	Averages
ieng6-201	12:30:01	10	0.05,	0.06, 0.05
ieng6-202	12:30:01	9	1.92,	1.91, 1.90
ieng6-203	12:30:01	16	0.00,	0.05, 0.07

```
Fri Sep 30, 2022 12:33pm - Prepping cs151fa22
[cs151fa22au@ieng6-203]:~:16$ ls
WhereAml.java hello.txt perl5
[cs151fa22au@ieng6-203]:~:17$ javac WhereAml.java
[cs151fa22au@ieng6-203]:~:18$ java WhereAml
Linux
cs151fa22au
/home/linux/ieng6/cs151fa22/cs151fa22au
/home/linux/ieng6/cs151fa22/cs151fa22au
```

I copied the WhereAml.java file using the command scp command which allows me to grab a file and copy it over to the remote server on my ucsd account. That is when it printed the os, username, the home directory, and my current directory for wherever I was on the remote server.

“Linux

cs151fa22au

/home/linux/ieng6/cse151fa22/cs151fa22au

/home/linux/ieng6/cse151fa22/cs151fa22au “

```
PS C:\Users\ricky\Documents> ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (C:\Users\ricky\.ssh\id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\ricky\.ssh\id_rsa.
The key fingerprint is:
SHA256:4uE6YJEPVp25q2X3noNh3/WgLI8MnmSYQy12sHzldX4 ricky@LAPTOP-BEVOSNJM
The key's randomart image is:
+---[RSA 3072]---+
| . o |
| . = . . . |
| o . + + . o |
| = * = . . E |
| . + .o*So . . |
| o .o+oB + o o |
| . . +oo X * = o |
| o. . *. = . . |
| .. .o. |
+---[SHA256]-----+
PS C:\Users\ricky\Documents> ssh cs151fa22au@ieng6.ucsd.edu
Password:
Last login: Fri Sep 30 12:33:29 2022 from 100.81.33.210
mkdir.Hello cs151fa22au, you are currently logged into ieng6-203.ucsd.edu
```

```

Fri Sep 30, 2022 12:42pm - Prepping cs151fa22
[cs151fa22au@ieng6-203]:~:22$ mkdir.ssh
bash: mkdir.ssh: command not found...
[cs151fa22au@ieng6-203]:~:23$ mkdir .ssh
[cs151fa22au@ieng6-203]:~:24$ exit
logout
Connection to ieng6.ucsd.edu closed.
PS C:\Users\ricky\Documents> scp \Users\ricky\.ssh\id_rsa.pub cs151fa22au@ieng6.ucsd.edu:~\.ssh\authorized_keys
Password:
id_rsa.pub
PS C:\Users\ricky\Documents> ssh cs151fa22au@ieng6.ucsd.edu
Enter passphrase for key 'C:\Users\ricky\.ssh\id_rsa':
Last login: Fri Sep 30 12:41:52 2022 from 100.81.33.210
Hello cs151fa22au, 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    12:40:01    12  0.05,  0.07,  0.06
ieng6-202    12:40:01    11  1.87,  1.96,  1.94
ieng6-203    12:40:01    16  0.12,  0.07,  0.05

Fri Sep 30, 2022 12:44pm - Prepping cs151fa22

```

Then using the command `ssh-keygen` in the lab, I created two keys. I then used the `scp` command to move one of the keys onto the remote server.

`scp /Users/ricky/.ssh/id_rsa.pub cs151fa22au@ieng6.ucsd.edu:~/.ssh/authorized_keys`

Now I can `ssh` using the key I created and instead of typing my entire password to login to the remote server every time, I can just use a simpler phrase to continually log in.

```

PS C:\Users\ricky\Documents> ssh cs151fa22au@ieng6.ucsd.edu "ls"
Enter passphrase for key 'C:\Users\ricky\.ssh\id_rsa':
WhereAmI.class
WhereAmI.java
hello.txt
perl5
PS C:\Users\ricky\Documents> cp WhereAmI.java OtherMain.java; javac OtherMain.java; java WhereAmI
Windows 10
ricky
C:\Users\ricky
C:\Users\ricky\Documents
PS C:\Users\ricky\Documents>

```

I ran the `ls` command on the remote computer using my key to easily list the files in the directory.

I simply used my passphrase instead of my normal password.

`ssh cs151fa22au@ieng6.ucsd.edu "ls"`

I also used multiple commands at once to compile and run the WhereAmI java file more efficiently instead of changing the path for the code, compiling, then running the code all in separate lines

```
“cp WhereAmI.java OtherMain.java; javac OtherMain.java; java WhereAmI”
```