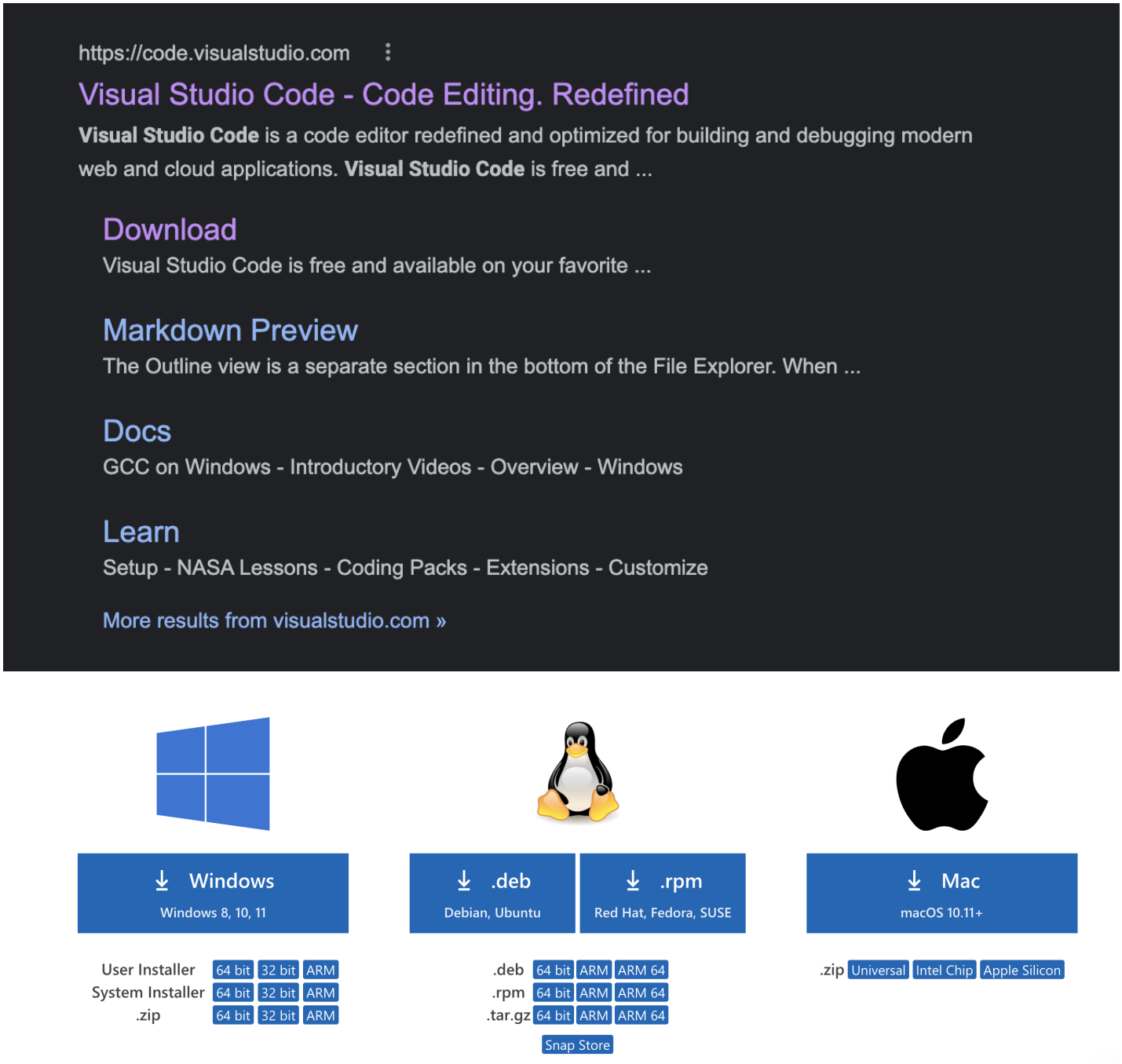
cse15l-lab-reports-fa22

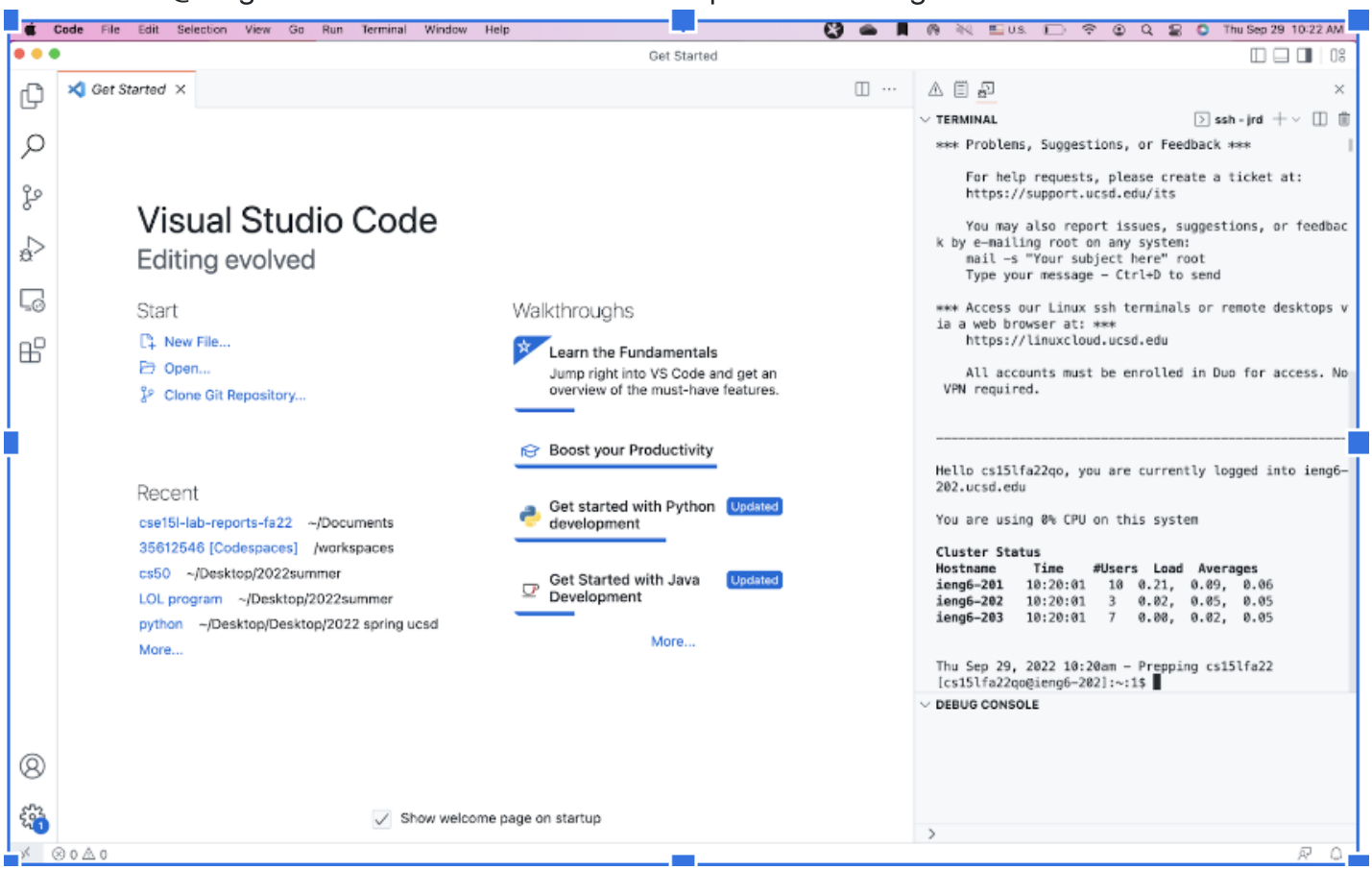
Installing VScode

This step is relatively stright-forward.By googling the keyword VScode, you can see that the first result that pops up has a download option. Click on the download option, choose the best version of the studio code that fits into your computer.



Remotely Connecting

By downloading the VScode,you now have the VScode downloaded in your computer. Open the VScode,and that open Terminal that is located on the top of the windows.In your terminal, you will type in the ssh command followed by the unique account given by school system in the format of cs15lfa22xx@ieng6.ucsd.edu where xx are the unique letters assigned to individuals.



Trying Some Commands

There are plenty of commands that are available in the syntax of linux system.Here is a list of example commands:

- cd ~ : move to home directory
- cd: follow by a name of file, and move to that file
- ls: list the current files in the directory
- pwd:get working directory path
- mkdir: make a new file

You can explore more on this websiteSome useful comments

For example, When I run touch command, I'm able to create an empty file.In this case, I created a file called xxx.

```
(base) jrd@Jiajies-MacBook-Pro-3 cse15l-ab-reports % touch xxx.java
(base) jrd@Jiajies-MacBook-Pro-3 cse15l-ab-reports % ls
HelloWorld.java                 cs15lfa22qo@ieng6.ucsd.edu      lab-report-1-week-2.md
WhereAmI.class                  index.md                        vscode.png
WhereAmI.java                   lab-report-1-week-2.html        xxx.java
```

Moving Files with scp

By using scp command, you can copy the file in your local computer to your remote server.The basic syntax is scp [file_name][account_name]:~/ in your terminal. Then there will be a password prompt to ask for your account password for the server. To check if the file is successfully copied and pasted to remote computer,you can try -ls command to see if the intended file is listed.


```
ab-reports % scp WhereAmI.java cs15lfa22
qo@ieng6.ucsd.edu:~/
(cs15lfa22qo@ieng6.ucsd.edu) Password:
Where 100%  304    57.1KB/s   00:00
```

Setting an SSH Key

SSH key is a way to avoid using password everytime to log back into the remote computer.On your cilent computer(your local computer), type in ssh-keygen command.When you see the prompt following by "Enter file in which to save the key ...", press enter twice.Now you have the private key and public key saved in your local computer remotely.Now we need to log back into the server. On your server, type in mkdir .ssh, we are able to copy the public key to the server. Next time we try to connect to the server, we don't need to use password again as long as the private key and

public key are matched.

```
(base) jrd@Jiajies-MacBook-Pro-3 cse15l-lab-reports % ssh cs15lfa22qo@ieng6.ucsd.edu
Last login: Thu Sep 29 11:21:31 2022 from 100.81.36.171
Hello cs15lfa22qo, 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    11:20:01    17   0.48,  0.18,  0.16
ieng6-202    11:20:01    12   0.26,  0.14,  0.09
ieng6-203    11:20:01    17   0.42,  0.16,  0.14
```

Optimizing Remote Running

One way to optimize remote running is by compiling programs directly in your own machine using ssh key.
Here is when I compile the java program WhereAmI by logging into the server

```
(base) jrd@Jiajies-MacBook-Pro-3 cse15l-lab-reports-fa22
 % ssh cs15lfa22qo@ieng6.ucsd.edu
Last login: Fri Sep 30 20:22:21 2022 from 69.196.34.48
Hello cs15lfa22qo, you are currently logged into ieng6-2
02.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  8:23pm - Prepping cs15lfa22
[cs15lfa22qo@ieng6-202]:~:38$ java WhereAmI
Linux
cs15lfa22qo
/home/linux/ieng6/cs15lfa22/cs15lfa22qo
/home/linux/ieng6/cs15lfa22/cs15lfa22qo
[cs15lfa22qo@ieng6-202]:~:39$
```

. Here is when I compile the java program directly in local computer by using ssh key + the file that I want to compile.

```
(base) jrd@Jiajies-MacBook-Pro-3 cse15l-lab-reports-fa22
 % ssh cs15lfa22qo@ieng6.ucsd.edu "java WhereAmI"
Linux
cs15lfa22qo
/home/linux/ieng6/cs15lfa22/cs15lfa22qo
/home/linux/ieng6/cs15lfa22/cs15lfa22qo
(base) jrd@Jiajies-MacBook-Pro-3 cse15l-lab-reports-fa22
```

. Obviously,the second one is way more efficient than the first one.