

Interaction with capa

The purpose of this exercise is to ensure you know how to login to capa.its.uow.edu.au. There is nothing to submit for this exercise.

1.Ensure that you have an Internet connection. Otherwise you cannot reach an external server, such as capa.

2.On all OS, there is a program called terminal. For example on windows, you can bring it up by typing “powershell” in the **Start** icon. This should bring up an application as shown in Figure1 and Figure 2. Based on experience, this shell is very close to what you will experience on the Linux OS and MacOS terminals (see Figure 3) in terms of commands.

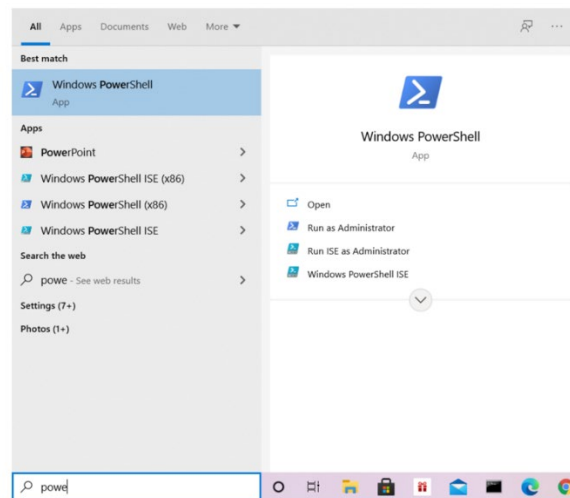
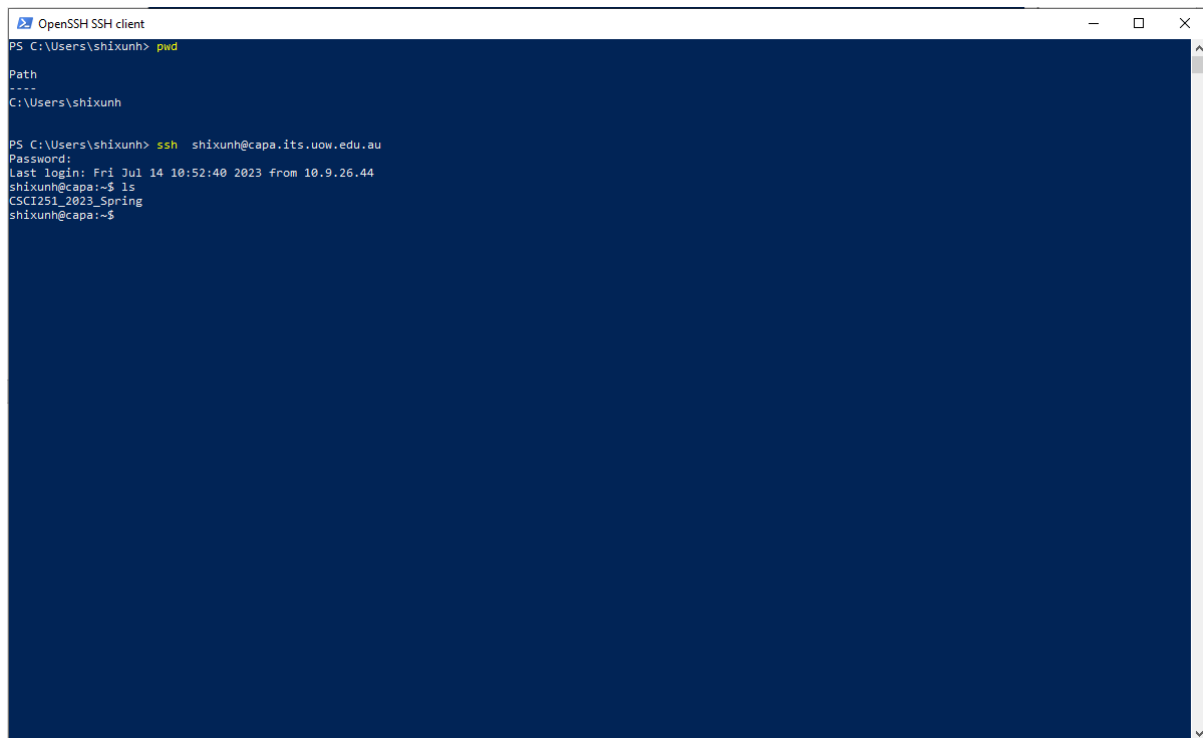


Figure 1: Getting Windows PowerShell from **Start** icon in Windows OS



Figure 2: The PowerShell terminal in Windows-10 OS

3. Once you have the terminal running, you can connect to the server **capa.its.uow.edu.au** as follows. If you are not using the university's internet, you may need to connect to VPN first. Here is an useful [link](#) for using VPN.



```
OpenSSH SSH client
PS C:\Users\shixunh> pwd
Path
----
C:\Users\shixunh

PS C:\Users\shixunh> ssh shixunh@capa.its.uow.edu.au
Password:
Last login: Fri Jul 14 10:52:40 2023 from 10.9.26.44
shixunh@capa:~$ ls
CSCI251_2023_Spring
shixunh@capa:~$
```

Figure 3: A Linux terminal session; Notice that an ssh login has been executed into capa. You will get a similar screen when using MacOS.

- At the command prompt you will type:

`ssh username@capa.its.uow.edu.au`

When you are prompted for your password enter it. You will notice a change in the prompt indicative that you have successfully logged into capa.its.uow.edu.au and in your home directory.

- You can explore a few Linux commands to familiarise yourself with the environment. For example, at the shell prompt type **ls**. This should list the contents of your home directory.
- You can check the version of C++ compiler installed on capa by typing: **g++ --version**. This should respond with some information telling you that it is version 7.5. This version support C++ 11, 14 & 17 that we will use in this subject. Your code must work on this server.
- You can create a new directory (folder) in your home directory by typing (at the shell prompt), for example: **mkdir lab_1**. This command (i.e. make directory) will create a new directory (also called folder) named lab 1 in your home directory. You can “go” into this new directory by typing: **cd lab_1** You can check that you are in this new directory by typing (present working directory - pwd): **pwd** and the system should respond by displaying the path to the current directory.

4. When you type **exit**, you will be brought back to the terminal on your local computer. In other words, your **ssh** terminal session and connection to **capa** has closed. You should notice a change in the shell prompt because you are now back your local computer.

5. You will need to transfer your codes from your local computer to capa to test for compliance. The command to accomplish file transfer is **scp**, “secure copy”. Assume that you have created a directory named **lab 1** in your home directory on **capa** as described above. Further assume that you have now closed the connection to **capa** and are back on your local computer. Let us say you have a file named **ex1.cpp** on your local computer and need to transfer it to the directory named **lab 1** on **capa**. From your local shell prompt type:

```
scp ./ex1.cpp username@capa.its.uow.edu.au:~/lab_1/ex1.cpp
```

This command says, “securely copy the file **ex1.cpp** in the current directory to a directory named **lab 1** on **capa**”. You will be prompted for your password. Once you provide it correctly, the file is transferred (copied) and a report about file size and time taken to complete the transfer will be displayed.

6. You will be provided with more shell commands that are useful for this subject.