

CSCI3170 Introduction to Database Systems

**Tutorial 4 – Introduction to Linux and
Sqlplus**

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ACCOUNTS

Accounts (1)

- You would use 2 different accounts:
 - CSE Linux Account
 - CSE students: use your existing account
 - Non-CSE students: follow the guideline from techteam
 - For log onto Linux servers (*i.e. linuxXX*) in the CSE department network or PCs in the CSE Computer Labs (*i.e. SHB 924*)

Accounts (2)

- You would use 2 different accounts:
 - Oracle Account
 - Username starts with h (e.g., h002)
 - Already distributed (check your link email)

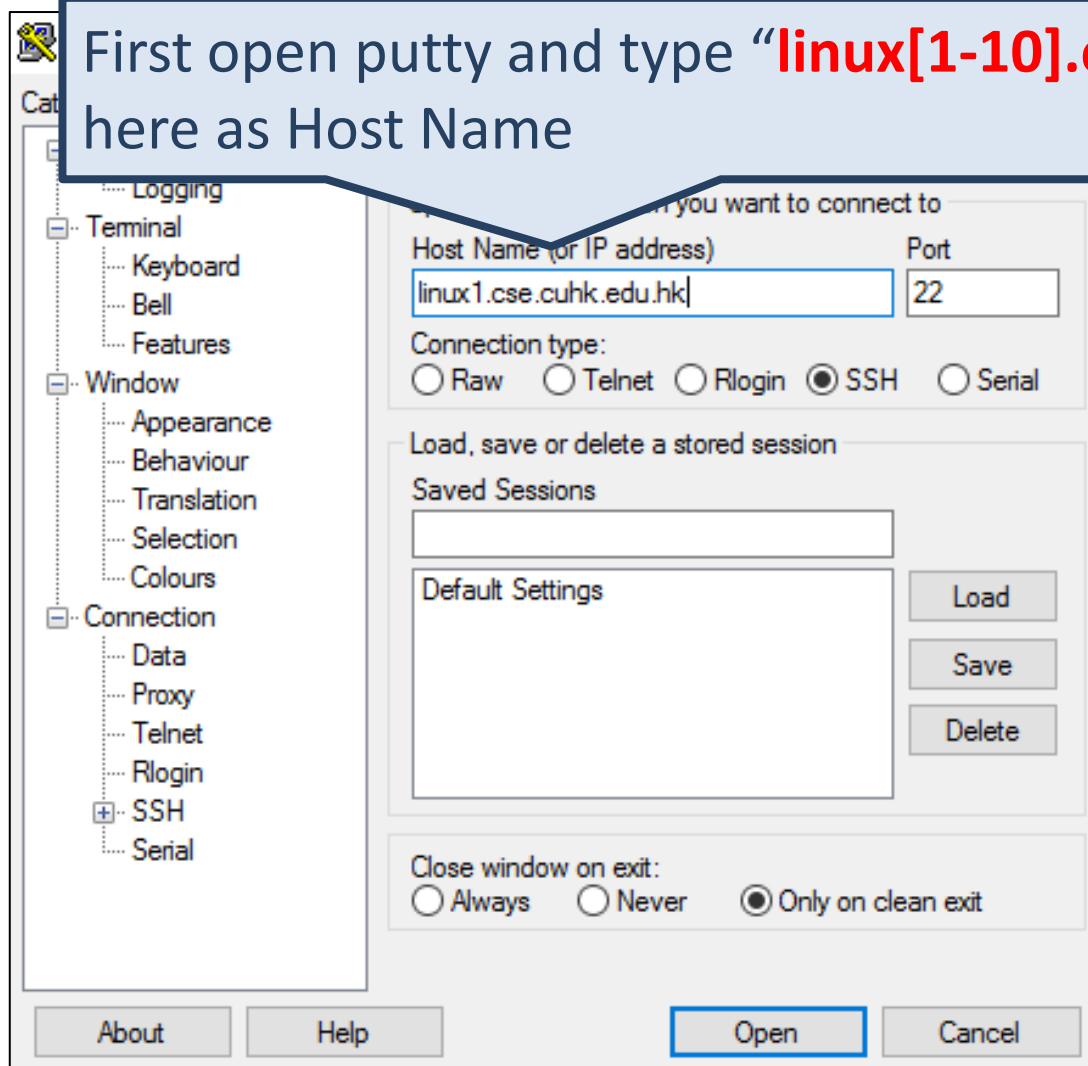
CONNECTING TO CSE LINUX SERVERS

Install Putty and WinSCP

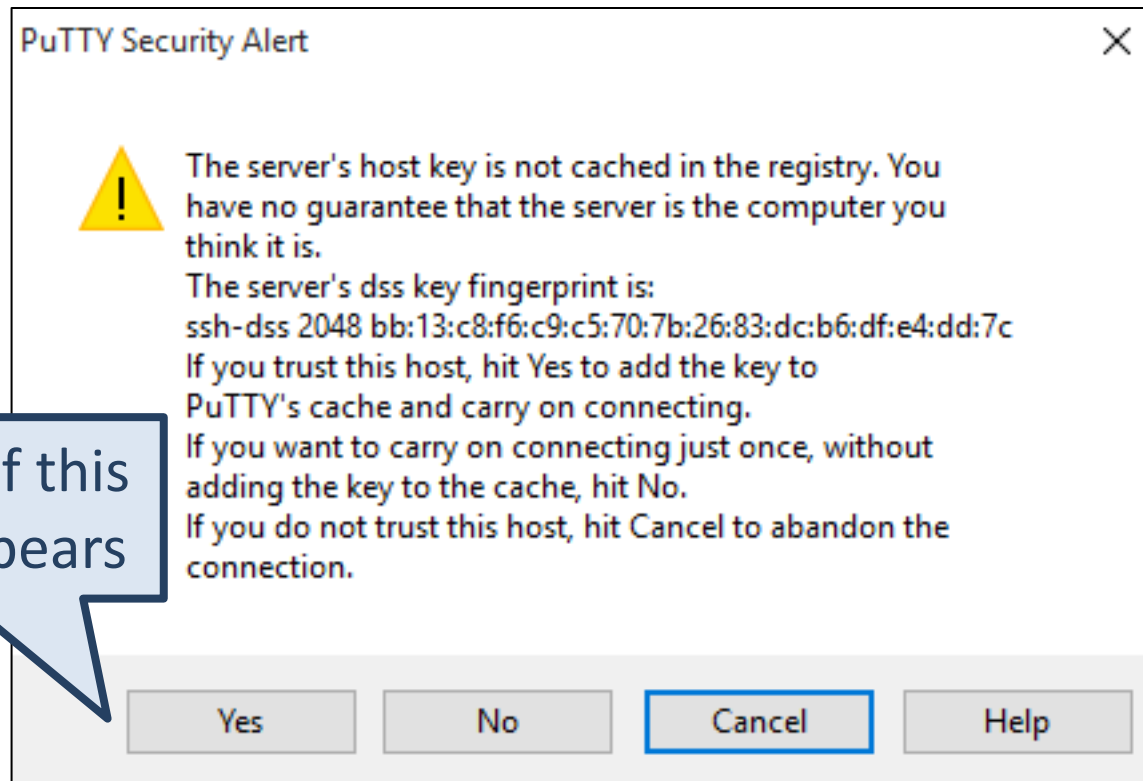
- Putty
 - SSH terminal client for accessing CSE Linux Servers
- WinSCP
 - FTP/SFTP client for transferring file between Local PC and CSE Linux Servers
- Any terminal client supports ssh is fine!

Connect to Linux Servers **within CSE** **Lab** via putty

First open putty and type “**linux[1-10].cse.cuhk.edu.hk**” here as Host Name

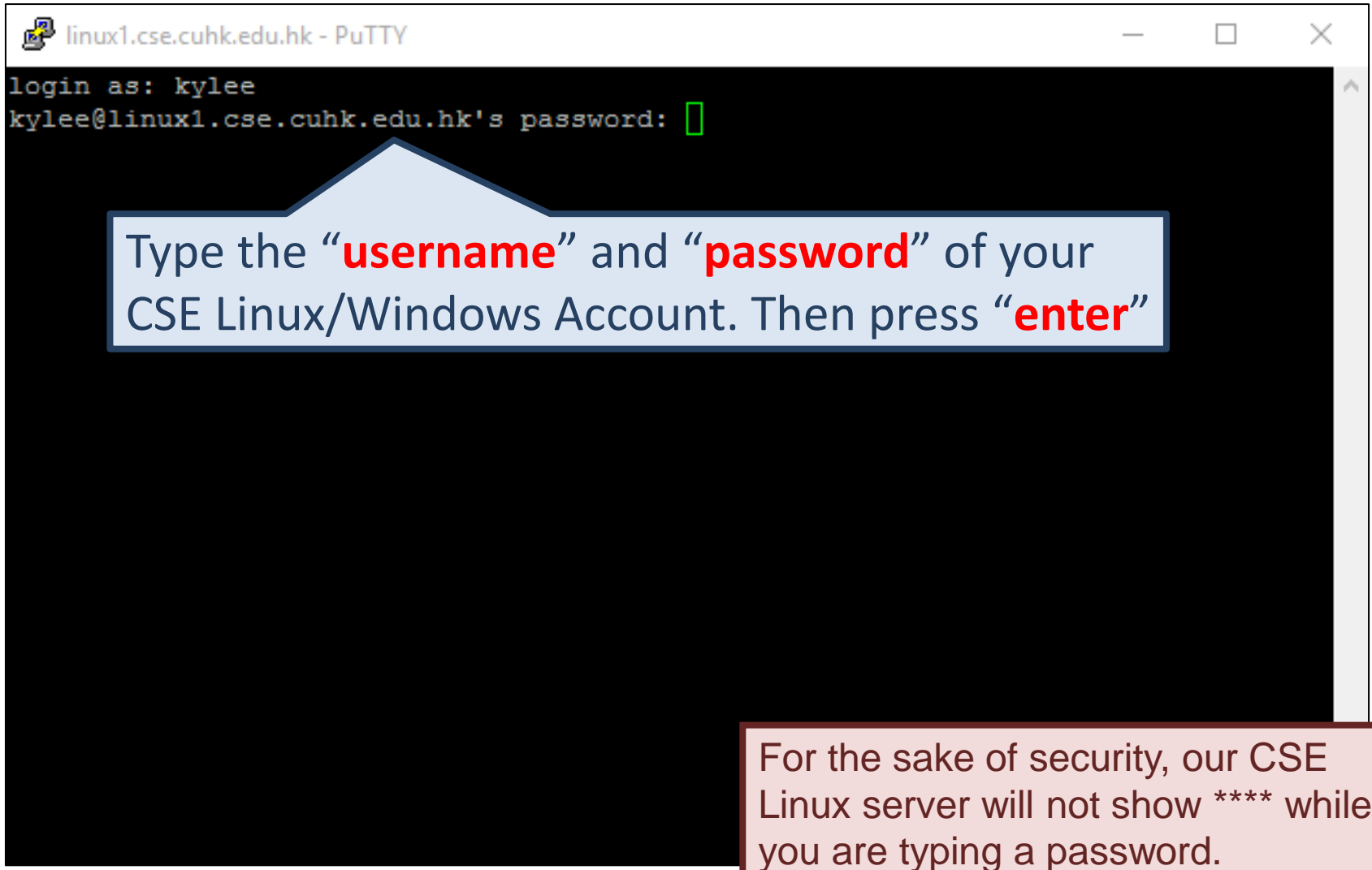


Connect to Linux Servers **within CSE Lab** via putty (2)

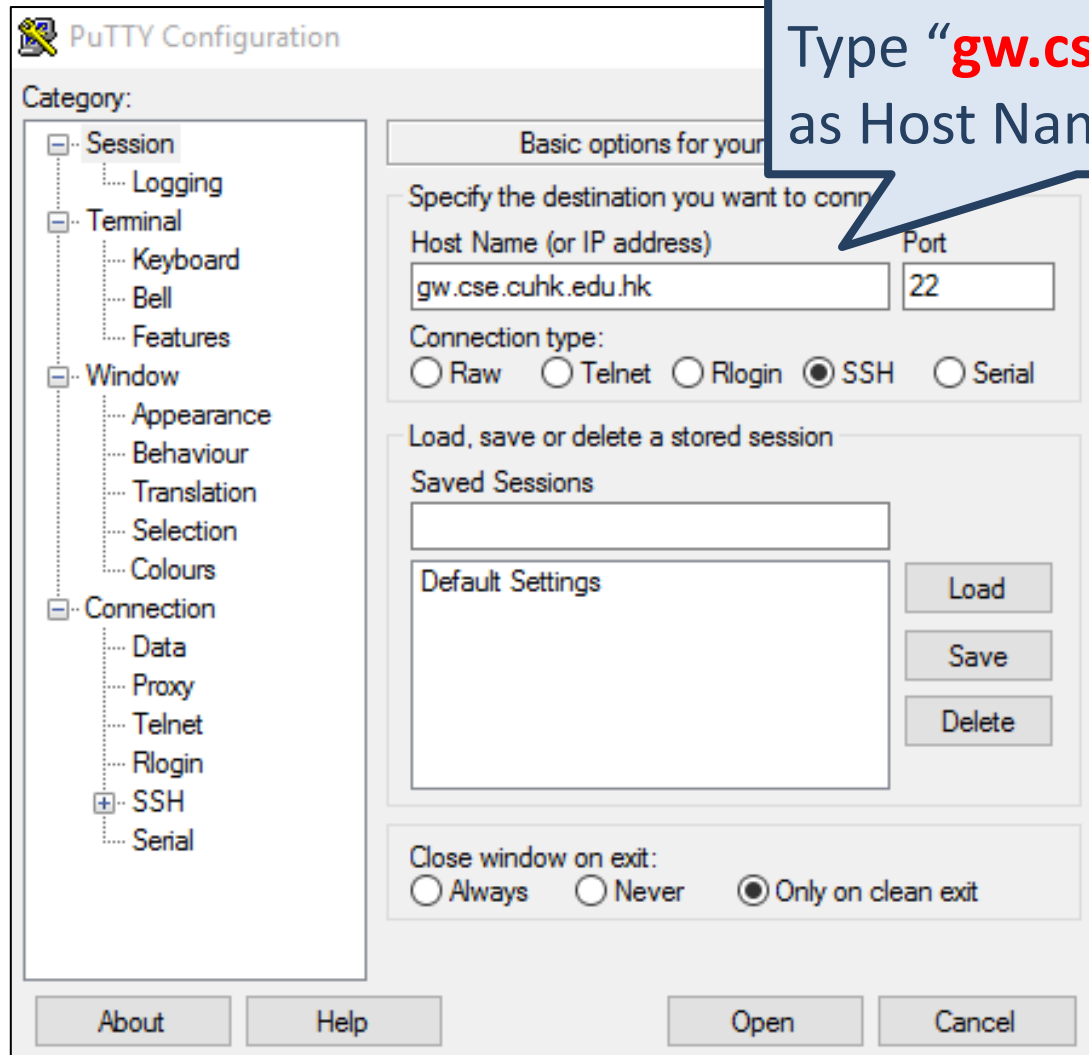


Click “**Yes**” if this window appears

Connect to Linux Servers **within CSE Lab** via putty (3)

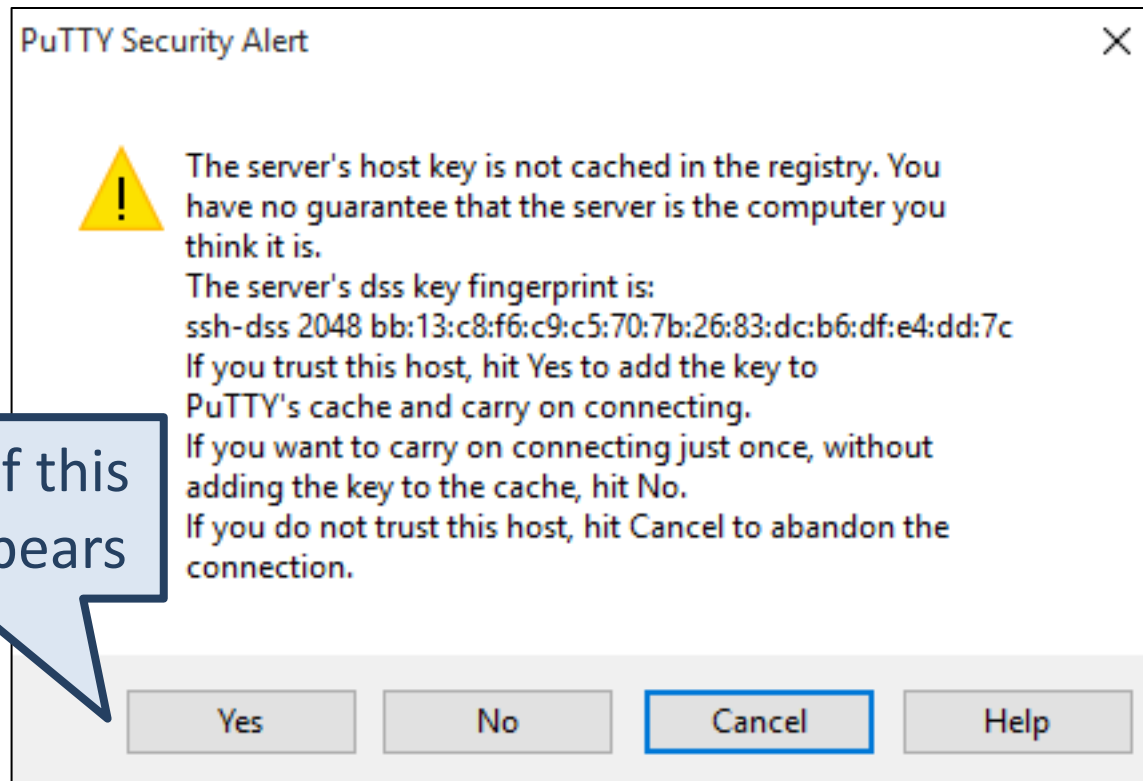


Connect to Linux Servers **outside CSE Lab** via **putty**



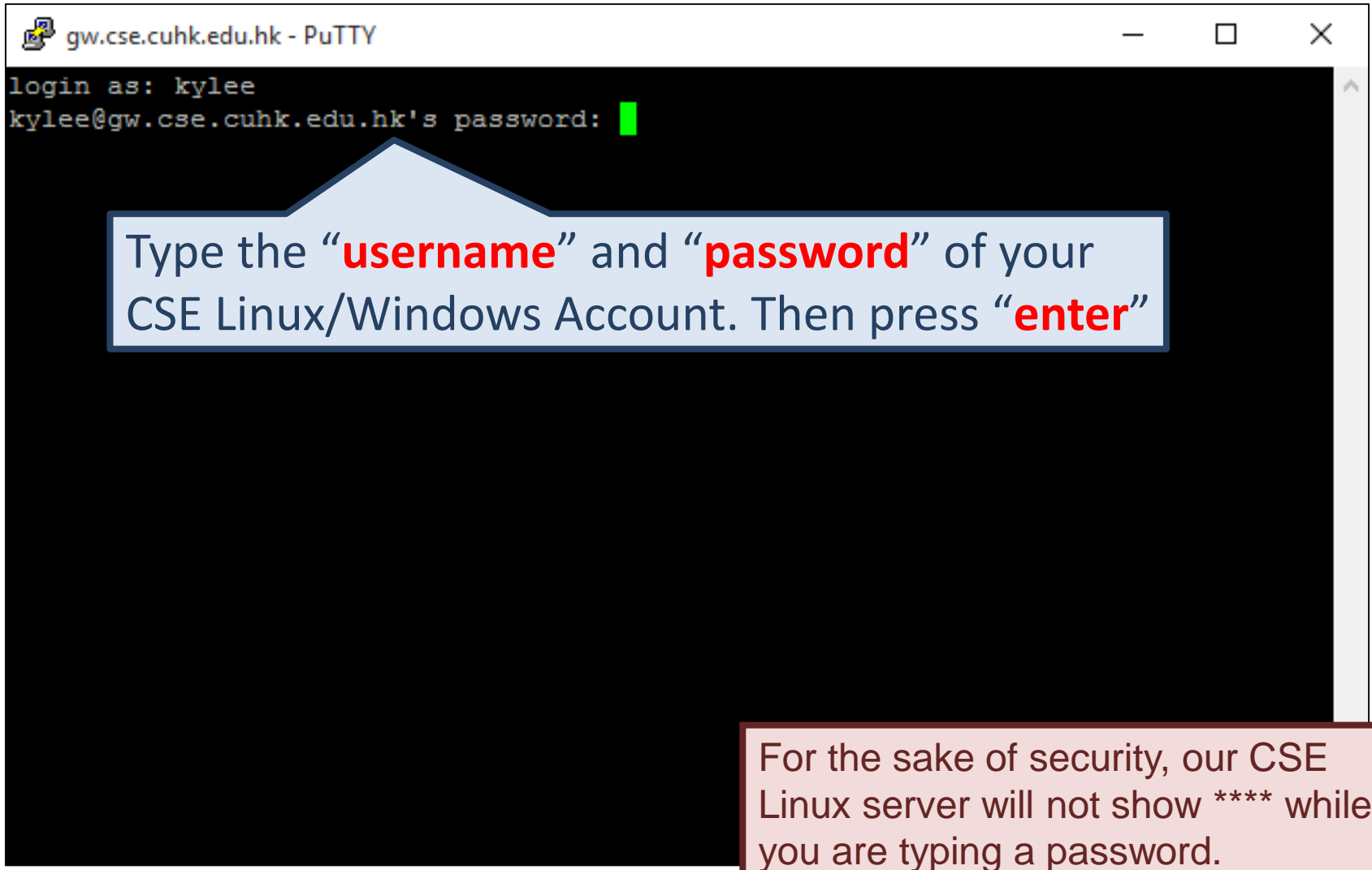
Type "**gw.cse.cuhk.edu.hk**" as Host Name

Connect to Linux Servers **outside CSE Lab** via putty (2)



Click “**Yes**” if this window appears

Connect to Linux Servers **outside CSE Lab** via putty (3)



Connect to Linux Servers **outside CSE Lab** via putty (4)

gw.cse.cuhk.edu.hk - PuTTY

Linux yellow 3.2.0-4-amd64 #1 SMP Debian 3.2.60

Department of Computer Science and Engineering
The Chinese University of Hong Kong

Last login: Sun Jan 10 16:00:30 2016 from 137.189.204.199

Department of Computer Science and Engineering
The Chinese University of Hong Kong

| myHome | Login gateway
.....
[http://www.cse.cuhk.edu.hk/corner/tech/guide/network/gw]
Enquiry: help@cse.cuhk.edu.hk

* Dedicated to users of the department only.

*** PLEASE ***

<myHome> ssh linux1
kylee@linux1's password:

For the sake of security, our CSE Linux server will not show **** while you are typing a password.

Type your “ssh linux[1-10]”. Then press “enter”

Type your “password” of your CSE Unix/Windows Account. Then press “enter”

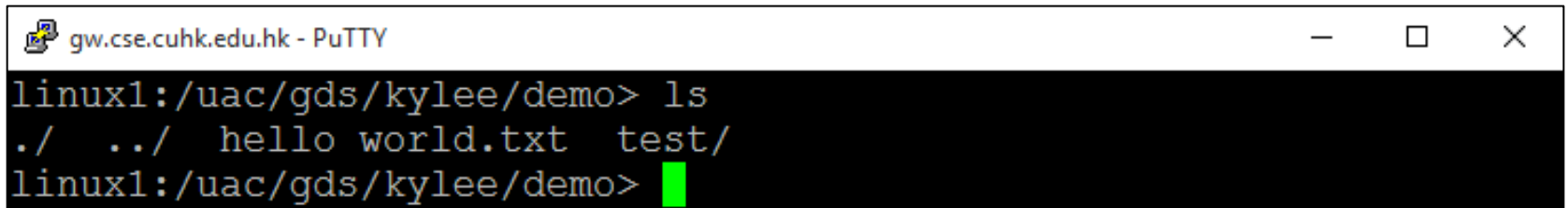
Connect to Linux Servers **outside CSE Lab** via VPN

- <https://i.cse.cuhk.edu.hk/technical/>
 - ▶ Internet, WiFi, VPN, SSH & Web Hosting Service
 - On-campus WiFi (supported by ITSC)
 - Accessing the Internet at CSE (setting up proxy)
 - Accessing the Internet at CSE (setting up SOCKS proxy)
 - Accessing CSE Servers outside CSE (setting up IPsec VPN)
 - Accessing CSE Servers outside CSE (setting up OpenVPN)
 - Accessing CSE servers outside CSE (setting up SSH Gateway)
 - Setting Up Your Web Page
 - Writing PHP Program
 - Virtual Machine for FYP

INTRODUCTION TO LINUX TERMINAL COMMAND

Intro. to Linux Terminal Command

- **ls**
 - List out all the files in the current directory



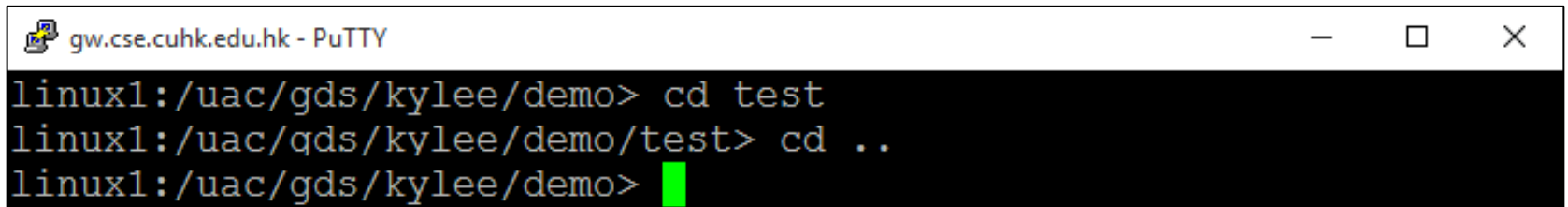
The screenshot shows a PuTTY terminal window titled "gw.cse.cuhk.edu.hk - PuTTY". The terminal output shows the command "ls" being executed in the directory "/uac/gds/kylee/demo". The output lists the files: ".", "..", "hello", "world.txt", and "test/". The prompt "linux1:/uac/gds/kylee/demo>" is visible on both lines.

```
linux1:/uac/gds/kylee/demo> ls
./  ../  hello world.txt  test/
linux1:/uac/gds/kylee/demo>
```

“./” refers to the current directory
“../” refers to the parent directory

Intro. to Linux Terminal Command (2)

- **cd <directory>**
 - Change the working directory



A screenshot of a PuTTY terminal window titled "gw.cse.cuhk.edu.hk - PuTTY". The terminal shows a sequence of commands and their outputs in a Linux environment. The prompt is "linux1:/uac/gds/kylee/demo>". The first command is "cd test", which changes the directory to "linux1:/uac/gds/kylee/demo/test>". The second command is "cd ..", which changes the directory back to "linux1:/uac/gds/kylee/demo>". The prompt is followed by a green cursor.

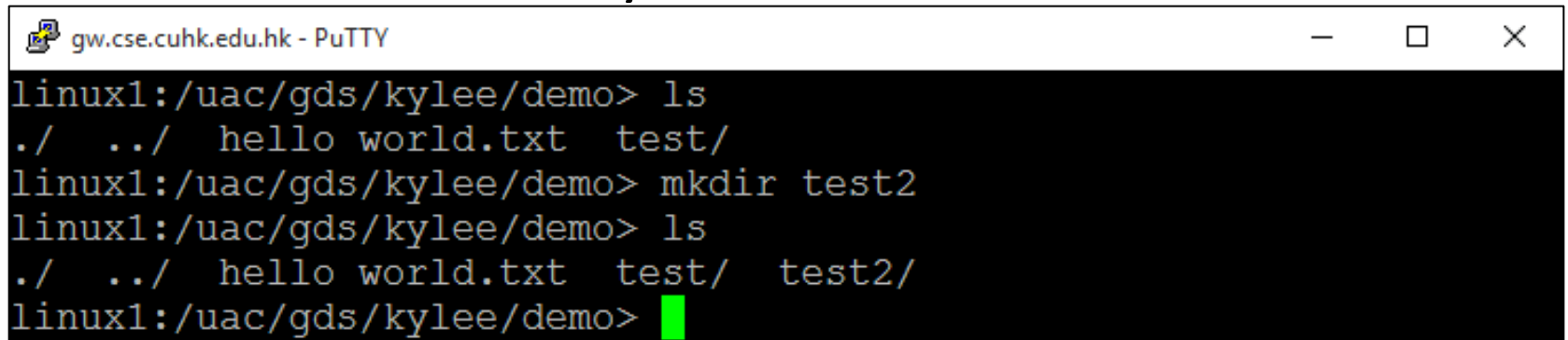
```
linux1:/uac/gds/kylee/demo> cd test
linux1:/uac/gds/kylee/demo/test> cd ..
linux1:/uac/gds/kylee/demo> █
```

Type "**cd ..**" if you want to change the working directory to the parent directory

Intro. to Linux Terminal Command (3)

- **mkdir <directory>**

- Create a directory



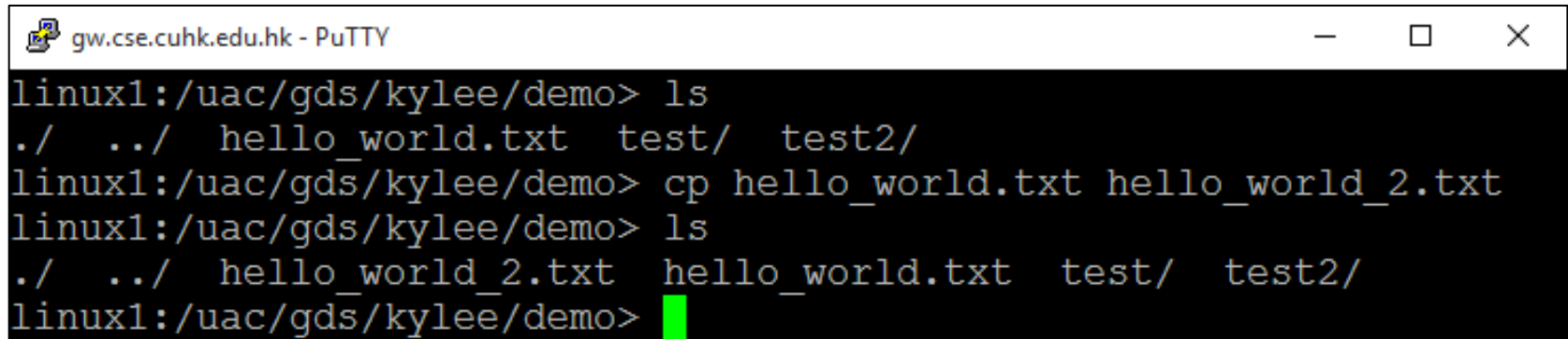
```
gw.cse.cuhk.edu.hk - PuTTY
linux1:/uac/gds/kylee/demo> ls
./  ../  hello world.txt  test/
linux1:/uac/gds/kylee/demo> mkdir test2
linux1:/uac/gds/kylee/demo> ls
./  ../  hello world.txt  test/  test2/
linux1:/uac/gds/kylee/demo> █
```

- **rmdir <directory>**

- Remove an *empty* directory

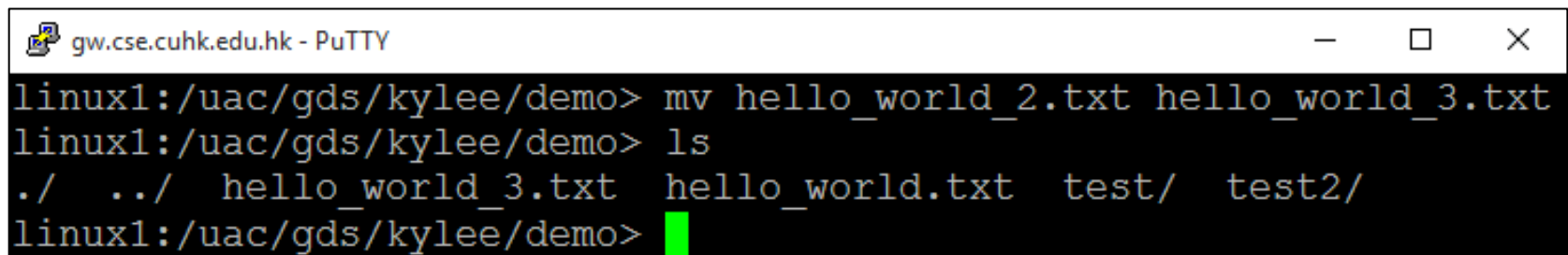
Intro. to Linux Terminal Command (4)

- **cp <source> <destination>**
 - Copy the source file to the destination file



```
gw.cse.cuhk.edu.hk - PuTTY
linux1:/uac/gds/kylee/demo> ls
./ ../ hello_world.txt test/ test2/
linux1:/uac/gds/kylee/demo> cp hello_world.txt hello_world_2.txt
linux1:/uac/gds/kylee/demo> ls
./ ../ hello_world_2.txt hello_world.txt test/ test2/
linux1:/uac/gds/kylee/demo>
```

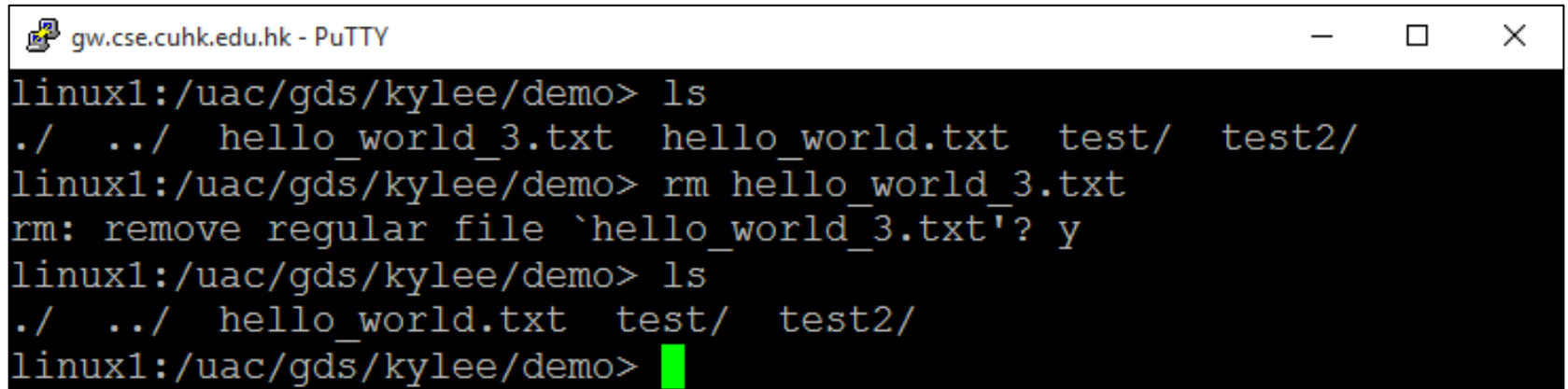
- **mv <source> <destination>**
 - Move the source file to the destination file



```
gw.cse.cuhk.edu.hk - PuTTY
linux1:/uac/gds/kylee/demo> mv hello_world_2.txt hello_world_3.txt
linux1:/uac/gds/kylee/demo> ls
./ ../ hello_world_3.txt hello_world.txt test/ test2/
linux1:/uac/gds/kylee/demo>
```

Intro. to Linux Terminal Command (5)

- **rm <filename>**
 - Remove a file

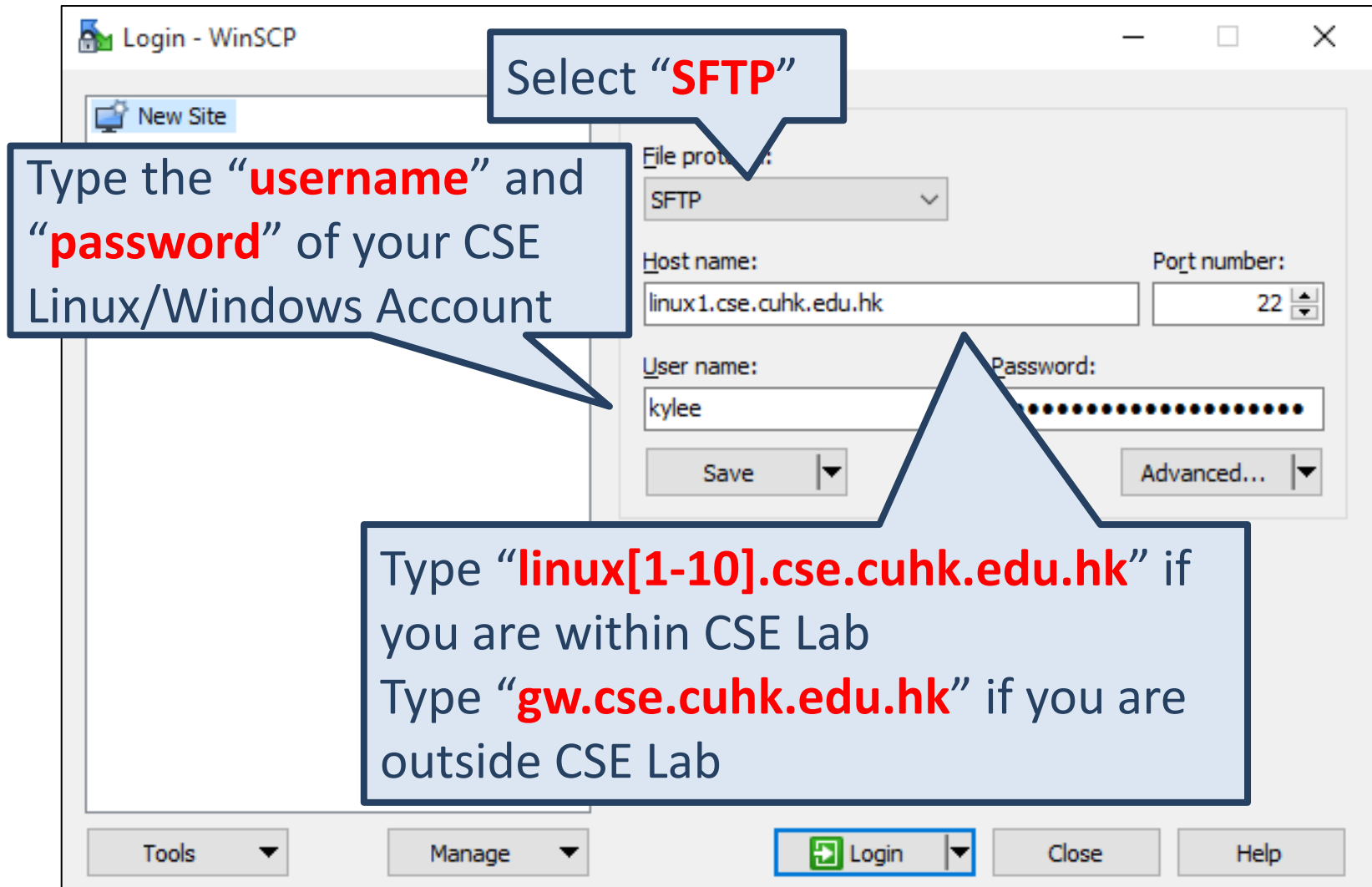


```
gw.cse.cuhk.edu.hk - PuTTY
linux1:/uac/gds/kylee/demo> ls
./  ../  hello_world_3.txt  hello_world.txt  test/  test2/
linux1:/uac/gds/kylee/demo> rm hello_world_3.txt
rm: remove regular file `hello_world_3.txt'? y
linux1:/uac/gds/kylee/demo> ls
./  ../  hello_world.txt  test/  test2/
linux1:/uac/gds/kylee/demo> █
```

- **rm -rf <directory>**
 - Remove the directory and recursively remove all the files and sub-directories within the directory

FILE TRANSFER BETWEEN LINUX SERVERS & LOCAL PC

File Transfer between Linux Servers & Local PC via WinSCP



The image shows the WinSCP Login dialog box with several annotations. A speech bubble points to the 'File protocol' dropdown, which is set to 'SFTP'. Another speech bubble points to the 'Host name' and 'User name' fields, with text explaining that the username and password of the CSE Linux/Windows account should be entered. A third speech bubble points to the 'Host name' field, providing specific hostnames for CSE Lab and outside CSE Lab. The 'Host name' field contains 'linux1.cse.cuhk.edu.hk' and the 'Port number' is set to '22'. The 'User name' field contains 'kylee' and the 'Password' field is masked with dots. The 'Login' button is highlighted with a blue border.

Login - WinSCP

New Site

Select **"SFTP"**

Type the **"username"** and **"password"** of your CSE Linux/Windows Account

File protocol:
SFTP

Host name:
linux1.cse.cuhk.edu.hk

Port number:
22

User name:
kylee

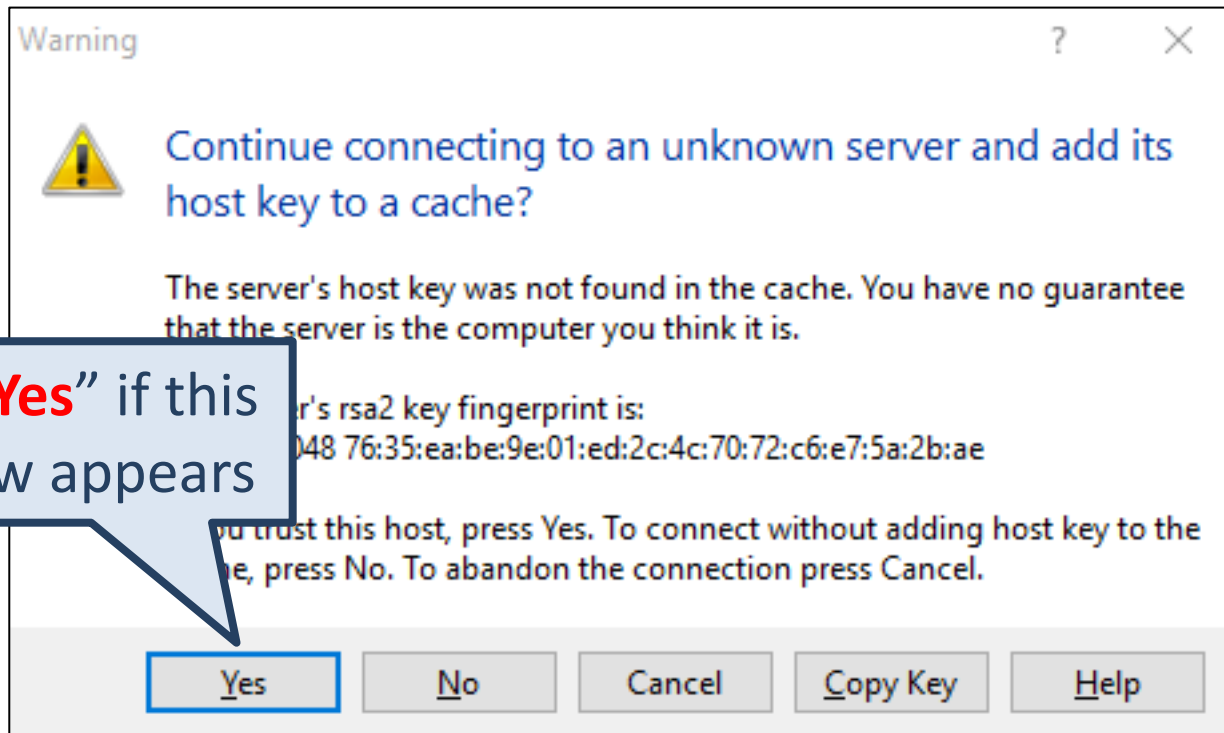
Password:
.....

Save Advanced...

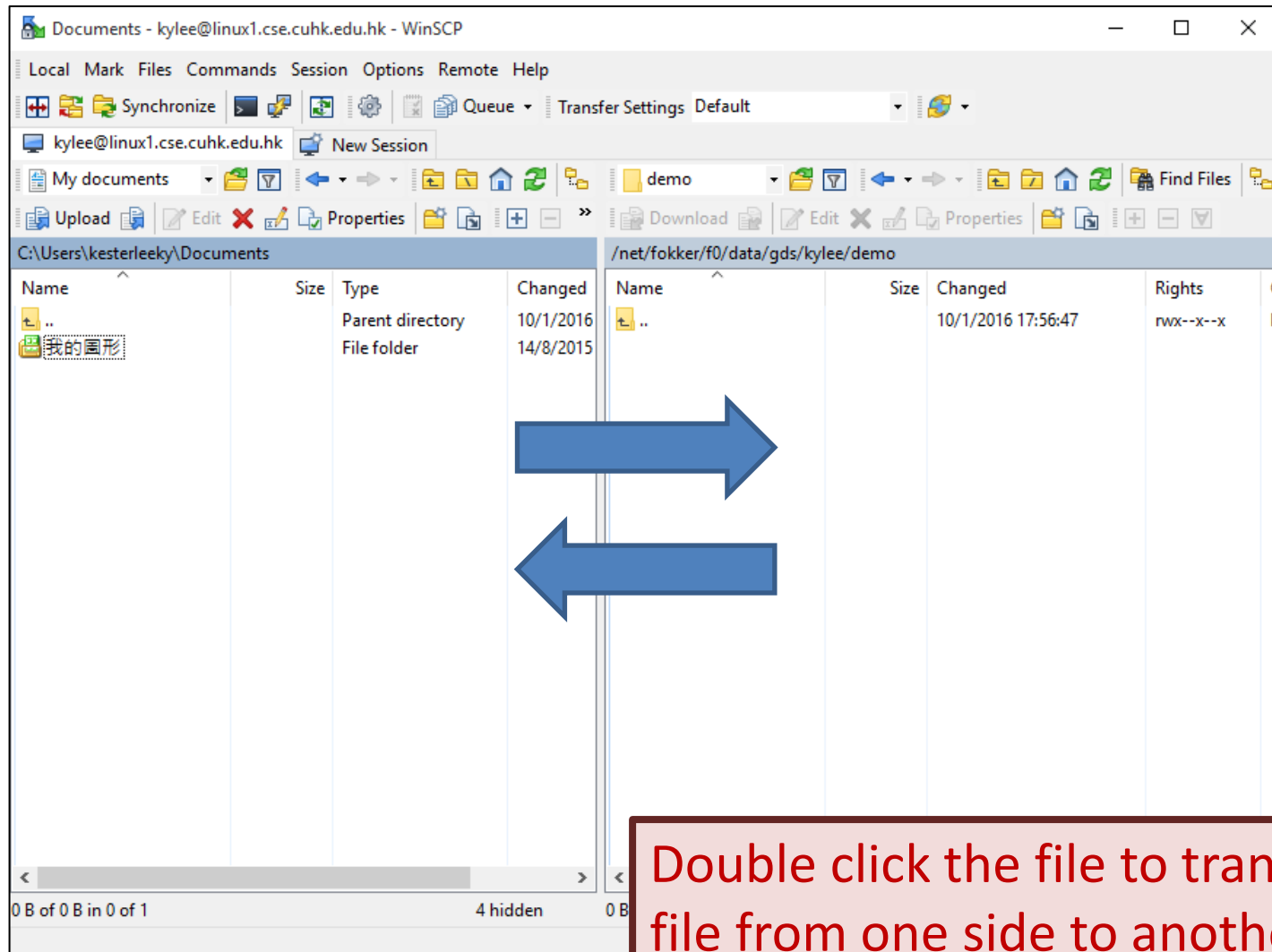
Type **"linux[1-10].cse.cuhk.edu.hk"** if you are within CSE Lab
Type **"gw.cse.cuhk.edu.hk"** if you are outside CSE Lab

Tools Manage Login Close Help

File Transfer between Linux Servers & Local PC via WinSCP (2)



File Transfer between Linux Servers & Local PC via WinSCP (3)



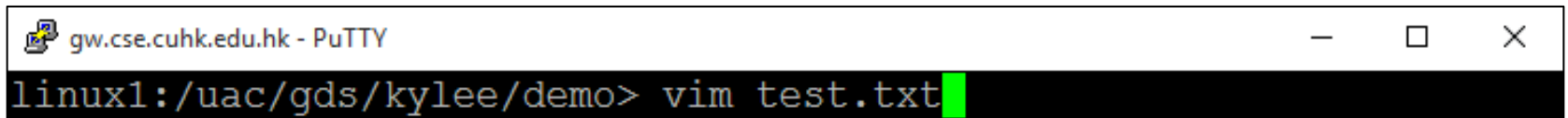
File Transfer between Linux Servers & Local PC via SCP/PSCP

- WinSCP is intuitional but not recommended
- Use 'scp' in terminal client instead
- Use 'pscp' in Windows

INTRODUCTION TO COMMAND LINE TEXT EDITOR VIM

Text Editor

- **vim <filename>**
 - Open a file using test editor “vim”
 - Create a new file if the file does not exist

A screenshot of a PuTTY terminal window. The title bar at the top reads "gw.cse.cuhk.edu.hk - PuTTY". The terminal content shows the command prompt "linux1:/uac/gds/kylee/demo>" followed by the command "vim test.txt" which is currently being entered, with a green cursor at the end of the command.

```
gw.cse.cuhk.edu.hk - PuTTY  
linux1:/uac/gds/kylee/demo> vim test.txt
```

To make your editor with color and line number, you may change the file “**.vimrc**”

Text Editor (2)

- Press “**i**” to change the mode to “**insert mode**”



Text Editor (3)

- Press “**Esc**” to change the mode back to “**normal mode**”. Then, type “**:wq**” to save and close the file



The screenshot shows a PuTTY terminal window titled "gw.cse.cuhk.edu.hk - PuTTY". The terminal has a black background. On the left side, there is a vertical list of blue tilde (~) characters. The first line of the text area contains a yellow "1". At the bottom left of the text area, the text ":q!" is displayed in green, followed by a green cursor block. The terminal window has standard Windows-style window controls (minimize, maximize, close) in the top right corner.

INTRODUCTION TO ORACLE SQLPLUS

Connect to Oracle (1)

- First, type “**ssh** **[account]@Linux[ID].cse.cuhk.edu.hk**” to get into the Linux server
- Type “**csh**” to change the shell

```
$ ssh yjwang22@linux9.cse.cuhk.edu.hk
yjwang22@linux9.cse.cuhk.edu.hk's password:
Last login: Fri Oct 14 12:19:52 2022 from vpngw2.cse.cuhk.edu.hk

-----
Resources limit applied:

- Max number of logins per user: 10
- Max number of processes per user: 1024
- Max resident memory per session: 64GB
-----
```

Reminder: DO NOT get **multiple** logon onto the same Oracle account through sqlplus as commands typed in one sqlplus will not take effect immediately on other clients until you log out.

Connect to Oracle (2)

- Type “**source /opt1/oracle122/setup**” to setup the environment
- Type “**sqlplus [oracle account]@db18.cse.cuhk.edu.hk**” to connect to Oracle account

```
linux9:~> source /opt1/oracle122/setup
linux9:~> sqlplus h001@db18.cse.cuhk.edu.hk

SQL*Plus: Release 12.2.0.1.0 Production on Sun Oct 16 16:17:59 2022

Copyright (c) 1982, 2016, Oracle. All rights reserved.

Enter password:
Last Successful login time: Tue Oct 11 2022 15:15:43 +08:00

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
SQL>
```

For *tutorial* questions, please contact yjwang22@cse.cuhk.edu.hk

For *project* questions, please contact fcui22@cse.cuhk.edu.hk

THANKS