FIT9137 Workshop Week 2

Topics:

- Linux Operating System (OS) Command Line
- Linux OS File System Structure

Covered Learning Outcomes:

- Describe basic concepts of computer hardware and software architectures;
- Explain the three major functions of an operating system (OS), namely, process management, memory management, and file management;

Instructions:

- This week's workshop requires a working prepared VM for the subject as instructed in Week 1 Workshop/Applied.
- One of the main targets of workshops is to anchor the learner into the session and create many opportunities to reinforce the learning in different ways – individually and in small groups. Sometimes we also teach key practical/theoretical concepts to you during these sessions.
- Form groups of 4-5 students to work through the exercises. If met a problem, try to solve it within your group by discussing it with your group members. If not resolved within the group, ask one of the support tutors to help you.
- You still have a question? Jump into one of many consultation hours run by our experienced tutors and seek help. Please visit the "Teaching Team and Unit Resources" tile in the FIT9137 Moodle site.

ACTIVITY A: File Access Rights

Create a directory named week2 in your home directory in your VM. Change into this directory, and perform the following tasks:

a) copy the file /etc/hostname into the ~/week2 directory

b) use the ls -l command to examine the access permissions of the file ~/week2/hostname Explain the output of ls -l, what are the fields and their meaning?

c) use the chmod command (man chmod to learn more) to set the permissions of the file ~/week4/hostname to the following: **read, write and execute for user**, **read and write for group** and **read only for others**. Show the result to your tutor.

Note: do not change the permission of the original file (/etc/hostname)!

d) change the permission of this file again, so that the user no longer has write permission. Explain what happens when you try to delete the file?

ACTIVITY B: Users and Groups

B.1 Adding New Groups

The groupadd command (man groupadd for more info) adds a group (or groups) to the system. Add two groups named fit9137, and fit9000.

a) What happens when you try to add new groups?

b) What command should be used to elevate your privilege to superuser?

c) Where are these groups information stored in the system?

d) Look up the Linux command groups. Explain what this command does.

B.2 Adding New Users

The useradd command (man useradd) adds a user to the system.

a) Add the following users using the command options shown. Check each option in the man page of the command to find out what the option means in these commands.

Note: Type in the commands carefully i.e. double-check them before pressing "enter"! If you create a user incorrectly, it will take some extra effort to correct the error(s).

```
sudo useradd -g fit9137 -d /home/david -m -s /bin/bash -c "David Smith" david
sudo useradd -g fit9137 -d /home/susan -m -s /bin/bash -c "Susan Smith" susan
sudo useradd -g fit9137 -d /home/julie -m -s /bin/bash -c "Julie Lim" julie
sudo useradd -g fit9000 -d /home/jack -m -s /bin/bash -c "Jack Ripper" jack
```

b) Now create new passwords for these new accounts using the passwd command:

```
sudo passwd david
sudo passwd susan
sudo passwd julie
sudo passwd jack
```

c) Change the current directory to /home, and use ls -l to check if all these users' home directories have been created correctly; also check the permissions on these home directories do they belong to the correct groups (as set up above)?

d) Examine the content of /etc/passwd to see if these new users now appear in there. Show the result to your tutor.

e) Examine the content of /etc/group to see if these new groups now appear in there. Show the result to your tutor.

f) You can now log on as these users. A quick way to do this is to use the "Switch User" option from Logout (found at bottom left corner of the Lubuntu Desktop). You will see a list of available users you can choose from. Experiment with logging in as david. Repeat with susan, julie and jack.

g) An alternate way is to use su command (man su) to switch user in the terminal window.

h) You should now have a few users logged into the system. You can check by using the command who.

i) Now log in as david, and create a text file named groupwork.txt in his home directory. Use the chmod command to change the permission of this file, so that it is fully readable and writeable to susan and julie i.e. same group as david, but only readable to everyone else.

j) Log in as susan, and then try to access groupwork.txt in david user's home directory. Can you read from, and write to, the file? Why?

k) Log in as jack, and then try to access groupwork.txt in david user's home directory. Can you read from, and write to, the file? Why?