**Part 2**

* As with every part of Assessment 2, you will login to the Linux Ubuntu virtual machine installed on the PC in the lab.
* Download this word document onto your H: drive in a folder created for this module and lab class. Save the file, changing the name of the file to YourNameA2Part2.docx.
* Now, you can open this file, answer the questions, save it, and finally upload to the correct area in Blackboard. Ask your lecturer where to submit your work, **make sure you submit in the correct area on Blackboard, for your lab lecturer**.
* You can use the **Snipping tool program** to make cut&paste, to copy extracts from your terminal sessions… into your document to help answer questions.

**Initial Setup & Initial testing**

* Open a terminal.
* Make the directory called **Part2** by typing **mkdir Part2**.
* Test the echo command by type **echo This is a test**. Type **echo This is a second test**.

**Question 1**

*Show your first shell script program to run using a bash shell.*

Note: As with all QUESTIONS, do not forget to record your progress by copying your progress to your report. Please ask your lab lecturer if you have any questions or require assistance.

* Open a terminal.
* Go to the Part2 directory (i.e. type **cd Part2**).
* Create an empty file called MyFirstScript by typing **touch MyFirstScript**. Type **ls –l** and note the file size of zero bytes.
* Edit the file MyFirstScript with nano. Type **nano MyFirstScript** and then enter the following data for the file (caution: the script is case sensitive, so small ‘e’ for echo….) :

**echo This is the start of my simple first script program**

**echo We will printout the date and time here $(date)**

**echo We will look at the files in the current directory, note file size**

**ls –l**

* Run the script in a bash shell by typing **bash MyFirstScript**.
* In your own words, **briefly** describe the script MyFirstScript, referring to the commands of echo, date and ls.

**Question 2**

*top, ps, pstree*

* Open a terminal (we consider this terminal 1).
* Run the command **ping** [**www.cit.ie**](http://www.cit.ie).
* Open a second terminal (we consider this terminal 2).
* Use the **ps aux** command to look at the processes. Clearly indicate the process id PID of the ping program running in terminal 1.
* Now use the grep command to make searching the output of ps easier (filter the output). Type the command **ps aux | grep ping**. This command sends the output from ps aux to the grep program. The grep program searches this output and displays the lines with the word **ping**.
* Run the **top** command. Describe at least 5 of the items displayed on the screen. Note: type ‘q’ to exit the top program.
* Close both terminals. The programs/commands the terminals were running will close (i.e. the terminal parent process is stopped, so then the command or program (i.e. child process) will be stopped).

**Question 3**

*Using the kill command*

* Open a terminal.
* Run the command **ping www.cit.ie**
* Open a second terminal.
* Run the command **ping www.mycit.ie**
* Open a third terminal. Using the ps/grep commands, clearly display information about the ping programs running (i.e. type **ps aux | grep ping**).
* Identify the process id PID of the two ping programs, and then kill the two ping programs using the kill command (format: **kill -9 process\_id**).
* Verify that two ping processes were terminated, by repeating the ps command above.
* Close the 3 terminals.

**Question 4**

*Setting programs in the background.*

* Open a terminal. Only one terminal is used for question 4.
* Go to the Part2 directory (i.e. type **cd Part2**).
* Make sure you are in the correct folder by typing **pwd**.
* Run the command **ping www.cit.ie >> hold &**. This places the ping program/process in the background. The output is appended to the file hold.
* Run the command **ping www.mycit.ie >> hold &**. This places the ping program/process in the background. The output is also appended to the file hold.
* Using the ps/grep commands, clearly display information about the ping programs/processes running (i.e. type **ps aux | grep ping**).
* Type **fg** to bring the last ping program/process to the foreground. Type **^C** (hold the control key down and then type C) to kill the ping process.
* Using the ps/grep commands, clearly display information about the ping programs/processes running (i.e. type **ps aux | grep ping**).
* Repeat the previous two steps, until your ping programs/processes are terminated.
* Display the file hold by typing **cat hold**.
* Close the terminal.

**Question 5**

*Graphical task manage, discuss similarities to top/ps commands and differences.*

* Open a terminal.
* Run the gnome-system-monitor graphical program which is similar to the task manager on windows. Type **gnome-system-monitor**. You might have to install it if it does not exist on your machine (i.e. ***sudo apt-get update*** *followed by* ***sudo apt-get install gnome-system-monitor***).
* Report on the similarities to top/ps commands (around 8 lines).
* Report on the differences (around 6 lines). Do not forget to click on the tabs at the top of the monitor program.

**Assessment 2 Details**

* Assessment 2 (which is worth 30%) will be mainly formed by week by week labs completed and submitted each week in class (weekly demonstration required). This enables giving you regular feedback.
* You must **demonstrate** some part of the work completed today in lab class to your lab lecturer.
* Submit **todays** completed questions **on Blackboard**. Ask your lab lecturer where to submit on Blackboard.

**Exercise (Not part of the Assignment)**

* Open the terminal.
* Go to the home directory.
* Test the **tree** command. If the **tree** command is not already installed on your version of Linux, you must install it by typing **sudo apt-get update**, followed by **sudo apt-get install tree**. Compare the tree command with the ls command.
* Test the **pstree** command. *Scroll up* to see the tree of processes.

If the **pstree** command is not already installed on your version of Linux, you must install it by typing **sudo apt-get update**, followed by **sudo apt-get install pstree**.

* Compare **tree** and **pstree** commands.