

Lab Worksheet 4: The Terminal Application

Running applications using the terminal

- (a) Find the *Terminal* application and run it.
- (b) You can run any application by typing its name in the command prompt. Try typing `firefox` and hitting the `Enter` key. You should wait till *firefox* loads.
- (c) You can now switch back to the *Terminal* application by holding down the `Alt` key and pressing the `Tab` key one or more times. Just as in Windows, the `Alt-Tab` combination allows you to switch between (toggle) applications that are currently running.
- (d) Notice that the *Terminal* application is now unusable since it is running the *firefox* application. It needs to wait for *firefox* to finish, for it to be used again. Switch back (toggle) to *firefox* and quit the application using its File (drop-down) menu. This should bring you back to the *Terminal* application.
- (e) This time, type `firefox &` at the prompt (Hint: all commands in the Terminal must end with the `Enter` key). This will run *firefox* in the *background*. This means that the Terminal is free for you to use, *while* *firefox* is running (as a separate process, in the background). You may toggle between *firefox* and *Terminal* to make sure that both are running at the same time.
- (f) Now run the system monitor program by typing `gnome-system-monitor` in the terminal (Hint: remember to type a space followed by `'&'` to make it run in the background). Now you will have all three applications, *firefox*, system monitor and Terminal running as *independent* process in Ubuntu. Try toggling between them to verify this.
- (g) Toggle to the *Terminal* and type `jobs` to see the applications run from the terminal.
- (h) Toggle to the System Monitor application to check what is making your computer slow. Try clicking on the Processes tab to have a look. You can try clicking on the CPU% tab to sort it in ascending and descending order to see which applications are using the most CPU time in your computer. You can also click on the Memory tab to see which applications are using most of the memory. You can also click on the Resources tab to have a graphical look at the CPU, Memory and Network usage on your computer. It will also show you how much memory in total are being used by applications out of the total. The total should be the same as what the System tab reports (as you discovered in the previous lab). You may also want to explore the File Systems tab. Does the system monitor give you any idea as to why your computer may be slow?
- (i) Since the 3 applications are now independent, you may exit them in any order. Assuming that *firefox* is stuck, you can toggle to the Terminal and type `jobs` to verify its job number. Since it was the first one you executed, it should be 1. You can terminate it (abnormally) by typing `kill %1` in the Terminal. Note that this is not the normal way to exit any application!
- (j) If the entire Ubuntu system (usually the desktop environment itself or the Window manager) is *stuck*, you can still use Ubuntu in *console mode*, by using the key combination `Ctrl-Alt-F1`. Try this now. You will be prompted to login again. Typing `ps -aux` will give you a list of all processes running on your computer (including the ones that are stuck). Since you can't scroll in *console mode*, you can use the modified command `ps -aux | more` to view the processes a screen at a time (press the space bar to scroll down).
- (k) To get back to the graphical user interface (GUI) provided by the desktop environment and window manager, click `Ctrl-Alt-F7`. Note that F1 to F6 will give you 6 text only console terminals, while F7 gives you the GUI.