CS380 - Lab Assignment

Processes:

We have mentioned processes in class.

A process is a program in execution. A process needs certain resources, including CPU time, memory, files, and I/O devices, to accomplish its task. Programs are passive (just a file) processes are active. A process is a unit of work.

Processes are often seen as synonymous with programs or applications. However, what the user sees as a single application may in fact be a set of cooperating processes.

This lab assignment looks at processes. Once again we will use Terminal to complete the assignment.

Some points to note before you start the assignment:

1. Unix-like operating systems identify a user within the kernel by a value called a user identifier, often abbreviated to user ID or UID. The root user has a *UID* of *0*. Type the **id** command on your command line to see what your UID is.
2. Recall that you can view the manual associated with a command using **man**. For example to view the manual associated with the **id** command you would type **man id** in Terminal.
3. Before you begin the assignment, go to the following page: https://delightlylinux.wordpress.com/2012/06/25/what-is-pid-and-ppid/ . Here you will see how to view the processes currently running on your machine using the **top** command, and gain an understanding of what PID and PPID mean (look at the PID and PPID sections of this webpage only).
4. **diff** command allows you examine the difference between two files (see https://www.lifewire.com/compare-two-text-files-linux-3861434 and **man diff** for details).
5. **ps** is a command that displays information about all processes currently running in your system. Google for details on this command (e.g. http://www.linfo.org/ps.html). Also, read man page of ps command,
    a. Recall that you can pipe the output to an e.g. text file if you want to read this in a text editor for example (e.g. **man ps > manpsdetails.txt** & then **open manpsdetails.txt**). If you haven't already done so google for further functionality of piping and see **man pipe**.

Today's Assignment:

Enter the following commands: (1) ps –ef | more and (2) ps aux | less [see e.g. http://www.linfo.org/ps.html for details on what the various columns displayed by these commands mean]. These will result in displaying a long list of processes. Identify what processes are started

when the system is booted, and what processes are started later on. For each process, find out who owns it, what code it is running, and how much CPU/memory it has used.

Now, store the details of all processes owned by root in a file called rootprocesses-1, and all processes owned by you in a file called my-processes-1.

Next, restart your system, and create similar files, root-processes-2 and myprocesses-2. Use Terminal to compare root-processes-2 with root-processes-1, and my-processes-2 with my-processes-1 (save this comparison to a file called comparison.txt). Explain why you think there are differences between the two & save this explanation to a file called differences.txt. Finally append the contents of the comparison.txt file to the differences.txt file.

<u>Assignment Submission Instructions:</u>

Submit your completed assignment through Moodle. You should submit 5 files, specifically: your rootprocesses-1, my-processes-1, rootprocesses-2, my-processes-2 and differences.txt files.

Assignment submission deadline is provided on Moodle. Penalties will be imposed on late submissions.