Week 3 Homework *Solutions*

This homework is meant to make you more familiar with UNIX environment and vi text editor.

Commands

There are some more important concepts which you will need to learn. One is how to manage processes in a UNIX-like environment. Here are some of the useful commands: **top, ps, pkill**.

- **top** displays all of the process currently running. Every process in UNIX has a unique ID number, which you should see under the **PID** column. You will also can the user running the process under the **USER**, the priority of the process under **NI**, percentage of the processor and memory being taken up under **%CPU** and **%MEM**, and, of course, the command itself. Go ahead and try running **top**. **Solution:***Just type in* **top** *into your shell*

- ps gives you a snapshot of the current processes. There are unfortunately different versions of **ps** on inst and ocf, so some of the arguements you pass in on one machine may not work on other. Read the manual for **ps** by running **man ps** and list all of the processes that you are running. Now, use **ps** to give you a listing that will give you all of the processes with the **USER**, **PID**, **%CPU**, **%MEM**, **VSZ**, **RSS**, **TTY**, **STAT**, **START**, **TIME**, and the full command that was ran **COMMAND**. Then, you can search the listing by using a pipe |. So, you can run **ls | grep setup**, you should see *setup.sh* file. So, go ahead and that by substituting an appropriate command for **ls** to search through all process for **firefox**, **ls**, **vi**. What command did you use? **Solution:** *Unforunately, inst does not have a man page that is in your path, so you would have to run it on OCF, so* **man ps** *would return to you the manual on how to use* **ps**. *If you did the aliasing part of the homework, you would have discovered that your life would be much much easier, because the version residing at* **/usr/ucb/bin** *is much nicer. So, in that case you would need to run* **ps auw**. *You would use a pipe to go through the listing by running* **ps auw | grep firefox**. *If you ran the less nicer version of* **ps** *before aliasing, (you can find out if you did that by running* **which ps** *which will return to you the path where* **ps** *resides), you should run* **ps -o user,pid,vsz,rss,tty,time,pcpu,pmem -a**.

- **pkill** kills a process. The argument to **pkill** is a the process's name, so **pkill firefox** will kill your firefox browser. Be careful with this command when experimenting! Go ahead, and open up a new shell, and judging by the time when it was created, try and kill it. What command did you run? *When you would open a new shell, and you run* **ps awu** *you would see that a new process called* **xterm** *would be created, with a time close to 0:00. This is probably it. However, if you did not complete this exercise, do not worry about it, as I realize that it would probably not be possible to do if you are conneting through SSH program from Windows.*

More UNIX customization

We previously made changes to .Xresources file, which is a file that is read the first time UNIX X environment loads. Now, let's customize another file **.bashrc**. You should be careful with it, so go ahead and create a copy of it, and lets work with it. **Solution:***copy .bashrc .bashrc.foo*

- Go ahead and open up the file you just copied .bashrc into with vi **Solution: vi .bashrc.foo**

- You should see just one line in there which should begin with *source*.

- We are going to **alias** some commands. What **alias** does is create shortcuts for often used commands, so that you do not want to type them all the time. For example, **ls -l** gives you a long listing of the directory with all of the permissions of the files. We can alias that by putting the following line in our .bashrc file *alias ll='ls -l'*. Go ahead and do that. We can also give out exact location of the commands, like *alias ls='/usr/bin/ls'*.

- Now go ahead and alias **ps** to */usr/ucb/ps*, **ls -a** to *ll*, **ls -CF** to *l*. **Solution:** *Type in* **A***, and hit enter. This should put you at a new line. Go ahead and type in* **alias ll='ls -l'***, then hit enter again and type in* **alias ps='/usr/ucb/ps'***, enter and type in* **alias ll='ls -a'** *(This was a typo on my part - I actually intended for ls -a to be aliased to la), another enter and type in* **alias l='ls -CF'**

- Go ahead and save the file, and rename it .bashrc. **Solution:***Hit Esc, then* **ZZ***, mv .bashrc.foo .bashrc.*

- Email dima@ocf.berkeley.edu with all of the commands that you ran, and you are done.

Note: Please keep in mind that the solutions above are not the only way to complete the homework, and there probably exist more efficient ways in accomplishing the task