Exsercise 5: Managing Software and Processes - Part 2

I. Prepare the environment

1. Login to the ubuntu server and install the screen and tmux package

II. Managing the shared library

1. Login to the ubuntu server as student.
2. Show all the libraries existed in the server and re-create the library cache
3. Show all the libraries in library cache, how many libs found in the cache?
4. Review the information in /etc/ld.so.conf file and read some files inside the /etc/ld.so.conf.d directory
5. Specify which libraries will be called if the echo command runs.

III. Create, monitor and kill process

6. Display all processes running in the server and describe the information on the screen.

7. Using top to monitor the system load and processes. Try to describe all the information on the screen.
8. Showing the help page of top and escape.

Using screen

9. Type screen to create the first window screen.
10. Issue top to monitoring system state.
11. Split the window into two regions (horizontal).
12. Jump to the bottom region. Do you get the shell prompt there?
13. Create a window within the bottom region to get the shell prompt.
14. Issue a command to view the from the end of /var/log/syslog in realtime mode.
15. Split the current window vertically.
16. Now the focus is in the lower-left window. Jump to the lower-right focus.
17. Escape the current window
18. List the screens existed in the server
19. Re-connect to your screen. Does the windows layout remain?
20. Kill the current screen by pressing Ctrl+A prefix and K

Using Tmux

Re-do the step 9 to 20 but using Tmux instead.

Exsercise Instructions

I. Prepare the environment

1. Log int to the Ubuntu system with the user name and password provided: student/lpic1@123
   $ sudo apt-get install screen

   $ sudo apt-get install tmux

II. Managing shared library

1. Log int to the Ubuntu system with the user name and password provided: student/lpic1@123
2. Show all the libraries existed in the server and re-create the library cache
   $ sudo ldconfig -v |more
3. Show all the libraries in library cache, how many libs found in the cache?
   $ ldconfig -p
4. Review the information in /etc/ld.so.conf file and read some files inside the /etc/ld.so.conf.d directory
   $ cat /etc/ld.so.conf
   $ cd /etc/ld.so.conf.d/
   $ more <file name>
5. Specify which libraries will be called if the echo command runs.
   $ ldd /bin/echo

IV. Create, monitor and kill process

6. Display all processes running in the server and describe the information on the screen.
   $ ps -ef |more

```
UID          PID  PPID  C STIME TTY          TIME CMD
root           1     0  0 08:42 ?        00:00:02 /sbin/init
root           2     0  0 08:42 ?        00:00:00 [kthreadd]
root           4     2  0 08:42 ?        00:00:00 [kworker/0:0H]
root           6     2  0 08:42 ?        00:00:00 [mm_percpu_wq]
root           7     2  0 08:42 ?        00:00:01 [ksoftirqd/0]
root           8     2  0 08:42 ?        00:00:06 [rcu_sched]
root           9     2  0 08:42 ?        00:00:00 [rcu_bh]
root          10     2  0 08:42 ?        00:00:00 [migration/0]
root          11     2  0 08:42 ?        00:00:00 [watchdog/0]
root          12     2  0 08:42 ?        00:00:00 [cpuhp/0]
root          13     2  0 08:42 ?        00:00:00 [kdevtmpfs]
root          14     2  0 08:42 ?        00:00:00 [netns]
root          15     2  0 08:42 ?        00:00:00 [rcu_tasks_kthre]
root          16     2  0 08:42 ?        00:00:00 [kauditd]
root          17     2  0 08:42 ?        00:00:00 [khungtaskd]
root          18     2  0 08:42 ?        00:00:00 [oom_reaper]
root          19     2  0 08:42 ?        00:00:00 [writeback]
root          20     2  0 08:42 ?        00:00:00 [kcompactd0]
root          21     2  0 08:42 ?        00:00:00 [ksmd]
root          22     2  0 08:42 ?        00:00:00 [khugepaged]
root          23     2  0 08:42 ?        00:00:00 [crypto]
root          24     2  0 08:42 ?        00:00:00 [kintegrityd]
root          25     2  0 08:42 ?        00:00:00 [kblockd]
root          26     2  0 08:42 ?        00:00:00 [ata_sff]
root          27     2  0 08:42 ?        00:00:00 [md]
root          28     2  0 08:42 ?        00:00:00 [edac-poller]
root          29     2  0 08:42 ?        00:00:00 [devfreq_wq]
root          30     2  0 08:42 ?        00:00:00 [watchdogd]
root          34     2  0 08:42 ?        00:00:00 [kswapd0]
root          35     2  0 08:42 ?        00:00:00 [kworker/u3:0]
root          36     2  0 08:42 ?        00:00:00 [ecryptfs-kthrea]
root          78     2  0 08:42 ?        00:00:00 [kthrotld]
root          79     2  0 08:42 ?        00:00:00 [acpi_thermal_pm]
root          80     2  0 08:42 ?        00:00:00 [scsi_eh_0]
root          81     2  0 08:42 ?        00:00:00 [scsi_tmf_0]
--More--
```

7. Using top to monitor the system load and processes. Try to describe all the information on the screen.
   $ top

```
top - 17:54:24 up  9:11,  2 users,  load average: 0.04, 0.02, 0.00
Tasks: 105 total,   1 running,  64 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.0 us,  0.3 sy,  0.0 ni, 99.7 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem :  1008804 total,   163560 free,   145808 used,   699436 buff/cache
KiB Swap:  2017276 total,  2011068 free,     6208 used.   682604 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S %CPU %MEM     TIME+ COMMAND
26009 root      20   0       0      0      0 I  0.3  0.0   0:02.29 kworker/0:2
26301 student   20   0   42804   4044   3416 S  0.3  0.4   0:05.01 top
26659 student   20   0   42796   3972   3348 R  0.3  0.4   0:00.02 top
    1 root      20   0  159924   8940   6680 S  0.0  0.9   0:02.17 systemd
    2 root      20   0       0      0      0 S  0.0  0.0   0:00.00 kthreadd
    4 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 kworker/0:0H
    6 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 mm_percpu_wq
    7 root      20   0       0      0      0 S  0.0  0.0   0:01.19 ksoftirqd/0
    8 root      20   0       0      0      0 I  0.0  0.0   0:06.65 rcu_sched
    9 root      20   0       0      0      0 I  0.0  0.0   0:00.00 rcu_bh
   10 root      rt   0       0      0      0 S  0.0  0.0   0:00.00 migration/0
   11 root      rt   0       0      0      0 S  0.0  0.0   0:00.12 watchdog/0
   12 root      20   0       0      0      0 S  0.0  0.0   0:00.00 cpuhp/0
   13 root      20   0       0      0      0 S  0.0  0.0   0:00.00 kdevtmpfs
   14 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 netns
   15 root      20   0       0      0      0 S  0.0  0.0   0:00.00 rcu_tasks_kthre
   16 root      20   0       0      0      0 S  0.0  0.0   0:00.00 kauditd
   17 root      20   0       0      0      0 S  0.0  0.0   0:00.01 khungtaskd
   18 root      20   0       0      0      0 S  0.0  0.0   0:00.00 oom_reaper
   19 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 writeback
   20 root      20   0       0      0      0 S  0.0  0.0   0:00.00 kcompactd0
   21 root      25   5       0      0      0 S  0.0  0.0   0:00.00 ksmd
   22 root      39  19       0      0      0 S  0.0  0.0   0:00.00 khugepaged
   23 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 crypto
   24 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 kintegrityd
   25 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 kblockd
   26 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 ata_sff
   27 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 md
   28 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 edac-poller
   29 root       0 -20       0      0      0 I  0.0  0.0   0:00.00 devfreq_wq
```

Using screen

8. Type screen to create the first window screen. Press the Enter key to exit the Welcome screen, if one is shown.
9. Issue the top command to monitor the system process
10. Press the Ctrl+A prefix and then the Shift+S key combinations to split the window into two regions (focuses).
11. Press the Ctrl+A prefix and then the Tab key to jump to the bottom focus. You will not receive a shell prompt, because there is currently no window screen in this focus.
12. Press the Ctrl+A prefix and then the C key to create a window within the bottom focus. You should now have a command-line prompt.
13. Issue the following command:
    $ sudo tail -f /var/log/syslog

14. Press the Ctrl+A prefix and then the I key to split the current window vertically.
15. Now the focus is in the lower-left window.
16. Press the Ctrl+A prefix and then the Tab key to jump to the lower-right focus. You will not receive a shell prompt, because there is currently no window screen in this focus.
17. Press the Ctrl+A prefix and then D to escape from the current screen
18. List the screens existed in the server
    $ screen -ls

19. Re-connect to your screen. Does the windows layout remain?
    $ screen -r <screen id>

20. Kill the current screen by pressing Ctrl+A prefix and K

Using Tmux

21. Type tmux or tmux new to create the first window.
22. Issue the top command to monitor the system process
23. Press the Ctrl+B prefix and then the " key combinations to split the window into two regions (focuses).
24. Do you need to create a window like screen?
25. Issue the following command:
    $ sudo tail -f /var/log/syslog

26. Press the Ctrl+B prefix and then the % key to split the current window vertically.
27. Press the Ctrl+B prefix and then the O key to jump between windows.
28. Press the Ctrl+A prefix and then d to escape from the current screen
29. List the screens existed in the server
    $ tmux -ls

30. Re-connect to your screen. Does the windows layout remain?
    $ tmux attach-session -t <id>

31. Kill the current tmux window by pressing the Ctrl+B prefix and & key.