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Lab report no. :06

Lab report name: Lab report on Linux command for process.

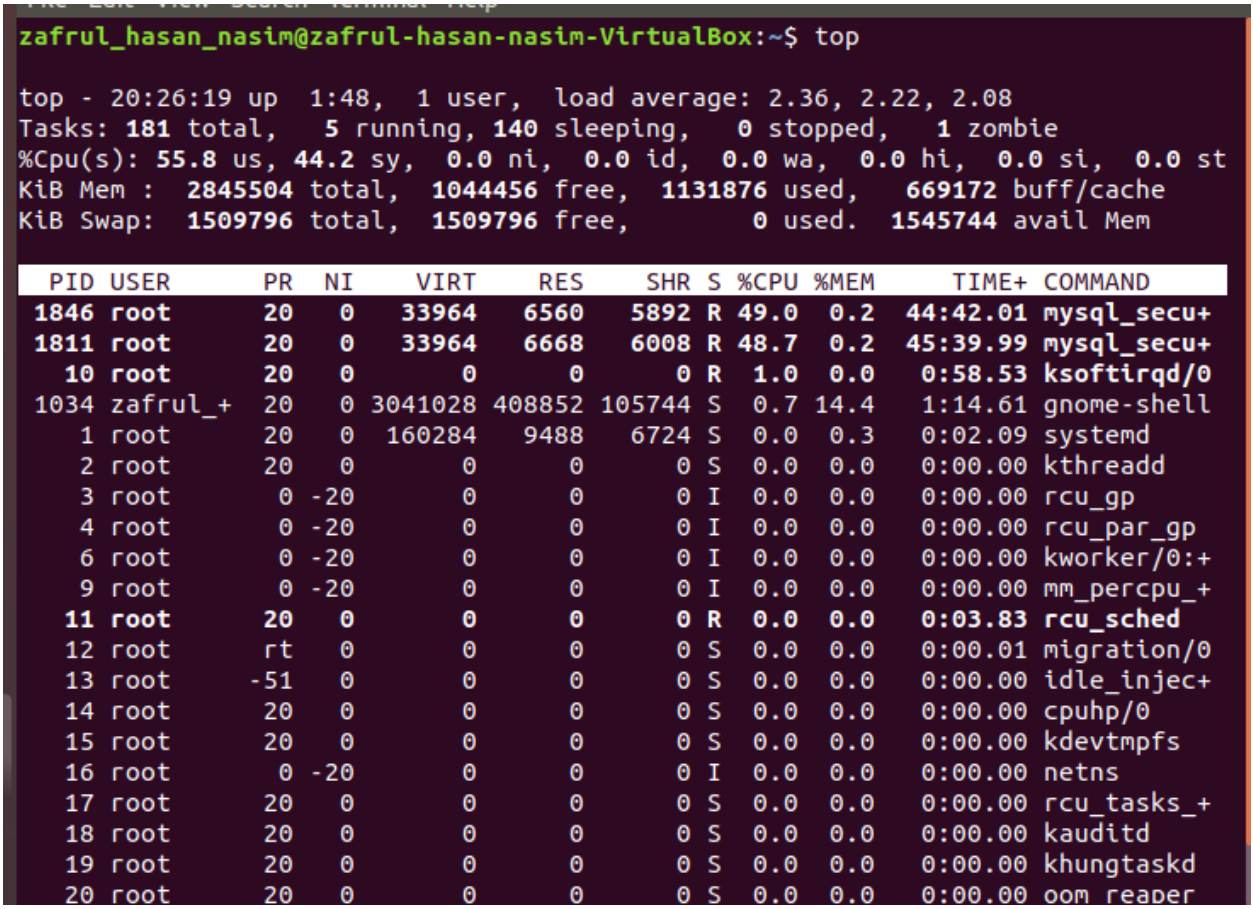
Aim and objectives: Linux is a multiprocessing operating system. How process work in Linux , how to manipulate and process and see all the running process , to store them in a local file and thus have the basic understanding of the whole thing .

Explanation:

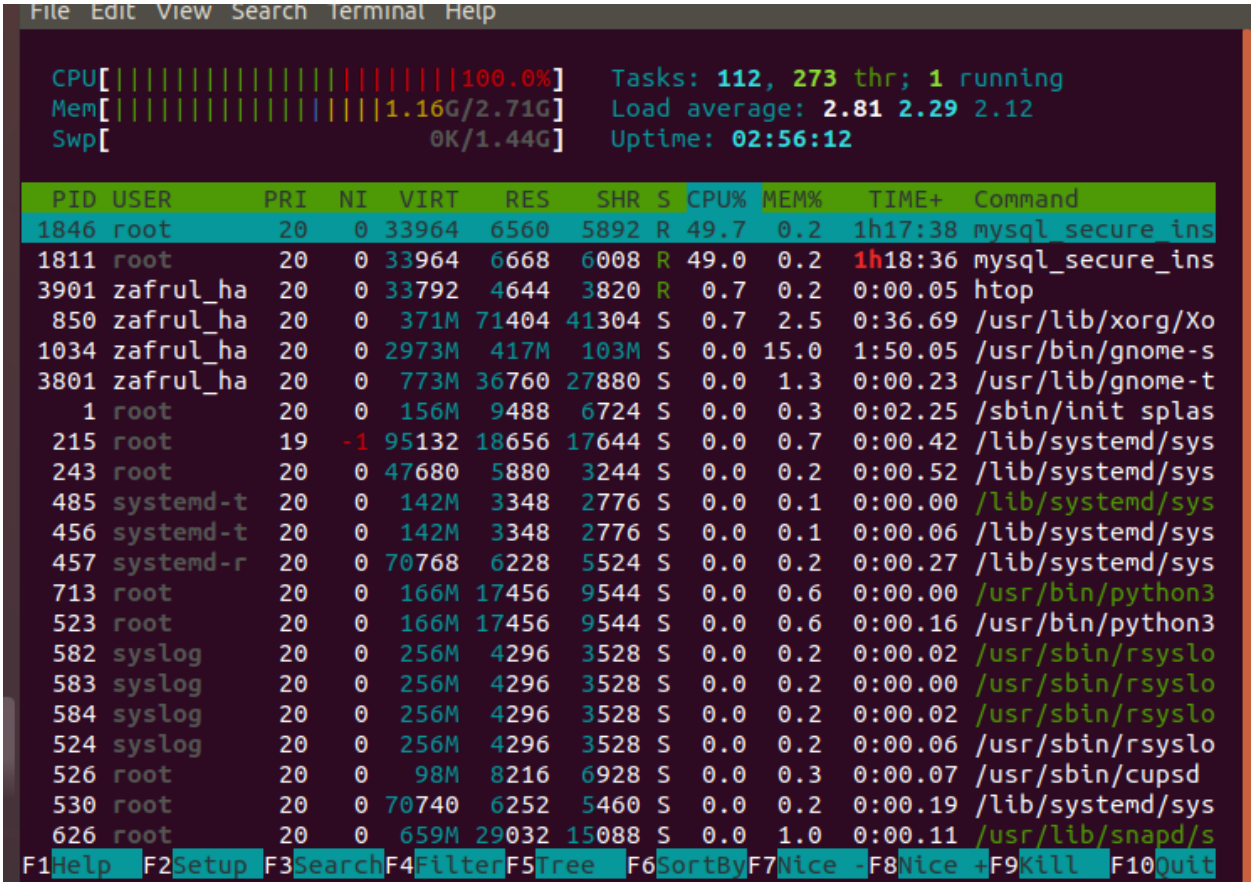
i) **Manage processes from Linux terminal:** The Linux terminal has a number of useful commands that can display running processes, kill them, and change their priority level. This post lists the classic, traditional commands, as well as some more useful, modern ones. These useful commands helps to manage the processes of Linux .some example of these command : top,htop,kill,pgrep,renice etc .

ii) Run the process command in Linux:

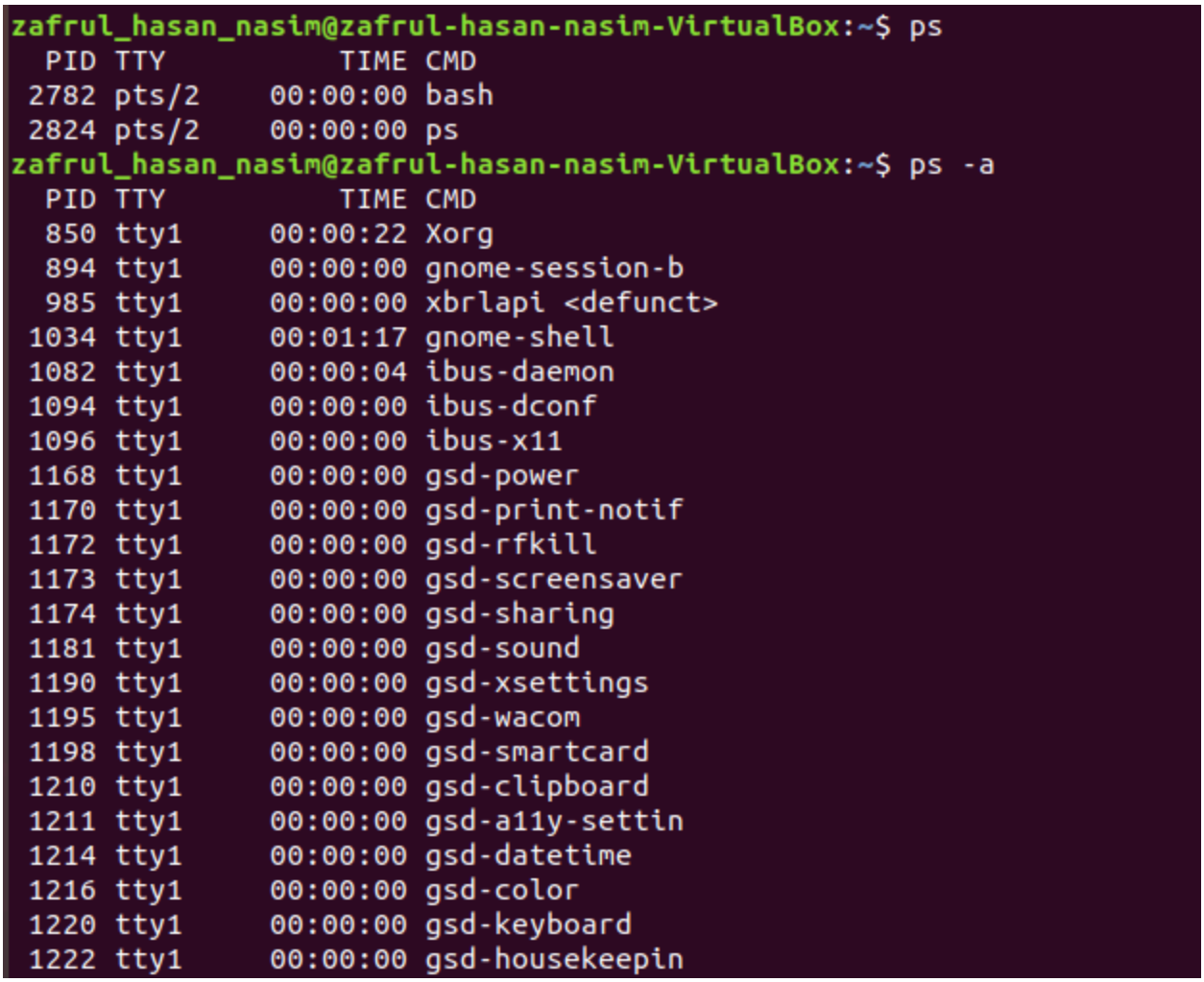
top command : The top command is the traditional way to view your system's resource usage and see the processes that are taking up the most system resources. Top displays a list of processes, with the ones using the most CPU at the top.



htop command : htop is not installed by default , so I have install by 'sudo apt-get install htop' command . htop displays the same information with an easier-to-understand layout. It also lets you select processes with the arrow keys and perform actions, such as killing them or changing their priority, with the F keys.



ps command : The ps command lists running processes. The following command lists all processes running on your system.



pstree command : The pstree command is visualizing processes in tree format.

```
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ pstree
systemd─┬─ModemManager───2*[{ModemManager}]
        ├─NetworkManager─┬─dhclient
        │                └─2*[{NetworkManager}]
        ├─accounts-daemon───2*[{accounts-daemon}]
        ├─acpid
        ├─avahi-daemon───avahi-daemon
        ├─boltd───2*[{boltd}]
        ├─colord───2*[{colord}]
        ├─cron
        ├─cups-browsed───2*[{cups-browsed}]
        ├─cupsd───2*[dbus]
        ├─dbus-daemon
        ├─fwupd───4*[{fwupd}]
        ├─gdm3─┬─gdm-session-wor─┬─gdm-x-session─┬─Xorg───{Xorg}
        │      │                 │               ├─gnome-session-b─┬─deja-dup-+
        │      │                 │               │                 ├─gnome-she+
        │      │                 │               │                 ├─gsd-a11y-+
        │      │                 │               │                 ├─gsd-clipb+
        │      │                 │               │                 ├─gsd-color+
++      │      │                 │               │                 ├─gsd-datet+
        │      │                 │               │                 ├─gsd-disk-+
        │      │                 │               │                 ├─gsd-house+
        │      │                 │               │                 ├─gsd-keybo+
        │      │                 │               │                 ├─gsd-media+
        │      │                 │               │                 ├─gsd-mouse+
++      │      │                 │               │                 │
```

kill command : This command is used to terminate processes manually. kill command sends a signal to a process which terminates the process.

```
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ ps
  PID TTY          TIME CMD
 2782 pts/2    00:00:00 bash
 2967 pts/2    00:00:00 ps
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ kill pid
bash: kill: pid: arguments must be process or job IDs
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$
```

pgrep command : pgrep command returns the process IDs that match it.

```
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ pgrep ssh
1004
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ pgrep ssh -d' '
1004
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ pgrep ssh -l
1004 ssh-agent
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$
```

pkill command : The pkill commands can kill a process, given its name.

```
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ pkill firefox
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$
```

Killall command: killall command is a used to terminating running processes on your system based on name.

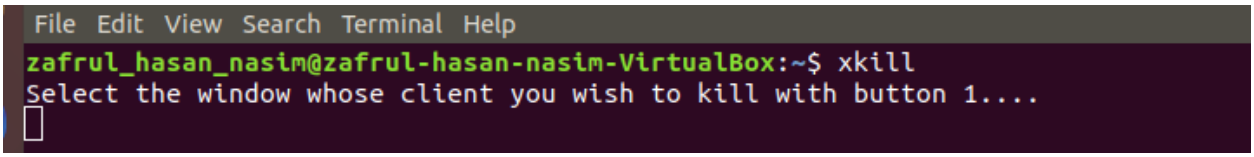
```
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ killall
Usage: killall [ -Z CONTEXT ] [ -u USER ] [ -y TIME ] [ -o TIME ] [ -eIgiqrvw ]
               [ -s SIGNAL | -SIGNAL ] NAME...
       killall -l, --list
       killall -V, --version

  -e,--exact          require exact match for very long names
  -I,--ignore-case    case insensitive process name match
  -g,--process-group  kill process group instead of process
  -y,--younger-than   kill processes younger than TIME
  -o,--older-than     kill processes older than TIME
  -i,--interactive    ask for confirmation before killing
  -l,--list           list all known signal names
  -q,--quiet          don't print complaints
  -r,--regexp         interpret NAME as an extended regular expression
  -s,--signal SIGNAL  send this signal instead of SIGTERM
  -u,--user USER      kill only process(es) running as USER
  -v,--verbose        report if the signal was successfully sent
  -V,--version        display version information
  -w,--wait           wait for processes to die
  -n,--ns PID         match processes that belong to the same namespaces
                      as PID or 0 for all namespaces
  -Z,--context REGEXP kill only process(es) having context
                      (must precede other arguments)
```

renice command : The **renice** command changes the nice value of an already running process. The nice value determines what priority the process runs with.

```
File  Edit  View  Search  Terminal  Help
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ ps -el | grep terminal
0 S  1000  3174   798  0  80   0 - 198015 poll_s ?       00:00:00 gnome-termina
l-
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ renice -n 15 -p 3174
3174 (process ID) old priority 0, new priority 15
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$ ps -el | grep terminal
0 S  1000  3174   798  0  95  15 - 198015 poll_s ?       00:00:00 gnome-termina
l-
zafrul_hasan_nasim@zafrul-hasan-nasim-VirtualBox:~$
```

xkill command : The xkill command is a way of easily killing graphical programs. Run it and your cursor will turn into an **x** sign. Click a program's window to kill that program.



Conclusion: From this lab ,I have a basic grasp of process in Linux operating system ,how to manage process, how to kill them, how to save there data in memory we also learnt about pipes. We learnt several methods to kill a process in linux both in GUI and command line , by using name and PID .At the end , this lab is very helpful for process handling.