Finolex Academy of Management and Technology, Ratnagiri

Department of Information Technology

Subject:	**Unix Lab(**SE ITL402**)**		
Class:	**SE IT / Semester – IV (CBCGS) / Academic year: 2017-18**		
Name of Student:	**Kazi Jawwad A Rahim**		
Roll No:	**28**	**Date of performance (DOP) :**	
Assignment/Experiment No:	**05**	**Date of checking (DOC) :**	
Title: To implement system administrative tasks: Process Management and File Management			
Marks:		**Teacher's Signature:**	

1. Aim: To implement system administrative tasks: Process Management and File Management

2. Prerequisites:

C Programming Language and Operating System

3. Hardware Requirements:

- PC with minimum 2GB RAM

4. Software Requirements:

- Fedora installed.

5. Learning Objectives:

To learn file management and permission advance commands.

6.Course Objectives Applicable: LO1,LO2,LO5

7. Program Outcomes Applicable: PO2,PO3,PO4

8. Program Education Objectives Applicable: PEO2,PEO3,PO4

9. Theory:

An instance a program is called as a process.

Types of process:

i) Foreground Process: They run on the screen and need user input.
e.g: Office Program.

ii) Background Process: They run in the background and usually do not require user input.
e.g: Anti Virus.

Commands:

I) Runnig foreground process

Description: It runs the process which runs on foreground.

Syntax: processname

OUTPUT:

```
students@ubuntu:~$ firefox
^C
```

II) Top

Description: It will show all running processes on Linux Machine.

Syntax: top

q - To stop.

OUTPUT:

```
students@ubuntu:~$ top

top - 11:45:21 up 10 min,  2 users,  load average: 0.16, 0.38, 0.33
Tasks: 175 total,   2 running, 173 sleeping,   0 stopped,   0 zombie
Cpu(s):  0.7%us,  1.0%sy,  0.0%ni, 98.3%id,  0.0%wa,  0.0%hi,  0.0%si,  0.0%st
Mem:   1026104k total,   677772k used,   348332k free,    43688k buffers
Swap:  1046524k total,        0k used,  1046524k free,   335864k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 1213 root      20   0  112m  43m 6996 S  0.7  4.3   0:07.86 Xorg
 2358 students  20   0  295m  93m  31m R  0.3  9.4   0:06.27 compiz
 2490 students  20   0 42412  10m 8564 S  0.3  1.0   0:00.66 gtk-window-deco
 2777 students  20   0 88816  14m  10m S  0.3  1.5   0:00.64 gnome-terminal
 2896 students  20   0  2852 1168  876 R  0.3  0.1   0:00.02 top
    1 root      20   0  3660 2008 1288 S  0.0  0.2   0:01.06 init
    2 root      20   0     0    0    0 S  0.0  0.0   0:00.03 kthreadd
    3 root      20   0     0    0    0 S  0.0  0.0   0:00.08 ksoftirqd/0
    5 root       0 -20     0    0    0 S  0.0  0.0   0:00.00 kworker/0:0H
    7 root       0 -20     0    0    0 S  0.0  0.0   0:00.00 kworker/u:0H
    8 root      RT   0     0    0    0 S  0.0  0.0   0:00.00 migration/0
    9 root      20   0     0    0    0 S  0.0  0.0   0:00.00 rcu_bh
   10 root      20   0     0    0    0 S  0.0  0.0   0:01.07 rcu_sched
   11 root      RT   0     0    0    0 S  0.0  0.0   0:00.40 watchdog/0
   12 root       0 -20     0    0    0 S  0.0  0.0   0:00.00 cpuset
   13 root       0 -20     0    0    0 S  0.0  0.0   0:00.00 khelper
   14 root      20   0     0    0    0 S  0.0  0.0   0:00.00 kdevtmpfs
```

III) PS

Description: This command stand for process status. It is similar to the task manager that pop-ups in the windows machine when we use Ctrl+alt+delete. This is similar to top command but information displayed is different.

Syntax: ps ux - To check all the processes running under a user.

ps pid - Checking for the process status of single status.

kill pid - To kill any process.

pidof process_name - Retrieving process id of any process.

OUTPUT: ps ux

```
students@ubuntu:~$ ps ux
USER       PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
students  2280  0.0  0.3  61076  4068 ?        Sl   11:35   0:00 /usr/bin/gnome-
students  2291  0.0  0.8  49872  9068 ?        Ssl  11:35   0:00 gnome-session -
students  2326  0.0  0.0   4076   208 ?        Ss   11:35   0:00 /usr/bin/ssh-ag
students  2329  0.0  0.0   3936   492 ?        S    11:35   0:00 /usr/bin/dbus-l
students  2330  0.0  0.2   6272  2628 ?        Ss   11:35   0:00 //bin/dbus-daem
students  2342  0.0  1.4 136736 15368 ?        Sl   11:35   0:00 /usr/lib/gnome-
students  2349  0.0  0.2   8404  2216 ?        S    11:35   0:00 /usr/lib/gvfs/g
students  2351  0.0  0.3  35052  3196 ?        Sl   11:35   0:00 /usr/lib/gvfs//
students  2358  0.8  9.3 302348 96152 ?        Sl   11:35   0:06 compiz
students  2368  0.0  0.4  99464  5040 ?        S<l  11:35   0:00 /usr/bin/pulsea
students  2372  0.0  0.2  14100  2492 ?        S    11:35   0:00 /usr/lib/pulsea
students  2374  0.0  0.2   9268  2836 ?        S    11:35   0:00 /usr/lib/i386-l
students  2372  0.0  0.2  14100  2492 ?        S    11:35   0:00 /usr/lib/pulsea
students  2374  0.0  0.2   9268  2836 ?        S    11:35   0:00 /usr/lib/i386-l
students  2377  0.1  2.3 149980 23980 ?        Sl   11:35   0:00 nautilus -n
students  2378  0.0  0.7  40568  8048 ?        Sl   11:35   0:00 /usr/lib/policy
students  2379  0.0  0.7  56960  8040 ?        Sl   11:35   0:00 /usr/lib/gnome-
students  2380  0.0  1.4 125176 14704 ?        Sl   11:35   0:00 nm-applet
students  2382  0.0  1.0  77288 11112 ?        Sl   11:35   0:00 bluetooth-apple
students  2385  0.3  1.5  71896 15920 ?        Sl   11:35   0:02 /usr/lib/vmware
students  2397  0.0  0.3  11108  3756 ?        S    11:35   0:00 /usr/lib/gvfs/g
students  2408  0.0  0.2   9208  2128 ?        S    11:35   0:00 /usr/lib/gvfs/g
students  2414  0.0  0.2  20484  2144 ?        Sl   11:36   0:00 /usr/lib/gvfs/g
students  2429  0.0  0.3  10152  3456 ?        S    11:36   0:00 /usr/lib/gvfs/g
students  2444  0.0  0.2   8436  2392 ?        S    11:36   0:00 /usr/lib/gvfs/g
students  2464  0.0  0.1   8316  2036 ?        S    11:36   0:00 /usr/lib/gvfs/g
students  2476  0.0  0.9  49636  9304 ?        Sl   11:36   0:00 /usr/lib/bamf/b
students  2489  0.0  0.0   2232   532 ?        Ss   11:36   0:00 /bin/sh -c /usr
students  2490  0.0  1.0  42412 10600 ?        Sl   11:36   0:00 /usr/bin/gtk-wi
students  2493  0.0  1.5  97220 16052 ?        Sl   11:36   0:00 /usr/lib/unity/
students  2496  0.0  0.4  62840  4888 ?        Sl   11:36   0:00 /usr/lib/indica
students  2515  0.0  0.6  63272  6660 ?        Sl   11:36   0:00 /usr/lib/indica
students  2516  0.0  0.5  75896  6112 ?        Sl   11:36   0:00 /usr/lib/indica
students  2518  0.0  0.5  66380  5924 ?        Sl   11:36   0:00 /usr/lib/indica
students  2519  0.0  0.4  60520  4396 ?        Sl   11:36   0:00 /usr/lib/indica
students  2521  0.0  0.8  60572  9228 ?        Sl   11:36   0:00 /usr/lib/indica
students  2523  0.0  0.6 126528  6412 ?        Sl   11:36   0:00 /usr/lib/indica
students  2553  0.0  0.2   7976  2356 ?        S    11:36   0:00 /usr/lib/geoclu
students  2562  0.0  0.5  41400  5928 ?        Sl   11:36   0:00 /usr/lib/ubuntu
students  2579  0.0  0.8  42200  8624 ?        Sl   11:36   0:00 /usr/lib/gnome-
students  2584  0.0  0.9  73380  9528 ?        Sl   11:36   0:00 telepathy-indic
students  2590  0.0  0.6  42240  6280 ?        Sl   11:36   0:00 /usr/lib/telepa
students  2595  0.0  0.9  91340  9244 ?        Sl   11:36   0:00 /usr/lib/gnome-
students  2600  0.0  0.5  53492  5540 ?        Sl   11:36   0:00 zeitgeist-datah
students  2601  0.0  0.8  40932  8372 ?        Sl   11:36   0:00 gnome-screensav
students  2607  0.0  0.5  44476  5196 ?        Sl   11:36   0:00 /usr/bin/zeitge
students  2615  0.0  0.7  51312  7452 ?        Sl   11:36   0:00 /usr/lib/zeitge
students  2623  0.0  0.0   4224   280 ?        S    11:36   0:00 /bin/cat
students  2629  0.0  1.1  67860 11820 ?        Sl   11:36   0:00 update-notifier
students  2653  0.0  0.9  73768  9628 ?        Sl   11:37   0:00 /usr/lib/unity-
students  2655  0.0  0.5  84280  5808 ?        Sl   11:37   0:00 /usr/lib/unity-
students  2658  0.0  1.1  86128 12188 ?        Sl   11:37   0:00 /usr/bin/python
students  2659  0.0  0.7  76780  7280 ?        Sl   11:37   0:00 /usr/lib/unity-
students  2703  0.0  0.3  74484  3736 ?        Sl   11:37   0:00 /usr/lib/unity-
students  2719  0.0  1.2  70300 12760 ?        Sl   11:37   0:00 /usr/lib/notify
students  2738  0.0  1.5 100692 15664 ?        Sl   11:37   0:00 /usr/bin/python
students  2763  0.0  0.3  35712  3864 ?        Sl   11:37   0:00 /usr/lib/deja-d
students  2777  0.1  1.4  88948 15028 ?        Sl   11:38   0:00 gnome-terminal
students  2785  0.0  0.0   2400   716 ?        S    11:38   0:00 gnome-pty-helpe
students  2786  0.1  0.3   7216  3600 pts/0    Ss   11:38   0:00 bash
students  2864  0.0  0.3  36144  3596 ?        Sl   11:42   0:00 /usr/lib/at-spi
students  2897  0.0  0.1   4944  1136 pts/0    R+   11:48   0:00 ps ux
```

ps pid

```
students@ubuntu:~$ ps 2280
  PID TTY      STAT   TIME COMMAND
 2280 ?        Sl     0:00 /usr/bin/gnome-keyring-daemon --daemonize --login
```

kill pid

```
students@ubuntu:~$ kill 2280
```

pidof process_name

```
students@ubuntu:~$ pidof compiz
2358
```

IV) Disk Free

Description: It shows free space.

Syntax: df - It shows free space on disk.

df -h - It shows information in readable format.

OUTPUT:

```
students@ubuntu:~$ df
Filesystem     1K-blocks    Used Available Use% Mounted on
/dev/sda1       19478204 3275588  15206520  18% /
udev              504908       4    504904   1% /dev
tmpfs             205224     784    204440   1% /run
none                5120       0      5120   0% /run/lock
none              513052     152    512900   1% /run/shm
students@ubuntu:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda1        19G  3.2G   15G  18% /
udev            494M  4.0K  494M   1% /dev
tmpfs           201M  784K  200M   1% /run
none            5.0M     0  5.0M   0% /run/lock
none            502M  152K  501M   1% /run/shm
```

V) Free

Description: It is use to display free space on Linux.

Syntax: free - It shows free as well as utilized space.

free -m - It shows information in megabytes.

free -g - It shows information in gigabytes.

OUTPUT:

```
students@ubuntu:~$ free
             total       used       free     shared    buffers     cached
Mem:       1026104     680408     345696          0      43688     335976
-/+ buffers/cache:     300744     725360
Swap:      1046524          0    1046524
students@ubuntu:~$ free -m
             total       used       free     shared    buffers     cached
Mem:          1002        664        337          0         42        328
-/+ buffers/cache:        293        708
Swap:         1021          0       1021
students@ubuntu:~$ free -g
             total       used       free     shared    buffers     cached
Mem:             0          0          0          0          0          0
-/+ buffers/cache:          0          0
Swap:            0          0          0
```

VI) Nice

Description: Linux can run lot of processes at a time which can slow down the speed of some high priority processes and results in poor performance. To avoid this you can tell your machine to prioritize process as per your requirement. This priority is called as niceness in Linux. It has value between -20 to 19. The lower niceness value is higher priority given to the task. Default value of all the process is zero.

Syntax: nice –n niceness_value process_name - To start process with niceness value
sudo renice niceness_value –p process_id - To change the niceness value

OUTPUT:

```
students@ubuntu:~$ nice -n 6 vmtoolsd
^Z
[1]+  Stopped                 nice -n 6 vmtoolsd
students@ubuntu:~$ sudo renice 6 -p 1825
[sudo] password for students:
1825 (process ID) old priority 0, new priority 6
```

Learning Outcomes Achieved

Learned advance commands of process management and file management.

Conclusion:

Thus we have studied the advance commands of Process Management and File Management.

13. Experiment/Assignment Evaluation

SR	Parameters	Weight	Excellent	Good	Average	Poor	Not as per requirement
		Scale Factor ->	5	4	3	2	0
1	Technical Understanding	25					
2	Performance / Execution	25					
3	Question Answers	20					
4	Punctuality	20					
5	Presentation	10					
	Total out of 100 --> #(to be converted as per term-work evaluation applicable to the subject)		**∑ (Weight * Scale Factor)/5 = _____**				

References:

[1] Unix, concepts and applications by Sumitabha Das, McGraw-Hill

[2] Mastering Shell Scripting, Randal. K. Michael, Second Edition, Wiley Publication

Viva Questions

- What is Process?
- What are advance commands of Process Management?
- What are the advance commands of File Management?