

## Lab 4

1. Create a shared group with name “ateam”, with two new users “andy” and “alice”, the password for these accounts is “iti1”.
2. Create a new directory “ateam-text” in /home.
3. Change the group ownership of the “ateam-text” directory to “ateam” group.

```
root@ubuntu: /
samaa@ubuntu:~$ sudo su
[sudo] password for samaa:
root@ubuntu:/home/samaa# cd ../../
root@ubuntu:/# useradd andy
root@ubuntu:/# passwd andy
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@ubuntu:/# useradd alice
root@ubuntu:/# passwd alice
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@ubuntu:/# groupadd ateam
root@ubuntu:/# usermod -aG ateam andy
root@ubuntu:/# usermod -aG ateam alice
root@ubuntu:/#
```

4. Ensure the permissions of “ateam -text” allows group members to create and delete files.

```
samaa@ubuntu: ~
samaa@ubuntu:~$ su andy
Password:
andy@ubuntu:/home/samaa$ ls
Desktop  docs      examples.desktop  myclass  oldpasswd  Templates
dir       Documents f                 myclass. out        Videos
dir1      Downloads gfile.txt         mycv     Pictures
direct   error     Music             myteam   Public
andy@ubuntu:/home/samaa$ cd ..
andy@ubuntu:/home$ ls
ateam-text  samaa
andy@ubuntu:/home$ ls l-
ls: cannot access 'l-': No such file or directory
andy@ubuntu:/home$ ls -l
total 8
drwxr-xr-x  2 root  ateam 4096 Nov 30 06:48 ateam-text
drwxr-xr-x 22 samaa samaa 4096 Nov 30 07:44 samaa
```

5. Ensure the permissions of “ateam -text” forbids others from accessing its files.

```
No passwd entry for user 'ansy'
root@ubuntu:/home#
root@ubuntu:/home# su andy
andy@ubuntu:/home$ ls
ateam-text  samaa
andy@ubuntu:/home$ ls -l
total 8
drwxr-x--  2 root  ateam 4096 Nov 30 06:48 ateam-text
drwxr-xr-x 22 samaa samaa 4096 Nov 30 07:44 samaa
andy@ubuntu:/home$
```

6. Switch to the user “andy”, and navigate to “/home/ateam-text” folder.

```
root@ubuntu:/home# su andy
andy@ubuntu:/home$ cd /home/ateam-text
andy@ubuntu:/home/ateam-text$ ls
```

7. Create an empty file called “andyfile”, and then record the default user and group ownership of the new file and its permissions.

```
touch /home/ateam-text/andyfile
```

```
ls -l andyfile
```

8. Change the group ownership of the file to “ateam” and record the new ownership and permissions.

```
chown :ateam ateam-text
```

```
ls -l ateam-text
```

```
andy , andy , rwx rw- ---
```

9. Switch to “alice”, and then navigate to “/home/ateam-text”.

```
su alice
```

```
cd /home/ateam-txt
```

10. Determine Alice's privileges to access and /or modify andyfile.

```
r & w permission
```

11. Switch to your user again and then, in a terminal window, run the top utility. Size the window to be as tall as possible.

su samaa

```
samaa@ubuntu:/home$ top

1:Def - 08:51:31 up 1:10, 1 user, load average: 0.13, 0.05, 0.01
Tasks: 254 total, 1 running, 188 sleeping, 1 stopped, 0 zombie
%Cpu(s): 2.7 us, 1.7 sy, 0.0 ni, 95.6 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 985316 total, 72720 free, 585144 used, 327452 buff/cache
KiB Swap: 1046524 total, 1031932 free, 14592 used, 203552 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
 3143 root        20   0 378168 61996 31716 S  2.0   6.3   0:21.90 Xorg
 3750 samaa    20   0 1100116 99712 66308 S  1.3  10.1   0:22.44 compiz
 4832 samaa    20   0 41912 3892 3172 R  1.0   0.4   0:00.26 top

 2: PID PPID  TIME+ %CPU %MEM  PR  NI  S  VIRT  RES  UID COMMAND
    4835 2 0:00.01 0.0 0.0 20 0 I 0 0 0 kworker/0:1
    4832 4745 0:00.26 1.0 0.4 20 0 R 41912 3892 1000 top
    4831 2 0:00.00 0.0 0.0 20 0 I 0 0 0 kworker/u256+

 3: PID %MEM  VIRT  RES  CODE  DATA  SHR nMai nDRT %CPU COMMAND
    3750 10.1 1100116 99712 12 88636 66308 160 0 1.3 compiz
    3823 7.6 738172 74884 648 83448 24068 37 0 0.0 gnome-software
    3143 6.3 378168 61996 2304 38356 31716 1 0 2.0 Xorg

 4: PID PPID  UID USER  RUSER  TTY  TIME+ %CPU %MEM S COMMAND
    1153 1 109 whoopsie whoopsie ? 0:00.13 0.0 1.1 S whoopsie
    412 1 100 systemd+ systemd+ ? 0:00.06 0.0 0.2 S systemd+--
```

12. Change the display to sort by the amount of memory in use by each process.

```
samaa@ubuntu:/home$ top -o +%MEM

top - 08:57:44 up 1:17, 1 user, load average: 0.00, 0.01, 0.00
Tasks: 253 total, 1 running, 188 sleeping, 1 stopped, 0 zombie
%Cpu(s): 3.0 us, 1.0 sy, 0.0 ni, 95.6 id, 0.3 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 985316 total, 75316 free, 581716 used, 328284 buff/cache
KiB Swap: 1046524 total, 1031932 free, 14592 used, 206972 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
 3750 samaa    20   0 1100124 99712 66308 S  1.0  10.1   0:23.82 compiz
 3823 samaa    20   0 738172 74884 24068 S  0.0   7.6   0:03.63 gnome-soft+
 3143 root        20   0 378208 61996 31716 S  1.7   6.3   0:23.72 Xorg
 3795 samaa    20   0 862712 57744 20036 S  0.0   5.9   0:00.71 evolution-+
 3927 samaa    20   0 807528 48808 12588 S  0.0   5.0   0:00.47 evolution-+
 3937 samaa    20   0 800104 48540 12252 S  0.0   4.9   0:00.41 evolution-+
 3828 samaa    20   0 731072 40348 31184 S  0.0   4.1   0:02.79 nautilus
 4014 samaa    20   0 660340 34604 27460 S  1.0   3.5   0:14.00 gnome-term+
 3833 samaa    20   0 531256 34296 28416 S  0.3   3.5   0:08.25 vmtotlsd
 3904 root        20   0 505008 32696 9208 S  0.0   3.3   0:02.77 fwupd
 3803 samaa    20   0 597536 32308 26976 S  0.0   3.3   0:00.75 nm-applet
 4456 samaa    20   0 489736 30924 25676 S  0.0   3.1   0:01.20 notify-osd
 3601 samaa    20   0 644392 29484 24748 S  0.0   3.0   0:00.52 hud-service
```

13. What are the processes with the largest memory allocations?

```
samaa@ubuntu:/home$ top -o +RES

top - 09:01:27 up 1:20, 1 user, load average: 0.04, 0.01, 0.00
Tasks: 254 total, 1 running, 188 sleeping, 1 stopped, 0 zombie
%Cpu(s): 5.4 us, 1.7 sy, 0.0 ni, 92.9 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 985316 total, 71720 free, 585260 used, 328336 buff/cache
KiB Swap: 1046524 total, 1031932 free, 14592 used, 203396 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
 3750 samaa    20   0 1100124 99712 66308 S  1.7  10.1   0:25.06 compiz
 3823 samaa    20   0 738172 74884 24068 S  0.0   7.6   0:03.64 gnome-soft+
 3143 root        20   0 378208 61996 31716 S  4.0   6.3   0:26.02 Xorg
 3795 samaa    20   0 862712 57744 20036 S  0.0   5.9   0:00.71 evolution-+
 3927 samaa    20   0 807528 48808 12588 S  0.0   5.0   0:00.47 evolution-+
 3937 samaa    20   0 800104 48540 12252 S  0.0   4.9   0:00.41 evolution-+
 3828 samaa    20   0 731072 40348 31184 S  0.3   4.1   0:02.90 nautilus
 3833 samaa    20   0 534804 38036 28792 S  0.3   3.9   0:08.74 vmtotlsd
 4014 samaa    20   0 660496 34604 27460 S  2.0   3.5   0:15.50 gnome-term+
 3904 root        20   0 505008 32696 9208 S  0.0   3.3   0:02.77 fwupd
 3803 samaa    20   0 597536 32308 26976 S  0.0   3.3   0:00.76 nm-applet
 4456 samaa    20   0 489736 30924 25676 S  0.0   3.1   0:01.20 notify-osd
 3601 samaa    20   0 644392 29484 24748 S  0.0   3.0   0:00.54 hud-service
```

14. Change the display interval “refresh” time of the process to be 4sec instead of 3 by two different methods.

`top -d 4`

`top + prees s`

15. Save this configuration for reuse when top is restarted, Exit the top display.

`W`

`q`

16. Open terminal window, start one process that lets the system waits for 300 secs and send it to the background.

17. State the current priority of the last process and give it a lower priority.

18. Bring the process back to foreground.

19. Kill the running process in the background, make sure it is stopped by a command and state the used command.

```
samaa@ubuntu:/home$ ps l
F  UID    PID  PPID  PRI   NI   VSZ   RSS WCHAN  STAT TTY      TIME COMMAND
0  1000    4020  4014   20    0  22316  4856 wait    Ss   pts/20    0:00 bash
4  1000    4162  4161   20    0  22316  4640 wait    S    pts/20    0:00 bash
4  1000    4209  4208   20    0  22300  4728 wait    S    pts/20    0:00 bash
4  1000    4311  4310   20    0  22300  4656 wait    S    pts/20    0:00 bash
4  1000    4363  4360   20    0  22300  4904 wait    S    pts/20    0:00 bash
4  1000    4745  4744   20    0  22300  4844 wait    S    pts/20    0:00 bash
0  1000    4758  4745   20    0  41912  3880 signal  T    pts/20    0:00 top
0  1000    4900  4745   20    0  28916  1472 -      R+   pts/20    0:00 ps l
samaa@ubuntu:/home$ sleep 300 &
[2] 4905
samaa@ubuntu:/home$ renice 17 4905
4905 (process ID) old priority 0, new priority 17
samaa@ubuntu:/home$ fg %2
sleep 300
^Z
[2]+  Stopped                  sleep 300
samaa@ubuntu:/home$ kill 4905
samaa@ubuntu:/home$ jobs
[1]-  Stopped                  top
[2]+  Stopped                  sleep 300
samaa@ubuntu:/home$
```

20. Create a scheduled job to state the free disk space of the / directory in a human readable format then saves the output in a file named Filesystem-Ready.txt, the job is scheduled to run every Sunday and Tuesday at 2:00 pm.

`crontab 0 14 * * 0,2 df -h / >/home/samaa/Filesystem-Ready.txt`