

1. List the user commands and redirect the output to /tmp/commands.list

```
nour@nour-virtual-machine:~$ ls /usr/bin > /tmp/commands.list
nour@nour-virtual-machine:~$ cat /tmp/commands.list
[
aa-enabled
aa-exec
aa-features-abi
aconnect
acpi_listen
add-apt-repository
addpart
airscan-discover
alsabat
alsaloop
alsamixer
alsatplg
alsaucm
amidi
amixer
apg
apgbfm
aplay
aplaymidi
```

2. Count the number of user commands

```
nour@nour-virtual-machine:~$ wc /tmp/commands.list
1342 1342 13274 /tmp/commands.list
nour@nour-virtual-machine:~$ wc -l /tmp/commands.list
1342 /tmp/commands.list
nour@nour-virtual-machine:~$
```

3. Get all the users names whose first character in their login is 'g'.

```
nour@nour-virtual-machine:~$ grep ^g /etc/passwd
games:x:5:60:games:/usr/games:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
geoclue:x:124:131:/:/var/lib/geoclue:/usr/sbin/nologin
gnome-initial-setup:x:126:65534:/:/run/gnome-initial-setup:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
nour@nour-virtual-machine:~$
```

4. Get the logins name and full names (comment) of logins starts with "g".

```
cut: /etc/passwd: no such file or directory
nour@nour-virtual-machine:~$ cut -f1,5 -d: /etc/passwd | grep ^g
games:games
gnats:Gnats Bug-Reporting System (admin)
geoclue:
gnome-initial-setup:
gdm:Gnome Display Manager
nour@nour-virtual-machine:~$
```

5. Save the output of the last command sorted by their full names in a file.

```
nour@nour-virtual-machine:~$ cut -f1,5 -d: /etc/passwd | grep ^g | sort > users.sort.txt
nour@nour-virtual-machine:~$ cat users.sort.txt
games:games
gdm:Gnome Display Manager
geoclue:
gnats:Gnats Bug-Reporting System (admin)
gnome-initial-setup:
nour@nour-virtual-machine:~$
```

6. Write two commands: first: to search for all files on the system that named `.bash_profile`. Second: sorts the output of `ls` command on `/` recursively, Saving their output and error in 2 different files and sending them to the background.

```
nour@nour-virtual-machine:~/mm$
nour@nour-virtual-machine:~/mm$ find / -name .bash_profile
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-systemd-resolve
d.service-QkCJ3b': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-systemd-logind.
service-OY6Aho': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-systemd-oond.se
rvice-nJwGRv': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-fwupd.service-g
LENDH': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-systemd-timesyn
cd.service-RZNPzK': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-switcheroo-cont
rol.service-u6EcCS': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-ModemManager.se
rvice-mQMqJS': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-upower.service-
gPrH5z': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-colord.service-
n2S4TW': Permission denied
find: '/var/tmp/systemd-private-3d0052e2643942589bd2a9d4e0ec3228-bluetooth.servi
ce-3cphW4': Permission denied
```

```
nour@nour-virtual-machine:~/mm$ (ls -R / > / temp/output.txt 2>/temperror.txt &
)
nour@nour-virtual-machine:~/mm$ bash: /: Is a directory
```

7. Display the number of users who is logged now to the system.

```
nour@nour-virtual-machine:~$ who | wc -l
1
nour@nour-virtual-machine:~$
```

8. Display lines 7 to line 10 of /etc/passwd file

```
nour@nour-virtual-machine:~$ head -n 10 /etc/passwd | tail -4
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
nour@nour-virtual-machine:~$
```

9. What happens if you execute:

- `cat filename1 | cat filename2`

```
nour@nour-virtual-machine:~$
nour@nour-virtual-machine:~$ mkdir mmm
nour@nour-virtual-machine:~$ cd mmm
nour@nour-virtual-machine:~/mmm$ touch filename1 ,filename2
nour@nour-virtual-machine:~/mmm$ gedit filename1
nour@nour-virtual-machine:~/mmm$ gedit filename2
nour@nour-virtual-machine:~/mmm$ cat filename1 | cat filename2
my name is nour
i live in cairo
```

Print the content of filename2

- `ls | rm`

```
nour@nour-virtual-machine:~/mmm$ ls | rm
rm: missing operand
Try 'rm --help' for more information.
```

- `ls /etc/passwd | wc -l`

```
nour@nour-virtual-machine:~$ ls /etc/passwd | wc -l
1
nour@nour-virtual-machine:~$
```

List the content of /etc /passwd

```
nour@nour-virtual-machine:~$ ls /etc/passwd | wc -l
1
nour@nour-virtual-machine:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
```

10.Issue the command sleep 100.

```
nour@nour-virtual-machine:~$ sleep 100
```

11.Stop the last command.

14. Send the sleep command to the foreground and send it again to the background.

```
nour@nour-virtual-machine:~$ ps
  PID TTY          TIME CMD
  4062 pts/1    00:00:00 bash
  4258 pts/1    00:00:00 sleep
  4259 pts/1    00:00:00 ps
nour@nour-virtual-machine:~$ kill -SIGCONT 4258
nour@nour-virtual-machine:~$ fg %1
sleep 100
^Z
[1]+  Stopped                  sleep 100
nour@nour-virtual-machine:~$ bg %1
[1]+ sleep 100 &
nour@nour-virtual-machine:~$
```

15. Kill the sleep command.

```
nour@nour-virtual-machine:~$ sleep 100
^Z
[2]+  Stopped                  sleep 100
nour@nour-virtual-machine:~$ kill -KILL %2
[2]+  Killed                   sleep 100
nour@nour-virtual-machine:~$
```

16. Display your processes only

```
nour@nour-virtual-machine:~$ pgrep -u nour
1357
1358
1364
1365
1367
1368
1371
1379
1382
1383
1386
1396
1427
1437
1457
1477
1490
1506
```

17.Display all processes except yours


```
nour@nour-virtual-machine:~$ ps aux | pgrep -v nour
```

```
1  
2  
3  
4  
5  
6  
10  
11  
12  
13  
14  
15  
16  
17  
19  
20  
21  
22  
23  
26  
27
```

18. Use the pgrep command to list your processes only

```
nour@nour-virtual-machine:~$ pgrep -f -u nour
1331
1332
1338
1339
1340
1353
1358
1361
1367
1372
1377
1378
1390
1429
1454
1467
1483
1488
1500
1506
1515
1519
```

19. Kill your processes only.

```
nour@nour-virtual-machine:~$ pkill -u nour
```