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

```
hoda@hoda-virtual-machine:~$ ls /bin > /tmp/commands.list
```

2. Count the number of user commands

```
hoda@hoda-virtual-machine:~$ wc -l /tmp/commands.list
1306 /tmp/commands.list
```

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

```
hoda@hoda-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
hoda@hoda-virtual-machine:~$
```

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

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

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

```
hoda@hoda-virtual-machine:~$ grep "^g" /etc/passwd | cut -f1,5 -d: >file
```

```
hoda@hoda-virtual-machine:~$ sort -k1 -t : ~/file
sort: cannot read: /home/hoda/file: Permission denied
hoda@hoda-virtual-machine:~$ sudo sort -k1 -t : ~/file
[sudo] password for hoda:
games:games
gdm:Gnome Display Manager
geoclue:
gnats:Gnats Bug-Reporting System (admin)
gnome-initial-setup:
hoda@hoda-virtual-machine:~$
```

6. Write two commands:

first: to search for all files on the system that named .bash_profile.

```
hoda@hoda-virtual-machine:~$ find / -name bash_profile 2>/dev/null
hoda@hoda-virtual-machine:~$ find / -name bash_profile
find: '/home/islam': Permission denied
find: '/home/lost+found': Permission denied
find: '/home/hoda/.local/share/nano': Permission denied
find: '/home/hoda/pdir': Permission denied
find: '/home/hoda/dirv': Permission denied
find: '/home/hoda/sdir': Permission denied
find: '/home/hossam': Permission denied
find: '/home/baduser': Permission denied
find: '/etc/ssl/private': Permission denied
find: '/etc/polkit-1/localauthority': Permission denied
find: '/etc/sssd': Permission denied
find: '/etc/cups/ssl': Permission denied
find: '/proc/tty/driver': Permission denied
find: '/proc/1/task/1/fd': Permission denied
find: '/proc/1/task/1/fdinfo': Permission denied
```

Second: sorts the output of ls command on / recursively, Saving their output and error in 2 different files and sending them to the background.

```
hoda@hoda-virtual-machine:~$ ls -R / >op 2>error &
[1] 20205
hoda@hoda-virtual-machine:~$
```

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

```
hoda@hoda-virtual-machine:~$ who
hoda     tty2         2023-12-23 12:14 (tty2)
hoda@hoda-virtual-machine:~$
```

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

```
hoda@hoda-virtual-machine:~$ head /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
hoda@hoda-virtual-machine:~$
```

9. What happens if you execute:

● cat filename1 | cat filename2

This command attempts to concatenate the contents of **(filname1)** and **(filename2)** and then pipes the output to another **(cat)** command. However, since the **(cat)** command is reading from a file (not from the standard input), the first**(cat)** will simply display the contents of **(filname1)**, and the second **(cat)** will not receive anything from the pipe. It won't concatenate the contents of **(filename2)** as intended.

● ls | rm

This command attempts to list the contents of the current directory using **(ls)** and then pipe the output to **(rm)** (remove) command. However, this is a dangerous command because **(rm)** needs specific arguments to work correctly, and blindly removing files listed by **(ls)** can lead to unintended data loss. It's not a recommended practice and can result in an error, especially if the listed files are protected

● ls /etc/passwd | wc –l

This command lists the contents of the **(/etc/passwd)** file and then pipes the output to **(wc -l)** , which counts the number of lines. It will display the number of users in the system, as each line in the **(/etc/passwd)** file typically represents a user account. However, note that **(/etc/passwd)** might contain system accounts and other information, so the count may not accurately represent the number of human users

10.Issue the command sleep 100.

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

11.Stop the last command.

Ctrl+z

```
^Z
[1]+  Stopped                 sleep 100
hoda@hoda-virtual-machine:~$
```

12.Resume the last command in the background

```
hoda@hoda-virtual-machine:~$ kill -CONT %1
[1]+  Done                    sleep 100
hoda@hoda-virtual-machine:~$
```

13.Issue the jobs command and see its output.

```
hoda@hoda-virtual-machine:~$ sleep 100
^Z
[1]+  Stopped                 sleep 100
hoda@hoda-virtual-machine:~$ jobs
[1]+  Stopped                 sleep 100
hoda@hoda-virtual-machine:~$
```

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

```
hoda@hoda-virtual-machine:~$ sleep 100
^Z
[1]+  Stopped                 sleep 100
hoda@hoda-virtual-machine:~$ sleep 100 &
[2] 18149
hoda@hoda-virtual-machine:~$
```

15.Kill the sleep command.

```
hoda@hoda-virtual-machine:~$ kill -stop %2
bash: kill: top: invalid signal specification
[2]-  Done                    sleep 100
```

16.Display your processes only

```
hoda@hoda-virtual-machine:~$ ps
   PID TTY          TIME CMD
 18049 pts/0    00:00:00 bash
 18067 pts/0    00:00:00 ps
```

17.Display all processes except yours

```
hoda@hoda-virtual-machine:~$ ps -a
   PID TTY          TIME CMD
  1519 tty2     00:00:00 gnome-session-b
 18068 pts/0    00:00:00 ps
```

18.Use the pgrep command to list your processes only

```
hoda@hoda-virtual-machine:~$ pgrep -u hoda
1477
1478
1486
1488
1490
1492
1495
1497
1504
1516
1519
1559
1572
1605
1618
1624
1626
1636
1638
1645
1650
1658
1660
1674
1686
1688
1697
1702
1708
1717
1733
```

or

```
hoda@hoda-virtual-machine:~$ pgrep -u 1000
```

19.Kill your processes only

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

Or

killall