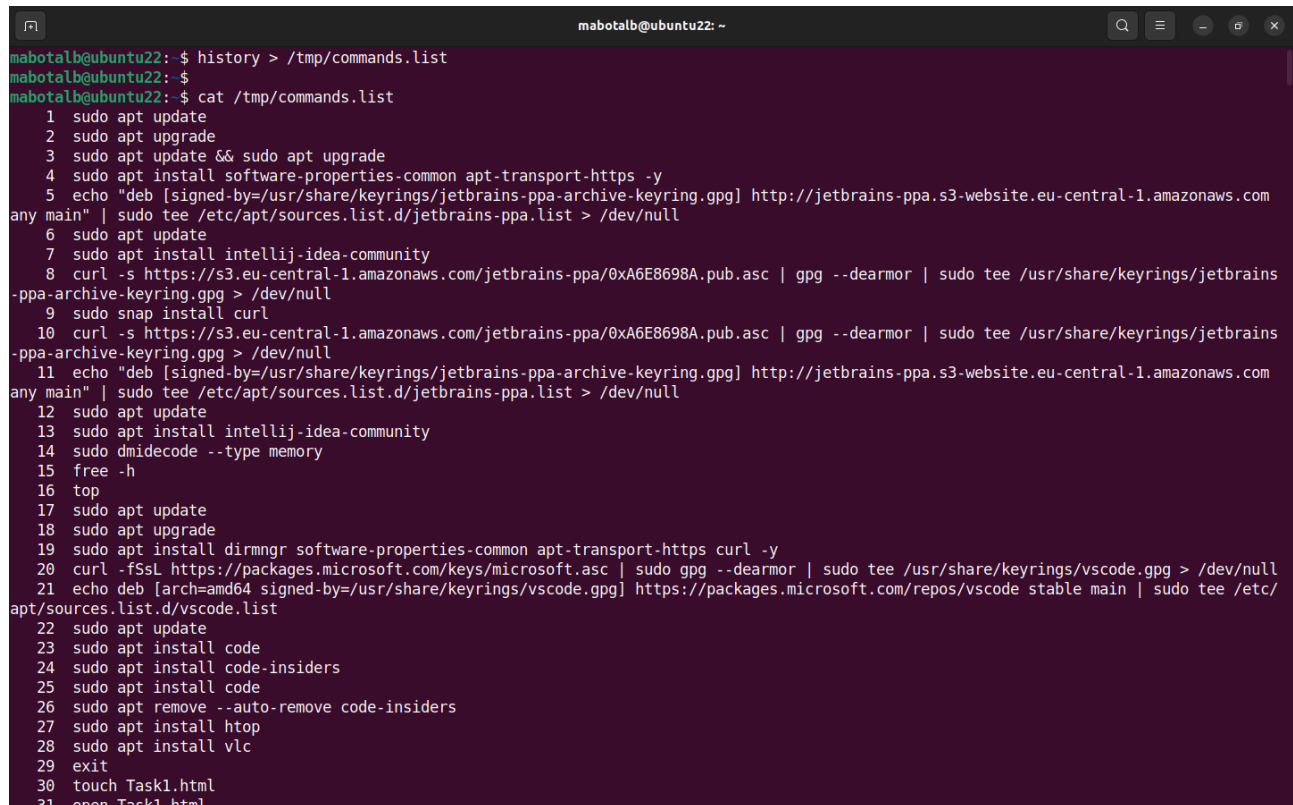


# Lab 4 Tasks

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

=> history > /tmp/commands.list



```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ history > /tmp/commands.list  
mabotalb@ubuntu22:~$ cat /tmp/commands.list  
1 sudo apt update  
2 sudo apt upgrade  
3 sudo apt update && sudo apt upgrade  
4 sudo apt install software-properties-common apt-transport-https -y  
5 echo "deb [signed-by=/usr/share/keyrings/jetbrains-ppa-archive-keyring.gpg] http://jetbrains-ppa.s3-website.eu-central-1.amazonaws.com  
any main" | sudo tee /etc/apt/sources.list.d/jetbrains-ppa.list > /dev/null  
6 sudo apt update  
7 sudo apt install intellij-idea-community  
8 curl -s https://s3.eu-central-1.amazonaws.com/jetbrains-ppa/0xA6E8698A.pub.asc | gpg --dearmor | sudo tee /usr/share/keyrings/jetbrains  
-ppa-archive-keyring.gpg > /dev/null  
9 sudo snap install curl  
10 curl -s https://s3.eu-central-1.amazonaws.com/jetbrains-ppa/0xA6E8698A.pub.asc | gpg --dearmor | sudo tee /usr/share/keyrings/jetbrains  
-ppa-archive-keyring.gpg > /dev/null  
11 echo "deb [signed-by=/usr/share/keyrings/jetbrains-ppa-archive-keyring.gpg] http://jetbrains-ppa.s3-website.eu-central-1.amazonaws.com  
any main" | sudo tee /etc/apt/sources.list.d/jetbrains-ppa.list > /dev/null  
12 sudo apt update  
13 sudo apt install intellij-idea-community  
14 sudo dmidcode --type memory  
15 free -h  
16 top  
17 sudo apt update  
18 sudo apt upgrade  
19 sudo apt install dirmngr software-properties-common apt-transport-https curl -y  
20 curl -fsSL https://packages.microsoft.com/keys/microsoft.asc | sudo gpg --dearmor | sudo tee /usr/share/keyrings/vscode.gpg > /dev/null  
21 echo deb [arch=amd64 signed-by=/usr/share/keyrings/vscode.gpg] https://packages.microsoft.com/repos/vscode stable main | sudo tee /etc/  
apt/sources.list.d/vscode.list  
22 sudo apt update  
23 sudo apt install code  
24 sudo apt install code-insiders  
25 sudo apt install code  
26 sudo apt remove --auto-remove code-insiders  
27 sudo apt install htop  
28 sudo apt install vlc  
29 exit  
30 touch Task1.html  
31 open Task1.html
```

2. Count the number of user commands

=> history | wc -l

=> wc -l /tmp/commands.list



```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ history | wc -l  
744  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$ wc -l /tmp/commands.list  
739 /tmp/commands.list  
mabotalb@ubuntu22:~$
```

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

=> `grep "^g" /etc/passwd | cut -f1 -d:`

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ grep "^g" /etc/passwd | cut -f1 -d:  
games  
gnats  
geoclue  
gnome-initial-setup  
gdm  
mabotalb@ubuntu22:~$
```

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

=> `grep "^g" /etc/passwd | cut -f1,5 -d:`

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ grep "^g" /etc/passwd | cut -f1,5 -d:  
games:games  
gnats:Gnats Bug-Reporting System (admin)  
geoclue:  
gnome-initial-setup:  
gdm:Gnome Display Manager  
mabotalb@ubuntu22:~$
```

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

=> `grep "^g" /etc/passwd | cut -f1,5 -d: | sort -t: -k2 > sorted_file`

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ grep "^g" /etc/passwd | cut -f1,5 -d: | sort -t: -k2 > sorted_file  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$ cat sorted_file  
geoclue:  
gnome-initial-setup:  
games:games  
gnats:Gnats Bug-Reporting System (admin)  
gdm:Gnome Display Manager  
mabotalb@ubuntu22:~$
```

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.

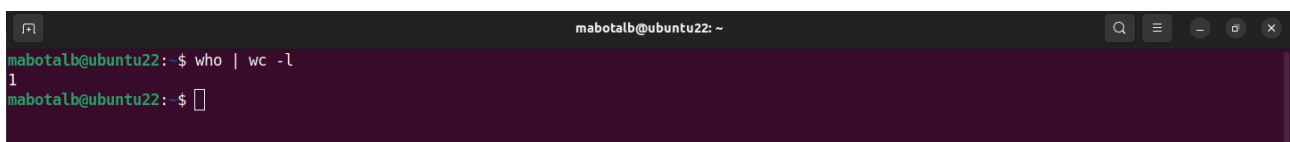
=> find / -type f -name ".bash\_profile" 2> /dev/null

=> ls / | sort -r > ls\_sorted\_output 2> ls\_errors

find / -type f -name ".bash\_profile" 2> /dev/null && ls / | sort -r > ls\_sorted\_output 2> ls\_errors &

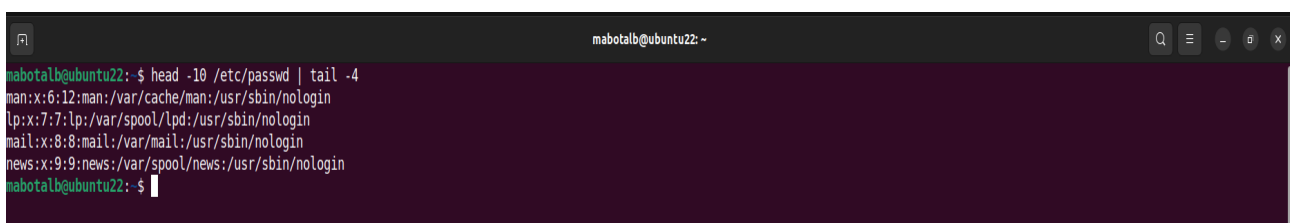
7. Display the number of users who is logged now to the system.

=> who | wc -l

A terminal window titled 'mabotalb@ubuntu22: ~' with a dark purple background. The prompt is 'mabotalb@ubuntu22: \$'. The command 'who | wc -l' has been entered, and the output '1' is displayed on the next line. The prompt is now 'mabotalb@ubuntu22: \$'.

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

=> head -10 /etc/passwd | tail -4

A terminal window titled 'mabotalb@ubuntu22: ~' with a dark purple background. The prompt is 'mabotalb@ubuntu22: \$'. The command 'head -10 /etc/passwd | tail -4' has been entered, and the output shows the last four lines of the /etc/passwd file: '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', and 'news:x:9:9:news:/var/spool/news:/usr/sbin/nologin'. The prompt is now 'mabotalb@ubuntu22: \$'.

9. What happens if you execute:

cat filename1 | cat filename2 => only the content of filename2 will be displayed

ls | rm => error "missing operand on rm command"

ls /etc/passwd | wc -l => print 1

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ cat mycv | cat sorted_file  
geoclue:  
gnome-initial-setup:  
games:games  
gnats:Gnats Bug-Reporting System (admin)  
gdm:Gnome Display Manager  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$ ls | rm  
rm: missing operand  
Try 'rm --help' for more information.  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$ ls /etc/passwd | wc -l  
1  
mabotalb@ubuntu22:~$
```

10. Issue the command sleep 100.

=> this command will pause the execution of the current shell session for 100 seconds

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ sleep 100  
█
```

11. Stop the last command => Ctrl + z

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ sleep 100  
^Z  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$
```

12. Resume the last command in the background => bg

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ sleep 100  
^Z  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$ bg  
[1]+  sleep 100 &  
mabotalb@ubuntu22:~$
```

13. Issue the jobs command and see its output.

=> jobs will give my created processes (sleep 100) and its status Running then Done

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ sleep 100  
^Z  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$  
mabotalb@ubuntu22:~$ bg  
[1]+  sleep 100 &  
mabotalb@ubuntu22:~$ jobs  
[1]+  Running                  sleep 100 &  
mabotalb@ubuntu22:~$ jobs  
[1]+  Done                    sleep 100  
mabotalb@ubuntu22:~$ jobs  
mabotalb@ubuntu22:~$
```

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

=> bg && fg

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ sleep 100  
^Z  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ bg && fg  
[1]+  sleep 100 &  
sleep 100  
^Z  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ jobs  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ kill %1  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ jobs  
[1]+  Terminated             sleep 100  
mabotalb@ubuntu22:~$
```

15. Kill the sleep command. => kill %1

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ sleep 100  
^Z  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ bg && fg  
[1]+  sleep 100 &  
sleep 100  
^Z  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ jobs  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ kill %1  
[1]+  Stopped                  sleep 100  
mabotalb@ubuntu22:~$ jobs  
[1]+  Terminated             sleep 100  
mabotalb@ubuntu22:~$
```

16. Display your processes only => ps -u mabotalb

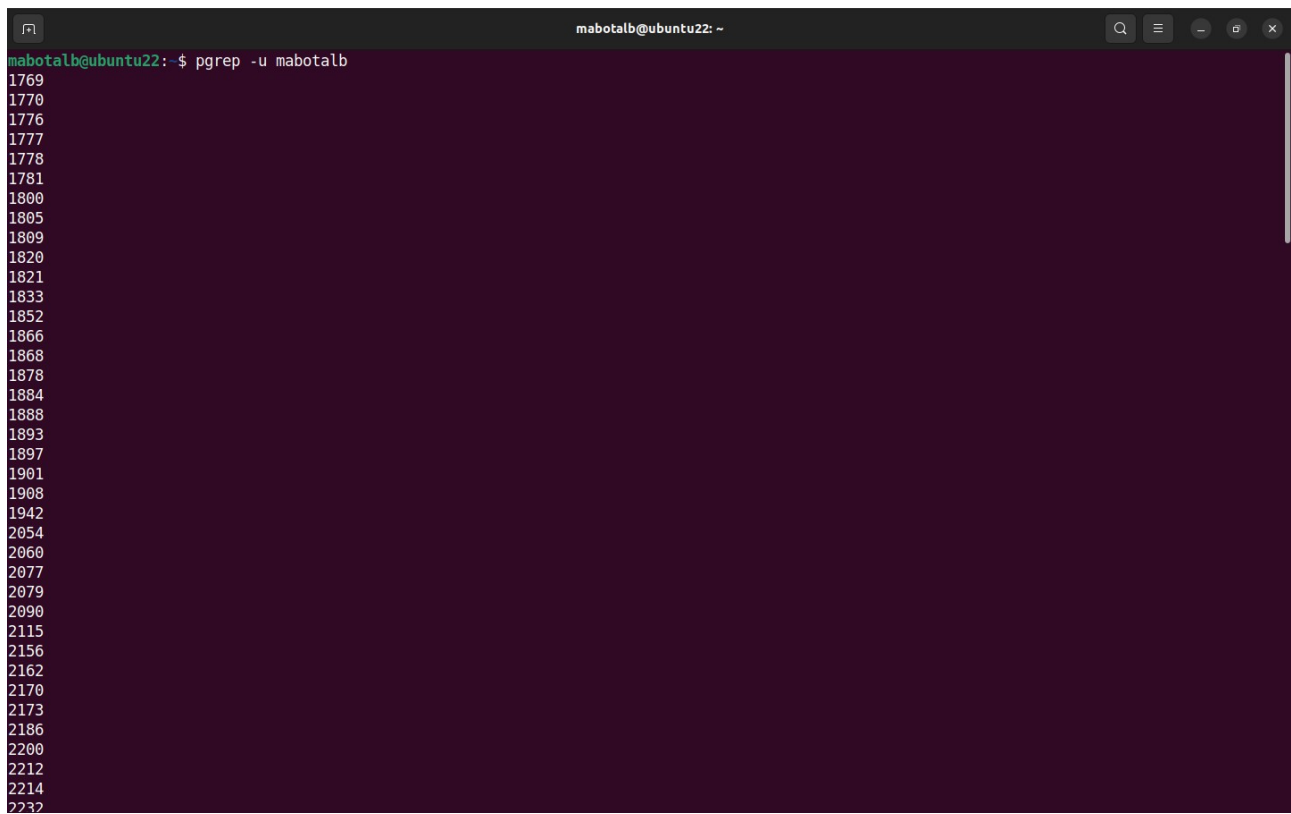
```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ ps -u mabotalb  
  PID TTY          TIME CMD  
 1769 ?        00:00:01 systemd  
 1770 ?        00:00:00 (sd-pam)  
 1776 ?        00:00:00 pipewire  
 1777 ?        00:00:00 pipewire-media-  
 1778 ?        00:00:31 pulseaudio  
 1781 ?        00:00:00 ubuntu-report  
 1800 ?        00:00:00 gnome-keyring-d  
 1805 ?        00:00:02 dbus-daemon  
 1809 ?        00:00:00 gvfsd  
 1820 ?        00:00:00 gvfsd-fuse  
 1821 ?        00:00:00 xdg-document-po  
 1833 ?        00:00:00 xdg-permission-  
 1852 ?        00:00:02 tracker-miner-f  
 1866 tty2      00:00:00 gdm-x-session  
 1868 tty2      00:16:19 Xorg  
 1878 ?        00:00:00 gvfs-udisks2-vo  
 1884 ?        00:00:00 gvfs-gphoto2-vo  
 1888 ?        00:00:00 gvfs-afc-volume  
 1893 ?        00:00:00 gvfs-mtp-volume  
 1897 ?        00:00:00 gvfs-goa-volume  
 1901 ?        00:00:00 goa-daemon  
 1908 ?        00:00:00 goa-identity-se  
 1942 tty2      00:00:00 gnome-session-b  
 2054 ?        00:00:00 at-spi-bus-laun  
 2060 ?        00:00:00 dbus-daemon  
 2077 ?        00:00:00 gnome-remote-de  
 2079 ?        00:00:00 gnome-session-c  
 2090 ?        00:00:00 gnome-session-b  
 2115 ?        00:16:39 gnome-shell  
 2156 ?        00:00:00 gnome-shell-cal  
 2162 ?        00:00:00 evolution-sourc  
 2170 ?        00:00:00 dconf-service  
 2173 ?        00:00:00 evolution-calen  
 2186 ?        00:00:00 evolution-addre  
 2200 ?        00:00:00 gvfsd-trash  
 2212 ?        00:00:00 gjs  
 2214 ?        00:00:01 at-spi2-registr
```

17. Display all processes except yours => `ps -d -u mabotalb`

```
mabotalb@ubuntu22: ~  
mabotalb@ubuntu22:~$ ps -d -u mabotalb  
  PID TTY          TIME CMD  
   2 ?        00:00:00 kthreadd  
   3 ?        00:00:00 rcu_gp  
   4 ?        00:00:00 rcu_par_gp  
   5 ?        00:00:00 slub_flushwq  
   6 ?        00:00:00 netns  
   8 ?        00:00:00 kworker/0:0H-events_highpri  
  10 ?        00:00:00 mm_percpu_wq  
  11 ?        00:00:00 rcu_tasks_kthread  
  12 ?        00:00:00 rcu_tasks_rude_kthread  
  13 ?        00:00:00 rcu_tasks_trace_kthread  
  14 ?        00:00:00 ksoftirqd/0  
  15 ?        00:00:23 rcu_preempt  
  16 ?        00:00:00 migration/0  
  17 ?        00:00:00 idle_inject/0  
  19 ?        00:00:00 cpuhp/0  
  20 ?        00:00:00 cpuhp/1  
  21 ?        00:00:00 idle_inject/1  
  22 ?        00:00:06 migration/1  
  23 ?        00:00:00 ksoftirqd/1  
  25 ?        00:00:00 kworker/1:0H-events_highpri  
  26 ?        00:00:00 cpuhp/2  
  27 ?        00:00:00 idle_inject/2  
  28 ?        00:00:00 migration/2  
  29 ?        00:00:00 ksoftirqd/2  
  31 ?        00:00:00 kworker/2:0H-events_highpri  
  32 ?        00:00:00 cpuhp/3  
  33 ?        00:00:00 idle_inject/3  
  34 ?        00:00:07 migration/3  
  35 ?        00:00:00 ksoftirqd/3  
  37 ?        00:00:00 kworker/3:0H-events_highpri  
  38 ?        00:00:00 cpuhp/4  
  39 ?        00:00:00 idle_inject/4  
  40 ?        00:00:05 migration/4  
  41 ?        00:00:00 ksoftirqd/4  
  43 ?        00:00:00 kworker/4:0H-events_highpri  
  44 ?        00:00:00 cpuhp/5  
  45 ?        00:00:00 idle_inject/5
```

18. Use the `pgrep` command to list your processes only

=> pgrep -u mabotalb

A terminal window with a dark background and light green text. The title bar at the top reads 'mabotalb@ubuntu22: ~'. The prompt is 'mabotalb@ubuntu22:~\$'. The command 'pgrep -u mabotalb' has been entered. The output is a vertical list of process IDs: 1769, 1770, 1776, 1777, 1778, 1781, 1800, 1805, 1809, 1820, 1821, 1833, 1852, 1866, 1868, 1878, 1884, 1888, 1893, 1897, 1901, 1908, 1942, 2054, 2060, 2077, 2079, 2090, 2115, 2156, 2162, 2170, 2173, 2186, 2200, 2212, 2214, and 2232.

```
mabotalb@ubuntu22:~$ pgrep -u mabotalb
1769
1770
1776
1777
1778
1781
1800
1805
1809
1820
1821
1833
1852
1866
1868
1878
1884
1888
1893
1897
1901
1908
1942
2054
2060
2077
2079
2090
2115
2156
2162
2170
2173
2186
2200
2212
2214
2232
```

19. Kill your processes only.

=> pkill -u mabotalb