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

```
[Eng.mahmoud@localhost ~]$ ls /bin >  /tmp/commands.list
[Eng.mahmoud@localhost ~]$
```

- Count the number of user commands

```
[Eng.mahmoud@localhost ~]$ ls /bin >/tmp/commands.list
[Eng.mahmoud@localhost ~]$ wc /tmp/commands.list
 1598  1598 16615 /tmp/commands.list
```

- Get all the users names whose first character in their login is ‘g’

```
[Eng.mahmoud@localhost ~]$ cut -f1 -d: /etc/passwd |grep -i ^g
games
geoclue
gluster
gdm
gnome-initial-setup
```

- Get the logins name and full names (comment) of logins starts with “g”

```
[Eng.mahmoud@localhost ~]$ cut -f 1,5 -d: /etc/passwd |grep -i ^g
games:games
geoclue:User for geoclue
gluster:GlusterFS daemons
gdm:
gnome-initial-setup:
```

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

```
[Eng.mahmoud@localhost ~]$ cut -f 1,5 -d: /etc/passwd |grep -i ^g |sort -k2 -t: > file11
[Eng.mahmoud@localhost ~]$ ls
Desktop  dir1  dir2  dir3  docs  Documents  Downloads  file1  file11  Music  myteam  new
[Eng.mahmoud@localhost ~]$ cat file11
gdm:
gnome-initial-setup:
games:games
gluster:GlusterFS daemons
geoclue:User for geoclue
```

- 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.

```
[Eng.mahmoud@localhost ~]$ sudo find / -name ".bash_profile" 1>file_result 2>error2
```

```
[Eng.mahmoud@localhost ~]$ sudo ls -R / 1>all_files 2>error | sort -k2 -t:
```

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

```
[Eng.mahmoud@localhost ~]$ who | wc
      1       5      47
```

- Display lines 7 to line 10 of /etc/passwd file

```
[Eng.mahmoud@localhost ~]$ head /etc/passwd |tail -3
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
```

- What happens if you execute:

-cat filename1 | cat filename2

```
[Eng.mahmoud@localhost ~]$ cat file11
gdm:
gnome-initial-setup:
games:games
gluster:GlusterFS daemons
geoclue:User for geoclue
[Eng.mahmoud@localhost ~]$ cat file12
mahmoudhassan amin
[Eng.mahmoud@localhost ~]$ cat file11 | cat file12
mahmoudhassan amin
```

-ls /etc/passwd | wc –l

```
[Eng.mahmoud@localhost ~]$ ls /etc/passwd | wc –l
wc: –l: No such file or directory
```

- Issue the command sleep 100.

```
[Eng.mahmoud@localhost ~]$ sleep 100
```

- Stop the last command.

```
[Eng.mahmoud@localhost ~]$ sleep 1000
^Z
[1]+  Stopped                 sleep 1000
[Eng.mahmoud@localhost ~]$ jobs
[1]+  Stopped                 sleep 1000
```

- Resume the last command in the background.

```
[1]+  Stopped                 sleep 1000
[Eng.mahmoud@localhost ~]$ bg %1
[1]+ sleep 1000 &
[Eng.mahmoud@localhost ~]$ jobs
[1]+  Running                 sleep 1000 &
```

- Issue the jobs command and see its output.

```
[Eng.mahmoud@localhost ~]$ jobs
[1]+  Running                 sleep 1000 &
```

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

```
[Eng.mahmoud@localhost ~]$ fg %1
sleep 1000
^Z
[1]+  Stopped                 sleep 1000
[Eng.mahmoud@localhost ~]$ bg %1
[1]+ sleep 1000 &
[Eng.mahmoud@localhost ~]$ jobs
[1]+  Running                 sleep 1000 &
```

- Kill the sleep command.

```
[Eng.mahmoud@localhost ~]$ kill -KILL %1
[1]+  Killed                  sleep 1000
```

- Display your processes only

```
[Eng.mahmoud@localhost ~]$ ps
    PID TTY          TIME CMD
   4498 pts/0    00:00:00 bash
  11761 pts/0    00:00:00 ps
```

- Display all processes except yours

```
[Eng.mahmoud@localhost ~]$ pgrep -l -u 1000 -v
1 systemd
2 kthreadd
3 rcu_gp
4 rcu_par_gp
6 kworker/0:0H-events_highpri
9 mm_percpu_wq
10 rcu_tasks_rude_
11 rcu_tasks_trace
12 ksoftirqd/0
13 rcu_sched
14 migration/0
15 watchdog/0
16 cpuhp/0
17 cpuhp/1
18 watchdog/1
19 migration/1
```

- Use the pgrep command to list your processes only.

```
[Eng.mahmoud@localhost ~]$ pgrep -l -u 1000
2314 systemd
2317 (sd-pam)
2333 pulseaudio
2338 gnome-keyring-d
2381 gdm-x-session
2384 Xorg
2389 dbus-daemon
2484 gnome-session-b
2546 ssh-agent
2586 at-spi-bus-laun
2591 dbus-daemon
2594 at-spi2-registr
2597 gvfsd
2604 gvfsd-fuse
```

- Kill your processes only.

```
[Eng.mahmoud@localhost ~]$ pkill -u 1000
```

- Create a symbolic link of /etc/passwd in /boot.

```
[Eng.mahmoud@localhost ~]$ sudo ln -s /etc/passwd /boot/soft_link_passwd
[sudo] password for Eng.mahmoud:
```

- Create a hard link of /etc/passwd in /boot. Could you? Why?

```
[Eng.mahmoud@localhost ~]$ sudo ln /etc/passwd /boot/soft_link_passwd
ln: failed to create hard link '/boot/soft_link_passwd': File exists
```

we could not make hard link from another partition.