

## Introduction to Linux and Bash Scripting

### Lab 4

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

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ ls /usr/bin > /tmp/commands.list  
ubuntu@ubuntu-course:~$ cat /tmp/commands.list  
[  
aa-enabled  
aa-exec  
aa-features=abi
```

#### 2. Count the number of user commands

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cat /tmp/commands.list | wc -w  
979  
ubuntu@ubuntu-course:~$
```

#### 3. Get all the users names whose first character in their login is 'g' I used here 's' also

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cut -f 1 -d : /etc/passwd | grep ^g  
games  
ubuntu@ubuntu-course:~$
```

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cut -f 1 -d : /etc/passwd | grep ^s  
sys  
sync  
systemd-network  
systemd-timesync  
systemd-resolve  
syslog  
sshd  
ubuntu@ubuntu-course:~$
```

4. Get the logins name and full names (comment) of logins starts with “g” I used here ‘s’ also

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cut -f 1,5 -d : /etc/passwd | grep ^g  
games:games  
ubuntu@ubuntu-course:~$
```

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cut -f 1,5 -d : /etc/passwd | grep ^s  
sys:sys  
sync:sync  
systemd-network:systemd Network Management  
systemd-timesync:systemd Time Synchronization  
systemd-resolve:systemd Resolver  
syslog:  
sshd:  
ubuntu@ubuntu-course:~$
```

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

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ cut -f 1,5 -d : /etc/passwd | grep ^s | sort -t : -k 5  
sshd:  
sync:sync  
syslog:  
sys:sys  
systemd-network:systemd Network Management  
systemd-resolve:systemd Resolver  
systemd-timesync:systemd Time Synchronization  
ubuntu@ubuntu-course:~$ cut -f 1,5 -d : /etc/passwd | grep ^s | sort -t : -k 5 > sortedfile  
ubuntu@ubuntu-course:~$ cat sortedfile  
sshd:  
sync:sync  
syslog:  
sys:sys  
systemd-network:systemd Network Management  
systemd-resolve:systemd Resolver  
systemd-timesync:systemd Time Synchronization  
ubuntu@ubuntu-course:~$
```

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

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ who  
ubuntu    tty1        2025-04-11 09:43  
ubuntu    pts/0        2025-04-11 09:43 (fe80::250:f915:8e7c:b021%enp0s8)  
ubuntu@ubuntu-course:~$ who | cut -d ' ' -f 1 | uniq | wc -l  
1  
ubuntu@ubuntu-course:~$
```

Here I count also the unique users if needed.

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

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ head -10 /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  
ubuntu@ubuntu-course:~$ head -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  
ubuntu@ubuntu-course:~$
```

## 8. What happens if you execute:

**cat filename1 | cat filename2**

**ls | rm**

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

In the first command cat the content of file 2 is printed and file 1 is ignored.

In the second command give an error because the rm: missing operand which in pipe it accepts the commands without operands.

In the last command the value is 1 because it counts the number of line which ls gives us 1.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ vim f1  
ubuntu@ubuntu-course:~$ vim f2  
ubuntu@ubuntu-course:~$ cat f1  
this is f1  
ubuntu@ubuntu-course:~$ cat f2  
This is f2  
ubuntu@ubuntu-course:~$ cat f1 | cat f2  
This is f2  
ubuntu@ubuntu-course:~$ ls | rm  
rm: missing operand  
Try 'rm --help' for more information.  
ubuntu@ubuntu-course:~$ ls /etc/passwd  
/etc/passwd  
ubuntu@ubuntu-course:~$ ls  
bandit/          f2                .profile  
.bash_history    file              sortedfile  
.bash_logout    file1             .ssh/  
.bashrc         file2             .sudo_as_admin_successful  
.cache/         .lessht          sudo_logsrvd.conf  
colors.txt      morecolors.txt   usernames  
.config/        mycv              .viminfo  
errfile         myfile            .vimrc  
errfile2        myfile2  
f1              oldpasswd  
ubuntu@ubuntu-course:~$ ls /etc/passwd | wc -l  
1  
ubuntu@ubuntu-course:~$
```

## Processes:

1. Issue the command sleep 100
2. Stop the last command
3. Resume the last command in the background
4. Issue the jobs command and see its output
5. Send the sleep command to the foreground and send it again to the background

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ sleep 1000  
^Z  
[1]+  Stopped                  sleep 1000  
ubuntu@ubuntu-course:~$ jobs  
[1]+  Stopped                  sleep 1000  
ubuntu@ubuntu-course:~$ bg %1  
[1]+ sleep 1000 &  
ubuntu@ubuntu-course:~$ jobs  
[1]+  Running                  sleep 1000 &  
ubuntu@ubuntu-course:~$ fg %1  
sleep 1000  
Killed  
ubuntu@ubuntu-course:~$
```

## 6. Kill the sleep command

```
root      1570  0.0  0.0    0    0 ?      I   13:15   0:00 [kworker/0:2-cgroup_dest  
root      1574  0.0  0.0    0    0 ?      I   13:17   0:00 [kworker/u6:1-events_pow  
ubuntu    1576  0.0  0.0   5684 1920 pts/0  S+  13:17   0:00 sleep 1000  
root      1577  0.0  0.3  14968 7920 ?      Ss  13:17   0:00 sshd: ubuntu [priv]  
ubuntu    1656  0.0  0.3   15128 6836 ?      S   13:17   0:00 sshd: ubuntu@pts/1  
ubuntu    1657  0.0  0.2    8780 5376 pts/1  Ss  13:17   0:00 -bash  
root      1666  0.0  0.0    0    0 ?      I   13:19   0:00 [kworker/u5:0-events_unb  
root      1669  0.0  0.0    0    0 ?      I   13:20   0:00 [kworker/u6:3-events_pow  
ubuntu    1672 33.3  0.2   12184 5248 pts/1  R+  13:20   0:00 ps -aux  
ubuntu@ubuntu-course:~$ kill -9 1576  
ubuntu@ubuntu-course:~$
```

## 7. Display your processes only

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ ps -aux | grep ^ubuntu  
ubuntu    905  0.0  0.5   20080 11136 ?      Ss  09:43   0:00 /usr/lib/systemd/systemd --user  
ubuntu    906  0.0  0.1   21148  3520 ?      S   09:43   0:00 (sd-pam)  
ubuntu    915  0.0  0.2    8784  5376 tty1    S+  09:43   0:00 -bash  
ubuntu    974  0.0  0.3   15128  6964 ?      S   09:43   0:13 sshd: ubuntu@pts/0  
ubuntu    975  0.0  0.2    8908  5504 pts/0  Ss  09:43   0:00 -bash  
ubuntu    1656  0.0  0.3   15128  6836 ?      S   13:17   0:00 sshd: ubuntu@pts/1  
ubuntu    1657  0.0  0.2    8780  5376 pts/1  Ss+ 13:17   0:00 -bash  
ubuntu    1687  0.0  0.2   12184  5248 pts/0  R+  13:27   0:00 ps -aux  
ubuntu    1688  0.0  0.1    6676  2176 pts/0  S+  13:27   0:00 grep --color=auto ^ubuntu  
ubuntu@ubuntu-course:~$
```

## 8. Display all processes except yours

```
ubuntu@ubuntu-course: ~$ ps -aux | grep -v ^ubuntu
USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.6 21980 13040 ?        Ss   09:43   0:01 /sbin/init splash noprompt nosh
root        29  0.0  0.0      0     0 ?        S    09:43   0:00 [kdevtmpfs]
```

## 9. Use the pgrep command to list your processes only

```
ubuntu@ubuntu-course: ~$ pgrep -u ubuntu
905
906
915
974
975
1656
1657
ubuntu@ubuntu-course: ~$
```

## 10. Kill your processes only.

```
ubuntu@ubuntu-course: ~$ pkill -u ubuntu
client_loop: send disconnect: Connection reset
PS C:\Users\cw>
```