Using sed utility

1- Display the lines that contain the word "lp" in /etc/passwd file.

```
aya@aya-virtual-machine:~$ sed -n '/lp/p' /etc/passwd
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
```

2- Display /etc/passwd file except the third line.

```
aya@aya-virtual-machine:~$ sed -n '3!p' /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/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
```

3- Display /etc/passwd file except the last line.

```
aya@aya-virtual-machine:~$ sed -n '$!p' /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
```

4- Display /etc/passwd file except the lines that contain the word "lp".

```
aya@aya-virtual-machine:~$ sed -n '/lp/!p' /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
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
```

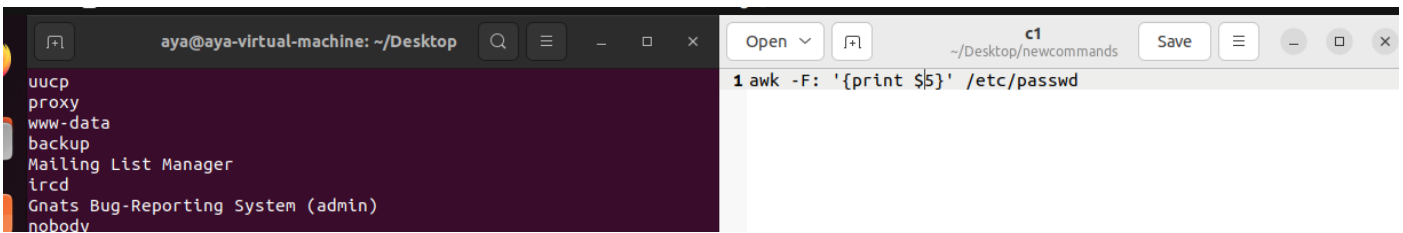5- Substitute all the words that contain "lp" with "mylp" in /etc/passwd file.

```
aya@aya-virtual-machine:~$ sed  's/lp/mylp/g' /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
mylp:x:7:7:mylp:/var/spool/mylpd:/usr/sbin/nologin
```

<mark>OR</mark>

```
aya@aya-virtual-machine:~$ sed -n 's/lp/mylp/g p' /etc/passwd
mylp:x:7:7:mylp:/var/spool/mylpd:/usr/sbin/nologin
cups-pk-hemylper:x:115:122:user for cups-pk-hemylper service,,,:/home/cups-pk-hemylper:/usr/sbin/no
login
```
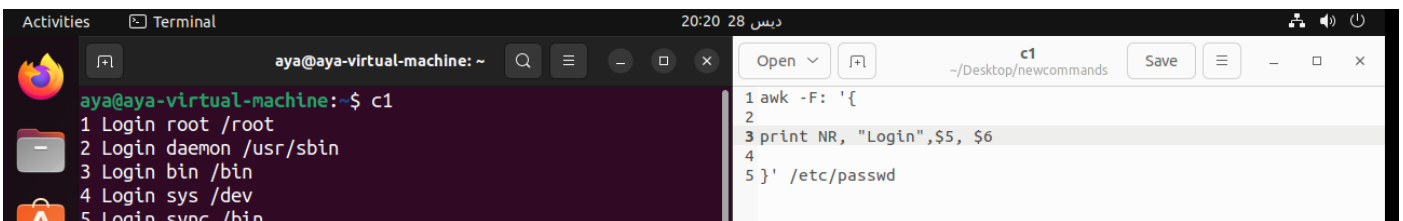
Using awk utility

1- Print full name (comment) of all users in the system.

```
uucp
proxy
www-data
backup
Mailing List Manager
ircd
Gnats Bug-Reporting System (admin)
nobody
```
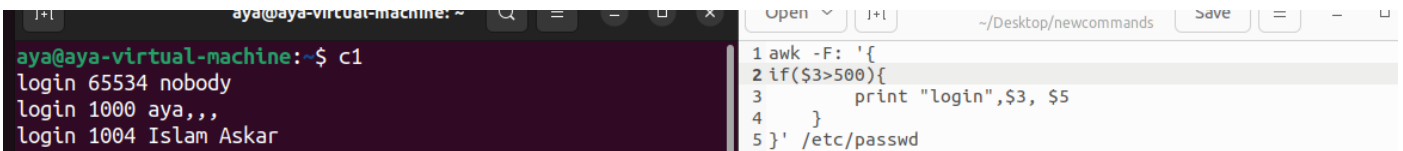
```
1 awk -F: '{print $5}' /etc/passwd
```

2- Print login, full name (comment) and home directory of all users.(Print each line preceded

by a line number)

```
aya@aya-virtual-machine:~$ c1
1 Login root /root
2 Login daemon /usr/sbin
3 Login bin /bin
4 Login sys /dev
5 Login sync /bin
```

```
1 awk -F: '{
2
3 print NR, "Login",$5, $6
4
5 }' /etc/passwd
```
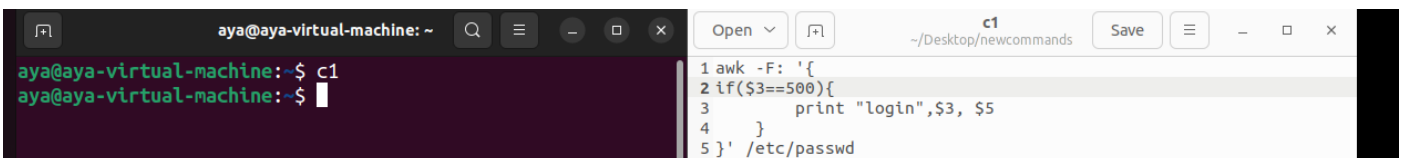
3- Print login, uid and full name (comment) of those uid is greater than 500

```
aya@aya-virtual-machine:~$ c1
login 65534 nobody
login 1000 aya,,,
login 1004 Islam Askar
```

```
1 awk -F: '{
2 if($3>500){
3        print "login",$3, $5
4      }
5 }' /etc/passwd
```
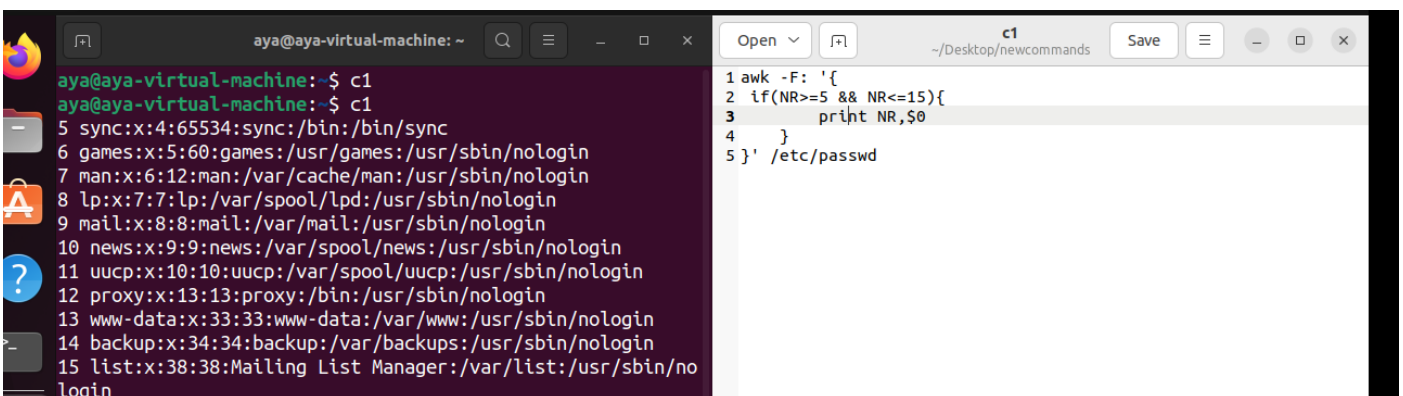
4- Print login, uid and full name (comment) of those uid is exactly 500

```
aya@aya-virtual-machine:~$ c1
aya@aya-virtual-machine:~$
```

```
1 awk -F: '{
2 if($3==500){
3        print "login",$3, $5
4      }
5 }' /etc/passwd
```

5- Print line from 5 to 15 from /etc/passwd

```
aya@aya-virtual-machine:~$ c1
aya@aya-virtual-machine:~$ c1
5 sync:x:4:65534:sync:/bin:/bin/sync
6 games:x:5:60:games:/usr/games:/usr/sbin/nologin
7 man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
8 lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
9 mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
10 news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
11 uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
12 proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
13 www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
14 backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
15 list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/no
login
```

```
1 awk -F: '{
2 if(NR>=5 && NR<=15){
3        print NR,$0
4      }
5 }' /etc/passwd
```

6- Change lp to mylp


```
aya@aya-virtual-machine:~$ c1
awk: line 15: illegal reference to array arr
aya@aya-virtual-machine:~$ c1
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
mylp x 7 7 mylp /var/spool/lpd /usr/sbin/nologin
```

```
1 awk -F : '
2 {
3     for(i=1; i<=NF; i++){
4         if($i == "lp"){
5             $i="mylp";
6         }
7     }
8 print $0
9 }' /etc/passwd
```

```
aya@aya-virtual-machine:~$ c1
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
mylp:x:7:7:mylp:/var/spool/mylpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
```

```
1 awk -F: '{gsub(/lp/,"mylp"); print $0}' /etc/passwd
```

7- Print all information about greatest uid.

```
aya@aya-virtual-machine:~$ c1
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
aya@aya-virtual-machine:~$
```

```
1 awk -F : '
2 BEGIN{
3     max=0;
4     line=0;
5 }
6 {
7     if($3>max){
8         max=$3
9         line=$0
10    }
11
12 }
13 END{ print line}' /etc/passwd
```

8- Get the sum of all accounts id's.

```
aya@aya-virtual-machine:~$ c1
71097
aya@aya-virtual-machine:~$
```

```
1 awk -F : '
2 BEGIN{
3     sum=0;
4 }
5 {
6     sum=sum+$3
7
8 }
9 END{ print sum }' /etc/passwd
```