Bash Shell Script
Lab 1

Name: Nourhan Radwan Gaber

ID: 26

Using sed utility:

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

```
nour@nour-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
nour@nour-virtual-machine:~$ sed -n '/^lp/p' /etc/passwd
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
nour@nour-virtual-machine:~$
```

The fisrt command searches for lines that contain the term "lp" in the /etc/passwd file and prints those lines, the second command searches for lines which starts with "lp".

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

```
nour@nour-virtual-machine:~$ sed '3d' /etc/passwd
```

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

```
nour@nour-virtual-machine:~$ sed '$d' /etc/passwd
```
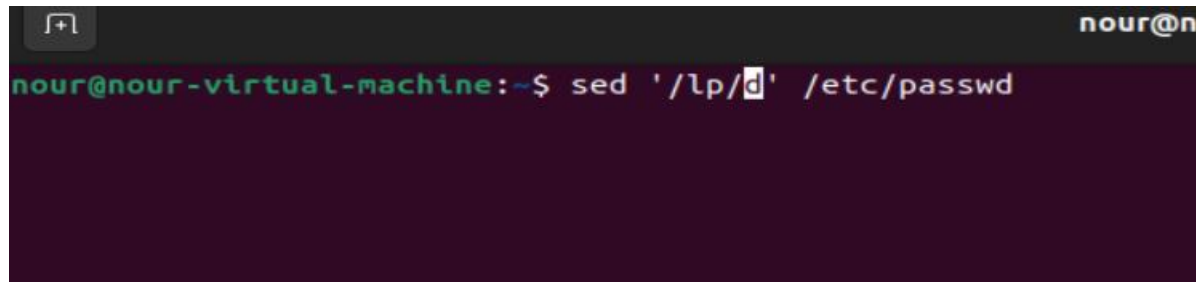
Before:

```
nour:x:1000:1000:nour,,,:/home/nour:/bin/bash
manager:x:1001:1001:manager:/home/manager:/bin/sh
postfix:x:129:137::/var/spool/postfix:/usr/sbin/nologin
nour@nour-virtual-machine:~$
```
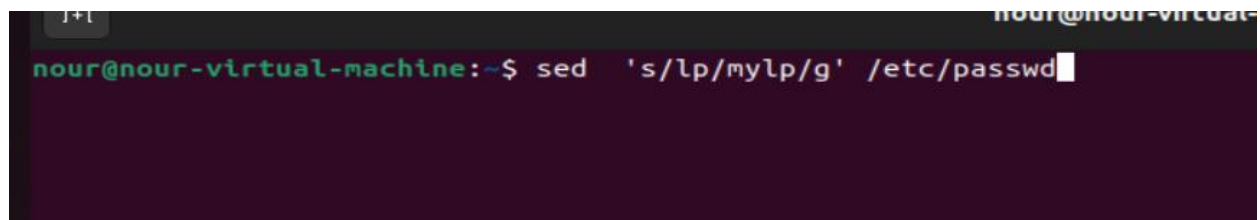
After:

```
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
nour:x:1000:1000:nour,,,:/home/nour:/bin/bash
manager:x:1001:1001:manager:/home/manager:/bin/sh
nour@nour-virtual-machine:~$
```

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

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

Using awk utility

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

```
nour@nour-virtual-machine:~$ 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)

```
nour@nour-virtual-machine:~$ awk -F: '{print NR ":Login:" $1 ", Full Name:" $5 ", Home Directory:" $6}' /etc/passwd
```

```
nour@nour-virtual-machine:~$ awk -F: '{print NR ":Login:" $1 ", Full Name:" $5 ", Home Directory:" $6}' /etc/passwd
1:Login:root, Full Name:root, Home Directory:/root
2:Login:daemon, Full Name:daemon, Home Directory:/usr/sbin
3:Login:bin, Full Name:bin, Home Directory:/bin
4:Login:sys, Full Name:sys, Home Directory:/dev
5:Login:sync, Full Name:sync, Home Directory:/bin
6:Login:games, Full Name:games, Home Directory:/usr/games
7:Login:man, Full Name:man, Home Directory:/var/cache/man
8:Login:lp, Full Name:lp, Home Directory:/var/spool/lpd
9:Login:mail, Full Name:mail, Home Directory:/var/mail
10:Login:news, Full Name:news, Home Directory:/var/spool/news
11:Login:uucp, Full Name:uucp, Home Directory:/var/spool/uucp
12:Login:proxy, Full Name:proxy, Home Directory:/bin
13:Login:www-data, Full Name:www-data, Home Directory:/var/www
14:Login:backup, Full Name:backup, Home Directory:/var/backups
15:Login:list, Full Name:Mailing List Manager, Home Directory:/var/list
16:Login:irc, Full Name:ircd, Home Directory:/run/ircd
17:Login:gnats, Full Name:Gnats Bug-Reporting System (admin), Home Directory:/var/lib/gnats
18:Login:nobody, Full Name:nobody, Home Directory:/nonexistent
19:Login:systemd-network, Full Name:systemd Network Management     Home Directory:/run/systemd
```

3- Print login, uid and full name (comment) of those uid is greater than 500

```
nour@nour-virtual-machine:~$ awk -F: '$3>500 {print "Login:" $1 ",UID:" $3  ",Full Name:" $5}' /etc/passwd
Login:nobody,UID:65534,Full Name:nobody
Login:nour,UID:1000,Full Name:nour,,,
Login:manager,UID:1001,Full Name:manager
nour@nour-virtual-machine:~$
```

4- Print login, uid and full name (comment) of those uid is exactly 500

```
nour@nour-virtual-machine:~$ awk -F: '$3==500 {print "Login:" $1 ",UID:" $3  ",Full Name:" $5}' /etc/passwd
nour@nour-virtual-machine:~$
```

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

```
nour@nour-virtual-machine:~$ awk  -F: 'NR>=5 && NR<=15' /etc/passwd
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
nour@nour-virtual-machine:~$
```

6- Change lp to mylp

```
nour@nour-virtual-machine:~$ awk  'BEGIN{FS=":"}{gsub("lp","mylp",$0);print}' /etc/passwd
```

```
nour@nour-virtual-machine: ~
nour@nour-virtual-machine:~$ awk  'BEGIN{FS=":"}{if(gsub("lp","mylp",$0))print}' /etc/passwd
mylp:x:7:7:mylp:/var/spool/mylpd:/usr/sbin/nologin
cups-pk-hemylper:x:115:122:user for cups-pk-hemylper service,,,:/home/cups-pk-hemylper:/usr/sbin/nologin
nour@nour-virtual-machine:~$
```

gsub to globally substitute "lp" with "mylp" in each line.

7- Print all information about greatest uid.

```
nour@nour-virtual-machine:~$ awk -F: '$3>max{max=$3;max_line=$0;} END{print max_line}' /etc/passwd
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
nour@nour-virtual-machine:~$
```

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

```
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
nour@nour-virtual-machine:~$ awk -F: '{sum+=$3} END{print "the sum of all accounts=",sum}' /etc/passwd
the sum of all accounts= 71223
nour@nour-virtual-machine:~$
```