Using sed utility

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

```
gharabawy@gharabawy-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 :**

```
gharabawy@gharabawy-virtual-machine:~$ split -10 /etc/passwd passwd
gharabawy@gharabawy-virtual-machine:~$ sed '3d' passwdaa
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
```

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

```
gharabawy@gharabawy-virtual-machine:~$ sed '$d' passwdaa
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
```

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

```
gharabawy@gharabawy-virtual-machine:~$ sed '/lp/d' passwdaa
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
```

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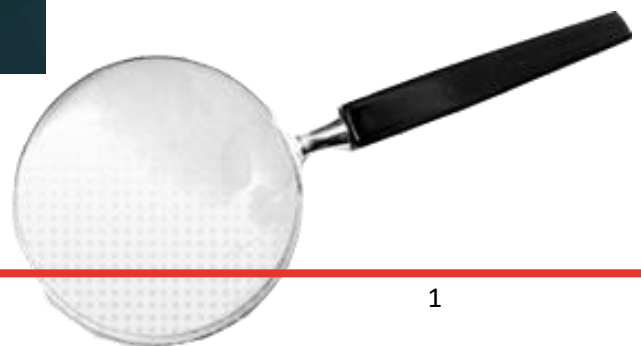
5- Substitute all the words that contain "lp" with "mylp" in /etc/passwd file :

```
gharabawy@gharabawy-virtual-machine:~$ sed 's/lp/mylp/g' passwdaa
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:mymymylp:/var/spool/mymymylpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
```

<u>Using awk utility</u>

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

```
gharabawy@gharabawy-virtual-machine:~$ awk -F: '{print $5}' passwdaa
root
daemon
bin
sys
sync
games
man
lp
mail
news
```

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

```
gharabawy@gharabawy-virtual-machine:~$ awk -F: '{print NR, $1, $5, $6}' passwdaa
1 root root /root
2 daemon daemon /usr/sbin
3 bin bin /bin
4 sys sys /dev
5 sync sync /bin
6 games games /usr/games
7 man man /var/cache/man
8 lp lp /var/spool/lpd
9 mail mail /var/mail
10 news news /var/spool/news
```

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

```
gharabawy@gharabawy-virtual-machine:~$ awk -F: '$3 > 500 {print $1,
nobody 65534 nobody
gharabawy 1000 gharabawy,,,
islam 1001 islam sakr
mohamed 1002
```
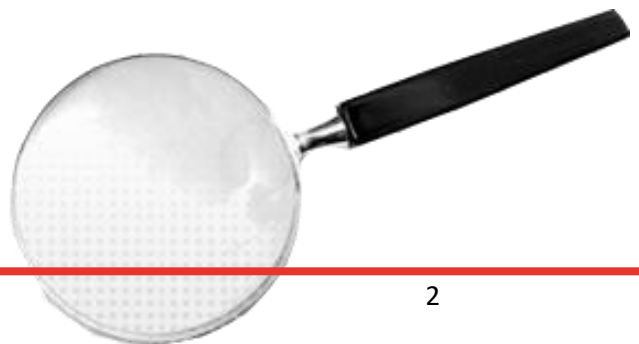
4- Print login, uid and full name (comment) of those uid is exactly 500 :

```
gharabawy@gharabawy-virtual-machine:~$ awk -F: '$3 == 500 {print $1, $3, $5}' /etc/passwd
gharabawy@gharabawy-virtual-machine:~$
```

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

```
gharabawy@gharabawy-virtual-machine:~$ awk '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
```

6- Change lp to mylp :

```
gharabawy@gharabawy-virtual-machine:~$ awk '{gsub(/lp/, "mylp")} 1' passwdaa
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
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
```

7- Print all information about greatest uid :

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

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

```
gharabawy@gharabawy-virtual-machine:~$ awk -F: '{sum += $3} END {print "Sum of all ids : ", sum}' /etc/passwd
Sum of all ids :  72225
```