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Using sed utility

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

```
[Eng.mahmoud@localhost ~]$ sed -n '/lp/p'  /etc/passwd
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
flatpak:x:977:977:User for flatpak system helper:/:/sbin/nologin
```

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

```
[Eng.mahmoud@localhost ~]$ sed '3d'  /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
```

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

```
[Eng.mahmoud@localhost ~]$ sed '$d' /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
```

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

```
[Eng.mahmoud@localhost ~]$ sed '/lp/d' /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
```

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

```
[Eng.mahmoud@localhost ~]$ sed -n 's/lp/mylp/gp'  /etc/passwd
mylp:x:4:7:mylp:/var/spool/mylpd:/sbin/nologin
flatpak:x:977:977:User for flatpak system hemylper:/:/sbin/nologin
```

Using awk utility

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

```
[Eng.mahmoud@localhost ~]$ awk -F: '{print $5}' /etc/passwd
root
```

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

```
[Eng.mahmoud@localhost ~]$ awk -F: '{print NR,$1,":"$5,":",$6 }' /etc/passwd
1 root :root : /root
2 bin :bin : /bin
3 daemon :daemon : /sbin
4 adm :adm : /var/adm
5 lp :lp : /var/spool/lpd
```

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

```
[Eng.mahmoud@localhost ~]$ awk -F: '{if($3>500){print $1 ,":",$3,":",$5}}' /etc/passwd
nobody : 65534 : Kernel Overflow User
systemd-coredump : 999 : systemd Core Dumper
polkitd : 998 : User for polkitd
geoclue : 997 : User for geoclue
pipewire : 996 : PipeWire System Daemon
clevis : 995 : Clevis Decryption Framework unprivileged user
unbound : 994 : Unbound DNS resolver
gluster : 993 : GlusterFS daemons
```

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

```
[Eng.mahmoud@localhost ~]$ awk -F: '{if($3==500){print $1 ,":",$3,":",$5}}' /etc/passwd
[Eng.mahmoud@localhost ~]$
```

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

```
[Eng.mahmoud@localhost ~]$ awk '{if(NR>=5 && NR <= 15)print $0}' /etc/passwd
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
[Eng.mahmoud@localhost ~]$
```

6- Change lp to mylp.

```
[Eng.mahmoud@localhost ~]$ awk -F: '{for(i=1;i<=NF;i++)
{if($i == "lp")$i="mylp"}print $0}' /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
mylp x 4 7 mylp /var/spool/lpd /sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
```

7- Print all information about greatest uid.

```
[Eng.mahmoud@localhost ~]$ awk -F: 'BEGIN{max=0 ;line=0 }
> {if(max<$3){max=$3;line=$0}}END{print line}' /etc/passwd
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
[Eng.mahmoud@localhost ~]$
```

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

```
[Eng.mahmoud@localhost ~]$ awk -F: 'BEGIN{sum=0}{sum=sum+$3}
> END{print sum}' /etc/passwd
85677
```