

Lab 1----- Bash

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

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ 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
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$
```

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

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ 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:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:nonexistent:/home/syslog:/usr/sbin/nologin
```

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

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ 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
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:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
```

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

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sed '/lp/d' /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
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
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:/:nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/:home/syslog:/usr/sbin/nologin
```

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

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sed -n 's/lp/mylp/pg' /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
```

Using awk utility

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

```
1  #!/usr/bin/bash
2  ##! /usr/bin/python3
3  # print(10)
4  #echo 'hi there'
5
6  awk '
7  BEGIN{ FS=":"; }
8  {
9      print $5
10 }
11 END{;}' /etc/passwd
```

PROBLEMS (15) OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
welcom
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ file5
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
Mailing List Manager
ircd
```

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

```
1  #!/usr/bin/bash
2  ##! /usr/bin/python3
3  # print(10)
4  #echo 'hi there'
5
6  awk -F: '
7  {
8      print NR ":" $1 ", " $5 ", " $6
9  }
10 ' /etc/passwd
```

PROBLEMS (11) OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
• ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ file5
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
```

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

```
6  awk -F: '
7  $3 > 500 {print $1 ", " $3 ", " $5}
8  ' /etc/passwd
```

PROBLEMS (5) OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
• ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ file5
nobody, 65534, nobody
ibrahim, 1000, ibrahim,,,
```

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

```
5
6 awk -F: '
7 $3 == 500 {print $1 " ", " $3 ", " $5}
8 /etc/passwd
```

PROBLEMS (5) OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

- **ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~\$ file5**
nobody, 65534, nobody
ibrahim, 1000, ibrahim,,,
- **ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~\$ file5**
root, 500, root
daemon, 500, daemon
bin, 500, bin
sys, 500, sys
sync, 500, sync
games, 500, games
man, 500, man

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

```
5
6 awk -F: '
7 NR>=5 && NR<=15
8 /etc/passwd
```

PROBLEMS (7) OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

- **ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~\$ file5**
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

```
5  
6 awk 'gsub(/lp/, "mylp"); print'  
7  
8 /etc/passwd
```

PROBLEMS (8) OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
• ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ file5  
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  
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
```

[Open file in editor \(ctrl + click\)](#)

7- Print all information about greatest uid.

```
5  
6 awk -F: 'BEGIN {maxuid=0} {if($3>maxuid) {maxuid=$3; maxuser=$0}} END {print maxuser}'  
7  
8 /etc/passwd
```

PROBLEMS (10) OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false  
ibrahim:x:1000:1000:ibrahim,,,:/home/ibrahim:/bin/bash  
• ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ file5  
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
```

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

```
5  
6 awk -F: '{sum += $3} END {print sum}'  
7  
8 /etc/passwd
```

PROBLEMS (7) OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
• ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ file5  
70093
```