

Lab1 Bash

Using sed utility

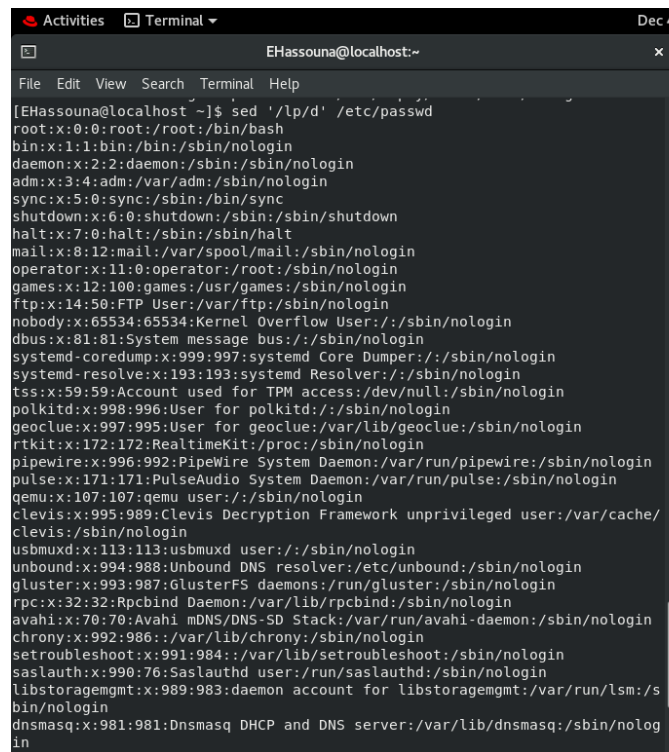
1- Display the lines that contain the word “lp” in /etc/passwd file.

```
File Edit View Search Terminal Help
[Ehassouna@localhost ~]$ sed '/lp/p' /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
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
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
systemd-resolve:x:193:193:systemd Resolver:/sbin/nologin
tss:x:59:59:Account used for TPM access:/dev/null:/sbin/nologin
polkitd:x:998:996:User for polkitd:/sbin/nologin
geoclue:x:997:995:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:996:992:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
pulse:x:171:171:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin
qemu:x:107:107:qemu user:/sbin/nologin
clevis:x:995:989:clevis Decryption Framework unprivileged user:/var/cache/
clevis:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/sbin/nologin
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
chrony:x:992:986:/var/lib/chrony:/sbin/nologin
setroubleshoot:x:991:984:/var/lib/setroubleshoot:/sbin/nologin
sasauth:x:990:76:Sasauthd user:/run/sasauthd:/sbin/nologin
libstoragemgmt:x:989:983:daemon account for libstoragemgmt:/var/run/lsm:/s
bin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/sbin/nolog
in
```

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

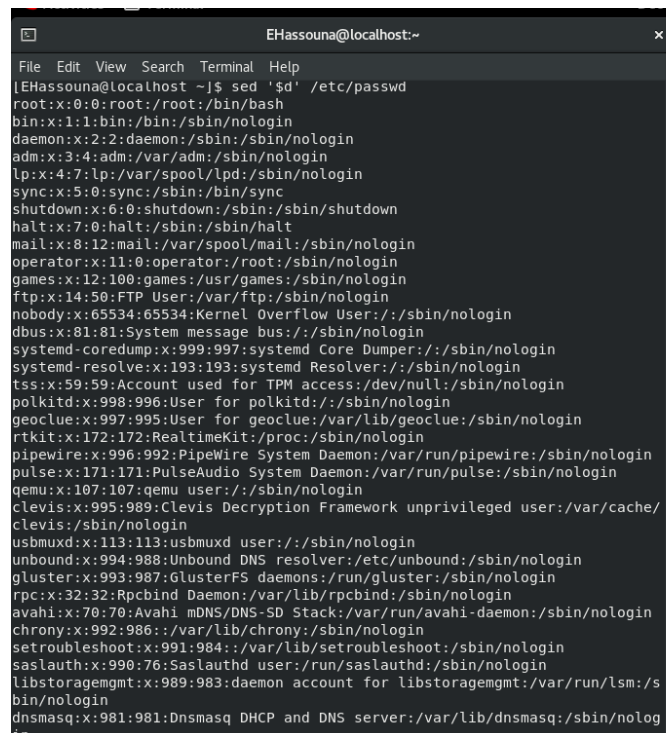
```
Activities Terminal Dec 4
Ehassouna@localhost:~
File Edit View Search Terminal Help
[Ehassouna@localhost ~]$ sed -n '3d' /etc/passwd
[Ehassouna@localhost ~]$ sed '3d' /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
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
systemd-resolve:x:193:193:systemd Resolver:/sbin/nologin
tss:x:59:59:Account used for TPM access:/dev/null:/sbin/nologin
polkitd:x:998:996:User for polkitd:/sbin/nologin
geoclue:x:997:995:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:996:992:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
pulse:x:171:171:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin
qemu:x:107:107:qemu user:/sbin/nologin
clevis:x:995:989:clevis Decryption Framework unprivileged user:/var/cache/
clevis:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/sbin/nologin
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
chrony:x:992:986:/var/lib/chrony:/sbin/nologin
setroubleshoot:x:991:984:/var/lib/setroubleshoot:/sbin/nologin
sasauth:x:990:76:Sasauthd user:/run/sasauthd:/sbin/nologin
libstoragemgmt:x:989:983:daemon account for libstoragemgmt:/var/run/lsm:/s
bin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/sbin/nolog
in
```

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



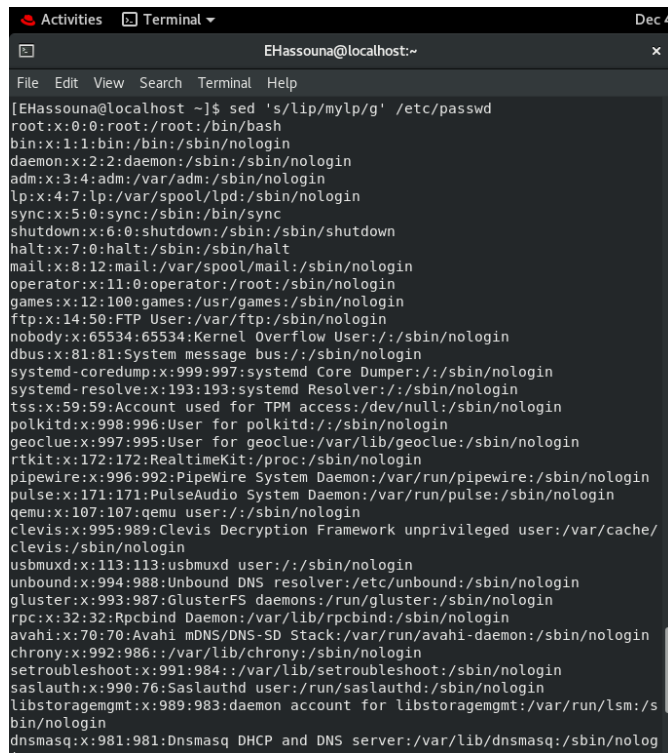
```
EHassouna@localhost:~$ sed -n '/lp/d' /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
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
systemd-resolve:x:193:193:systemd Resolver:/sbin/nologin
tss:x:59:59:Account used for TPM access:/dev/null:/sbin/nologin
polkitd:x:998:996:User for polkitd:/sbin/nologin
geoclue:x:997:995:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:996:992:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
pulse:x:171:171:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin
qemu:x:107:107:qemu user:/sbin/nologin
clevis:x:995:989:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/sbin/nologin
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
chrony:x:992:986:/var/lib/chrony:/sbin/nologin
setroubleshoot:x:991:984:/var/lib/setroubleshoot:/sbin/nologin
sasauth:x:990:76:Sasauthd user:/run/sasauthd:/sbin/nologin
libstoragemgmt:x:989:983:daemon account for libstoragemgmt:/var/run/lsm:/sbin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/sbin/nologin
```

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



```
EHassouna@localhost:~$ sed -n '/lp/d' /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
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
systemd-resolve:x:193:193:systemd Resolver:/sbin/nologin
tss:x:59:59:Account used for TPM access:/dev/null:/sbin/nologin
polkitd:x:998:996:User for polkitd:/sbin/nologin
geoclue:x:997:995:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:996:992:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
pulse:x:171:171:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin
qemu:x:107:107:qemu user:/sbin/nologin
clevis:x:995:989:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/sbin/nologin
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
chrony:x:992:986:/var/lib/chrony:/sbin/nologin
setroubleshoot:x:991:984:/var/lib/setroubleshoot:/sbin/nologin
sasauth:x:990:76:Sasauthd user:/run/sasauthd:/sbin/nologin
libstoragemgmt:x:989:983:daemon account for libstoragemgmt:/var/run/lsm:/sbin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/sbin/nologin
```

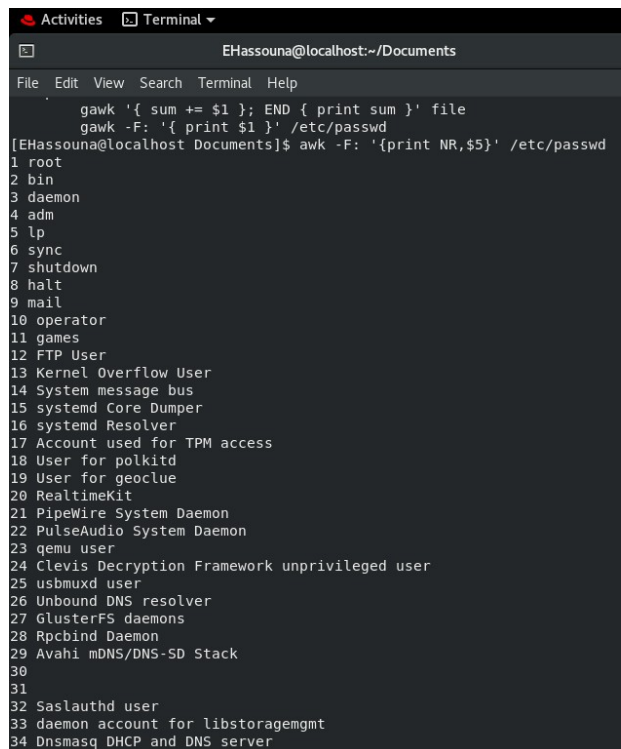
5- Substitute all the words that contain “lp” with “mylp” in /etc/passwd file.



```
EHassouna@localhost:~$ sed 's/lp/mylp/g' /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
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
systemd-resolve:x:193:193:systemd Resolver:/sbin/nologin
tss:x:59:59:Account used for TPM access:/dev/null:/sbin/nologin
polkitd:x:998:996:User for polkitd:/sbin/nologin
geoclue:x:997:995:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:996:992:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
pulse:x:171:171:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin
qemu:x:107:107:qemu user:/sbin/nologin
clevis:x:995:989:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/sbin/nologin
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
chrony:x:992:986:/var/lib/chrony:/sbin/nologin
setroubleshoot:x:991:984:/var/lib/setroubleshoot:/sbin/nologin
sasauthd:x:990:76:Sasauthd user:/run/sasauthd:/sbin/nologin
libstoragemgmt:x:989:983:daemon account for libstoragemgmt:/var/run/lsm:/sbin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/sbin/nologin
```

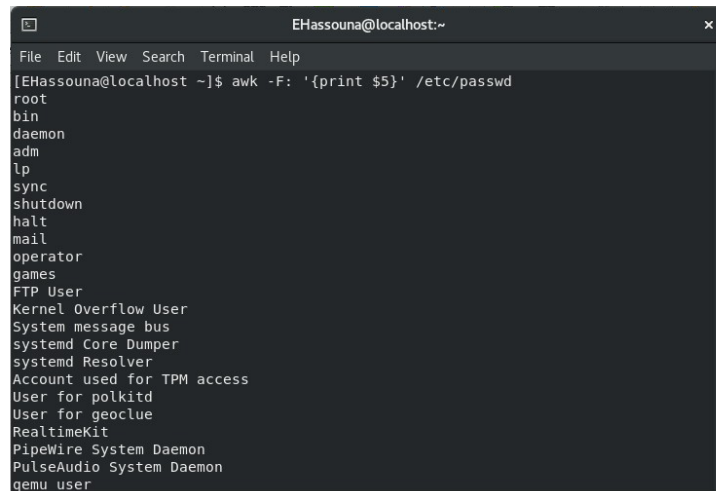
Using awk utility

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



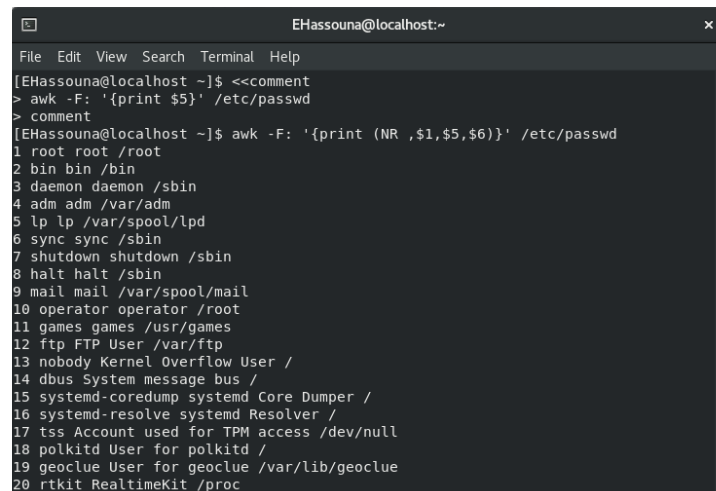
```
EHassouna@localhost:~/Documents
gawk '{ sum += $1 }; END { print sum }' file
gawk -F: '{ print $1 }' /etc/passwd
[EHassouna@localhost Documents]$ awk -F: '{print NR,$5}' /etc/passwd
1 root
2 bin
3 daemon
4 adm
5 lp
6 sync
7 shutdown
8 halt
9 mail
10 operator
11 games
12 FTP User
13 Kernel Overflow User
14 System message bus
15 systemd Core Dumper
16 systemd Resolver
17 Account used for TPM access
18 User for polkitd
19 User for geoclue
20 RealtimeKit
21 PipeWire System Daemon
22 PulseAudio System Daemon
23 qemu user
24 Clevis Decryption Framework unprivileged user
25 usbmuxd user
26 Unbound DNS resolver
27 GlusterFS daemons
28 Rpcbind Daemon
29 Avahi mDNS/DNS-SD Stack
30
31
32 Sasauthd user
33 daemon account for libstoragemgmt
34 Dnsmasq DHCP and DNS server
```

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



```
EHassouna@localhost:~  
File Edit View Search Terminal Help  
[EHassouna@localhost ~]$ awk -F: '{print $5}' /etc/passwd  
root  
bin  
daemon  
adm  
lp  
sync  
shutdown  
halt  
mail  
operator  
games  
FTP User  
Kernel Overflow User  
System message bus  
systemd Core Dumper  
systemd Resolver  
Account used for TPM access  
User for polkitd  
User for geoclue  
RealtimeKit  
PipeWire System Daemon  
PulseAudio System Daemon  
qemu user
```

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



```
EHassouna@localhost:~  
File Edit View Search Terminal Help  
[EHassouna@localhost ~]$ <<comment  
> awk -F: '{print $5}' /etc/passwd  
> comment  
[EHassouna@localhost ~]$ 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  
6 sync sync /sbin  
7 shutdown shutdown /sbin  
8 halt halt /sbin  
9 mail mail /var/spool/mail  
10 operator operator /root  
11 games games /usr/games  
12 ftp FTP User /var/ftp  
13 nobody Kernel Overflow User /  
14 dbus System message bus /  
15 systemd-coredump systemd Core Dumper /  
16 systemd-resolve systemd Resolver /  
17 tss Account used for TPM access /dev/null  
18 polkitd User for polkitd /  
19 geoclue User for geoclue /var/lib/geoclue  
20 rtkit RealtimeKit /proc
```

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

```
EHassouna@localhost:~  
File Edit View Search Terminal Help  
[EHassouna@localhost ~]$ awk -F: '{ if ($3==500){print ($1,$3,$5)}' /etc/passwd  
root 500 root  
bin 500 bin  
daemon 500 daemon  
adm 500 adm  
lp 500 lp  
sync 500 sync  
shutdown 500 shutdown  
halt 500 halt  
mail 500 mail  
operator 500 operator  
games 500 games  
ftp 500 FTP User  
nobody 500 Kernel Overflow User  
dbus 500 System message bus  
systemd-coredump 500 systemd Core Dumper  
systemd-resolve 500 systemd Resolver  
tss 500 Account used for TPM access  
polkitd 500 User for polkitd  
geoclue 500 User for geoclue  
rtkit 500 RealtimeKit  
pipewire 500 PipeWire System Daemon  
pulse 500 PulseAudio System Daemon
```

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

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

6- Change lp to mylp

```
[EHassouna@localhost ~]$ awk -F: 'BEGIN{i=1} {while ($i<NF){ if ($i=="lp") {$i="mylp"}; i++ }} END {print $0}' /etc/passwd  
postfix:x:89:89:/var/spool/postfix:/sbin/nologin  
[EHassouna@localhost ~]$
```

7- Print all information about greatest uid.

```
[EHassouna@localhost ~]$ awk -F: 'BEGIN{max=0} {if ($3 > max) {max=$3}} END {print max}' /etc/passwd  
65534
```

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

```
[EHassouna@localhost ~]$ awk -F: 'BEGIN{sum=0} {sum=sum+$3} END{print sum}' /etc/passwd
86767
[EHassouna@localhost ~]$
```