

## Using sed utility

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

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
Sun Dec  4 13:33:30 EET 2022  
Mai: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  
Mai:
```

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

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
Mai: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
```

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

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
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  
saslauthd:x:990:76:Saslauthd user:/run/saslauthd:/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  
radvd:x:75:75:radvd user:/sbin/nologin  
sssd:x:980:980:User for sssd:/sbin/nologin  
cockpit-ws:x:979:979:User for cockpit web service:/nonexisting:/sbin/nologin  
cockpit-wsinstance:x:978:978:User for cockpit-ws instances:/nonexisting:/sbin/nologin  
flatpak:x:977:977:User for flatpak system helper:/sbin/nologin  
colord:x:976:976:User for colord:/var/lib/colord:/sbin/nologin  
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin  
gdm:x:42:42:./var/lib/gdm:/sbin/nologin  
gnome-initial-setup:x:975:975:./run/gnome-initial-setup:/sbin/nologin  
tcpdump:x:72:72:./sbin/nologin  
sshd:x:74:74:Privilege-separated SSH:/var/empty/ssh:/sbin/nologin  
maiyasser:x:1000:1000:maiyasser:/home/maiyasser:/bin/bash  
Mai:
```

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

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
Mai:sed '/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
```

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

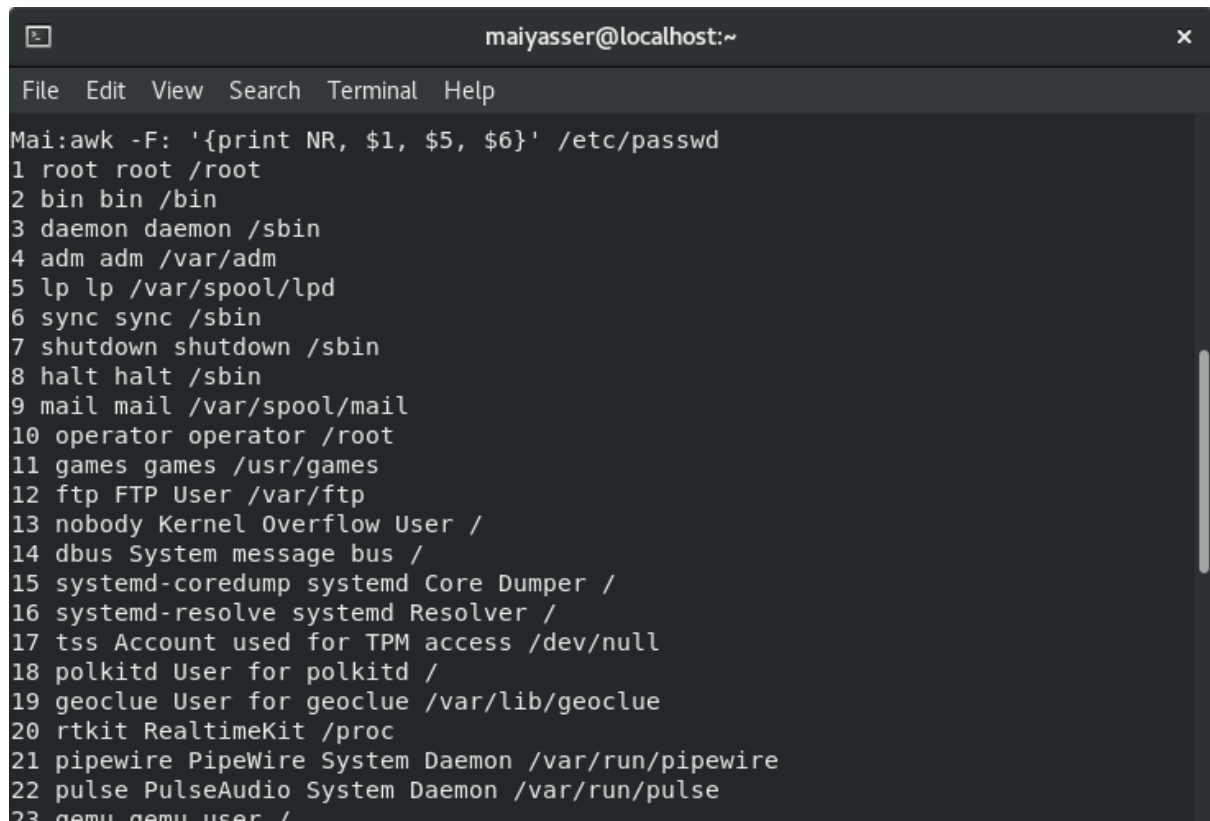
```
maiasser@localhost:~  
File Edit View Search Terminal Help  
Mai:sed 's/lp/mylp/g' /etc/passwd  
root:x:0:0:root:/root:/bin/bash  
bin:x:1:1:bin:/bin:/sbin/nologin  
daemon:x:2:2:daemon:/sbin:/sbin/nologin  
adm:x:3:4:adm:/var/adm:/sbin/nologin  
mylp:x:4:7:mylp:/var/spool/mylpd:/sbin/nologin  
sync:x:5:0:sync:/sbin:/bin/sync  
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
```

Using awk utility

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

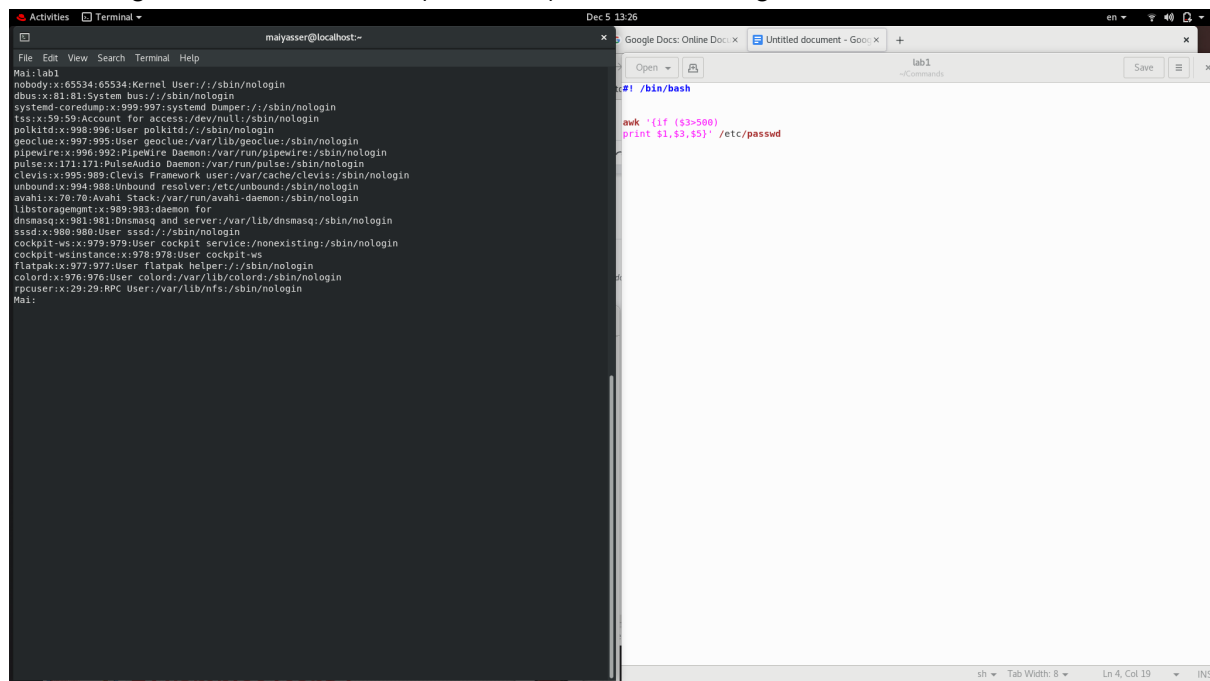
```
maiasser@localhost:~  
File Edit View Search Terminal Help  
Mai:awk -F: '{print $5}' /etc/passwd  
root  
bin  
daemon  
adm  
lp  
sync  
shutdown  
halt  
mail  
operator  
games  
FTP User  
Kernel Overflow User  
System message bus  
systemd Core Dumper  
systemd Resolver  
Account used for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

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



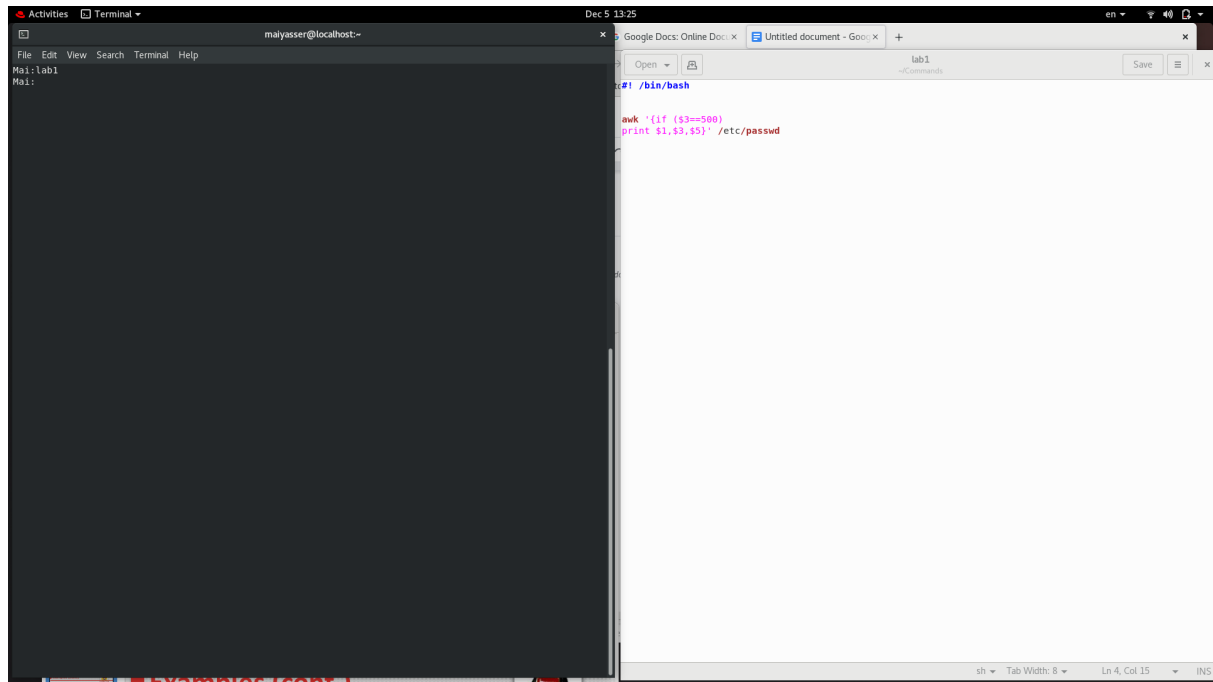
```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
Mai:awk -F: '{print NR, $1, $5, $6}' /etc/passwd  
1 root root /root  
2 bin bin /bin  
3 daemon daemon /sbin  
4 adm adm /var/adm  
5 lp lp /var/spool/lpd  
6 sync sync /sbin  
7 shutdown shutdown /sbin  
8 halt halt /sbin  
9 mail mail /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  
21 pipewire PipeWire System Daemon /var/run/pipewire  
22 pulse PulseAudio System Daemon /var/run/pulse  
23 qemu qemu user /
```

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



```
Activities Terminal  
maiyasser@localhost:~  
File Edit View Search Terminal Help  
Mai:lab1  
nobody:x:65534:65534:Kernel User:/:/sbin/nologin  
dbus:x:81:81:System bus:/:/sbin/nologin  
systemd-coredump:x:999:997:systemd Dumper:/:/sbin/nologin  
tss:x:59:59:Account for access:/dev/null:/sbin/nologin  
polkitd:x:998:996:User polkitd:/:/sbin/nologin  
geoclue:x:997:995:User geoclue:/var/lib/geoclue:/sbin/nologin  
pipewire:x:996:992:PipeWire Daemon:/var/run/pipewire:/sbin/nologin  
pulse:x:171:171:PulseAudio Daemon:/var/run/pulse:/sbin/nologin  
clevis:x:995:989:clevis Framework user:/var/cache/clevis:/sbin/nologin  
unbound:x:994:988:Unbound resolver:/etc/unbound:/sbin/nologin  
avahi:x:70:70:Avahi Stack:/var/run/avahi-daemon:/sbin/nologin  
libstoragemgmt:x:989:983:daemon for  
dnsmasq:x:981:981:Dnsmasq and server:/var/lib/dnsmasq:/sbin/nologin  
sssd:x:980:980:User sssd:/:/sbin/nologin  
cockpit-ws:x:979:979:User cockpit service:/nonexisting:/sbin/nologin  
cockpit-wsinstance:x:978:978:User cockpit-ws  
flatpak:x:977:977:User flatpak helper:/:/sbin/nologin  
colord:x:976:976:User colord:/var/lib/colord:/sbin/nologin  
rpcuser:x:20:20:RPC User:/var/lib/nfs:/sbin/nologin  
Mai:  
lab1  
# /bin/bash  
awk -F: '{if ($3>500)  
print $1,$5,$6}' /etc/passwd
```

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

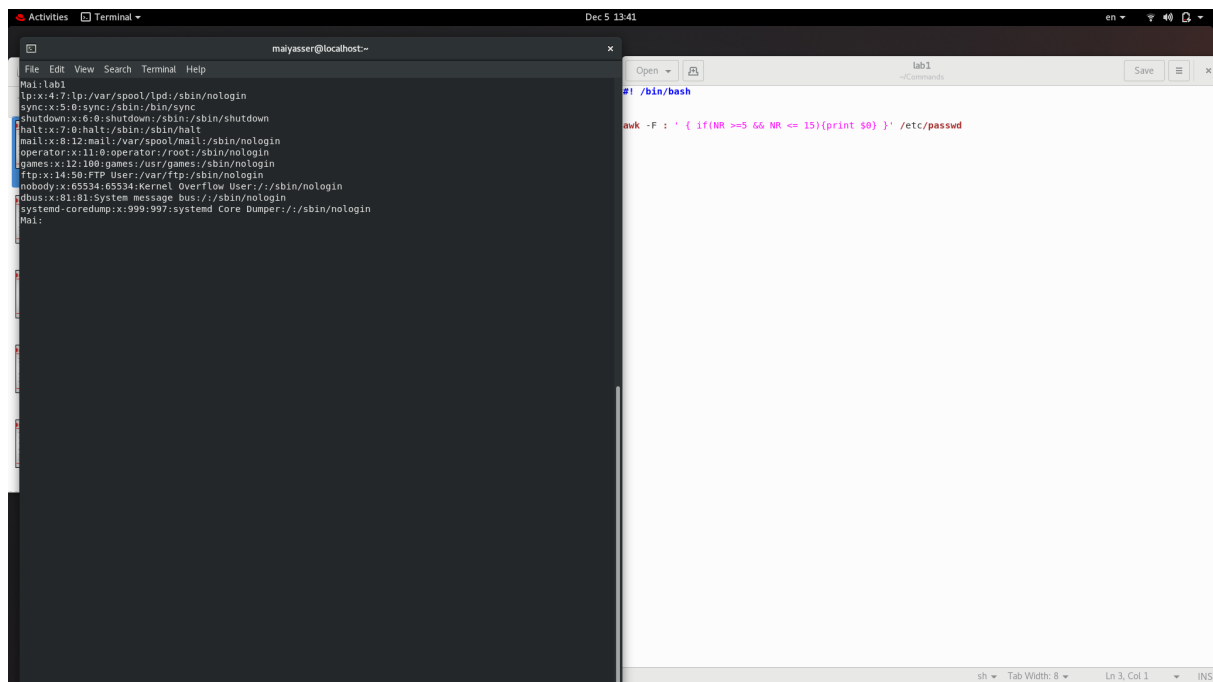


The screenshot shows a terminal window on the left and a text editor on the right. The terminal window has a title bar 'Terminal' and a menu bar 'File Edit View Search Terminal Help'. The prompt is 'malayasser@localhost:~'. The text editor has a title bar 'lab1' and a menu bar 'File Edit View Search Terminal Help'. The text in the editor is:

```
#!/bin/bash

awk '{if ($3==500)
print $1,$3,$5}' /etc/passwd
```

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

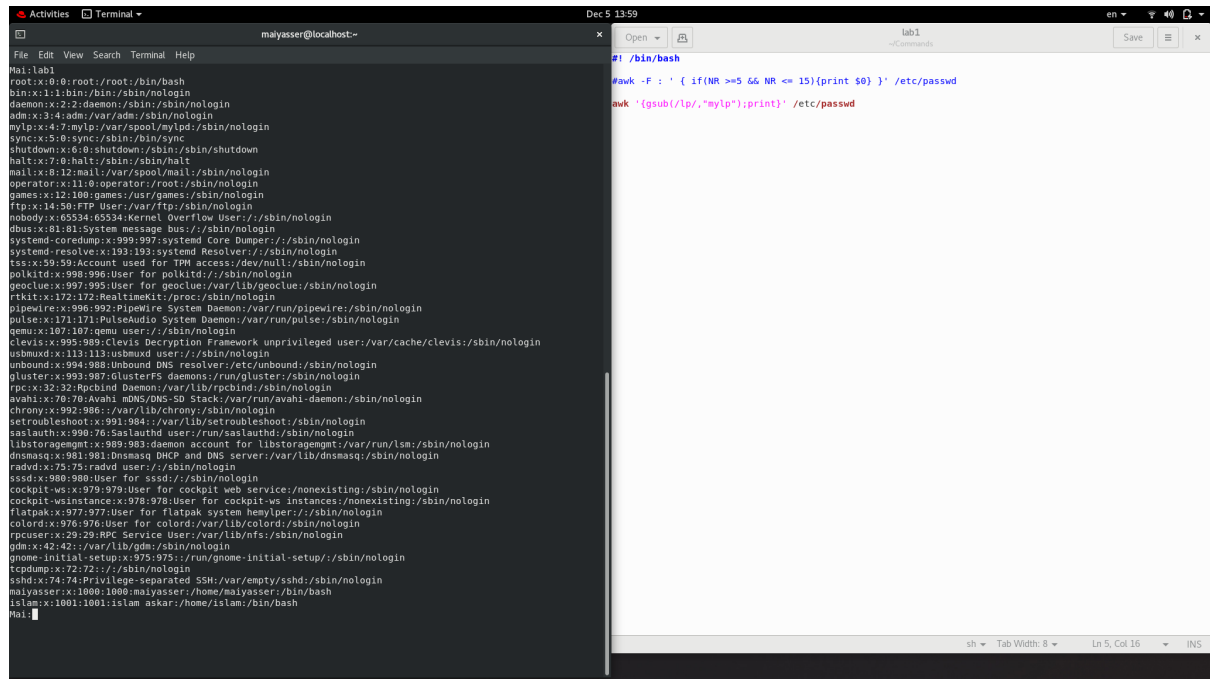


The screenshot shows a terminal window on the left and a text editor on the right. The terminal window has a title bar 'Terminal' and a menu bar 'File Edit View Search Terminal Help'. The prompt is 'malayasser@localhost:~'. The text in the editor is:

```
#!/bin/bash

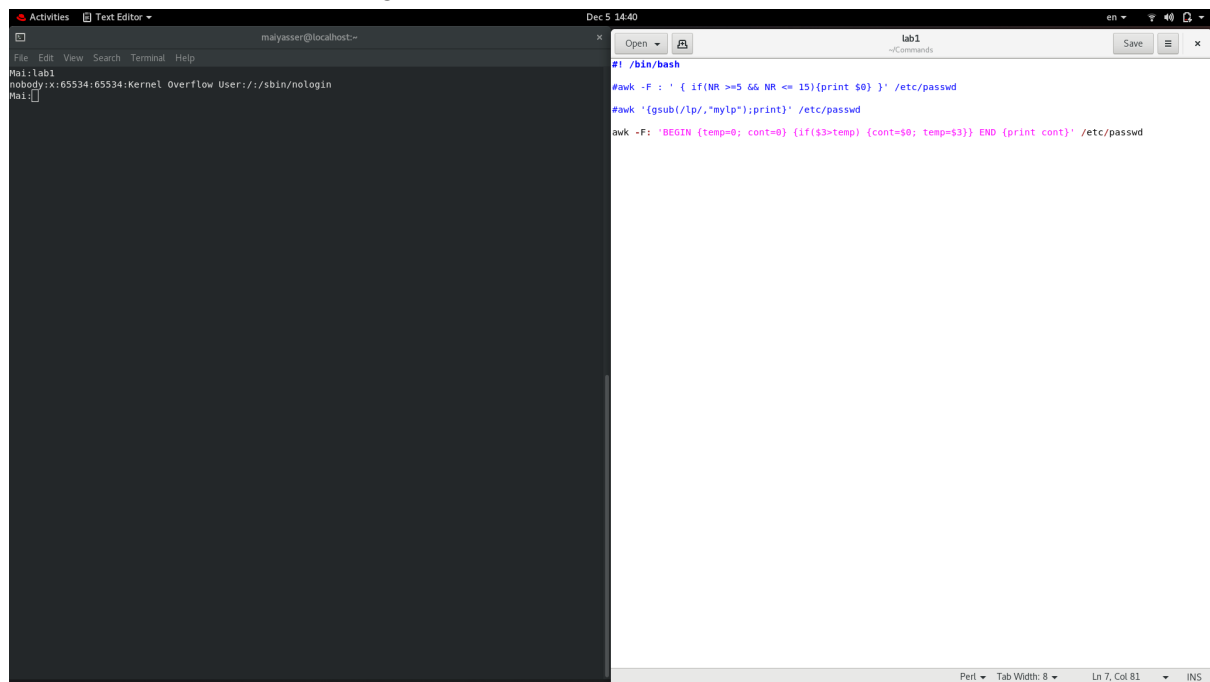
awk -F : ' { if(NR >= 5 66 NR <= 15){print $0} }' /etc/passwd
```

## 6- Change lp to mylp



```
mail:lab1
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/mylpd:/sbin/nologin
sync:x:8:8: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:993:993: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:992:988:/var/lib/chrony:/sbin/nologin
setroubleshoot:x:991:984:/var/lib/setroubleshoot:/sbin/nologin
saslauthd:x:980:76:saslauthd user:/run/saslauthd:/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
radvd:x:75:75:radvd user:/sbin/nologin
sssd:x:980:980:User for sssd:/sbin/nologin
cockpit-ws:x:979:979:User for cockpit web service:/nonexistent:/sbin/nologin
cockpit-wsinstance:x:978:978:User for cockpit-ws instances:/nonexistent:/sbin/nologin
flatpak:x:977:977:User for flatpak system newlper:/sbin/nologin
colord:x:976:976:User for colord:/var/lib/colord:/sbin/nologin
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
gdm:x:42:42:/var/lib/gdm:/sbin/nologin
gnome-initial-setup:x:975:975:/run/gnome-initial-setup:/sbin/nologin
tcpdump:x:72:72:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/ssh:/sbin/nologin
mayasser:x:1000:1000:mayasser:/home/mayasser:/bin/bash
islam:x:1001:1001:islam askari:/home/islam:/bin/bash
mail:
```

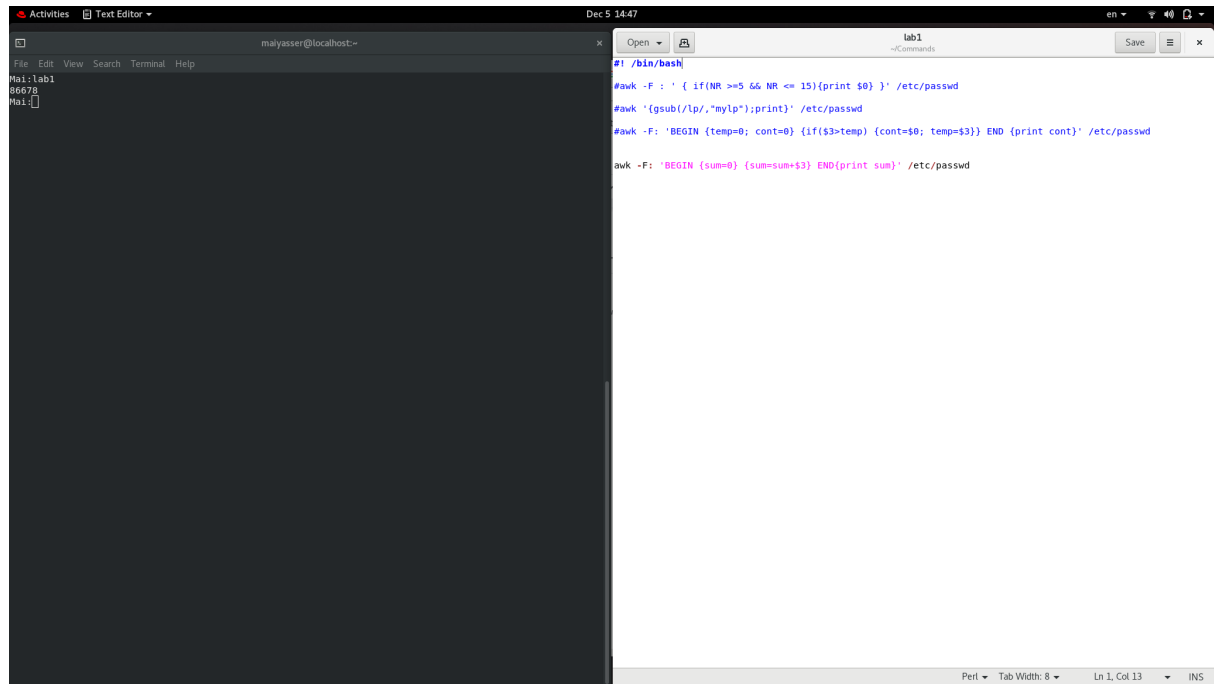
## 7- Print all information about greatest uid.



```
mail:lab1
nobody:x:65534:65534:Kernel Overflow User:/sbin/nologin
mail:
```

```
# /bin/bash
awk -F : ' { if(NR >= 5 && NR <= 15){print $0} }' /etc/passwd
#awk '{gsub(/lp, "mylp");print}' /etc/passwd
awk -F : 'BEGIN {temp=0; cont=0} {if($3>temp) {cont=$0; temp=$3}} END {print cont}' /etc/passwd
```

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



The screenshot shows a terminal window with a shell prompt and a text editor window with several awk commands. The terminal window is titled 'malayasser@localhost:~' and shows the prompt 'mai:lab1' followed by '86678' and 'mai:'. The text editor window is titled 'lab1' and shows the following commands:

```
#! /bin/bash
#awk -F : ' { if(NR >=5 && NR <= 15){print $0} }' /etc/passwd
#awk '{gsub(/lp/, "mylp");print}' /etc/passwd
#awk -F: 'BEGIN {temp=0; cont=0} {if($3>temp) {cont=$0; temp=$3} END {print cont}}' /etc/passwd
awk -F: 'BEGIN {sum=0} {sum=sum+$3} END{print sum}' /etc/passwd
```

The status bar at the bottom of the text editor window shows 'Perl', 'Tab Width: 8', 'Ln 1, Col 13', and 'INS'.