LAB1 BASH

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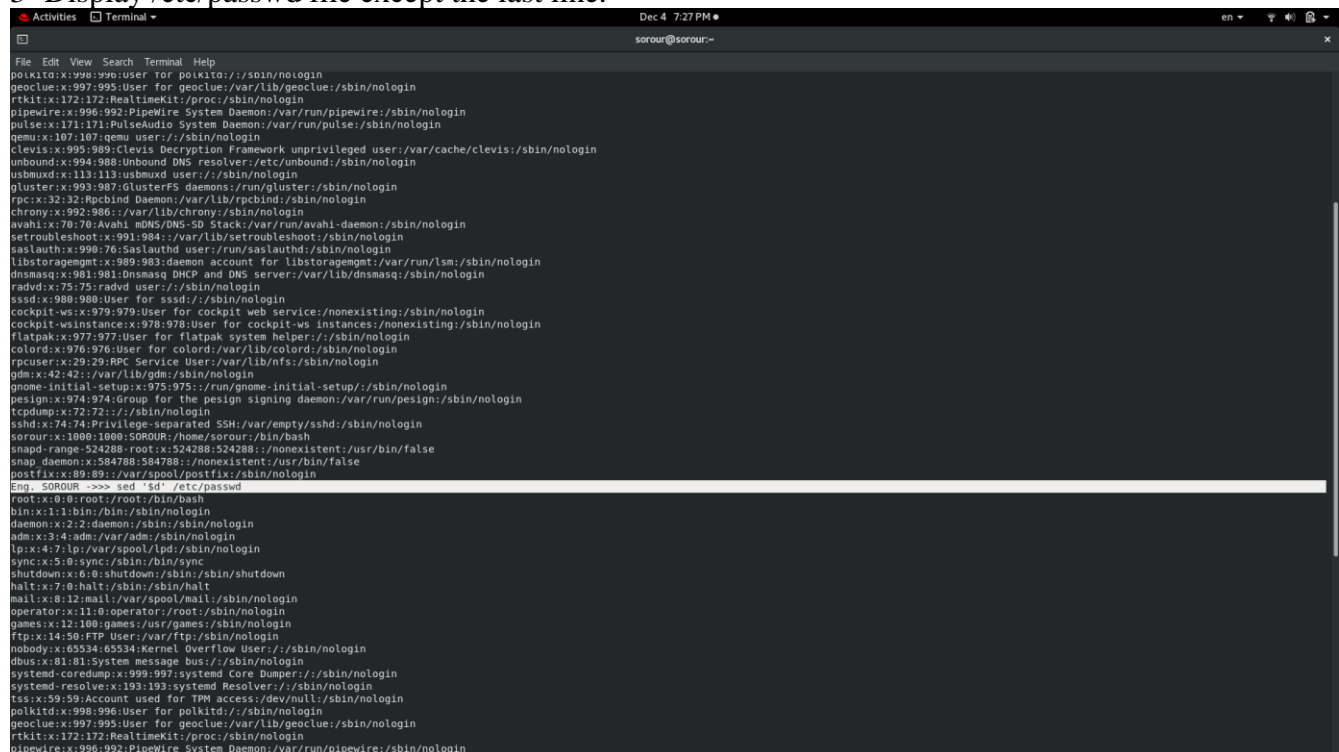
1- Display the lines that contain the word "lp" in /etc/passwd file.

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

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

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

```
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
sorour:x:1000:1000:SOROUR:/home/sorour:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
Eng. SOROUR ->>> 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:/sbin/nologin
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
chrony:x:992:986::/var/lib/chrony:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
setroubleshoot:x:991:984::/var/lib/setroubleshoot:/sbin/nologin
saslauth: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
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
pesign:x:974:974:Group for the pesign signing daemon:/var/run/pesign:/sbin/nologin
tcpdump:x:72:72::/:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
sorour:x:1000:1000:SOROUR:/home/sorour:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>>
```

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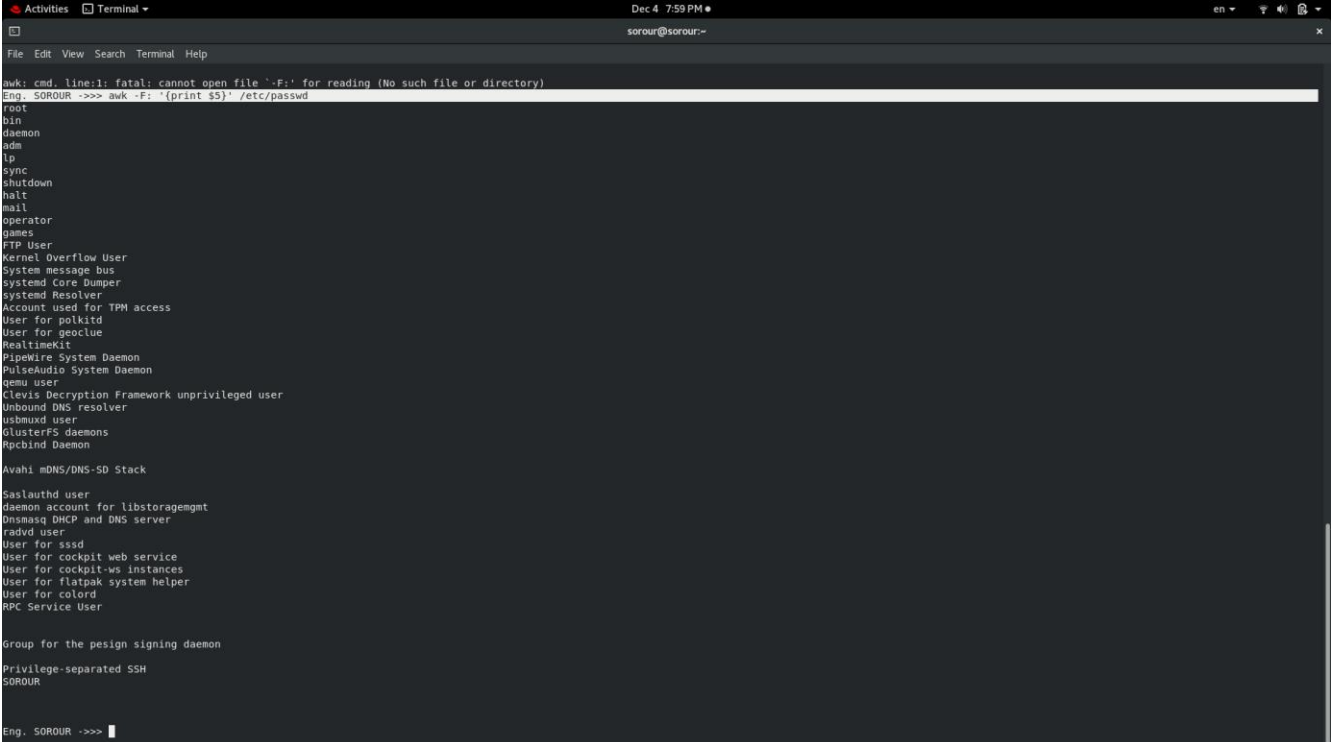

```
sed: -e expression #1, char 8: unknown option to `s'
Eng. SOROUR ->>> man sed
Eng. SOROUR ->>> sed 's/lb/mylb/gp' /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
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
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
chrony:x:992:986::/var/lib/chrony:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
setroubleshoot:x:991:984::/var/lib/setroubleshoot:/sbin/nologin
saslauth: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
pesign:x:974:974:Group for the pesign signing daemon:/var/run/pesign:/sbin/nologin
tcpdump:x:72:72::/:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
sorour:x:1000:1000:SOROUR:/home/sorour:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>>
```

Using awk utility

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

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

```
sorour@sorour:~

File  Edit  View  Search  Terminal  Help
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>> 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 /
24 clevis Clevis Decryption Framework unprivileged user /var/cache/clevis
25 unbound Unbound DNS resolver /etc/unbound
26 usbmuxd usbmuxd user /
27 gluster GlusterFS daemons /run/gluster
28 rpc Rpcbind Daemon /var/lib/rpcbind
29 chrony  /var/lib/chrony
30 avahi Avahi mDNS/DNS-SD Stack /var/run/avahi-daemon
31 setroubleshoot  /var/lib/setroubleshoot
32 saslauth Saslauthd user /run/saslauthd
33 libstoragemgmt daemon account for libstoragemgmt /var/run/lsm
34 dnsmasq Dnsmasq DHCP and DNS server /var/lib/dnsmasq
35 radvd radvd user /
36 sssd User for sssd /
37 cockpit-ws User for cockpit web service /nonexisting
38 cockpit-wsinstance User for cockpit-ws instances /nonexisting
39 flatpak User for flatpak system helper /
40 colord User for colord /var/lib/colord
41 rpcuser RPC Service User /var/lib/nfs
42 gdm  /var/lib/gdm
43 gnome-initial-setup  /run/gnome-initial-setup/
44 pesign Group for the pesign signing daemon /var/run/pesign
45 tcpdump  /
46 sshd Privilege-separated SSH /var/empty/sshd
47 sorour SOROUR /home/sorour
48 snapd-range-524288-root  /nonexistent
49 snap_daemon  /nonexistent
50 postfix  /var/spool/postfix
Eng. SOROUR ->>> █
```

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

```
unbound 994 Unbound DNS resolver
usbmuxd 113 usbmuxd user
gluster 993 GlusterFS daemons
rpc 32 Rpcbind Daemon
chrony 992
avahi 70 Avahi mDNS/DNS-SD Stack
setroubleshoot 991
saslauth 990 Saslauthd user
libstoragemgmt 989 daemon account for libstoragemgmt
dnsmasq 981 Dnsmasq DHCP and DNS server
radvd 75 radvd user
sssd 980 User for sssd
cockpit-ws 979 User for cockpit web service
cockpit-wsinstance 978 User for cockpit-ws instances
flatpak 977 User for flatpak system helper
colord 976 User for colord
rpcuser 29 RPC Service User
gdm 42
gnome-initial-setup 975
pesign 974 Group for the pesign signing daemon
tcpdump 72
sshd 74 Privilege-separated SSH
sorour 1000 SOROUR
snapd-range-524288-root 524288
snap_daemon 584788
postfix 89
Eng. SOROUR ->>> awk -F: 'if ($3 >500){print $1, $3, $5}' /etc/passwd
awk: cmd. line:1: if ($3 >500){print $1, $3, $5}
awk: cmd. line:1: ^ syntax error
Eng. SOROUR ->>> 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
chrony 992
setroubleshoot 991
saslauth 990 Saslauthd user
libstoragemgmt 989 daemon account for libstoragemgmt
dnsmasq 981 Dnsmasq DHCP and DNS server
sssd 980 User for sssd
cockpit-ws 979 User for cockpit web service
cockpit-wsinstance 978 User for cockpit-ws instances
flatpak 977 User for flatpak system helper
colord 976 User for colord
gnome-initial-setup 975
pesign 974 Group for the pesign signing daemon
sorour 1000 SOROUR
snapd-range-524288-root 524288
snap_daemon 584788
Eng. SOROUR ->>>
```

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


```
snapd-range-524288-root 524288
snap daemon 584788
Eng. SOROUR ->>> 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
qemu 500 qemu user
clevis 500 Clevis Decryption Framework unprivileged user
unbound 500 Unbound DNS resolver
usbmuxd 500 usbmuxd user
gluster 500 GlusterFS daemons
rpc 500 Rpcbind Daemon
chrony 500
avahi 500 Avahi mDNS/DNS-SD Stack
setroubleshoot 500
saslauth 500 Saslauthd user
libstoragemgmt 500 daemon account for libstoragemgmt
dnsmasq 500 Dnsmasq DHCP and DNS server
radvd 500 radvd user
sssd 500 User for sssd
cockpit-ws 500 User for cockpit web service
cockpit-wsinstance 500 User for cockpit-ws instances
flatpak 500 User for flatpak system helper
colord 500 User for colord
rpcuser 500 RPC Service User
gdm 500
gnome-initial-setup 500
pesign 500 Group for the pesign signing daemon
tcpdump 500
sshd 500 Privilege-separated SSH
sorour 500 SOROUR
snapd-range-524288-root 500
snap daemon 500
postfix 500
Eng. SOROUR ->>>
```

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

```
48
49
50
Eng. SOROUR ->>> awk '{if{NR>5 && NR< 16}print NR}' /etc/passwd
awk: cmd. line:1: {if{NR>5 && NR< 16}print NR}
awk: cmd. line:1:      ^ syntax error
Eng. SOROUR ->>> awk '{if(NR>5 && NR< 16)print NR}' /etc/passwd
6
7
8
9
10
11
12
13
14
15
Eng. SOROUR ->>> awk '{if(NR>=5 && NR< 16)print NR}' /etc/passwd
5
6
7
8
9
10
11
12
13
14
15
Eng. SOROUR ->>> awk '{if(NR>=5 && NR<=15)print NR}' /etc/passwd
5
6
7
8
9
10
11
12
13
14
15
Eng. SOROUR ->>> 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. SOROUR ->>>
```
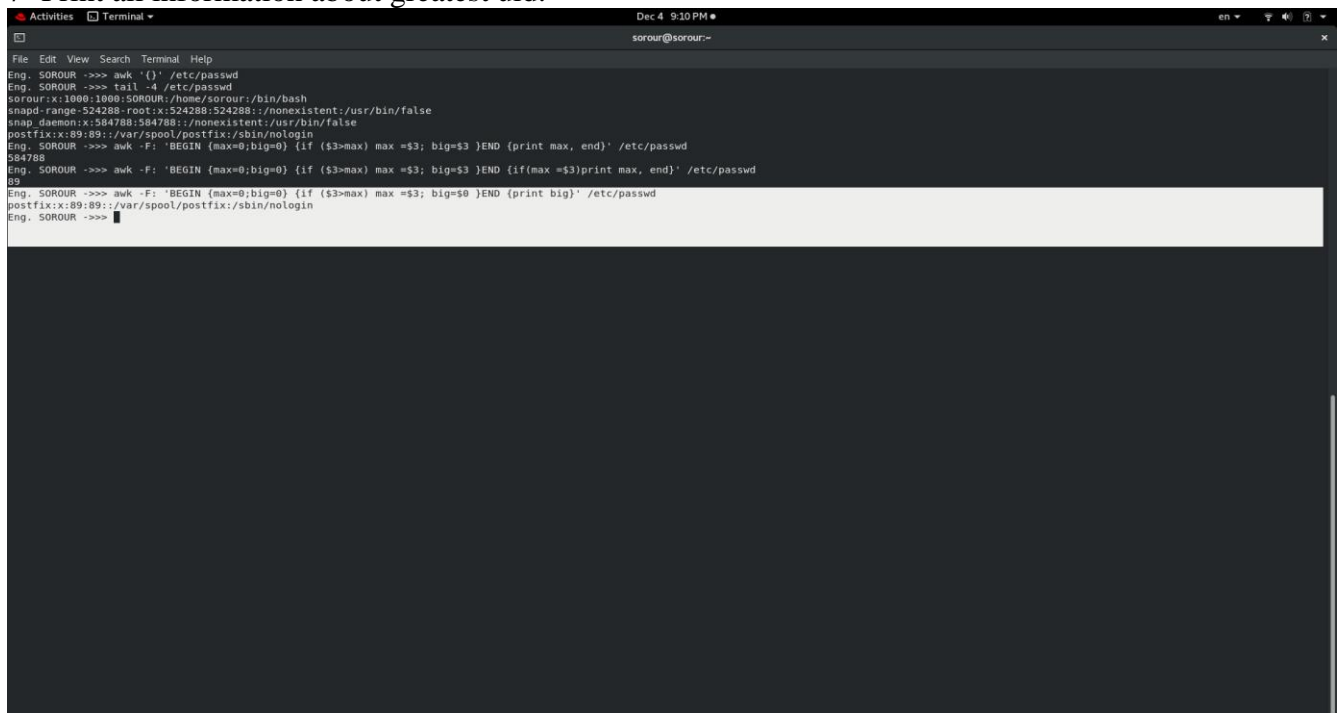
6- Change lp to mylp

```
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>> awk -F: '{gsub("lp","mylp",$0); 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/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
clevis:x:995:989:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/sbin/nologin
unbound:x:994:988:Unbound DNS resolver:/etc/unbound:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/:/sbin/nologin
gluster:x:993:987:GlusterFS daemons:/run/gluster:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
chrony:x:992:986::/var/lib/chrony:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
setroubleshoot:x:991:984::/var/lib/setroubleshoot:/sbin/nologin
saslauth: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 hemylper:/:/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
pesign:x:974:974:Group for the pesign signing daemon:/var/run/pesign:/sbin/nologin
tcpdump:x:72:72::/:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
sorour:x:1000:1000:SOROUR:/home/sorour:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>>
```

7- Print all information about greatest uid.


```
Eng. SOROUR ->>> awk '{}' /etc/passwd
Eng. SOROUR ->>> tail -4 /etc/passwd
sorour:x:1000:1000:SOROUR:/home/sorour:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>> awk -F: 'BEGIN {max=0;big=0} {if ($3>max) max =$3; big=$3 }END {print max, end}' /etc/passwd
584788
Eng. SOROUR ->>> awk -F: 'BEGIN {max=0;big=0} {if ($3>max) max =$3; big=$3 }END {if(max =$3)print max, end}' /etc/passwd
89
Eng. SOROUR ->>> awk -F: 'BEGIN {max=0;big=0} {if ($3>max) max =$3; big=$0 }END {print big}' /etc/passwd
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>>
```

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

sorour@sorour:~

File   Edit   View   Search   Terminal   Help

```
Eng. SOROUR ->>> awk '{}' /etc/passwd
Eng. SOROUR ->>> tail -4 /etc/passwd
sorour:x:1000:1000:SOROUR:/home/sorour:/bin/bash
snapd-range-524288-root:x:524288:524288::/nonexistent:/usr/bin/false
snap_daemon:x:584788:584788::/nonexistent:/usr/bin/false
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>> awk -F: 'BEGIN {max=0;big=0} {if ($3>max) max =$3; big=$3 }END {print max, end}' /etc/passwd
584788
Eng. SOROUR ->>> awk -F: 'BEGIN {max=0;big=0} {if ($3>max) max =$3; big=$3 }END {if(max =$3)print max, end}' /etc/passwd
89
Eng. SOROUR ->>> awk -F: 'BEGIN {max=0;big=0} {if ($3>max) max =$3; big=$0 }END {print big}' /etc/passwd
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
Eng. SOROUR ->>> awk -F: 'BEGIN {sum =0} {sum = sum +$3} END {print sum}' /etc/passwd
1195816
Eng. SOROUR ->>>
```