

# Bash lab 1

- Sed commands

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

- `sed -n '/lp/p' /etc/passwd`

```
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
flatpak:x:992:988:User for flatpak system helper:/:/sbin/nologin
```

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

- `sed '3d' /etc/passwd`

```
[omar@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
tss:x:59:59:Account used for TPM access:/:/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
colord:x:997:995:User for colord:/var/lib/colord:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
```

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

- `sed '$d' /etc/passwd`

```
[omar@localhost ~]$ sed '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
tss:x:59:59:Account used for TPM access:/:/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
```

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

- `sed '/lp/d' /etc/passwd`

```
[omar@localhost ~]$ 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
tss:x:59:59:Account used for TPM access:/:/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
colord:x:997:995:User for colord:/var/lib/colord:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:996:992:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
```

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

- `sed 's/lp/mylp/g' /etc/passwd`

```
[omar@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
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
tss:x:59:59:Account used for TPM access:/:/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
colord:x:997:995:User for colord:/var/lib/colord:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:996:992:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
```

- awk commands
  1. Print full name (comment) of all users in the system.
    - `awk -F':' '{print $5}' /etc/passwd`

```
[omar@localhost ~]$ awk -F ':' '{print $5}' /etc/passwd
root
bin
daemon
adm
lp
sync
shutdown
halt
mail
operator
games
FTP User
Kernel Overflow User
Account used for TPM access
systemd Core Dumper
System message bus
User for polkitd
Avahi mDNS/DNS-SD Stack
User for colord
RealtimeKit
PipeWire System Daemon
Clevvis Decryption Framework unprivileged user
User for sssd
User for geoclue
User for flatpak system helper
SELinux troubleshoot server
daemon account for libstoragemgmt
systemd Userspace OOM Killer

User for cockpit web service
User for cockpit-ws instances

Privilege-separated SSH
chrony system user
Dnsmasq DHCP and DNS server

omar ahmed
Islam Askr
```

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

- `awk -F ':' '{print NR, $1, $5, $6}' /etc/passwd`

```
[omar@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 tss Account used for TPM access /
15 systemd-coredump systemd Core Dumper /
16 dbus System message bus /
17 polkitd User for polkitd /
18 avahi Avahi mDNS/DNS-SD Stack /var/run/avahi-daemon
19 colord User for colord /var/lib/colord
20 rtkit RealtimeKit /proc
21 pipewire PipeWire System Daemon /var/run/pipewire
22 clevis Clevis Decryption Framework unprivileged user /var/cache/clevis
23 sssd User for sssd /
24 geoclue User for geoclue /var/lib/geoclue
25 flatpak User for flatpak system helper /
26 setroubleshoot SELinux troubleshoot server /var/lib/setroubleshoot
27 libstoragemgmt daemon account for libstoragemgmt /
28 systemd-oom systemd Userspace OOM Killer /
29 gdm /var/lib/gdm
30 cockpit-ws User for cockpit web service /nonexisting
31 cockpit-wsinstance User for cockpit-ws instances /nonexisting
32 gnome-initial-setup /run/gnome-initial-setup/
33 sshd Privilege-separated SSH /usr/share/empty.sshd
34 chrony chrony system user /var/lib/chrony
35 dnsmasq Dnsmasq DHCP and DNS server /var/lib/dnsmasq
36 tcpdump /
37 omar omar ahmed /home/omar
38 islam Islam Askr /home/islam
39 postfix /var/spool/postfix
```

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

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

```
[omar@localhost ~]$ awk -F ':' '$3 > 500 {print $1, $3, $5}' /etc/passwd
nobody 65534 Kernel Overflow User
systemd-coredump 999 systemd Core Dumper
polkitd 998 User for polkitd
colord 997 User for colord
pipewire 996 PipeWire System Daemon
clevis 995 Clevis Decryption Framework unprivileged user
sssd 994 User for sssd
geoclue 993 User for geoclue
flatpak 992 User for flatpak system helper
setroubleshoot 991 SELinux troubleshoot server
libstoragemgmt 985 daemon account for libstoragemgmt
systemd-oom 984 systemd Userspace OOM Killer
cockpit-ws 983 User for cockpit web service
cockpit-wsinstance 982 User for cockpit-ws instances
gnome-initial-setup 981
chrony 980 chrony system user
dnsmasq 979 Dnsmasq DHCP and DNS server
omar 1000 omar ahmed
islam 1001 Islam Askr
```

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

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

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

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

```
[omar@localhost ~]$ awk -F ':' 'NR>=5 && NR<=15' /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
tss:x:59:59:Account used for TPM access:/:/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
```

6. Change lp to mylp

- `awk -F ':' '{gsub(/lp/, "mylp"); print}' /etc/passwd`

7. Print all information about greatest uid

- `awk -F ':' '$3 > max {max=$3; user=$0} END {print user}' /etc/passwd`

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

- `awk -F ':' '{sum += $3} END {print "Sum of UIDs:", sum}' /etc/passwd`