

## Simple Filters

| Head          |  |
|---------------|--|
| Assignment i  | Try what is shown on the video   |
| Assignment ii | 1. Try to get the first 10 lines from /etc/passwd<br>2. try to get just the first 3 lines from /etc/passwd |

Ans: head /etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ head 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
bgmadhavan@bgm-virtual-machine:/$
```

head -n5 /etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ head -n5 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
bgmadhavan@bgm-virtual-machine:/$
```

| Tail          |   |
|---------------|---|
| Assignment i  | Try what is shown on the video  |
| Assignment ii | 1. Try to get the Last 10 lines from /etc/passwd<br>2. Try to get just the Last 3 lines from /etc/passwd<br>3. Try to follow the log file /var/log/auth.log |

Ans: i) tail etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ tail etc/passwd
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129::/var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534::/run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
bgmadhavan:x:1000:1000:gokulamadhavan,,,:/home/bgmadhavan:/bin/bash
sam:x:1001:1001:sam,,,:/home/sam:/bin/bash
bgmadhavan@bgm-virtual-machine:/$
```

ii) tail -n3 etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ tail -n5 etc/passwd
gnome-initial-setup:x:126:65534::/run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
bgmadhavan:x:1000:1000:gokulamadhavan,,,:/home/bgmadhavan:/bin/bash
sam:x:1001:1001:sam,,,:/home/sam:/bin/bash
bgmadhavan@bgm-virtual-machine:/$
```

iii) tail -f /var/log/auth.log

```
bgmadhavan@bgm-virtual-machine: /
bgmadhavan@bgm-virtual-machine:/$ tail -f /var/log/auth.log
Sep 14 13:25:12 bgm-virtual-machine sudo: pam_unix(sudo:session): session opened for user root(uid=0) by (uid=1000)
Sep 14 13:25:12 bgm-virtual-machine userdel[3780]: delete user 'duck1'
Sep 14 13:25:12 bgm-virtual-machine userdel[3780]: removed group 'duck1' owned by 'duck1'
Sep 14 13:25:12 bgm-virtual-machine userdel[3780]: removed shadow group 'duck1' owned by 'duck1'
Sep 14 13:25:12 bgm-virtual-machine sudo: pam_unix(sudo:session): session closed for user root
Sep 14 13:25:48 bgm-virtual-machine sudo: bgmadhavan : TTY=pts/0 ; PWD=/home ; USER=root ; COMMAND=/usr/sbin/userdel -r duck
Sep 14 13:25:48 bgm-virtual-machine sudo: pam_unix(sudo:session): session opened for user root(uid=0) by (uid=1000)
Sep 14 13:25:48 bgm-virtual-machine sudo: pam_unix(sudo:session): session closed for user root
Sep 14 13:30:01 bgm-virtual-machine CRON[3834]: pam_unix(cron:session): session opened for user root(uid=0) by (uid=0)
Sep 14 13:30:01 bgm-virtual-machine CRON[3834]: pam_unix(cron:session): session closed for user root
```

| Sort          |  |
|---------------|--|
| Assignment i  | Try what is shown on the video   |
| Assignment ii | <ol style="list-style-type: none"> <li>1. Try to sort the file /etc/passwd in ascending order.</li> <li>2. Try to sort the file /etc/passwd in descending order.</li> <li>3. Try to sort the file /etc/passwd in ascending order based on the 3<sup>rd</sup> column.</li> <li>4. Try to sort the file /etc/passwd in ascending order based on the 3<sup>rd</sup> column and ask sort to look at the third column as a whole number.</li> </ol> |

Ans: i) sudo sort etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ sort etc/passwd
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,:/run/avahi-daemon:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
bgmadhavan:x:1000:1000:gokulamadhavan,,:/home/bgmadhavan:/bin/bash
bin:x:2:2:bin:/bin:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,:/var/lib/colord:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,:/home/cups-pk-helper:/usr/sbin/nologin
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,:/var/lib/misc:/usr/sbin/nologin
fwupd-refresh:x:120:126:fwupd-refresh user,,:/run/systemd:/usr/sbin/nologin
games:x:5:60:games:/usr/games:/usr/sbin/nologin
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
geoclue:x:124:131:/var/lib/geoclue:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin)/var/lib/gnats:/usr/sbin/nologin
gnome-initial-setup:x:126:65534:/run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,:/run/hplip:/bin/false
```

ii) sudo sort -r etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ sort -r etc/passwd
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
whoopsie:x:117:124:/nonexistent:/bin/false
uidd:x:107:116:/run/uidd:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,:/var/lib/tpm:/bin/false
tcpdump:x:109:118:/nonexistent:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,:/run/systemd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,:/run/systemd:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/home/syslog:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
```

iii) sudo sort -t: -k3,3 etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ sort -t: -k3,3 etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
bgmadhavan:x:1000:1000:gokulamadhavan,,,:/home/bgmadhavan:/bin/bash
sam:x:1001:1001:sam,,,:/home/sam:/bin/bash
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
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:107:116:/:run/uidd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:118:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
```

iv) sudo sort -t: -k3,3 etc/passwd

```
bgmadhavan@bgm-virtual-machine:/$ sort -t: -k3,3 etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
bgmadhavan:x:1000:1000:gokulamadhavan,,,:/home/bgmadhavan:/bin/bash
sam:x:1001:1001:sam,,,:/home/sam:/bin/bash
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
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:107:116:/:run/uidd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:118:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
```

| Cut           |  |
|---------------|--|
| Assignment i  | Try what is shown on the video                             |
| Assignment ii | 1. Try to cut just the usernames from the file /etc/passwd |

Ans: cut marks.txt -d " " -f2

```
bgmadhavan@bgm-virtual-machine:~/demodir$ cat > marks.txt
100 gokul
200 rohit
300 kohli
400 ishanth
500 sai
bgmadhavan@bgm-virtual-machine:~/demodir$ cut marks.txt -d " " -f2
gokul
rohit
kohli
ishanth
sai
bgmadhavan@bgm-virtual-machine:~/demodir$
```

sudo cut etc/passwd -d: -f1

```
bgmadhavan@bgm-virtual-machine:/$ cut etc/passwd -d: -f1
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
messagebus
systemd-timesync
syslog
```

| Paste         |   |
|---------------|---|
| Assignment i  | Try what is shown on the video  |
| Assignment ii | <ol style="list-style-type: none"> <li>1. Create a file alphabets.txt and key in all the 26 alphabets each one in a new line.</li> <li>2. Create a file number.txt and key in 1 to 26 each one in a new line.</li> <li>3. Try to paste those two files, to see which letter appears at what number.</li> </ol> <p>Paste alphabets.txt numbers.txt</p> |

Ans : i) paste numbers.txt marks.txt

```
bgmadhavan@bgm-virtual-machine:/$ cd /home/bgmadhavan/demodir
bgmadhavan@bgm-virtual-machine:~/demodir$ cat > serialno
1
2
3
4
5bgmadhavan@bgm-virtual-machine:~/demodir$ paste serialno marks.txt
1      100 gokul
2      200 rohit
3      300 kohli
4      400 ishanth
5      500 sai
bgmadhavan@bgm-virtual-machine:~/demodir$
```

ii) 1. Cat > alphabet.txt

2. cat > number.txt

3. paste alphabets.txt numbers.txt

```
bgmadhavan@bgm-virtual-machine:~/demodir$ paste numbers alphabet.txt
1      a
2      b
3      c
4      d
5      e
6      f
7      g
8      h
9      i
10     j
11     k
12     l
13     m
14     n
15     o
16     p
17     q
18     r
19     s
20     t
21     u
```