

Lab 5 | Handling Text Files

Question 1

```
abd007@cis240-fall21:~$ mkdir Lab5/
abd007@cis240-fall21:~$ cd Lab5/
abd007@cis240-fall21:~/Lab5$ cat /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
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Listing Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
```

```
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
abd007:x:1000:1000:Abdullah Mumin,,,:/home/abd007:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
_flatpak:x:127:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
abd007@cis240-fall21:~/Lab5$ tac /etc/passwd
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
_flatpak:x:127:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
abd007:x:1000:1000:Abdullah Mumin,,,:/home/abd007:/bin/bash
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup:/bin/false
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
whoopsie:x:120:125::/nonexistent:/bin/false
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:117:123::/var/lib/saned:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
tcpdump:x:108:115::/nonexistent:/usr/sbin/nologin
uuidd:x:107:114::/run/uuidd:/usr/sbin/nologin
```

```
abd007@cis240-fall21: ~/Lab5
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
root:x:0:0:root:/root:/bin/bash
abd007@cis240-fall21:~/Lab5$ cat -nE /etc/passwd
  1 root:x:0:0:root:/root:/bin/bash$
  2 daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin$
  3 bin:x:2:2:bin:/bin:/usr/sbin/nologin$
  4 sys:x:3:3:sys:/dev:/usr/sbin/nologin$
  5 sync:x:4:65534:sync:/bin:/bin/sync$
  6 games:x:5:60:games:/usr/games:/usr/sbin/nologin$
  7 man:x:6:12:man:/var/cache/man:/usr/sbin/nologin$
  8 lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin$
  9 mail:x:8:8:mail:/var/mail:/usr/sbin/nologin$
49 vboxadd:x:998:1::/var/run/vboxadd:/bin/false$
abd007@cis240-fall21:~/Lab5$ head -5 /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
abd007@cis240-fall21:~/Lab5$ tail -5 /etc/passwd
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
abd007:x:1000:1000:Abdullah Mumin,,,:/home/abd007:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
_flatpak:x:127:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
abd007@cis240-fall21:~/Lab5$
```

Question 2

```
abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21:~/Lab5$ cut -d ':' -f 1 /etc/passwd
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
systemd-timesync
messagebus

abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21:~/Lab5$ tail -5 /etc/passwd | cut -d ':' -f 1
sssd
abd007
systemd-coredump
_flatpak
vboxadd
abd007@cis240-fall21:~/Lab5$ cat /etc/passwd | cut -d ":" -f 1,7
root:/bin/bash
daemon:/usr/sbin/nologin
bin:/usr/sbin/nologin
sys:/usr/sbin/nologin
sync:/bin/sync
games:/usr/sbin/nologin
man:/usr/sbin/nologin
lp:/usr/sbin/nologin
mail:/usr/sbin/nologin
news:/usr/sbin/nologin
uucp:/usr/sbin/nologin
proxy:/usr/sbin/nologin
www-data:/usr/sbin/nologin
backup:/usr/sbin/nologin
list:/usr/sbin/nologin
irc:/usr/sbin/nologin
gnats:/usr/sbin/nologin
nobody:/usr/sbin/nologin
systemd-network:/usr/sbin/nologin
systemd-resolve:/usr/sbin/nologin
systemd-timesync:/usr/sbin/nologin
messagebus:/usr/sbin/nologin
syslog:/usr/sbin/nologin
_apd:/usr/sbin/nologin
tss:/bin/false
uuidd:/usr/sbin/nologin
```

```
abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21:~/Lab5$ cut -d ':' -f1,3 /etc/passwd | sort -k 2n
abd007:1000
_apt:105
avahi:115
avahi-autoipd:109
backup:34
bin:2
colord:121
cups-pk-helper:113
daemon:1
dnsmasq:112
_flatpak:127
games:5
gdm:125
geoclue:122
gnats:41
gnome-initial-setup:124
hplip:119
irc:39
kernoops:116
list:38
lp:7
mail:8

abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21:~/Lab5$ tail -5 /etc/passwd | cut -d ':' -f1,3 | sort
_flatpak:127
sssd:126
systemd-coredump:999
vboxadd:998
abd007@cis240-fall21:~/Lab5$
```

Question 3

```

abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21: ~/Lab5$ wc -l /etc/passwd
49 /etc/passwd
abd007@cis240-fall21: ~/Lab5$ wc -w /etc/passwd
90 /etc/passwd
abd007@cis240-fall21: ~/Lab5$ grep '/bin/bash' /etc/passwd
root:x:0:0:root:/root:/bin/bash
abd007:x:1000:1000:Abdullah Mumin,,,:/home/abd007:/bin/bash
abd007@cis240-fall21: ~/Lab5$ grep '/bin/bash' /etc/passwd | wc -l
2
abd007@cis240-fall21: ~/Lab5$ grep '/sbin/nologin' /etc/passwd | wc -l
39
abd007@cis240-fall21: ~/Lab5$ grep abd007 /etc/passwd
abd007:x:1000:1000:Abdullah Mumin,,,:/home/abd007:/bin/bash
abd007@cis240-fall21: ~/Lab5$

```

Question 4

```

abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21: ~/Lab5$ ip add | grep 'inet'
inet 127.0.0.1/8 scope host lo
inet6 ::1/128 scope host
inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
inet6 fe80::4b4e:33b3:1ad0:af62/64 scope link noprefixroute
abd007@cis240-fall21: ~/Lab5$ ip add | grep 'inet' | wc -l
4
abd007@cis240-fall21: ~/Lab5$ ip add | grep 'inet6' | tac
inet6 fe80::4b4e:33b3:1ad0:af62/64 scope link noprefixroute
inet6 ::1/128 scope host
abd007@cis240-fall21: ~/Lab5$ ip add | grep -E "inet|inet6"
inet 127.0.0.1/8 scope host lo
inet6 ::1/128 scope host
inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
inet6 fe80::4b4e:33b3:1ad0:af62/64 scope link noprefixroute
abd007@cis240-fall21: ~/Lab5$ ip add | grep -E "inet|inet6" | sort -o sortedIPadd.txt
abd007@cis240-fall21: ~/Lab5$ ls
sortedIPadd.txt
abd007@cis240-fall21: ~/Lab5$ ip ad | grep 'inet' | head -3 | tail -1
inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
abd007@cis240-fall21: ~/Lab5$ ip ad | grep -E -o '[[digit:]]{1,3}\. [[digit:]]{1,3}\. [[digit:]]{1,3}\. [[digit:]]{1,3}' | sort
10.0.2.15
10.0.2.255
127.0.0.1
abd007@cis240-fall21: ~/Lab5$

```

Question 5

```
Browse and run installed applications    abd007@cis240-fall21: ~/Lab5
abd007@cis240-fall21:~/Lab5$ echo "# Information about my pc" > mypc.md
abd007@cis240-fall21:~/Lab5$ ls
mypc.md  sortedIPadd.txt
abd007@cis240-fall21:~/Lab5$ echo "## CPU information" >> mypc.md
abd007@cis240-fall21:~/Lab5$ cat mypc.md
# Information about my pc
## CPU information
abd007@cis240-fall21:~/Lab5$ lscpu | grep -i "architecture" >> mypc.md
abd007@cis240-fall21:~/Lab5$ lscpu | grep -i "thread(s)" >> mypc.md
abd007@cis240-fall21:~/Lab5$ lscpu | grep -i "core(s)" >> mypc.md
abd007@cis240-fall21:~/Lab5$ lscpu | grep -i "model name" >> mypc.md
abd007@cis240-fall21:~/Lab5$ lscpu | grep -i "cpu m" >> mypc.md
abd007@cis240-fall21:~/Lab5$ lscpu | grep -i "virtualization" >> mypc.md
abd007@cis240-fall21:~/Lab5$ cat mypc.md
# Information about my pc
## CPU information
Architecture:                x86_64
Thread(s) per core:          1
Core(s) per socket:          2
Model name:                   AMD Ryzen 5 4500U with Radeon Graphics
CPU MHz:                      2370.546
Virtualization type:          full
abd007@cis240-fall21:~/Lab5$ echo "## RAM Information" >> mypc.md
abd007@cis240-fall21:~/Lab5$ lshw -c memory | grep "size" >> mypc.md
WARNING: you should run this program as super-user.
WARNING: output may be incomplete or inaccurate, you should run this program as super-user.
abd007@cis240-fall21:~/Lab5$ cat mypc.md
# Information about my pc
## CPU information
Architecture:                x86_64
Thread(s) per core:          1
Core(s) per socket:          2
Model name:                   AMD Ryzen 5 4500U with Radeon Graphics
CPU MHz:                      2370.546
Virtualization type:          full
## RAM Information
    size: 2GiB
abd007@cis240-fall21:~/Lab5$
```