Lab 5 | Handling Text Files | Answers

Assignment description here

Question 1

```
student@cis106vm:~/Lab5$ tac /etc/passwd
lightdm:x:128:136:Light Display Manager:/var/lib/lightdm:/bin/false
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
student:x:1000:1000:Mark,,,:/home/student:/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/n
ologin
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
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
games:x:5:60:games:/usr/games:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
sys:x:3:3:sys:/dev:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
root:x:0:0:root:/root:/bin/bash
student@cis106vm:~/Lab5$
```

```
student@cis106vm:~/Lab5$ cat -Eb /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$
    10  news:x:9:9:news:/var/spool/news:/usr/sbin/nologin$
    11  uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin$
    12  proxy:x:13:13:proxy:/bin:/usr/sbin/nologin$
    13  www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin$
    14  backup:x:34:34:backup:/var/backups:/usr/sbin/nologin$
    15  list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin$
    16  irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin$
    17  gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin$
    18  nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin$
    19  systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nolog
in$
    20  systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin$
    21  systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/no
login$
    22  messagebus:x:103:106::/nonexistent:/usr/sbin/nologin$
    23  syslog:x:104:110::/home/syslog:/usr/sbin/nologin$
    24  _apt:x:105:65534::/nonexistent:/usr/sbin/nologin$
    25  tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false$
    26  uuidd:x:107:114::/run/uuidd:/usr/sbin/nologin$
    27  tcpdump:x:108:115::/nonexistent:/usr/sbin/nologin$
    28  avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nolo
gin$
    29  usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin$
    30  rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin$
    31  dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin$
    32  cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/us
r/sbin/nologin$
    33  speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false$
    34  avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin$
    35  kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin$
    36  saned:x:117:123::/var/lib/saned:/usr/sbin/nologin$
    37  nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nol
ogin$
    38  hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false$
    39  whoopsie:x:120:125::/nonexistent:/bin/false$
    40  colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologi
n$
    41  geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin$
    42  pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin$
    43  gnome-initial-setup:x:124:65534::/run/gnome-initial-setup/:/bin/false$
    44  gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false$
    45  sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin$
    46  student:x:1000:1000:Mark,,,:/home/student:/bin/bash$
    47  systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin$
    48  _flatpak:x:127:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin
/nologin$
    49  vboxadd:x:998:1::/var/run/vboxadd:/bin/false$
    50  lightdm:x:128:136:Light Display Manager:/var/lib/lightdm:/bin/false$
student@cis106vm:~/Lab5$
```

Question 2

```
student@cis106vm:~/Lab5$ cut -d : -f1 /etc/passwd
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
```



```
lightdm
student@cis106vm:~/Lab5$ tail -5 /etc/passwd | cut -d : f1
cut: you must specify a list of bytes, characters, or fields
Try 'cut --help' for more information.
student@cis106vm:~/Lab5$ tail -5 /etc/passwd | cut -d ':' -f 1
student
systemd-coredump
_flatpak
vboxadd
lightdm
student@cis106vm:~/Lab5$
```



```
student@cis106vm:~/Lab5$ cut -d ':' -s -f 1,7 --output-delimiter='=' /etc/passwd
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
_apt=/usr/sbin/nologin
tss=/bin/false
uuidd=/usr/sbin/nologin
tcpdump=/usr/sbin/nologin
```

```
student@cis106vm: ~/Lab5
student@cis106vm:~/Lab5$ cut -d ':' -f1,3 /etc/passwd | sort
_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
lightdm:128
list:38
lp:7
```

```
student@cis106vm: ~/Lab5
tss:106
usbmux:110
uucp:10
uuidd:107
vboxadd:998
whoopsie:120
www-data:33
student@cis106vm:~/Lab5$ ^C
student@cis106vm:~/Lab5$ cut -d ':' -f1,3 /etc/passwd | sort | tail -5
uucp:10
uuidd:107
vboxadd:998
whoopsie:120
www-data:33
student@cis106vm:~/Lab5$
```

Question 3

```
student@cis106vm: ~/Lab5
student@cis106vm:~/Lab5$ wc -l /etc/passwd
50 /etc/passwd
student@cis106vm:~/Lab5$ wc -w /etc/passwd
92 /etc/passwd
student@cis106vm:~/Lab5$
```

```
student@cis106vm:~/Lab5$ wc -l /etc/passwd
50 /etc/passwd
student@cis106vm:~/Lab5$ wc -w /etc/passwd
92 /etc/passwd
student@cis106vm:~/Lab5$ grep 'bin/bash' /etc/passwd
root:x:0:0:root:/root:/bin/bash
student:x:1000:1000:Mark,,,:/home/student:/bin/bash
student@cis106vm:~/Lab5$ grep 'bin/bash' /etc/passwd | wc -l
2
student@cis106vm:~/Lab5$
```

```
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
_flatpak:x:127:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
student@cis106vm:~/Lab5$ grep 'bin/bash' /etc/passwd | wc -l
2
student@cis106vm:~/Lab5$ grep 'sbin/nologin' /etc/passwd | wc -l
39
student@cis106vm:~/Lab5$
```

```
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
student:x:1000:1000:Mark,,,:/home/student:/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
lightdm:x:128:136:Light Display Manager:/var/lib/lightdm:/bin/false
student@cis106vm:~/Lab5$ grep 'student' /etc/passwd
student:x:1000:1000:Mark,,,:/home/student:/bin/bash
student@cis106vm:~/Lab5$
```
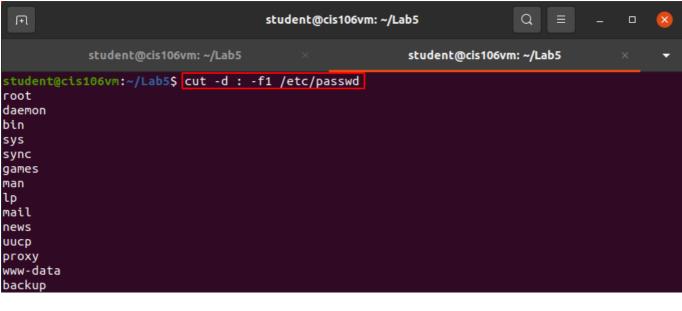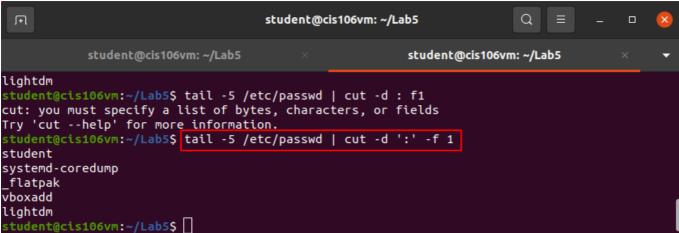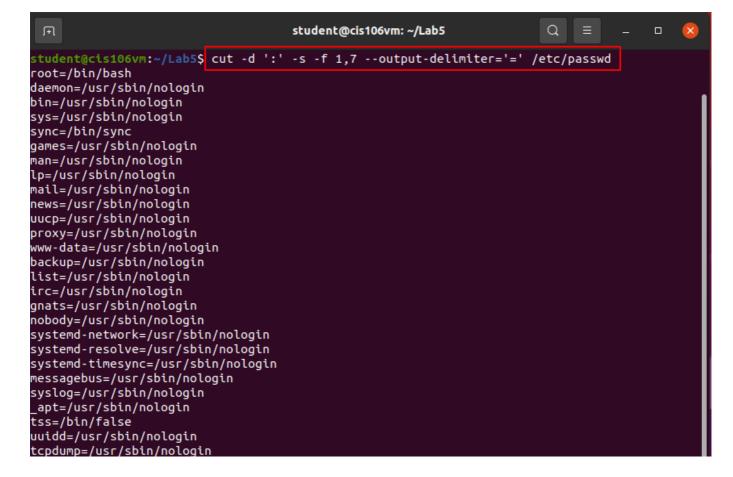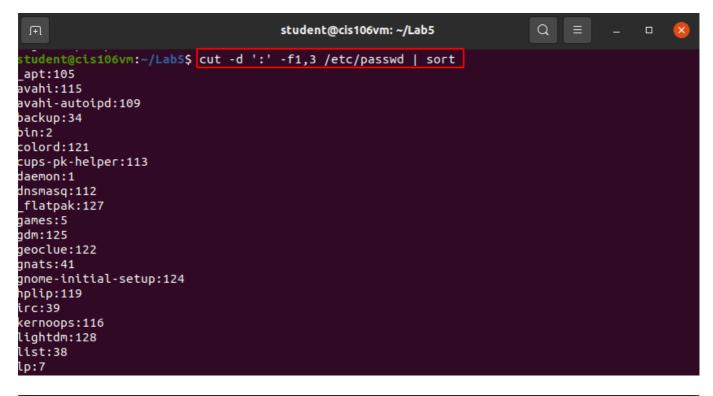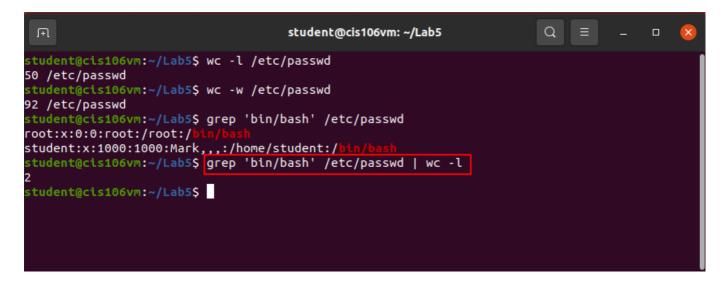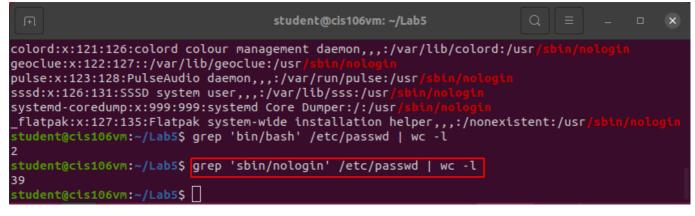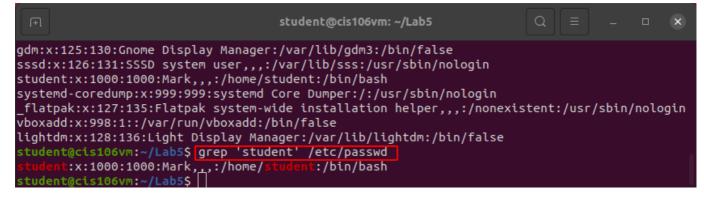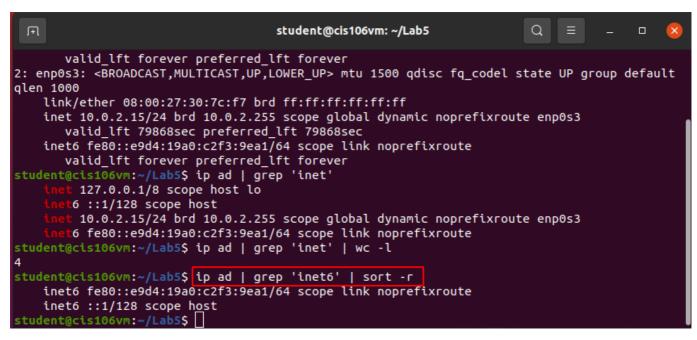
Question 4
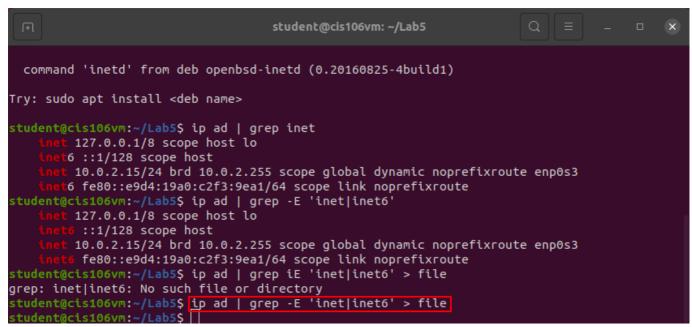
```
inet 127.0.0.1/8 scope host lo
    valid_lft forever preferred_lft forever
inet6 ::1/128 scope host
    valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default
qlen 1000
    link/ether 08:00:27:30:7c:f7 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 79868sec preferred_lft 79868sec
    inet6 fe80::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
student@cis106vm:~/Lab5$ ip ad | 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::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
student@cis106vm:~/Lab5$ ip ad | grep 'inet' | wc -l
4
student@cis106vm:~/Lab5$
```

```
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default
qlen 1000
    link/ether 08:00:27:30:7c:f7 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 79868sec preferred_lft 79868sec
    inet6 fe80::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
student@cis106vm:~/Lab5$ ip ad | 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::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
student@cis106vm:~/Lab5$ ip ad | grep 'inet' | wc -l
4
student@cis106vm:~/Lab5$ ip ad | grep 'inet6' | sort -r
    inet6 fe80::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
    inet6 ::1/128 scope host
student@cis106vm:~/Lab5$
```

```
  command 'inetd' from deb openbsd-inetd (0.20160825-4build1)

Try: sudo apt install <deb name>

student@cis106vm:~/Lab5$ ip ad | 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::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
student@cis106vm:~/Lab5$ ip ad | 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::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
student@cis106vm:~/Lab5$ ip ad | grep iE 'inet|inet6' > file
grep: inet|inet6: No such file or directory
student@cis106vm:~/Lab5$ ip ad | grep -E 'inet|inet6' > file
student@cis106vm:~/Lab5$
```

```
    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
student@cis106vm:~/Lab5$ ip ad | 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::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
student@cis106vm:~/Lab5$ ip ad | grep inet| head -3| tail +2
    inet6 ::1/128 scope host
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
student@cis106vm:~/Lab5$ ip ad | grep inet| head -3| tail +3
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
student@cis106vm:~/Lab5$
```

```
student@cis106vm:~/Lab5$ ip ad
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default
qlen 1000
    link/ether 08:00:27:30:7c:f7 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
       valid_lft 78576sec preferred_lft 78576sec
    inet6 fe80::e9d4:19a0:c2f3:9ea1/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
student@cis106vm:~/Lab5$ ip ad|grep -E '[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}'
    inet 127.0.0.1/8 scope host lo
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
student@cis106vm:~/Lab5$ ip ad| grep -E '[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}'
    inet 127.0.0.1/8 scope host lo
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
student@cis106vm:~/Lab5$ ip ad| grep -E '[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}' | sort
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
    inet 127.0.0.1/8 scope host lo
student@cis106vm:~/Lab5$ ip ad| grep -Eo '[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}\.[[:digit:]]{1,3}'
127.0.0.1
10.0.2.15
10.0.2.255
student@cis106vm:~/Lab5$
```

Question 5

```
student@cis106vm:~/Lab5$ echo "# Information about my pc" > mypc.md
student@cis106vm:~/Lab5$ echo "## CPU Information" >> mypc.md
student@cis106vm:~/Lab5$
```

```
student@cis106vm:~/Lab5$ lscpu | grep -Ei 'architecture|thread|core|model name|cpu mhz|virtu
alization'
Architecture:               x86_64
Thread(s) per core:         1
Core(s) per socket:         2
Model name:                 AMD Ryzen 7 3700X 8-Core Processor
CPU MHz:                    3593.252
Virtualization type:        full
student@cis106vm:~/Lab5$ lscpu | grep -Ei 'architecture|thread|core|model name|cpu mhz|virtu
alization' >> mypc.md
student@cis106vm:~/Lab5$
```

```
student@cis106vm:~/Lab5$ echo "## RAM Information" >> mypc.md
student@cis106vm:~/Lab5$ lshw -c memory | grep -i size
WARNING: you should run this program as super-user.
        size: 2GiB
WARNING: output may be incomplete or inaccurate, you should run this program as super-user.
student@cis106vm:~/Lab5$ lshw -c memory | grep -i 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.
student@cis106vm:~/Lab5$
```

```
student@cis106vm:~/Lab5$ echo "## RAM Information" >> mypc.md
student@cis106vm:~/Lab5$ lshw -c memory | grep -i size
WARNING: you should run this program as super-user.
        size: 2GiB
WARNING: output may be incomplete or inaccurate, you should run this program as super-user.
student@cis106vm:~/Lab5$ lshw -c memory | grep -i 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.
student@cis106vm:~/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 7 3700X 8-Core Processor
CPU MHz:                    3593.252
Virtualization type:        full
## RAM Information
        size: 2GiB
student@cis106vm:~/Lab5$
```