

## Lab 5 | Handling Text Files

- Question 1

```

anand@cis106vm: ~/Lab5
anand@cis106vm: ~
anand@cis106vm: ~$ cd Lab5/
anand@cis106vm: ~/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:Mailing List 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

```

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anand@cis106vm: ~/Lab5
anand@cis106vm: ~
anand@cis106vm: ~$ cat /etc/passwd
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
messagebus:x:103:106:/:/nonexistent:/usr/sbin/nologin
syslog:x:104:110:/:/home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:107:114:/:/run/uidd:/usr/sbin/nologin
tcpdump:x:108:115:/:/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:117:123:/:/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin

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```

anand@cis106vm: ~/Lab5
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125:./nonexistent:/bin/false
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
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
anand:x:1000:1000:Anand Patel,,,:/home/anand:/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
anand@cis106vm:~/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
anand:x:1000:1000:Anand Patel,,,:/home/anand:/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

```

```

anand@cis106vm: ~/Lab5
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
anand@cis106vm:~/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$
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/sbi

```



```

anand@cis106vm: ~/Lab5
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/sbi
n/nologin$
18 nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin$
19 systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/us
r/sbin/nologin$
20 systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nol
ogin$
21 systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:
/usr/sbin/nologin$
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 uidd:x:107:114::/run/uidd:/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:/u
sr/sbin/nologin$
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-p
k-helper:/usr/sbin/nologin$

```

```

anand@cis106vm: ~/Lab5
32 cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-p
k-helper:/usr/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/nol
ogin$
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/nologin$
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/nologin$
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 anand:x:1000:1000:Anand Patel,,,:/home/anand:/bin/bash$
47 systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin$
48 _flatpak:x:127:135:Flatpak system-wide installation helper,,,:/nonexiste
nt:/usr/sbin/nologin$
49 vboxadd:x:998:1::/var/run/vboxadd:/bin/false$

```

```
anand@cis106vm: ~/Lab5
anand@cis106vm: ~
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 anand:x:1000:1000:Anand Patel,,,:/home/anand:/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$
anand@cis106vm:~/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
anand@cis106vm:~/Lab5$ tail -5 /etc/passwd
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
anand:x:1000:1000:Anand Patel,,,:/home/anand:/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
anand@cis106vm:~/Lab5$
```

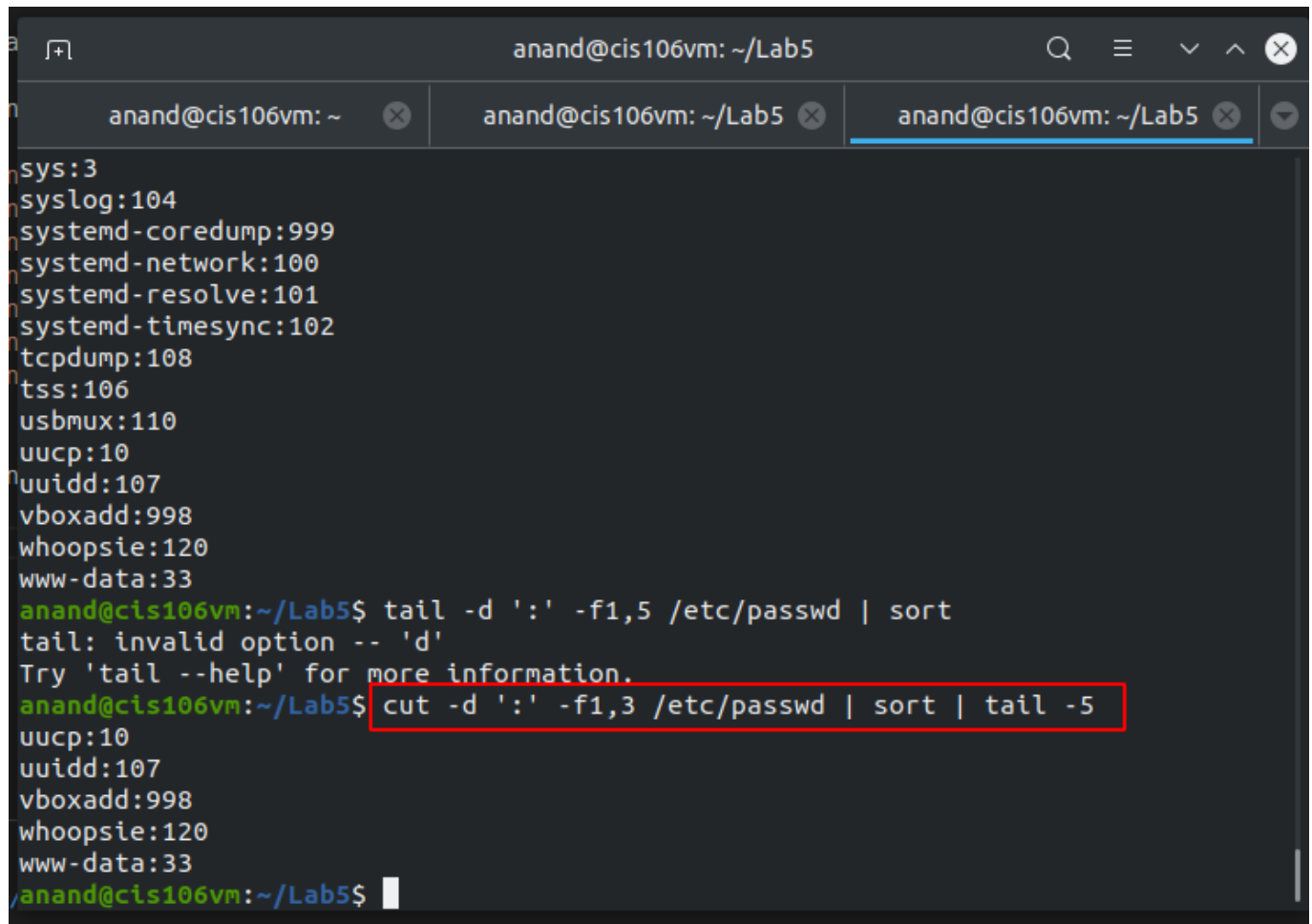
- Question 2

```
anand@cis106vm: ~/Lab5
Try 'cut --help' for more information.
anand@cis106vm:~/Lab5$ cut -d : -f1 /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
```

```
anand@cis106vm: ~/Lab5
Full documentation at: <https://www.gnu.org/software/coreutils/tail>
or available locally via: info '(coreutils) tail invocation'
anand@cis106vm:~/Lab5$ tail -5 /etc/passwd | cut -d ':' -f 1
sssd
anand
systemd-coredump
_nflatpak
nvboxadd
anand@cis106vm:~/Lab5$ cut -d ':' -s -f1,7 --output-delimiter="=" /etc/passwd
cut: unrecognized option '--output-delimiter= ='
Try 'cut --help' for more information.
anand@cis106vm:~/Lab5$ cut -d ':' -s -f1,7 "=" /etc/passwd
cut: '=': No such file or directory
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
```

```
anand@cis106vm: ~/Lab5
anand@cis106vm: ~
anand@cis106vm: ~/Lab5
anand@cis106vm: ~/Lab5
anand@cis106vm: ~/Lab5$ cut -d ':' -s -f1,7 /etc/passwd --output-delimiter='='
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
```

```
anand@cis106vm: ~/Lab5
anand@cis106vm: ~
anand@cis106vm: ~/Lab5
anand@cis106vm: ~/Lab5
anand@cis106vm: ~/Lab5$ cut -d ':' -f1,3 /etc/passwd | sort
anand:1000
anand:1000
n_apt:105
navahi:115
navahi-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:0
```



The image shows a terminal window titled 'anand@cis106vm: ~/Lab5'. The window contains a list of system users and their IDs, followed by a command to sort and tail the /etc/passwd file. The command 'tail -d ':' -f1,5 /etc/passwd | sort' is shown, followed by an error message: 'tail: invalid option -- 'd''. The user then enters the command 'cut -d ':' -f1,3 /etc/passwd | sort | tail -5', which is highlighted with a red box. The output of the command is shown below the command line.

```
anand@cis106vm: ~/Lab5
sys:3
syslog:104
systemd-coredump:999
systemd-network:100
systemd-resolve:101
systemd-timesync:102
tcpdump:108
tss:106
usbmux:110
uucp:10
uudd:107
vboxadd:998
whoopsie:120
www-data:33
anand@cis106vm:~/Lab5$ tail -d ':' -f1,5 /etc/passwd | sort
tail: invalid option -- 'd'
Try 'tail --help' for more information.
anand@cis106vm:~/Lab5$ cut -d ':' -f1,3 /etc/passwd | sort | tail -5
uucp:10
uudd:107
vboxadd:998
whoopsie:120
www-data:33
anand@cis106vm:~/Lab5$
```

- Question 3



```
anand@cis106vm: ~/Lab5
anand@cis106vm: ~$ wc -l /etc/passwd
49 /etc/passwd
anand@cis106vm: ~$ wc -w /etc/passwd
90 /etc/passwd
anand@cis106vm: ~$ grep '/bin/bash' /etc/passwd
root:x:0:0:root:/root:/bin/bash
anand:x:1000:1000:Anand Patel,,,:/home/anand:/bin/bash
anand@cis106vm: ~$ grep anand /etc/passwd
anand:x:1000:1000:Anand Patel,,,:/home/anand:/bin/bash
anand@cis106vm: ~$
```

```
anand@cis106vm: ~/Lab5
anand@cis106vm: ~$ grep '/sbin/nologin' /etc/passwd
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
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:Mailing List 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
anand@cis106vm: ~$
```

- Question 4

```

anand@cis106vm: ~/Lab5
anand@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::1f7b:774f:cda2:8b0d/64 scope link noprefixroute
anand@cis106vm:~/Lab5$ ip ad | grep 'inet6'
inet6 ::1/128 scope host
inet6 fe80::1f7b:774f:cda2:8b0d/64 scope link noprefixroute
anand@cis106vm:~/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::1f7b:774f:cda2:8b0d/64 scope link noprefixroute
anand@cis106vm:~/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::1f7b:774f:cda2:8b0d/64 scope link noprefixroute
anand@cis106vm:~/Lab5$ ip add | grep 'inet' | head -3
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
anand@cis106vm:~/Lab5$ ip add | grep 'inet' | tail -1
inet6 fe80::1f7b:774f:cda2:8b0d/64 scope link noprefixroute
anand@cis106vm:~/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::1f7b:774f:cda2:8b0d/64 scope link noprefixroute
anand@cis106vm:~/Lab5$

```

- Question 5

```

anand@cis106vm: ~/Lab5
anand@cis106vm:~/Lab5$ echo "# Information about my pc" > ubuntu.pc.md
anand@cis106vm:~/Lab5$ ls
ubuntu.pc.md
anand@cis106vm:~/Lab5$ echo "## CPU Information" >> ubuntu.pc.md
anand@cis106vm:~/Lab5$ cat ubuntu.pc.md
# Information about my pc
## CPU Information
anand@cis106vm:~/Lab5$ lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
Address sizes:          39 bits physical, 48 bits virtual
CPU(s):                 2
On-line CPU(s) list:    0,1
Thread(s) per core:     1
Core(s) per socket:     2
Socket(s):              1
NUMA node(s):           1
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  142
Model name:             Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz
Stepping:                10
CPU MHz:                1992.001
BogoMIPS:               3984.00
Hypervisor vendor:      KVM
Virtualization type:    full
L1d cache:              64 KiB
L1i cache:              64 KiB
L2 cache:               512 KiB
L3 cache:               16 MiB
NUMA node0 CPU(s):      0,1

```

```

anand@cis106vm: ~/Lab5
Vulnerability Meltdown: Mitigation; PTI
Vulnerability Spec store bypass: Vulnerable
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Full generic retpoline, STIBP disabled, RSB filling
Vulnerability Srbds: Unknown: Dependent on hypervisor status
Vulnerability Tsx async abort: Not affected
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mc
a cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall n
x rdtscp lm constant_tsc rep_good nopl xtopology nonsto
p_tsc cpuid tsc_known_freq pni pclmulqdq ssse3 cx16 pci
d sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx rdran
d hypervisor lahf_lm abm 3dnowprefetch invpcid_single p
ti fsgsbase avx2 invpcid rdseed clflushopt md_clear flu
sh_lld
anand@cis106vm:~/Lab5$ lscpu | grep -i "architecture"
Architecture:          x86_64
anand@cis106vm:~/Lab5$ lscpu | grep -i "architecture" >> ubuntuipc.md
anand@cis106vm:~/Lab5$ lscpu | grep -i "threads"
anand@cis106vm:~/Lab5$ lscpu | grep -i "threads" >> ubuntuipc.md
anand@cis106vm:~/Lab5$ lscpu | grep -i "cores"
anand@cis106vm:~/Lab5$ lscpu | grep -i "cores" >> ubuntuipc.md
anand@cis106vm:~/Lab5$ lscpu | grep -i "model name"
Model name:            Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz
anand@cis106vm:~/Lab5$ lscpu | grep -i "model name" >> ubuntuipc.md
anand@cis106vm:~/Lab5$ lscpu | grep -i "virtualization technology supported"
anand@cis106vm:~/Lab5$ lscpu | grep -i "virtualization technology supported" >> ubuntuipc.md

```

```

anand@cis106vm: ~/Lab5
anand@cis106vm:~/Lab5$ echo "## RAM Information" >> ubuntuipc.md
anand@cis106vm:~/Lab5$ lshw -c memory
WARNING: you should run this program as super-user.
*-memory
   description: System memory
   physical id: 0
   size: 2GiB
WARNING: output may be incomplete or inaccurate, you should run this program as super-user.
anand@cis106vm:~/Lab5$ cat ubuntuipc.md
# Information about my pc
## CPU Information
Architecture:          x86_64
Model name:            Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz
## RAM Information
anand@cis106vm:~/Lab5$ lshw -c memory >> ubuntuipc.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.
anand@cis106vm:~/Lab5$ cat ubuntuipc.md
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## CPU Information
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Model name:            Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz
## RAM Information
*-memory
   description: System memory
   physical id: 0
   size: 2GiB
anand@cis106vm:~/Lab5$

```