

Lab 5 | Handling Files

Question 1

```
miguel@miguel-VirtualBox:~$ 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
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
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
```

```
miguel@miguel-VirtualBox:~$ 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
miguel:x:1000:1000:Miguel Marin,,,:/home/miguel:/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
uidd:x:107:114:/:/run/uidd:/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

```

```
miguel@miguel-VirtualBox:~$ cat -E /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$
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/lib/avahi-daemon:/usr/sbin/nologin$

```

```
miguel@miguel-VirtualBox:~$ 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

```

```
miguel@miguel-VirtualBox:~$ tail -5 /etc/passwd
```

```

sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
miguel:x:1000:1000:Miguel Marin,,,:/home/miguel:/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
miguel@miguel-VirtualBox:~$

```

Question 2

```
miguel@miguel-VirtualBox:~$ 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
syslog
_apt
tss
uidd
tcpdump
avahi-autoipd
usbmux
rtkit
dnsmasq
cups-pk-helper
speech-dispatcher
avahi
kernoops
saned
nm-openvpn
hplip
whoopsie
colord
geoclue
pulse
gnome-initial-setup
gdm
sssd
```

```
miguel@miguel-VirtualBox:~$ tail -5 /etc/passwd | cut -d ':' -f 1
```

```
sssd
miguel
systemd-coredump
_flatpak
vboxadd
```

```
miguel@miguel-VirtualBox:~$ cut -d ':' -f 1,3 /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  
list:38  
lp:7  
mail:8  
man:6  
messagebus:103
```

```
miguel@miguel-VirtualBox:~$ cut -d ':' -f 1,3 /etc/passwd | sort | tail -5
```

```
uucp:10  
uudd:107  
vboxadd:998  
whoopsie:120  
www-data:33  
miguel@miguel-VirtualBox:~$
```

Question 3


```
miguel@miguel-VirtualBox:~$ wc -l /etc/passwd
49 /etc/passwd
miguel@miguel-VirtualBox:~$ wc -w /etc/passwd
90 /etc/passwd
miguel@miguel-VirtualBox:~$
```

```
miguel@miguel-VirtualBox:~$ grep '/bin/bash' /etc/passwd
root:x:0:0:root:/root:/bin/bash
miguel:x:1000:1000:Miguel Marin,,,:/home/miguel:/bin/bash
miguel@miguel-VirtualBox:~$ 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
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
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
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
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
miguel@miguel-VirtualBox:~$
```

```
miguel@miguel-VirtualBox:~$ grep 'miguel' /etc/passwd
miguel:x:1000:1000:Miguel Marin,,,:/home/miguel:/bin/bash
miguel@miguel-VirtualBox:~$
```

Question 4

```
miguel@miguel-VirtualBox:~$ 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::b662:81cd:61c3:b67b/64 scope link noprefixroute
miguel@miguel-VirtualBox:~$ ip ad | gep 'inet'

Command 'gep' not found, but there are 17 similar ones.

miguel@miguel-VirtualBox:~$ ip ad | grep 'inet6' | tac
inet6 fe80::b662:81cd:61c3:b67b/64 scope link noprefixroute
inet6 ::1/128 scope host
miguel@miguel-VirtualBox:~$ 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::b662:81cd:61c3:b67b/64 scope link noprefixroute
miguel@miguel-VirtualBox:~$ ip ad | grep 'inet' | head -3 | tail -1
inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
miguel@miguel-VirtualBox:~$ ip ad | grep -E '[:digit:]{1,3}\.[:digit:]{1,3}\.[:digit:]{1,3}\.[:digit:]{1,3}' ipaddresses | sort
grep: ipaddresses: No such file or directory
miguel@miguel-VirtualBox:~$ 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
miguel@miguel-VirtualBox:~$
```

Question 5

```
miguel@miguel-VirtualBox:~$ echo "# Information about my pc" > mypc.md
miguel@miguel-VirtualBox:~$ ls mypc.md
mypc.md
miguel@miguel-VirtualBox:~$ echo "## PCU Information" >> mypc.md
miguel@miguel-VirtualBox:~$ echo "### PCU Information" >> mypc.md
miguel@miguel-VirtualBox:~$ cat mypc.md
# Information about my pc
## PCU Information
miguel@miguel-VirtualBox:~$ lscpu
```

```
miguel@miguel-VirtualBox:~$ lscpu | grep -i "Core" >> mypc.md
miguel@miguel-VirtualBox:~$ cat mypc.md
# Information about my pc
## PCU Information
Architecture:          x86_64
Model name:            AMD Ryzen 5 3600 6-Core Processor
Thread(s) per core:    1
Core(s) per socket:    2
Model name:            AMD Ryzen 5 3600 6-Core Processor
miguel@miguel-VirtualBox:~$ lscpu | grep -i "CPU Mhz" >> mypc.md
miguel@miguel-VirtualBox:~$ cat mypc.md
# Information about my pc
## PCU Information
Architecture:          x86_64
Model name:            AMD Ryzen 5 3600 6-Core Processor
Thread(s) per core:    1
Core(s) per socket:    2
Model name:            AMD Ryzen 5 3600 6-Core Processor
CPU MHz:               3599.994
miguel@miguel-VirtualBox:~$ lscpu | grep -i "Virtualization" >> mypc.md
miguel@miguel-VirtualBox:~$ cat mypc.md
# Information about my pc
## PCU Information
Architecture:          x86_64
Model name:            AMD Ryzen 5 3600 6-Core Processor
Thread(s) per core:    1
Core(s) per socket:    2
Model name:            AMD Ryzen 5 3600 6-Core Processor
CPU MHz:               3599.994
Virtualization type:    full
miguel@miguel-VirtualBox:~$
```



```
WARNING: output may be incomplete or inaccurate, you should run this program as super-user.  
miguel@miguel-VirtualBox:~$ 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.  
miguel@miguel-VirtualBox:~$ lshw -c memory | grep -i "Memory 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.  
miguel@miguel-VirtualBox:~$ cat mypc.md
```

```
miguel@miguel-VirtualBox:~$ cat mypc.md  
# Information about my pc  
## PCU Information  
Architecture:          x86_64  
Model name:             AMD Ryzen 5 3600 6-Core Processor  
Thread(s) per core:     1  
Core(s) per socket:     2  
Model name:             AMD Ryzen 5 3600 6-Core Processor  
CPU MHz:                3599.994  
Virtualization type:    full  
## Ram Information  
    size: 4GiB  
miguel@miguel-VirtualBox:~$
```