

# lab 5 | Handling files Answer to lab

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## Question 1

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```
nouran@nouran-VirtualBox:~/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:/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
uuidd:x:107:114::/run/uuidd:/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
nouran:x:1000:1000:nouran alhindi,,,:/home/nouran:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper,,,:/usr/sbin/nologin
_flatpak:x:126:134:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
```

```
nouran@nouran-VirtualBox:~/lab5$ tac /etc/passwd
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
_flatpak:x:126:134:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
systemd-coredump:x:999:999:systemd Core Dumper,,,:/usr/sbin/nologin
nouran:x:1000:1000:nouran alhindi,,,:/home/nouran:/bin/bash
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:KernelOopsTrackingDaemon,,,:/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
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
```

```
nouran@nouran-VirtualBox:~/lab5$ cat -nE /etc/passwd
1 root:x:0:0: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/nologin$
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/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 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/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-pk-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/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/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 nouran:x:1000:1000:nouran alhindi,,,:/home/nouran:/bin/bash$
46 systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin$
47 _flatpak:x:126:134:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin$
48 vboxadd:x:998:1::/var/run/vboxadd:/bin/false$
```

```
nouran@nouran-VirtualBox:~/lab5$ head -5 /etc/passwd
root:x:0:0: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
nouran@nouran-VirtualBox:~/lab5$ tail -5 /etc/passwd
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
nouran:x:1000:1000:nouran alhindi,,,:/home/nouran:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
flatpak:x:126:134:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
```

## Question 2

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```
nouran@nouran-VirtualBox:~/lab5$ cut -d ':' -f 1 /etc/passwd
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
```

```
nouran@nouran-VirtualBox:~/lab5$ tail -5 /etc//passwd | cut -d ':' -f 1
gdm
nouran
systemd-coredump
_flatpak
vboxadd
nouran@nouran-VirtualBox:~/lab5$
```

```
vboxadd.998
nouran@nouran-VirtualBox:~/lab5$ cut -d ':' -s -f1,3 --output-delimiter=' = ' /etc/passwd
root = 0
daemon = 1
bin = 2
sys = 3
sync = 4
games = 5
man = 6
lp = 7
mail = 8
news = 9
uucp = 10
proxy = 13
www-data = 33
backup = 34
list = 38
irc = 39
gnats = 41
nobody = 65534
```

```
nouran@nouran-VirtualBox:~/lab5$ cut -d ':' -f1,3 /etc//passwd | sort -t: -k2,2
root:0
daemon:1
uucp:10
systemd-network:100
nouran:1000
systemd-resolve:101
systemd-timesync:102
messagebus:103
syslog:104
_apt:105
tss:106
uuidd:107
tcpdump:108
avahi-autoipd:109
usbmux:110
rtkit:111
dnsmasq:112
cups-pk-helper:113
speech-dispatcher:114
avahi:115
kernoops:116
saned:117
nm-openvpn:118
hplip:119
whoopsie:120
colord:121
geoclue:122
pulse:123
gnome-initial-setup:124
gdm:125
_flatpak:126
proxy:13
bin:2
sys:3
```

```
nouran@nouran-VirtualBox:~/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:126
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
news:9
nm-openvpn:118
nobody:65534
nouran:1000
proxy:13
pulse:123
root:0
rtkit:111
saned:117
speech-dispatcher:114
sync:4
sys:3
syslog:104
systemd-coredump:999
systemd-network:100
```

```
nouran@nouran-VirtualBox:~/lab5$ cut -d ':' -f1,3 /etc/passwd | tail -5
gdm:125
nouran:1000
systemd-coredump:999
_flatpak:126
vboxadd:998
```

## Question 3

```
nouran@nouran-VirtualBox:~/lab5$ wc -l /etc/passwd
48 /etc/passwd
nouran@nouran-VirtualBox:~/lab5$ wc -w /etc/passwd
87 /etc/passwd
nouran@nouran-VirtualBox:~/lab5$
```

```
nouran@nouran-VirtualBox:~/lab5$ grep '/bin/bash' /etc/passwd
root:x:0:0:root:/root:/bin/bash
nouran:x:1000:1000:nouran alhindi,,,:/home/nouran:/bin/bash
nouran@nouran-VirtualBox:~/lab5$
```

```
nouran@nouran-VirtualBox:~$ grep -io /etc/passwd
nouran@nouran-VirtualBox:~$ grep -i '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
```

```
nouran@nouran-VirtualBox:~$ grep -i 'nouran' /etc/passwd
nouran:x:1000:1000:nouran alhindi,,,:/home/nouran:/bin/bash
nouran@nouran-VirtualBox:~$
```

## Question 4

---

```
nouran@nouran-VirtualBox:~/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:cb:b4:49 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 77835sec preferred_lft 77835sec
        inet6 fe80::d4ca:c942:1cbe:a7fa/64 scope link noprefixroute
            valid_lft forever preferred_lft forever
nouran@nouran-VirtualBox:~/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::d4ca:c942:1cbe:a7fa/64 scope link noprefixroute
nouran@nouran-VirtualBox:~/lab5$ ip ad | grep 'inet' | wc -l
4
nouran@nouran-VirtualBox:~/lab5$ █
nouran@nouran-VirtualBox:~/lab5$ ip ad | grep 'inet6' | sort -r
    inet6 fe80::d4ca:c942:1cbe:a7fa/64 scope link noprefixroute
    inet6 ::1/128 scope host
nouran@nouran-VirtualBox:~/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::d4ca:c942:1cbe:a7fa/64 scope link noprefixroute
nouran@nouran-VirtualBox:~/lab5$ ip ad | 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
nouran@nouran-VirtualBox:~/lab5$ ip ad | grep -E
Usage: grep [OPTION]... PATTERN [FILE]...
Try 'grep --help' for more information.
nouran@nouran-VirtualBox:~/lab5$ ip ad | grep -E '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::d4ca:c942:1cbe:a7fa/64 scope link noprefixroute
```

## Question 5

---

```
nouran@nouran-VirtualBox:~/Lab5$ echo "# Information about my pc" > mypc.md
nouran@nouran-VirtualBox:~/Lab5$ echo "## CPU Information" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ lscpu | grep -i "Architecture" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ lscpu | grep -i "Threads" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ lscpu | grep -i "Cores" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ lscpu | grep -i "Model name" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ lscpu | grep -i "CPU Frequency" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ lscpu | grep -i "Virtualisation technology supported" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ echo "## RAM Information" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ echo "## RAM Information"
## RAM Information
nouran@nouran-VirtualBox:~/Lab5$ echo "## RAM Information" >> mypc.md
nouran@nouran-VirtualBox:~/Lab5$ 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.
nouran@nouran-VirtualBox:~/Lab5$ █
```

```
nouran@nouran-VirtualBox:~/Lab5$ cat mypc.md
# Information about my pc
## CPU Information
Architecture:          x86_64
Model name:           Intel(R) Core(TM) i5-1038NG7 CPU @ 2.00GHz
## RAM Information
## RAM Information
nouran@nouran-VirtualBox:~/Lab5$
```