name: Wael Homsi course: CIS106 semester: Fall 2023

Lab 7: Handling Files

Question 1

```
whomsi@whomsi-virtual-machine:~$ 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:/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
messagebus:x:102:105::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:116::/run/uuidd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:118::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124::/nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129::/var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131::/var/lib/geoclue:/usr/sbin/nologin
gnome-initial-setup:x:126:65534::/run/gnome-initial-setup/:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
whomsi:x:1000:1000:Whomsi,,,:/home/whomsi:/bin/bash
_flatpak:x:129:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
whomsi@whomsi-virtual-machine:~$ tac /etc/passwd
_flatpak:x:129:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
whomsi:x:1000:1000:Whomsi,,,:/home/whomsi:/bin/bash
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gnome-initial-setup:x:126:65534::/run/gnome-initial-setup/:/bin/false
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
geoclue:x:124:131::/var/lib/geoclue:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
saned:x:122:129::/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
whoopsie:x:117:124::/nonexistent:/bin/false
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
tcpdump:x:109:118::/nonexistent:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
uuidd:x:107:116::/run/uuidd:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
syslog:x:104:111::/home/syslog:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105::/nonexistent:/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:/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
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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
whomsi@whomsi-virtual-machine:~$ cat -bE /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:/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  messagebus:x:102:105::/nonexistent:/usr/sbin/nologin$
    22  systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin$
    23  syslog:x:104:111::/home/syslog:/usr/sbin/nologin$
    24  _apt:x:105:65534::/nonexistent:/usr/sbin/nologin$
    25  tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false$
    26  uuidd:x:107:116::/run/uuidd:/usr/sbin/nologin$
    27  systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin$
    28  tcpdump:x:109:118::/nonexistent:/usr/sbin/nologin$
    29  avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin$
    30  usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin$
    31  dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin$
    32  kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin$
    33  avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin$
```

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    34  cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin$
    35  rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin$
    36  whoopsie:x:117:124::/nonexistent:/bin/false$
    37  sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin$
    38  speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false$
    39  fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin$
    40  nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin$
    41  saned:x:122:129::/var/lib/saned:/usr/sbin/nologin$
    42  colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin$
    43  geoclue:x:124:131::/var/lib/geoclue:/usr/sbin/nologin$
    44  pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin$
    45  gnome-initial-setup:x:126:65534::/run/gnome-initial-setup/:/bin/false$
    46  hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false$
    47  gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false$
    48  whomsi:x:1000:1000:Whomsi,,,:/home/whomsi:/bin/bash$
    49  _flatpak:x:129:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin$
whomsi@whomsi-virtual-machine:~$ head /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
whomsi@whomsi-virtual-machine:~$ tail /etc/passwd
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129::/var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534::/run/gnome-initial-setup/:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
whomsi:x:1000:1000:Whomsi,,,:/home/whomsi:/bin/bash
_flatpak:x:129:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
whomsi@whomsi-virtual-machine:~$
```

Question 2

```
whomsi@whomsi-virtual-machine:~$ 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
messagebus
systemd-timesync
syslog
_apt
tss
uuidd
systemd-oom
tcpdump
avahi-autoipd
usbmux
dnsmasq
kernoops
avahi
cups-pk-helper
rtkit
whoopsie
sssd
speech-dispatcher
fwupd-refresh
nm-openvpn
saned
colord
geoclue
pulse
gnome-initial-setup
```

```
hplip
gdm
whomsi
_flatpak
whomsi@whomsi-virtual-machine:~$ cut -d: -f1,7 /etc/passwd
root:/bin/bash
daemon:/usr/sbin/nologin
bin:/usr/sbin/nologin
sys:/usr/sbin/nologin
sync:/bin/sync
games:/usr/sbin/nologin
```

```
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
messagebus:/usr/sbin/nologin
systemd-timesync:/usr/sbin/nologin
syslog:/usr/sbin/nologin
_apt:/usr/sbin/nologin
tss:/bin/false
uuidd:/usr/sbin/nologin
systemd-oom:/usr/sbin/nologin
tcpdump:/usr/sbin/nologin
avahi-autoipd:/usr/sbin/nologin
usbmux:/usr/sbin/nologin
dnsmasq:/usr/sbin/nologin
kernoops:/usr/sbin/nologin
avahi:/usr/sbin/nologin
cups-pk-helper:/usr/sbin/nologin
rtkit:/usr/sbin/nologin
whoopsie:/bin/false
sssd:/usr/sbin/nologin
speech-dispatcher:/bin/false
fwupd-refresh:/usr/sbin/nologin
nm-openvpn:/usr/sbin/nologin
saned:/usr/sbin/nologin
```

```
colord:/usr/sbin/nologin
geoclue:/usr/sbin/nologin
pulse:/usr/sbin/nologin
gnome-initial-setup:/bin/false
hplip:/bin/false
gdm:/bin/false
whomsi:/bin/bash
_flatpak:/usr/sbin/nologin
whomsi@whomsi-virtual-machine:~$ cut -d: -f1,7 --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
messagebus=/usr/sbin/nologin
systemd-timesync=/usr/sbin/nologin
syslog=/usr/sbin/nologin
_apt=/usr/sbin/nologin
tss=/bin/false
uuidd=/usr/sbin/nologin
systemd-oom=/usr/sbin/nologin
tcpdump=/usr/sbin/nologin
avahi-autoipd=/usr/sbin/nologin
usbmux=/usr/sbin/nologin
dnsmasq=/usr/sbin/nologin
kernoops=/usr/sbin/nologin
avahi=/usr/sbin/nologin
cups-pk-helper=/usr/sbin/nologin
rtkit=/usr/sbin/nologin
whoopsie=/bin/false
sssd=/usr/sbin/nologin
```

```
speech-dispatcher=/bin/false
fwupd-refresh=/usr/sbin/nologin
nm-openvpn=/usr/sbin/nologin
saned=/usr/sbin/nologin
colord=/usr/sbin/nologin
geoclue=/usr/sbin/nologin
pulse=/usr/sbin/nologin
gnome-initial-setup=/bin/false
hplip=/bin/false
gdm=/bin/false
whomsi=/bin/bash
_flatpak=/usr/sbin/nologin
whomsi@whomsi-virtual-machine:~$ cut -d: --complement -f3 /etc/passwd
root:x:0:root:/root:/bin/bash
daemon:x:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:bin:/bin:/usr/sbin/nologin
sys:x:3:sys:/dev:/usr/sbin/nologin
sync:x:65534:sync:/bin:/bin/sync
games:x:60:games:/usr/games:/usr/sbin/nologin
man:x:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:105::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:111::/home/syslog:/usr/sbin/nologin
_apt:x:65534::/nonexistent:/usr/sbin/nologin
tss:x:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:116::/run/uuidd:/usr/sbin/nologin
systemd-oom:x:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:118::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
avahi:x:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:124::/nonexistent:/bin/false
sssd:x:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
nm-openvpn:x:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:129::/var/lib/saned:/usr/sbin/nologin
colord:x:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:131::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:65534::/run/gnome-initial-setup/:/bin/false
hplip:x:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
whomsi:x:1000:Whomsi,,,:/home/whomsi:/bin/bash
_flatpak:x:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
whomsi@whomsi-virtual-machine:~$
```

Question 3

```
whomsi@whomsi-virtual-machine:~$ curl -s https://cis106.com/assets/shopping.txt -o shopping.txt
curl -s https://cis106.com/assets/tasks.txt -o tasks.txt
whomsi@whomsi-virtual-machine:~$ wc -l ~/Documents/Books/dracula.txt
15845 /home/whomsi/Documents/Books/dracula.txt
whomsi@whomsi-virtual-machine:~$ wc -w ~/Documents/Books/pride_and_prejudice.txt
wc: /home/whomsi/Documents/Books/pride_and_prejudice.txt: No such file or directory
whomsi@whomsi-virtual-machine:~$ wc -w ~/Documents/Books/pride-and-prejudice.txt
130412 /home/whomsi/Documents/Books/pride-and-prejudice.txt
whomsi@whomsi-virtual-machine:~$ sort /etc/passwd
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
_flatpak:x:129:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
games:x:5:60:games:/usr/games:/usr/sbin/nologin
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
geoclue:x:124:131::/var/lib/geoclue:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
gnome-initial-setup:x:126:65534::/run/gnome-initial-setup/:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
messagebus:x:102:105::/nonexistent:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
root:x:0:0:root:/root:/bin/bash
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
saned:x:122:129::/var/lib/saned:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
syslog:x:104:111::/home/syslog:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
```

```
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
tcpdump:x:109:118::/nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
uuidd:x:107:116::/run/uuidd:/usr/sbin/nologin
whomsi:x:1000:1000:Whomsi,,,:/home/whomsi:/bin/bash
whoopsie:x:117:124::/nonexistent:/bin/false
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
whomsi@whomsi-virtual-machine:~$
```

Question 4

```
whomsi@whomsi-virtual-machine:~$ tr ';' ',' < cereal.csv > cereal_modified.csv
bash: cereal.csv: No such file or directory
whomsi@whomsi-virtual-machine:~$ tr ';' ',' < ~/Documents/Csv/cereal.csv > ~/Documents/Csv/cereal_modified.csv
whomsi@whomsi-virtual-machine:~$ mv ~/Documents/Csv/cereal_modified.csv ~/Documents/Csv/cereal.csv
whomsi@whomsi-virtual-machine:~$ grep 'love' ~/Documents/Books/pride-and-prejudice.txt
```

```
whomsi@whomsi-virtual-machine:~$ grep -wn -e 'love' -e 'hate' ~/Documents/Books/pride-and-prejudice.txt
```

```
whomsi@whomsi-virtual-machine:~$ grep '^love' ~/Documents/Books/dracula.txt
loves you honestly, going away and looking all broken-hearted, and to
lover; it's more unselfish anyhow. My dear, I'm going to have a pretty
lover, such a husband, and such a friend.
lovelier than ever, and we drove up to the house at the Crescent in
love her. One, two, three, all open their veins for her, besides one old
love and pride, seen you grow up. Now I want you to make your home here
love me, and he loves me, and I love you with all the moods and tenses
loveliness had come back to her in death, and the hours that had passed,
loveliness. It frightened and amazed me somewhat; and as for Arthur, he
love her. Oh, Madam Mina, by that love, I implore you, help me. It is
lover, but only her physician and her friend. I gave to her my nights
loved and honoured as our host is, everything regarding him is of
love and from the good, good wishes of those other strong men.
love Mina, I know. Oh, do something to save her. It cannot have gone too
loved him and honoured him more than I can say, and that my latest and
loved her, that they did dare much for her sake."
whomsi@whomsi-virtual-machine:~$ grep '^[A-Z0-9]' ~/Documents/Books/dracula.txt
```

Question 5

```
whomsi@whomsi-virtual-machine:~$ echo awk -F, '{print $1, $NF}' ~/Documents/Csv/cars.csv
awk -F, {print $1, $NF} /home/whomsi/Documents/Csv/cars.csv
whomsi@whomsi-virtual-machine:~$ echo awk -F, '{print $1 " made in " $NF}' ~/Documents/Csv/cars.csv
awk -F, {print $1 " made in " $NF} /home/whomsi/Documents/Csv/cars.csv
whomsi@whomsi-virtual-machine:~$ echo awk -F, '{printf "The %s has %s cylinders and is made in %s\n", $2, $4, $NF}' ~/Documents/Csv/cars.csv
awk -F, {printf "The %s has %s cylinders and is made in %s\n", $2, $4, $NF} /home/whomsi/Documents/Csv/cars.csv
whomsi@whomsi-virtual-machine:~$ echo awk 'NR > 2' ~/Documents/Csv/cars.csv
awk NR > 2 /home/whomsi/Documents/Csv/cars.csv
whomsi@whomsi-virtual-machine:~$ echo awk -F, '{print toupper($1)}' ~/Documents/Csv/cars.csv
awk -F, {print toupper($1)} /home/whomsi/Documents/Csv/cars.csv
whomsi@whomsi-virtual-machine:~$ echo sed 's/Dracula/Alucard/g' ~/Documents/Books/dracula.txt > ~/Documents/Books/dracula_modified.txt
whomsi@whomsi-virtual-machine:~$ echo sed G /etc/passwd
sed G /etc/passwd
whomsi@whomsi-virtual-machine:~$ echo sed '/^$/N;/^\n$/D' ~/Documents/Books/pride_and_prejudice.txt > ~/Documents/Books/pride_and_prejudice_modified.txt
whomsi@whomsi-virtual-machine:~$ echo sed '/^$/N;/^\n$/D' ~/Documents/Books/pride-and-prejudice.txt > ~/Documents/Books/pride_and_prejudice_modified.txt
whomsi@whomsi-virtual-machine:~$
```

Question 6

```
whomsi@whomsi-virtual-machine:~$ grep -c '/bin/bash' /etc/passwd
2
whomsi@whomsi-virtual-machine:~$ grep -c '/sbin/nologin' /etc/passwd
40
whomsi@whomsi-virtual-machine:~$ grep -i 'Ford' ~/Documents/Csv/cars.csv | wc -l
53
whomsi@whomsi-virtual-machine:~$ grep -o -w -E '\b\w{4}\b' ~/Documents/Books/bible.txt | wc -l
180414
whomsi@whomsi-virtual-machine:~$
```

Challenge Question

```
whomsi@whomsi-virtual-machine:~$ echo cut -d';' -f1 ~/Documents/Csv/cereal.csv
cut -d; -f1 /home/whomsi/Documents/Csv/cereal.csv
whomsi@whomsi-virtual-machine:~$ echo cut -d';' -f1 ~/Documents/Csv/cereal.csv | tail -n +3 | sort > cereal-sorted.csv
whomsi@whomsi-virtual-machine:~$ echo awk -F';' '{print $1, $5}' ~/Documents/Csv/cereal.csv
awk -F; {print $1, $5} /home/whomsi/Documents/Csv/cereal.csv
whomsi@whomsi-virtual-machine:~$ echo awk -F';' '{print $1 "," $5}' ~/Documents/Csv/cereal.csv
awk -F; {print $1 "," $5} /home/whomsi/Documents/Csv/cereal.csv
whomsi@whomsi-virtual-machine:~$
```