

Lab7: Handling Files

Question 1

Q1.1

```
menna@cis106: ~  
menna@cis106:~$ 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  
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin  
messagebus:x:103:106:/:nonexistent:/usr/sbin/nologin  
syslog:x:104:111:/:home/syslog:/usr/sbin/nologin  
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin  
tss:x:106:112:TPM software stack,,,:/var/lib/tpm:/bin/false  
uuidd:x:107:115:/:run/uuidd:/usr/sbin/nologin  
tcpdump:x:108:116:/:nonexistent:/usr/sbin/nologin  
usbmux:x:109:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
rtkit:x:110:118:RealtimeKit,,,:/proc:/usr/sbin/nologin  
dnsmasq:x:111:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin  
kernoops:x:112:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin  
avahi:x:113:120:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin  
cups-pk-helper:x:114:121:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin  
whoopsie:x:115:122:/:nonexistent:/bin/false  
saned:x:116:124:/:var/lib/saned:/usr/sbin/nologin  
colord:x:117:125:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin  
sddm:x:118:126:Simple Desktop Display Manager:/var/lib/sddm:/bin/false  
geoclue:x:119:127:/:var/lib/geoclue:/usr/sbin/nologin  
pulse:x:120:128:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin  
hplip:x:121:7:HPLIP system user,,,:/run/hplip:/bin/false  
menna:x:1000:1000:Menna eHAB:/home/menna:/bin/bash  
systemd-coredump:x:998:998:systemd Core Dumper:/:/usr/sbin/nologin  
gdm:x:122:134:Gnome Display Manager:/var/lib/gdm3:/bin/false  
_flatpak:x:123:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin  
menna@cis106:~$
```

Q1.2

```
menna@cis106: ~  
menna@cis106:~$ tac /etc/passwd  
_flatpak:x:123:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin  
gdm:x:122:134:Gnome Display Manager:/var/lib/gdm3:/bin/false  
systemd-coredump:x:998:998:systemd Core Dumper:/usr/sbin/nologin  
menna:x:1000:1000:Menna eHAB:/home/menna:/bin/bash  
hplip:x:121:7:HPLIP system user,,,:/run/hplip:/bin/false  
pulse:x:120:128:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin  
geoclue:x:119:127:/var/lib/geoclue:/usr/sbin/nologin  
sddm:x:118:126:Simple Desktop Display Manager:/var/lib/sddm:/bin/false  
colord:x:117:125:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin  
saned:x:116:124:/var/lib/saned:/usr/sbin/nologin  
whoopsie:x:115:122:/nonexistent:/bin/false  
cups-pk-helper:x:114:121:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin  
avahi:x:113:120:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin  
kernoops:x:112:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin  
dnsmasq:x:111:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin  
rtkit:x:110:118:RealtimeKit,,,:/proc:/usr/sbin/nologin  
usbmux:x:109:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
tcpdump:x:108:116:/nonexistent:/usr/sbin/nologin  
uudd:x:107:115:/run/uudd:/usr/sbin/nologin  
tss:x:106:112: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  
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:/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  
menna@cis106:~$
```

Q1.3

```
menna@cis106: ~  
menna@cis106:~$ cat /etc/passwd -En  
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 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:104:111:./home/syslog:/usr/sbin/nologin$  
24 _apt:x:105:65534:./nonexistent:/usr/sbin/nologin$  
25 tss:x:106:112:TPM software stack,,,:/var/lib/tpm:/bin/false$  
26 uidd:x:107:115:./run/uidd:/usr/sbin/nologin$  
27 tcpdump:x:108:116:./nonexistent:/usr/sbin/nologin$  
28 usbmux:x:109:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin$  
29 rtkit:x:110:118:RealtimeKit,,,:/proc:/usr/sbin/nologin$  
30 dnsmasq:x:111:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin$  
31 kernoops:x:112:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin$  
32 avahi:x:113:120:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin$  
33 cups-pk-helper:x:114:121:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin$  
34 whoopsie:x:115:122:./nonexistent:/bin/false$  
35 saned:x:116:124:./var/lib/saned:/usr/sbin/nologin$  
36 colord:x:117:125:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin$  
37 sddm:x:118:126:Simple Desktop Display Manager:/var/lib/sddm:/bin/false$  
38 geoclue:x:119:127:./var/lib/geoclue:/usr/sbin/nologin$  
39 pulse:x:120:128:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin$  
40 hplip:x:121:7:HPLIP system user,,,:/run/hplip:/bin/false$  
41 menna:x:1000:1000:Menna eHAB:/home/menna:/bin/bash$  
42 systemd-coredump:x:998:998:systemd Core Dumper:./usr/sbin/nologin$  
43 gdm:x:122:134:Gnome Display Manager:/var/lib/gdm3:/bin/false$  
44 _flatpak:x:123:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin$  
menna@cis106:~$
```

Q1.4

```
menna@cis106: ~  
menna@cis106:~$ 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  
menna@cis106:~$
```

Q1.5

```
menna@cis106: ~  
menna@cis106:~$ tail -10 /etc/passwd  
saned:x:116:124::/var/lib/saned:/usr/sbin/nologin  
colord:x:117:125:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin  
sddm:x:118:126:Simple Desktop Display Manager:/var/lib/sddm:/bin/false  
geoclue:x:119:127::/var/lib/geoclue:/usr/sbin/nologin  
pulse:x:120:128:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin  
hplip:x:121:7:HPLIP system user,,,:/run/hplip:/bin/false  
menna:x:1000:1000:Menna eHAB:/home/menna:/bin/bash  
systemd-coredump:x:998:998:systemd Core Dumper:/:/usr/sbin/nologin  
gdm:x:122:134:Gnome Display Manager:/var/lib/gdm3:/bin/false  
_flatpak:x:123:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin  
menna@cis106:~$
```

Question 2

Q2.1

```
menna@cis106: ~  
menna@cis106:~$ 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  
syslog  
_apt  
tss  
uuidd  
tcpdump  
usbmux  
rtkit  
dnsmasq  
kernoops  
avahi  
cups-pk-helper  
whoopsie  
saned  
colord  
sddm  
geoclue  
pulse  
hplip  
menna  
systemd-coredump  
gdm  
_flatpak  
menna@cis106:~$
```

Q2.2

```
menna@cis106: ~  
menna@cis106:~$ 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  
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  
uidd:/usr/sbin/nologin  
tcpdump:/usr/sbin/nologin  
usbmux:/usr/sbin/nologin  
rtkit:/usr/sbin/nologin  
dnsmasq:/usr/sbin/nologin  
kernoops:/usr/sbin/nologin  
avahi:/usr/sbin/nologin  
cups-pk-helper:/usr/sbin/nologin  
whoopsie:/bin/false  
saned:/usr/sbin/nologin  
colord:/usr/sbin/nologin  
sddm:/bin/false  
geoclue:/usr/sbin/nologin  
pulse:/usr/sbin/nologin  
hplip:/bin/false  
menna:/bin/bash  
systemd-coredump:/usr/sbin/nologin  
gdm:/bin/false  
_flatpak:/usr/sbin/nologin  
menna@cis106:~$
```

Q2.3

```
menna@cis106: ~  
menna@cis106:~$ 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  
systemd-timesync =. /usr/sbin/nologin  
messagebus =. /usr/sbin/nologin  
syslog =. /usr/sbin/nologin  
_apt =. /usr/sbin/nologin  
tss =. /bin/false  
uidd =. /usr/sbin/nologin  
tcpdump =. /usr/sbin/nologin  
usbmux =. /usr/sbin/nologin  
rtkit =. /usr/sbin/nologin  
dnsmasq =. /usr/sbin/nologin  
kernoops =. /usr/sbin/nologin  
avahi =. /usr/sbin/nologin  
cups-pk-helper =. /usr/sbin/nologin  
whoopsie =. /bin/false  
saned =. /usr/sbin/nologin  
colord =. /usr/sbin/nologin  
sddm =. /bin/false  
geoclue =. /usr/sbin/nologin  
pulse =. /usr/sbin/nologin  
hplip =. /bin/false  
menna =. /bin/bash  
systemd-coredump =. /usr/sbin/nologin  
gdm =. /bin/false  
_flatpak =. /usr/sbin/nologin  
menna@cis106:~$
```

Q2.4

```
menna@cis106: ~
menna@cis106:~$ cut -d':' --complement -s -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
systemd-timesync:x:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:106:/nonexistent:/usr/sbin/nologin
syslog:x:111:/home/syslog:/usr/sbin/nologin
_apt:x:65534:/nonexistent:/usr/sbin/nologin
tss:x:112:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:115:/run/uidd:/usr/sbin/nologin
tcpdump:x:116:/nonexistent:/usr/sbin/nologin
usbmux:x:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:118:RealtimeKit,,,:/proc:/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:120:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:121:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
whoopie:x:122:/nonexistent:/bin/false
saned:x:124:/var/lib/saned:/usr/sbin/nologin
colord:x:125:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
sddm:x:126:Simple Desktop Display Manager:/var/lib/sddm:/bin/false
geoclue:x:127:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:128:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
hplip:x:7:HPLIP system user,,,:/run/hplip:/bin/false
menna:x:1000:Menna eHAB:/home/menna:/bin/bash
systemd-coredump:x:998:systemd Core Dumper:/usr/sbin/nologin
gdm:x:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
_flatpak:x:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
menna@cis106:~$
```

Question 3

Q3.1

```
menna@cis106: ~
menna@cis106:~$ curl -s https://cis106.com/assets/shopping.md -o shopping.md
menna@cis106:~$ curl -s https://cis106.com/assets/tasks.md -o tasks.md
menna@cis106:~$ ls
challenge-Lab6  cis106  Desktop  Documents  Downloads  'html question '  lab6  lab6-q5  Music  Pictures  Public  shopping.md  tasks.md  Templates  Videos
menna@cis106:~$ paste shopping.md tasks.md
## Shopping      ## Tasks
1. Apples:       1. Do Laundry:
2. Meat:         2. Cook lunch:
3. Bread:        3. Clean room:
menna@cis106:~$
```

Q3.2


```
menna@cis106:~$ wc Documents/Books/dracula.txt
15860 164386 881251 Documents/Books/dracula.txt
menna@cis106:~$ wc -l Documents/Books/dracula.txt
15860 Documents/Books/dracula.txt
menna@cis106:~$
```

Q3.3

```
menna@cis106:~$ wc -w Documents/Books/pride-and-prejudice.txt
124749 Documents/Books/pride-and-prejudice.txt
menna@cis106:~$
```

Q3.4

```
menna@cis106:~$ sort /etc/passwd
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
avahi:x:113:120: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:117:125:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
cups-pk-helper:x:114:121: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:111:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
_flatpak:x:123:135:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
games:x:5:60:games:/usr/games:/usr/sbin/nologin
gdm:x:122:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
geoclue:x:119:127::/var/lib/geoclue:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
hplip:x:121:7:HPLIP system user,,,:/run/hplip:/bin/false
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
kernoops:x:112:65534: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
menna:x:1000:1000:Menna eHAB:/home/menna:/bin/bash
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
pulse:x:120:128:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
root:x:0:0:root:/root:/bin/bash
rtkit:x:110:118:RealtimeKit,,,:/proc:/usr/sbin/nologin
saned:x:116:124::/var/lib/saned:/usr/sbin/nologin
sddm:x:118:126:Simple Desktop Display Manager:/var/lib/sddm:/bin/false
sync:x:4:65534:sync:/bin:/bin/sync
syslog:x:104:111::/home/syslog:/usr/sbin/nologin
systemd-coredump:x:998:998:systemd Core Dumper:/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
sys:x:3:3:sys:/dev:/usr/sbin/nologin
tcpdump:x:108:116::/nonexistent:/usr/sbin/nologin
tss:x:106:112:TPM software stack,,,:/var/lib/tpm:/bin/false
usbmux:x:109:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
uudd:x:107:115::/run/uudd:/usr/sbin/nologin
whoopsie:x:115:122::/nonexistent:/bin/false
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
menna@cis106:~$
```

Question 4

Q4.1


```
menna@cis106: ~
menna@cis106:~$ cat Documents/Csv/cereal.csv | tr ';' ','
name,mfr,type,calories,protein,fat,sodium,fiber,carbo,sugars,potass,vitamins,shelf,weight,cups,rating
String,Categorical,Categorical,Int,Int,Int,Int,Int,Float,Float,Float,Int,Int,Int,Int,Float,Float,Float
100% Bran,N,C,70,4,1,130,10,5,6,280,25,3,1,0.33,68.402973
100% Natural Bran,Q,C,120,3,5,15,2,8,135,0,3,1,1,33.983679
All-Bran,K,C,70,4,1,260,9,7,5,320,25,3,1,0.33,59.425505
All-Bran with Extra Fiber,K,C,50,4,0,140,14,8,0,330,25,3,1,0.5,93.704912
Almond Delight,R,C,110,2,2,200,1,14,8,-1,25,3,1,0.75,34.384843
Apple Cinnamon Cheerios,G,C,110,2,2,180,1.5,10.5,10,70,25,1,1,0.75,29.509541
Apple Jacks,K,C,110,2,0,125,1,11,14,30,25,2,1,1,33.174094
Basic 4,G,C,130,3,2,210,2,18,8,100,25,3,1,33.0.75,37.038562
Bran Chex,R,C,90,2,1,200,4,15,6,125,25,1,1,0.67,49.120253
Bran Flakes,P,C,90,3,0,210,5,13,5,190,25,3,1,0.67,53.313813
Cap'n Crunch,Q,C,120,1,2,220,0,12,12,35,25,2,1,0.75,18.042851
Cheerios,G,C,110,6,2,290,2,17,1,105,25,1,1,1.25,50.764999
Cinnamon Toast Crunch,G,C,120,1,3,210,0,13,9,45,25,2,1,0.75,19.823573
Clusters,G,C,110,3,2,140,2,13,7,105,25,3,1,0.5,40.400208
Cocoa Puffs,G,C,110,1,1,180,0,12,13,55,25,2,1,1.22,73.6446
```

Q4.2

```
menna@cis106: ~
menna@cis106:~$ grep -i "love" ~/Documents/Books/pride-and-prejudice.txt
that he _may_ fall in love with one of them, and therefore you
persuade you at last. I was sure you loved your girls too well to
anything. Lydia, my love, though you _are_ the youngest, I dare
be fond of dancing was a certain step towards falling in love;
first, and was in a way to be very much in love; but she
who have heart enough to be really in love without encouragement.
secure of him, there will be leisure for falling in love as
love, from love to matrimony, in a moment. I knew you would be
Well, Jane, make haste and tell us; make haste, my love."
a gentleman at my brother Gardiner's in town so much in love with her,
love!"
"I have been used to consider poetry as the _food_ of love," said
"Of a fine, stout, healthy love it may. Everything nourishes what
dearly love a laugh."
bit of fish to be got to-day. Lydia, my love, ring the bell-I
His plan did not vary on seeing them. Miss Bennet's lovely face
```

Q4.3

```
menna@cis106: ~
menna@cis106:~$ grep -Ew "love|hate" ~/Documents/Books/pride-and-prejudice.txt
that he _may_ fall in love with one of them, and therefore you
anything. Lydia, my love, though you _are_ the youngest, I dare
be fond of dancing was a certain step towards falling in love;
"Come, Darcy," said he, "I must have you dance. I hate to see you
first, and was in a way to be very much in love; but she
who have heart enough to be really in love without encouragement.
secure of him, there will be leisure for falling in love as
love, from love to matrimony, in a moment. I knew you would be
Well, Jane, make haste and tell us; make haste, my love."
a gentleman at my brother Gardiner's in town so much in love with her,
love!"
"I have been used to consider poetry as the _food_ of love," said
"Of a fine, stout, healthy love it may. Everything nourishes what
dearly love a laugh."
"And _your_ defect is to hate everybody."
bit of fish to be got to-day. Lydia, my love, ring the bell-I
I hate such false friends. Why could he not keep on quarreling
To find a man agreeable whom one is determined to hate! Do not
to your wish of increasing my love by suspense, according to the
successful love; for Mrs. Bennet, having dawdled about in the
brother is in love with you, and wants him to marry Miss Darcy.
much love in Mr. Darcy for herself, she would have ordered her
persuade him that, instead of being in love with you, he is very
much in love with her friend."
```

Q4.4

```
menna@cis106: ~  
menna@cis106:~$ grep -w "^love" ~/Documents/Books/dracula.txt  
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  
love her. Oh, Madam Mina, by that love, I implore you, help me. It is  
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
```

Q4.5

```
menna@cis106:~$ grep -oiw '^[aeoui].[aeoui]' ~/Documents/Books/dracula.txt  
late  
late  
like  
live  
like  
like  
like  
like  
like  
like  
life  
life  
life  
late  
lose  
life  
late  
life  
late  
late  
love  
love  
love  
like  
life  
love  
late  
line  
life  
like  
like  
life  
like  
love  
like  
life  
life  
love  
live  
lose  
like  
like  
like  
like  
late  
lieu  
menna@cis106:~$
```

Question 5

Q5.1

```
menna@cis106: ~  
menna@cis106:~$ awk -F ";" '{print $1,$NF}' ~/Documents/Csv/cars.csv  
Car Origin  
STRING CAT  
Chevrolet Chevelle Malibu US  
Buick Skylark 320 US  
Plymouth Satellite US  
AMC Rebel SST US  
Ford Torino US  
Ford Galaxie 500 US  
Chevrolet Impala US  
Plymouth Fury iii US  
Pontiac Catalina US  
AMC Ambassador DPL US  
Citroen DS-21 Pallas Europe  
Chevrolet Chevelle Concours (sw) US  
Ford Torino (sw) US  
Plymouth Satellite (sw) US  
AMC Rebel SST (sw) US  
Dodge Challenger SE US  
Plymouth 'Cuda 340 US  
Ford Mustang Boss 302 US  
Chevrolet Monte Carlo US  
Buick Estate Wagon (sw) US  
Toyota Corolla Mark ii Japan  
Plymouth Duster US  
AMC Hornet US  
Ford Maverick US  
Datsun PL510 Japan  
Volkswagen 1131 Deluxe Sedan Europe  
Peugeot 504 Europe  
Audi 100 LS Europe  
Saab 99e Europe  
BMW 2002 Europe  
AMC Gremlin US  
Ford F250 US
```

Q5.2

```
menna@cis106: ~
menna@cis106:~$ awk -F ";" '{OFS=" made in "}{print $1,$NF}' ~/Documents/Csv/cars.csv
Car made in Origin
STRING made in CAT
Chevrolet Chevelle Malibu made in US
Buick Skylark 320 made in US
Plymouth Satellite made in US
AMC Rebel SST made in US
Ford Torino made in US
Ford Galaxie 500 made in US
Chevrolet Impala made in US
Plymouth Fury iii made in US
Pontiac Catalina made in US
AMC Ambassador DPL made in US
Citroen DS-21 Pallas made in Europe
Chevrolet Chevelle Concours (sw) made in US
Ford Torino (sw) made in US
Plymouth Satellite (sw) made in US
AMC Rebel SST (sw) made in US
Dodge Challenger SE made in US
Plymouth 'Cuda 340 made in US
Ford Mustang Boss 302 made in US
Chevrolet Monte Carlo made in US
Buick Estate Wagon (sw) made in US
Toyota Corolla Mark ii made in Japan
Plymouth Duster made in US
AMC Hornet made in US
Ford Maverick made in US
Datsun PL510 made in Japan
Volkswagen 1131 Deluxe Sedan made in Europe
Peugeot 504 made in Europe
Audi 100 LS made in Europe
Saab 99e made in Europe
BMW 2002 made in Europe
AMC Gremlin made in US
Ford F250 made in US
Chevy C20 made in US
Dodge D200 made in US
Hi 1200D made in US
Datsun PL510 made in Japan
```

Q5.3

```
menna@cis106: ~
menna@cis106:~$ awk -F ";" '{print "The",$1,"has",$3,"cylinders","and is made in",$NF}' ~/Documents/Csv/cars.csv
The Car has Cylinders cylinders and is made in Origin
The STRING has INT cylinders and is made in CAT
The Chevrolet Chevelle Malibu has 8 cylinders and is made in US
The Buick Skylark 320 has 8 cylinders and is made in US
The Plymouth Satellite has 8 cylinders and is made in US
The AMC Rebel SST has 8 cylinders and is made in US
The Ford Torino has 8 cylinders and is made in US
The Ford Galaxie 500 has 8 cylinders and is made in US
The Chevrolet Impala has 8 cylinders and is made in US
The Plymouth Fury iii has 8 cylinders and is made in US
The Pontiac Catalina has 8 cylinders and is made in US
The AMC Ambassador DPL has 8 cylinders and is made in US
The Citroen DS-21 Pallas has 4 cylinders and is made in Europe
The Chevrolet Chevelle Concours (sw) has 8 cylinders and is made in US
The Ford Torino (sw) has 8 cylinders and is made in US
The Plymouth Satellite (sw) has 8 cylinders and is made in US
The AMC Rebel SST (sw) has 8 cylinders and is made in US
The Dodge Challenger SE has 8 cylinders and is made in US
The Plymouth 'Cuda 340 has 8 cylinders and is made in US
The Ford Mustang Boss 302 has 8 cylinders and is made in US
The Chevrolet Monte Carlo has 8 cylinders and is made in US
The Buick Estate Wagon (sw) has 8 cylinders and is made in US
The Toyota Corolla Mark ii has 4 cylinders and is made in Japan
The Plymouth Duster has 6 cylinders and is made in US
The AMC Hornet has 6 cylinders and is made in US
The Ford Maverick has 6 cylinders and is made in US
The Datsun PL510 has 4 cylinders and is made in Japan
The Volkswagen 1131 Deluxe Sedan has 4 cylinders and is made in Europe
The Peugeot 504 has 4 cylinders and is made in Europe
The Audi 100 LS has 4 cylinders and is made in Europe
The Saab 99e has 4 cylinders and is made in Europe
The BMW 2002 has 4 cylinders and is made in Europe
The AMC Gremlin has 4 cylinders and is made in US
The Ford F250 has 4 cylinders and is made in US
The Chevy C20 has 4 cylinders and is made in US
The Dodge D200 has 4 cylinders and is made in US
The Hi 1200D has 4 cylinders and is made in US
The Datsun PL510 has 4 cylinders and is made in Japan
```

Q5.4

```
menna@cis106: ~
menna@cis106:~$ awk 'NR > 3 {print}' ~/Documents/Csv/cars.csv
Buick Skylark 320;15.0;8;350.0;165.0;3693.;11.5;70;US
Plymouth Satellite;18.0;8;318.0;150.0;3436.;11.0;70;US
AMC Rebel SST;16.0;8;304.0;150.0;3433.;12.0;70;US
Ford Torino;17.0;8;302.0;140.0;3449.;10.5;70;US
Ford Galaxie 500;15.0;8;429.0;198.0;4341.;10.0;70;US
Chevrolet Impala;14.0;8;454.0;220.0;4354.;9.0;70;US
Plymouth Fury iii;14.0;8;440.0;215.0;4312.;8.5;70;US
Pontiac Catalina;14.0;8;455.0;225.0;4425.;10.0;70;US
AMC Ambassador DPL;15.0;8;390.0;190.0;3850.;8.5;70;US
Citroen DS-21 Pallas;0;4;133.0;115.0;3090.;17.5;70;Europe
Chevrolet Chevelle Concours (sw);0;8;350.0;165.0;4142.;11.5;70;US
Ford Torino (sw);0;8;351.0;153.0;4034.;11.0;70;US
Plymouth Satellite (sw);0;8;383.0;175.0;4166.;10.5;70;US
AMC Rebel SST (sw);0;8;360.0;175.0;3850.;11.0;70;US
Dodge Challenger SE;15.0;8;383.0;170.0;3563.;10.0;70;US
Plymouth 'Cuda 340;14.0;8;340.0;160.0;3609.;8.0;70;US
Ford Mustang Boss 302;0;8;302.0;140.0;3353.;8.0;70;US
Chevrolet Monte Carlo;15.0;8;400.0;150.0;3761.;9.5;70;US
Buick Estate Wagon (sw);14.0;8;455.0;225.0;3086.;10.0;70;US
```

Q5.5

```
menna@cis106: ~
menna@cis106:~$ awk -F ";" '{print toupper($1)}' ~/Documents/Csv/cars.csv
CAR
STRING
CHEVROLET CHEVELLE MALIBU
BUICK SKYLARK 320
PLYMOUTH SATELLITE
AMC REBEL SST
FORD TORINO
FORD GALAXIE 500
CHEVROLET IMPALA
PLYMOUTH FURY III
PONTIAC CATALINA
AMC AMBASSADOR DPL
CITROEN DS-21 PALLAS
CHEVROLET CHEVELLE CONCOURS (SW)
FORD TORINO (SW)
PLYMOUTH SATELLITE (SW)
AMC REBEL SST (SW)
DODGE CHALLENGER SE
PLYMOUTH 'CUDA 340
FORD MUSTANG BOSS 302
CHEVROLET MONTE CARLO
BUICK ESTATE WAGON (SW)
TOYOTA COROLLA MARK II
PLYMOUTH DUSTER
AMC HORNET
FORD MAVERICK
DATSUN PL510
VOLKSWAGEN 1131 DELUXE SEDAN
PEUGEOT 504
AUDI 100 LS
SAAB 99E
BMW 2002
AMC GREMLIN
FORD F250
CHEVY C20
DODGE D200
HI 1200D
DATSUN PL510
```

Q5.6

```
menna@cis106:~$ sed 's/Dracula/Alucard/' ~/Documents/Books/dracula.txt
```

```
The Castle of Alucard now stood out against the red sky, and every stone
of its broken battlements was articulated against the light of the
setting sun.
```

Q5.7

```
menna@cis106: ~  
menna@cis106:~$ sed G /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
```

Q5.8

```
This website includes information about Project Gutenberg-tm,  
including how to make donations to the Project Gutenberg Literary  
Archive Foundation, how to help produce our new eBooks, and how to  
subscribe to our email newsletter to hear about new eBooks.
```

```
menna@cis106:~$ sed '/^$/d;G' ~/Documents/Books/pride-and-prejudice.txt
```

Question 6

Q6.1

```
menna@cis106: ~  
menna@cis106:~$ grep -n "/bin/bash" /etc/passwd  
1:root:x:0:0:root:/root:/bin/bash  
41:menna:x:1000:1000:Menna eHAB:/home/menna:/bin/bash  
menna@cis106:~$ grep -n "/bin/bash" /etc/passwd | wc -l  
2  
menna@cis106:~$
```

Q6.2

```
menna@cis106: ~  
menna@cis106:~$ grep -n "/sbin/nologin" /etc/passwd  
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  
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: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:104:111:/home/syslog:/usr/sbin/nologin  
24:_apt:x:105:65534:/nonexistent:/usr/sbin/nologin  
26:uidd:x:107:115:/run/uidd:/usr/sbin/nologin  
27:tcpdump:x:108:116:/nonexistent:/usr/sbin/nologin  
28:usbmux:x:109:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin  
29:rktkit:x:110:118:RealtimeKit,,:/proc:/usr/sbin/nologin  
30:dnsmasq:x:111:65534:dnsmasq,,:/var/lib/misc:/usr/sbin/nologin  
31:kernoops:x:112:65534:Kernel Oops Tracking Daemon,,:/usr/sbin/nologin  
32:avahi:x:113:120:Avahi mDNS daemon,,:/run/avahi-daemon:/usr/sbin/nologin  
33:cups-pk-helper:x:114:121:user for cups-pk-helper service,,:/home/cups-pk-helper:/usr/sbin/nologin  
35:saned:x:116:124:/var/lib/saned:/usr/sbin/nologin  
36:colord:x:117:125:colord colour management daemon,,:/var/lib/colord:/usr/sbin/nologin  
38:geoclue:x:119:127:/var/lib/geoclue:/usr/sbin/nologin  
39:pulse:x:120:128:PulseAudio daemon,,:/run/pulse:/usr/sbin/nologin  
42:systemd-coredump:x:998:998:systemd Core Dumper:/usr/sbin/nologin  
44:_flatpak:x:123:135:Flatpak system-wide installation helper,,:/nonexistent:/usr/sbin/nologin  
menna@cis106:~$ grep -n "/sbin/nologin" /etc/passwd | wc -l  
36  
menna@cis106:~$
```

Q6.3

```
menna@cis106: ~  
menna@cis106:~$ grep -i "ford" ~/Documents/Csv/cars.csv | wc -l  
53  
menna@cis106:~$
```


Q6.4

```
menna@cis106:~$ grep -o '....' ~/Documents/Books/bible.txt | wc -l  
1127435  
menna@cis106:~$ █
```