Question 1

```
student@Cis106vm:~$ 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
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
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
student:x:1000:1000:Frederick,,,:/home/student:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
_flatpak:x:127:137:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
mopidy:x:128:29::/var/lib/mopidy:/usr/sbin/nologin
```

```
student@Cis106vm:~$ tac /etc/passwd
mopidy:x:128:29::/var/lib/mopidy:/usr/sbin/nologin
_flatpak:x:127:137:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
student:x:1000:1000:Frederick,,,:/home/student:/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
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
```

```
dent@Cis106vm:~$ cat -En /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/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  sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin$
 46  student:x:1000:1000:Frederick,,,:/home/student:/bin/bash$
 47  systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin$
 48  _flatpak:x:127:137:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin$
 49  mopidy:x:128:29::/var/lib/mopidy:/usr/sbin/nologin$
```

```
student@Cis106vm:~$ 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
student@Cis106vm:~$ tail -5 /etc/passwd
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
student:x:1000:1000:Frederick,,,:/home/student:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
_flatpak:x:127:137:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
mopidy:x:128:29::/var/lib/mopidy:/usr/sbin/nologin
student@Cis106vm:~$
```

Question 2

```
student@Cis106vm:~$ 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
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
student
systemd-coredump
_flatpak
mopidy
student@Cis106vm:~$
```

```
student@Cis106vm:~$ 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
```

```
student@Cis106vm:~$ 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
uuidd=/usr/sbin/nologin
tcpdump=/usr/sbin/nologin
avahi-autoipd=/usr/sbin/nologin
usbmux=/usr/sbin/nologin
rtkit=/usr/sbin/nologin
dnsmasq=/usr/sbin/nologin
cups-pk-helper=/usr/sbin/nologin
speech-dispatcher=/bin/false
avahi=/usr/sbin/nologin
kernoops=/usr/sbin/nologin
saned=/usr/sbin/nologin
nm-openvpn=/usr/sbin/nologin
hplip=/bin/false
whoopsie=/bin/false
colord=/usr/sbin/nologin
geoclue=/usr/sbin/nologin
pulse=/usr/sbin/nologin
gnome-initial-setup=/bin/false
gdm=/bin/false
sssd=/usr/sbin/nologin
student=/bin/bash
systemd-coredump=/usr/sbin/nologin
_flatpak=/usr/sbin/nologin
mopidy=/usr/sbin/nologin
student@Cis106vm:~$
```

```
student@Cis106vm:~$ cut -d ',' --complement -s -f3 /etc/passwd
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
tss:x:106:111:TPM software stack,,:/var/lib/tpm:/bin/false
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
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
colord:x:121:126:colord colour management daemon,,:/var/lib/colord:/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
student:x:1000:1000:Frederick,,:/home/student:/bin/bash
_flatpak:x:127:137:Flatpak system-wide installation helper,,:/nonexistent:/usr/sbin/nologin
student@Cis106vm:~$
```

Question 3

```
student@Cis106vm:~$ paste shopping.md tasks.md
## Shopping      ## Tasks
1. Apples:       1. Do Laundry:
2. Meat:         2. Cook lunch:
3. Bread:        3. Clean room:
student@Cis106vm:~$ wc -l  Documents/Books/dracula.txt
15860 Documents/Books/dracula.txt
student@Cis106vm:~$ wc -w Documents/Books/pride-and-prejudice.txt
124749 Documents/Books/pride-and-prejudice.txt
student@Cis106vm:~$ []
```

```
student@Cis106vm:~$ sort /etc/passwd
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
avahi:x:115:121:Avahi mDNS daemon,,,:/var/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:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
cups-pk-helper:x:113:120: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:127:137:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
games:x:5:60:games:/usr/games:/usr/sbin/nologin
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
```

Question 4

```
student@Cis106vm:~$ ls Documents/Csv/
cars.csv  cereal.csv  contacts.csv  country.csv  film.csv
student@Cis106vm:~$ 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,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,120,3,5,15,2,8,8,135,0,3,1,1,33.983679
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,110,1,1,180,0,12,13,55,25,2,1,1,22.736446
Corn Chex,R,C,110,2,0,280,0,22,3,25,25,1,1,1,41.445019
Corn Flakes,K,C,100,2,0,290,1,21,2,35,25,1,1,1,45.863324
```

```
student@Cis106vm:~$ cd Documents/Books/
student@Cis106vm:~/Documents/Books$ grep 'love' 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
```

```
student@Cis106vm:~/Documents/Books$ grep -Ew 'love|hate' 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."
```

```
student@Cis106vm:~/Documents/Books$ grep '^l[aeiou][a-z]' dracula.txt
late and would start as near the correct time as possible. The
looked pretty, except when you got near them, but they were very clumsy
lady who had received me, looked at each other in a frightened sort of
left Bistritz, let me put down my dinner exactly. I dined on what they
languages, which my fellow-passengers were speaking, I might not have
land full of forests and woods, with here and there steep hills, crowned
losing itself as it swept round the grassy curve, or was shut out by the
long, snake-like vertebra, calculated to suit the inequalities of the
late-lying snow. Sometimes, as the road was cut through the pine woods
lamps, as the rays fell on them, that the horses were coal-black and
luggage," said the driver; and with exceeding alacrity my bags were
little strangely, and not a little frightened. I think had there been
long, agonised wailing, as if from fear. The sound was taken up by
left and right, but I could not see anything through the darkness.
looked helplessly round with eyes that rolled in a way painful to see;
looking towards the sound, saw him stand in the roadway. As he swept his
long arms, as though brushing aside some impalpable obstacle, the wolves
```

Question 5

```
student@Cis106vm:~/Documents/Csv$ awk -F ';' '{print $1.$NF}' cars.csv
CarOrigin
STRINGCAT
Chevrolet Chevelle MalibuUS
Buick Skylark 320US
Plymouth SatelliteUS
AMC Rebel SSTUS
Ford TorinoUS
Ford Galaxie 500US
Chevrolet ImpalaUS
Plymouth Fury iiiUS
Pontiac CatalinaUS
AMC Ambassador DPLUS
Citroen DS-21 PallasEurope
Chevrolet Chevelle Concours (sw)US
```

```
student@Cis106vm:~/Documents/Csv$ awk -F ";" '{OFS=" is made on "}{print $1,$NF}' cars.csv
Car is made on Origin
STRING is made on CAT
Chevrolet Chevelle Malibu is made on US
Buick Skylark 320 is made on US
Plymouth Satellite is made on US
AMC Rebel SST is made on US
Ford Torino is made on US
Ford Galaxie 500 is made on US
Chevrolet Impala is made on US
Plymouth Fury iii is made on US
Pontiac Catalina is made on US
AMC Ambassador DPL is made on US
Citroen DS-21 Pallas is made on Europe
Chevrolet Chevelle Concours (sw) is made on US
Ford Torino (sw) is made on US
Plymouth Satellite (sw) is made on US
AMC Rebel SST (sw) is made on US
Dodge Challenger SE is made on US
Plymouth 'Cuda 340 is made on US
```

```
student@Cis106vm:~/Documents/Csv$ awk -F ";" '{print "The",$1, "has",$3, "cylinders"," and is made on",$NF}' cars.csv
The Car has Cylinders cylinders  and is made on Origin
The STRING has INT cylinders  and is made on CAT
The Chevrolet Chevelle Malibu has 8 cylinders  and is made on US
The Buick Skylark 320 has 8 cylinders  and is made on US
The Plymouth Satellite has 8 cylinders  and is made on US
The AMC Rebel SST has 8 cylinders  and is made on US
The Ford Torino has 8 cylinders  and is made on US
The Ford Galaxie 500 has 8 cylinders  and is made on US
The Chevrolet Impala has 8 cylinders  and is made on US
The Plymouth Fury iii has 8 cylinders  and is made on US
The Pontiac Catalina has 8 cylinders  and is made on US
The AMC Ambassador DPL has 8 cylinders  and is made on US
The Citroen DS-21 Pallas has 4 cylinders  and is made on Europe
The Chevrolet Chevelle Concours (sw) has 8 cylinders  and is made on US
The Ford Torino (sw) has 8 cylinders  and is made on US
```

```
student@Cis106vm:~/Documents/Csv$ awk -F: '{print NR,$1,$2}' cars.csv
  Car;MPG;Cylinders;Displacement;Horsepower;Weight;Acceleration;Model;Origin
  STRING;DOUBLE;INT;DOUBLE;DOUBLE;DOUBLE;DOUBLE;INT;CAT
  Chevrolet Chevelle Malibu;18.0;8;307.0;130.0;3504.;12.0;70;US
  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
 0 Plymouth Fury iii;14.0;8;440.0;215.0;4312.;8.5;70;US
 1 Pontiac Catalina;14.0;8;455.0;225.0;4425.;10.0;70;US
 2 AMC Ambassador DPL;15.0;8;390.0;190.0;3850.;8.5;70;US
```

```
student@Cis106vm:~/Documents/Csv$ awk -F: '{print toupper($1)}' cars.csv
CAR;MPG;CYLINDERS;DISPLACEMENT;HORSEPOWER;WEIGHT;ACCELERATION;MODEL;ORIGIN
STRING;DOUBLE;INT;DOUBLE;DOUBLE;DOUBLE;DOUBLE;INT;CAT
CHEVROLET CHEVELLE MALIBU;18.0;8;307.0;130.0;3504.;12.0;70;US
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
```

```
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student@Cis106vm:~/Documents/Books$ sed 's/Dracula/Alucard/' dracula.txt▯
```

```
student@Cis106vm:~/Documents/Books$ cd
student@Cis106vm:~$ 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
```

```
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student@Cis106vm:~/Documents/Books$ sed '/^$/d;G' pride-and-prejudice.txt
```

Question 6

```
student@Cis106vm:~$ grep -n "/bin/bash" /etc/passwd
1:root:x:0:0:root:/root:/bin/bash
46:student:x:1000:1000:Frederick,,,:/home/student:/bin/bash
student@Cis106vm:~$ grep -n "/bin/bash" /etc/passwd | wc -l
2
student@Cis106vm:~$
```

```
student@Cis106vm:~$ grep -n "/sbin/nologin" /etc/passwd | wc -l
40
student@Cis106vm:~$
```

```
Ford Mustang Cobra;23.0;4;110.0;0;2903.;14.3;00;US
Ford Escort 4W;34.4;4;98.00;65.00;2045.;16.2;81;US
Ford Escort 2H;29.9;4;98.00;65.00;2380.;20.7;81;US
Ford Grenada gl;20.2;6;200.0;88.00;3060.;17.1;81;US
Ford Fairmont Futura;24.0;4;140.0;92.00;2865.;16.4;82;US
Ford Grenada l;22.0;6;232.0;112.0;2835;14.7;82;US
Ford Mustang GL;27.0;4;140.0;86.00;2790.;15.6;82;US
Ford Ranger;28.0;4;120.0;79.00;2625.;18.6;82;US
student@Cis106vm:~/Documents/Csv$ grep -i "ford" cars.csv | wc -l
53
```

```
student@Cis106vm:~/Documents/Books$ grep -n '^....' bible.txt | wc -l
31102
student@Cis106vm:~/Documents/Books$
```

Challenge Questions

```
student@Cis106vm:~/Documents/Csv$ awk -F ";" 'NR > 3 {print $1}' cereal.csv
100% Natural Bran
All-Bran
All-Bran with Extra Fiber
Almond Delight
Apple Cinnamon Cheerios
Apple Jacks
Basic 4
Bran Chex
Bran Flakes
Cap'n'Crunch
Cheerios
Cinnamon Toast Crunch
Clusters
Cocoa Puffs
Corn Chex
Corn Flakes
Corn Pops
Count Chocula
Cracklin' Oat Bran
```

```
student@Cis106vm:~/Documents/Csv$ awk -F ";" 'NR > 3 {print $1}' cereal.csv | sort cereal.csv > cereal-sorted.csv
student@Cis106vm:~/Documents/Csv$ ls
cars.csv  cereal.csv  cereal-sorted.csv  contacts.csv  country.csv  film.csv
student@Cis106vm:~/Documents/Csv$ cat cereal-sorted.csv
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;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;22.736446
Corn Chex;R;C;110;2;0;280;0;22;3;25;25;1;1;1;41.445019
```

```
student@Cis106vm:~/Documents/Csv$ awk -F ";" 'NR > 3 {print $1,$4}' cereal.csv
100% Natural Bran 120
All-Bran 70
All-Bran with Extra Fiber 50
Almond Delight 110
Apple Cinnamon Cheerios 110
Apple Jacks 110
Basic 4 130
Bran Chex 90
Bran Flakes 90
Cap'n'Crunch 120
Cheerios 110
```

```
student@Cis106vm:~/Documents/Csv$ awk -F "," 'NR > 3 {print $1,$4}' cereal.csv
  00% Natural Bran;Q;C;120;3;5;15;2;8;8;135;0;3;1;1;33.983679
e ll-Bran;K;C;70;4;1;260;9;7;5;320;25;3;1;0.33;59.425505
  ll-Bran with Extra Fiber;K;C;50;4;0;140;14;8;0;330;25;3;1;0.5;93.704912
  lmond Delight;R;C;110;2;2;200;1;14;8;-1;25;3;1;0.75;34.384843
c pple Cinnamon Cheerios;G;C;110;2;2;180;1.5;10.5;10;70;25;1;1;0.75;29.509541
  pple Jacks;K;C;110;2;0;125;1;11;14;30;25;2;1;1;33.174094
  asic 4;G;C;130;3;2;210;2;18;8;100;25;3;1.33;0.75;37.038562
  ran Chex;R;C;90;2;1;200;4;15;6;125;25;1;1;0.67;49.120253
c ran Flakes;P;C;90;3;0;210;5;13;5;190;25;3;1;0.67;53.313813
  ap'n'Crunch;Q;C;120;1;2;220;0;12;12;35;25;2;1;0.75;18.042851
  heerios;G;C;110;6;2;290;2;17;1;105;25;1;1;1.25;50.764999
  innamon Toast Crunch;G;C;120;1;3;210;0;13;9;45;25;2;1;0.75;19.823573
c lusters;G;C;110;3;2;140;2;13;7;105;25;3;1;0.5;40.400208
  ocoa Puffs;G;C;110;1;1;180;0;12;13;55;25;2;1;1;22.736446
  orn Chex;R;C;110;2;0;280;0;22;3;25;25;1;1;1;41.445019
i orn Flakes;K;C;100;2;0;290;1;21;2;35;25;1;1;1;45.863324
```