# Lab 7

## Questions 1: cat,tac,head,tail

```
anmelgar@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
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
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
anmelgar@cis106:~$ tac /etc/passwd
mopidy:x:130:29::/var/lib/mopidy:/usr/sbin/nologin
_flatpak:x:129:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
vboxadd:x:999:1::/var/run/vboxadd:/bin/false
anmelgar:x:1000:1000:Anthony M,,,:/home/anmelgar:/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
```

```
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
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
```

```
anmelgar@cis106:~$ cat -nE /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$
    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$
```

```
anmelgar@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
anmelgar@cis106:~$ tail -5 /etc/passwd
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
anmelgar:x:1000:1000:Anthony M,,,:/home/anmelgar:/bin/bash
vboxadd:x:999:1::/var/run/vboxadd:/bin/false
_flatpak:x:129:138:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
mopidy:x:130:29::/var/lib/mopidy:/usr/sbin/nologin
anmelgar@cis106:~$ █
```

## Question 2: cut

```
anmelgar@cis106:~$ cut -d: -f1 /etc/passwd
root
daemon
bin
sys
sync
games                                    5 / 28
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
```

```
anmelgar@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        6 / 28
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
```

```
anmelgar@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
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
```

```
anmelgar@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
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
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
```

## Question 3: Paste,wc

```
anmelgar@cis106:~/Documents/Books$ wc -l dracula.txt
15845 dracula.txt

anmelgar@cis106:~/Documents/Books$ wc -w pride-and-prejudice.txt
130412 pride-and-prejudice.txt
anmelgar@cis106:~/Documents/Books$
```

```
anmelgar@cis106:~$ sort /etc/passwd
anmelgar:x:1000:1000:Anthony M,,,:/home/anmelgar:/bin/bash
_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
mopidy:x:130:29::/var/lib/mopidy:/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
```

## Question 4: tr,grep

```
anmelgar@cis106:~/Documents/Csv$ cat cereal.csv | tr ';' ','
name,mfr,type,calories,protein,fat,sodium,fiber,carbo,sugars,potass,vitamins,shelf,weight,cup
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
Corn Pops,K,C,110,1,0,90,1,13,12,20,25,2,1,1,35.782791
Count Chocula,G,C,110,1,1,180,0,12,13,65,25,2,1,1,22.396513
Cracklin' Oat Bran,K,C,110,3,3,140,4,10,7,160,25,3,1,0.5,40.448772
Cream of Wheat (Quick),N,H,100,3,0,80,1,21,0,-1,0,2,1,1,64.533816
Crispix,K,C,110,2,0,220,1,21,3,30,25,3,1,1,46.895644
Crispy Wheat & Raisins,G,C,100,2,1,140,2,11,10,120,25,3,1,0.75,36.176196
Double Chex,R,C,100,2,0,190,1,18,5,80,25,3,1,0.75,44.330856
Froot Loops,K,C,110,2,1,125,1,11,13,30,25,2,1,1,32.207582
Frosted Flakes,K,C,110,1,0,200,1,14,11,25,25,1,1,0.75,31.435973
Frosted Mini-Wheats,K,C,100,3,0,0,3,14,7,100,25,2,1,0.8,58.345141
Fruit & Fibre Dates, Walnuts, and Oats,P,C,120,3,2,160,5,12,10,200,25,3,1.25,0.67,40.917047
Fruitful Bran,K,C,120,3,0,240,5,14,12,190,25,3,1.33,0.67,41.015492
Fruity Pebbles,P,C,110,1,1,135,0,13,12,25,25,2,1,0.75,28.025765
Golden Crisp,P,C,100,2,0,45,0,11,15,40,25,1,1,0.88,35.252444
Golden Grahams,G,C,110,1,1,280,0,15,9,45,25,2,1,0.75,23.804043
Grape Nuts Flakes,P,C,100,3,1,140,3,15,5,85,25,3,1,0.88,52.076897
Grape-Nuts,P,C,110,3,0,170,3,17,3,90,25,3,1,0.25,53.371007
Great Grains Pecan,P,C,120,3,3,75,3,13,4,100,25,3,1,0.33,45.811716
Honey Graham Ohs,Q,C,120,1,2,220,1,12,11,45,25,2,1,1,21.871292
Honey Nut Cheerios,G,C,110,3,1,250,1.5,11.5,10,90,25,1,1,0.75,31.072217
Honey-comb,P,C,110,1,0,180,0,14,11,35,25,1,1,1.33,28.742414
Just Right Crunchy  Nuggets,K,C,110,2,1,170,1,17,6,60,100,3,1,1,36.523683
Just Right Fruit & Nut,K,C,140,3,1,170,2,20,9,95,100,3,1.3,0.75,36.471512
Kix,G,C,110,2,1,260,0,21,3,40,25,2,1,1.5,39.241114
Life,Q,C,100,4,2,150,2,12,6,95,25,2,1,0.67,45.328074
Lucky Charms,G,C,110,2,1,180,0,12,12,55,25,2,1,1,26.734515
Maypo,A,H,100,4,1,0,0,16,3,95,25,2,1,1,54.850917
```

```
anmelgar@cis106:~/Documents/Books$ grep "love" pride-and-prejudice.txt
by allowance" and "loving with personal love." This distinction applies
to their best work than in the case of those others who are loved "by
proper thing to love them. And in the sect--fairly large and yet
All the minor passages--the loves of Jane and Bingley, the advent of Mr.
aversion to actual love. I do not know whether the all-grasping hand of
his falling in love at all is not extremely probable. Here again I
injured in disposition, and thoroughly in love. As for his being in
love, Elizabeth has given as just an exposition of the causes of that
anybody who can read between lines will not find the lovers'
ladies with whom it might be a pleasure to fall in love; there are at
Grant. I should have been most in love with Beatrix and Argemone; I
"So much love and eloquence"                                         156
_may_ fall in love with one of them, and therefore you must visit him as
persuade you at last. I was sure you loved your girls too well to
for your sakes we would do anything. Lydia, my love, though you _are_
dancing was a certain step towards falling in love; and very lively
way to be very much in love; but she considered with pleasure that it
```

very few of us who have heart enough to be really in love without
in love as much as she chooses."
imagination is very rapid; it jumps from admiration to love, from love
Jane, make haste and tell us; make haste, my love."
brother Gardiner's in town so much in love with her, that my
discovered the efficacy of poetry in driving away love!"
"I have been used to consider poetry as the _food_ of love," said Darcy.
"Of a fine, stout, healthy love it may. Everything nourishes what is
be a great loss to _me_ to have many such acquaintance. I dearly love a
to-day. Lydia, my love, ring the bell. I must speak to Hill this
His plan did not vary on seeing them. Miss Bennet's lovely face
effects of your loveliness and amiable qualifications. As I must,
shall choose to attribute it to your wish of increasing my love by
successful love; for Mrs. Bennet, having dawdled about in the vestibule
in love with you and wants him to marry Miss Darcy. She follows him to
is not such a simpleton. Could she have seen half as much love in Mr.
of being in love with you, he is very much in love with her friend."
she dared to hope that so much love and eloquence awaited her there.
        "So much love and eloquence"
publish his prosperous love.
The possibility of Mr. Collins's fancying himself in love with her
while her health was so indifferent, and lovers were of all people the
dishonourable to the stability of her lover, she could not prevent its
and, luckily for the others, the business of love-making relieved them
you. I feel as if I had never done you justice, or loved you as you
whom I really love, and still fewer of whom I think well. The more I see

```
anmelgar@cis106:~/Documents/Books$ grep -Ewn "love|hate" pride-and-prejudice.txt
99:by allowance" and "loving with personal love." This distinction applies
105:proper thing to love them. And in the sect--fairly large and yet
166:aversion to actual love. I do not know whether the all-grasping hand of
396:his falling in love at all is not extremely probable. Here again I
408:injured in disposition, and thoroughly in love. As for his being in
409:love, Elizabeth has given as just an exposition of the causes of that
470:ladies with whom it might be a pleasure to fall in love; there are at
474:Grant. I should have been most in love with Beatrix and Argemone; I
575:"So much love and eloquence"                                        156
756:_may_ fall in love with one of them, and therefore you must visit him as
933:for your sakes we would do anything. Lydia, my love, though you _are_
972:dancing was a certain step towards falling in love; and very lively
1048:"Come, Darcy," said he, "I must have you dance. I hate to see you
1415:way to be very much in love; but she considered with pleasure that it
1430:very few of us who have heart enough to be really in love without
1450:in love as much as she chooses."
1657:imagination is very rapid; it jumps from admiration to love, from love
1764:Jane, make haste and tell us; make haste, my love."
2334:brother Gardiner's in town so much in love with her, that my
2341:discovered the efficacy of poetry in driving away love!"
2343:"I have been used to consider poetry as the _food_ of love," said Darcy.
2345:"Of a fine, stout, healthy love it may. Everything nourishes what is
2821:be a great loss to _me_ to have many such acquaintance. I dearly love a
2868:"And _your_ defect is a propensity to hate everybody."
2986:to-day. Lydia, my love, ring the bell. I must speak to Hill this
3020:him to write to you at all, and very hypocritical. I hate such false
4048:a man agreeable whom one is determined to hate! Do not wish me such an
4707:shall choose to attribute it to your wish of increasing my love by
4745:successful love; for Mrs. Bennet, having dawdled about in the vestibule
5074:in love with you and wants him to marry Miss Darcy. She follows him to
5082:is not such a simpleton. Could she have seen half as much love in Mr.
5093:of being in love with you, he is very much in love with her friend."
5185:she dared to hope that so much love and eloquence awaited her there.
5207:        "So much love and eloquence"
5241:publish his prosperous love.
5290:The possibility of Mr. Collins's fancying himself in love with her
5480:and, luckily for the others, the business of love-making relieved them
5614:whom I really love, and still fewer of whom I think well. The more I see
5684:known her much longer than they have known me; no wonder if they love
5710:day, "your sister is crossed in love, I find. I congratulate her. Next
5711:to being married, a girl likes to be crossed in love a little now and
5753:After a week spent in professions of love and schemes of felicity, Mr.
5805:such as you describe Mr. Bingley, so easily falls in love with a pretty
5819:love with only a few days before."
5821:"But that expression of 'violently in love' is so hackneyed, so
5825:Mr. Bingley's love?"
```

```
anmelgar@cis106:~/Documents/Books$ grep -E "^[love]" dracula.txt
of the Project Gutenberg License included with this eBook or online at
exactly contemporary, given from the standpoints and within the range
of knowledge of those who made them.
late and would start as near the correct time as possible. The
very good but thirsty. (_Mem._, get recipe for Mina.) I asked the
extreme east of the country, just on the borders of three states,
very excellent dish, which they call "impletata." (_Mem._, get recipe
of them to be subject to great floods. It takes a lot of water, and
of attire. Some of them were just like the peasants at home or those I
looked pretty, except when you got near them, but they were very clumsy
very interesting old place. Being practically on the frontier--for the
existence, and it certainly shows marks of it. Fifty years ago a series
of great fires took place, which made terrible havoc on five separate
occasions. At the very beginning of the seventeenth century it underwent
evidently expected, for when I got near the door I faced a
lady who had received me, looked at each other in a frightened sort of
very hysterical way:
of the room. I am writing up this part of the diary whilst I am waiting
ever reach Mina before I do, let it bring my good-bye. Here comes the
left Bistritz, let me put down my dinner exactly. I dined on what they
on the bench outside the door--which they call by a name meaning
either were-wolf or vampire. (_Mem._, I must ask the Count about these
our journey.
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
excellent, but that it had not yet been put in order after the winter
of forest up to the lofty steeps of the Carpathians themselves. Right
emphasised by the fact that the snowy mountain-top still held 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
only go slowly. I wished to get down and walk up them, as we do at home,
evidently meant for grim pleasantry--for he looked round to catch the
of themselves, a calèche, with four horses, drove up behind us, overtook
lamps, as the rays fell on them, that the horses were coal-black and
very red lips and sharp-looking teeth, as white as ivory. One of my
luggage," said the driver; and with exceeding alacrity my bags were
on their way to Bukovina. As they sank into the darkness I felt a
over my shoulders, and a rug across my knees, and the driver said in
excellent German:--
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.
endlessly, and now looking back, it is like a sort of awful nightmare.
effect: when he stood between me and the flame he did not obstruct it,
looked helplessly round with eyes that rolled in a way painful to see;
```

```
anmelgar@cis106:~/Documents/Books$ grep -E "^[A-Z]|^[0-9]" dracula.txt
This eBook is for the use of anyone anywhere in the United States and
Title: Dracula
Author: Bram Stoker
Release Date: October, 1995 [eBook #345]
Language: English
Produced by: Chuck Greif and the Online Distributed Proofreading Team
Contents
CHAPTER I. Jonathan Harker's Journal
CHAPTER II. Jonathan Harker's Journal
CHAPTER III. Jonathan Harker's Journal
CHAPTER IV. Jonathan Harker's Journal
CHAPTER V. Letters—Lucy and Mina
CHAPTER VI. Mina Murray's Journal
CHAPTER VII. Cutting from "The Dailygraph," 8 August
CHAPTER VIII. Mina Murray's Journal
CHAPTER IX. Mina Murray's Journal
CHAPTER X. Mina Murray's Journal
CHAPTER XI. Lucy Westenra's Diary
CHAPTER XII. Dr. Seward's Diary
CHAPTER XIII. Dr. Seward's Diary
CHAPTER XIV. Mina Harker's Journal
CHAPTER XV. Dr. Seward's Diary
CHAPTER XVI. Dr. Seward's Diary
CHAPTER XVII. Dr. Seward's Diary
CHAPTER XVIII. Dr. Seward's Diary
CHAPTER XIX. Jonathan Harker's Journal
CHAPTER XX. Jonathan Harker's Journal
CHAPTER XXI. Dr. Seward's Diary
CHAPTER XXII. Jonathan Harker's Journal
CHAPTER XXIII. Dr. Seward's Diary
CHAPTER XXIV. Dr. Seward's Phonograph Diary, spoken by Van Helsing
CHAPTER XXV. Dr. Seward's Diary
CHAPTER XXVI. Dr. Seward's Diary
CHAPTER XXVII. Mina Harker's Journal
How these papers have been placed in sequence will be made manifest in
DRACULA
CHAPTER I
JONATHAN HARKER'S JOURNAL
Vienna early next morning; should have arrived at 6:46, but train was an
East; the most western of splendid bridges over the Danube, which is
We left in pretty good time, and came after nightfall to Klausenburgh.
Here I stopped for the night at the Hotel Royale. I had for dinner, or
```

## Question 5: awk and sed

```
anmelgar@cis106:~/Documents/Csv$ awk -F';' '{print $1,$NF}' 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
Chevy C20 US
Dodge D200 US
Hi 1200D US
Datsun PL510 Japan
Chevrolet Vega 2300 US
Toyota Corolla Japan
Ford Pinto US
Volkswagen Super Beetle 117 Europe
AMC Gremlin US
Plymouth Satellite Custom US
Chevrolet Chevelle Malibu US
```

```
anmelgar@cis106:~/Documents/Csv$ awk -F';' '{OFS=" made in "} {print $1,$NF}' 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
Chevrolet Vega 2300 made in US
Toyota Corolla made in Japan
Ford Pinto made in US
Volkswagen Super Beetle 117 made in Europe
AMC Gremlin made in US
Plymouth Satellite Custom made in US
Chevrolet Chevelle Malibu made in US
Ford Torino 500 made in US
```

```
anmelgar@cis106:~/Documents/Csv$ awk -F';' '{print "The",$1,"has",$3" cylinders", "and is made in",$NF}' 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 6 cylinders and is made in US
The Ford F250 has 8 cylinders and is made in US
The Chevy C20 has 8 cylinders and is made in US
The Dodge D200 has 8 cylinders and is made in US
The Hi 1200D has 8 cylinders and is made in US
The Datsun PL510 has 4 cylinders and is made in Japan
The Chevrolet Vega 2300 has 4 cylinders and is made in US
The Toyota Corolla has 4 cylinders and is made in Japan
The Ford Pinto has 4 cylinders and is made in US
The Volkswagen Super Beetle 117 has 4 cylinders and is made in Europe
The AMC Gremlin has 6 cylinders and is made in US
The Plymouth Satellite Custom has 6 cylinders and is made in US
The Chevrolet Chevelle Malibu has 6 cylinders and is made in US
The Ford Torino 500 has 6 cylinders and is made in US
```

```
anmelgar@cis106:~/Documents/Csv$ awk -F';' 'NR > 3 {print "The",$1,"has",$3" cylinders", "and is made in",$NF}' cars.csv
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 6 cylinders and is made in US
The Ford F250 has 8 cylinders and is made in US
The Chevy C20 has 8 cylinders and is made in US
The Dodge D200 has 8 cylinders and is made in US
The Hi 1200D has 8 cylinders and is made in US
The Datsun PL510 has 4 cylinders and is made in Japan
The Chevrolet Vega 2300 has 4 cylinders and is made in US
The Toyota Corolla has 4 cylinders and is made in Japan
The Ford Pinto has 4 cylinders and is made in US
The Volkswagen Super Beetle 117 has 4 cylinders and is made in Europe
The AMC Gremlin has 6 cylinders and is made in US
The Plymouth Satellite Custom has 6 cylinders and is made in US
The Chevrolet Chevelle Malibu has 6 cylinders and is made in US
The Ford Torino 500 has 6 cylinders and is made in US
The AMC Matador has 6 cylinders and is made in US
The Chevrolet Impala has 8 cylinders and is made in US
The Pontiac Catalina Brougham has 8 cylinders and is made in US
```

```
anmelgar@cis106:~/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
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
TOYOTA COROLLA MARK II;24.0;4;113.0;95.00;2372.;15.0;70;JAPAN
PLYMOUTH DUSTER;22.0;6;198.0;95.00;2833.;15.5;70;US
AMC HORNET;18.0;6;199.0;97.00;2774.;15.5;70;US
FORD MAVERICK;21.0;6;200.0;85.00;2587.;16.0;70;US
DATSUN PL510;27.0;4;97.00;88.00;2130.;14.5;70;JAPAN
VOLKSWAGEN 1131 DELUXE SEDAN;26.0;4;97.00;46.00;1835.;20.5;70;EUROPE
PEUGEOT 504;25.0;4;110.0;87.00;2672.;17.5;70;EUROPE
AUDI 100 LS;24.0;4;107.0;90.00;2430.;14.5;70;EUROPE
SAAB 99E;25.0;4;104.0;95.00;2375.;17.5;70;EUROPE
BMW 2002;26.0;4;121.0;113.0;2234.;12.5;70;EUROPE
AMC GREMLIN;21.0;6;199.0;90.00;2648.;15.0;70;US
FORD F250;10.0;8;360.0;215.0;4615.;14.0;70;US
CHEVY C20;10.0;8;307.0;200.0;4376.;15.0;70;US
DODGE D200;11.0;8;318.0;210.0;4382.;13.5;70;US
HI 1200D;9.0;8;304.0;193.0;4732.;18.5;70;US
DATSUN PL510;27.0;4;97.00;88.00;2130.;14.5;71;JAPAN
CHEVROLET VEGA 2300;28.0;4;140.0;90.00;2264.;15.5;71;US
TOYOTA COROLLA;25.0;4;113.0;95.00;2228.;14.0;71;JAPAN
FORD PINTO;25.0;4;98.00;0;2046.;19.0;71;US
VOLKSWAGEN SUPER BEETLE 117;0;4;97.00;48.00;1978.;20.0;71;EUROPE
AMC GREMLIN;19.0;6;232.0;100.0;2634.;13.0;71;US
PLYMOUTH SATELLITE CUSTOM;16.0;6;225.0;105.0;3439.;15.5;71;US
CHEVROLET CHEVELLE MALIBU;17.0;6;250.0;100.0;3329.;15.5;71;US
FORD TORINO 500;19.0;6;250.0;88.00;3302.;15.5;71;US
```

"By your letter to Mina last night. I was in doubt, and then everything took a hue of unreality, and I did not know what to trust, even the evidence of my own senses. Not knowing what to trust, I did not know what to do; and so had only to keep on working in what had hitherto been the groove of my life. The groove ceased to avail me, and I mistrusted myself. Doctor, you don't know what it is to doubt everything, even yourself. No, you don't; you couldn't with eyebrows like yours." He seemed pleased, and laughed as he said:--

"So! You are physiognomist. I learn more here with each hour. I am with so much pleasure coming to you to breakfast; and, oh, sir, you will pardon praise from an old man, but you are blessed in your wife." I would listen to him go on praising Mina for a day, so I simply nodded and stood silent.

"She is one of God's women, fashioned by His own hand to show us men and other women that there is a heaven where we can enter, and that its light can be here on earth. So true, so sweet, so noble, so little an egoist--and that, let me tell you, is much in this age, so sceptical and selfish. And you, sir--I have read all the letters to poor Miss Lucy, and some of them speak of you, so I know you since some days from the knowing of others; but I have seen your true self since last night. You will give me your hand, will you not? And let us be friends for all our lives."

We shook hands, and he was so earnest and so kind that it made me quite choky.

"And now," he said, "may I ask you for some more help? I have a great task to do, and at the beginning it is to know. You can help me here. Can you tell me what went before your going to Transylvania? Later on I may ask more help, and of a different kind; but at first this will do."

"Look here, sir," I said, "does what you have to do concern the Count?"

"It does," he said solemnly.

"Then I am with you heart and soul. As you go by the 10:30 train, you will not have time to read them; but I shall get the bundle of papers. You can take them with you and read them in the train."

After breakfast I saw him to the station. When we were parting he said:--

"Perhaps you will come to town if I send to you, and take Madam Mina

```
anmelgar@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

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
```

marry. And as for wedding clothes, do not let them wait for that, but tell Lydia she shall have as much money as she chooses to buy them, after they are married. And, above all things, keep Mr. Bennet from fighting. Tell him what a dreadful state I am in--that I am frightened out of my wits; and have such tremblings, such flutterings all over me, such spasms in my side, and pains in my head, and such beatings at my heart, that I can get no rest by night nor by day. And tell my dear Lydia not to give any directions about her clothes till she has seen me, for she does not know which are the best warehouses. Oh, brother, how kind you are! I know you will contrive it all."

But Mr. Gardiner, though he assured her again of his earnest endeavours in the cause, could not avoid recommending moderation to her, as well in her hopes as her fears; and after talking with her in this manner till dinner was on table, they left her to vent all her feelings on the housekeeper, who attended in the absence of her daughters.

Though her brother and sister were persuaded that there was no real occasion for such a seclusion from the family, they did not attempt to oppose it; for they knew that she had not prudence enough to hold her tongue before the servants, while they waited at table, and judged it better that _one_ only of the household, and the one whom they could most trust, should comprehend all her fears and solicitude on the

## Question 6: I/O Redirection

```
anmelgar@cis106:~$ grep "/bin/bash" /etc/passwd
root:x:0:0:root:/root:/bin/bash
anmelgar:x:1000:1000:Anthony M,,,:/home/anmelgar:/bin/bash
anmelgar@cis106:~$ grep "/bin/bash" /etc/passwd | wc -l
2
anmelgar@cis106:~$ grep -c "/bin/bash" /etc/passwd
2
```

```
anmelgar@cis106:~$ grep -c "/sbin/nologin" /etc/passwd
41
anmelgar@cis106:~$
```

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

```
anmelgar@cis106:~/Documents/Books$ grep -i '....' bible.txt | wc -l
31102
```

## Question Challenge:

```
anmelgar@cis106:~/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
Cream of Wheat (Quick)
Crispix
Crispy Wheat & Raisins
Double Chex
Froot Loops
Frosted Flakes
Frosted Mini-Wheats
Fruit & Fibre Dates, Walnuts, and Oats
Fruitful Bran
Fruity Pebbles
Golden Crisp
Golden Grahams
Grape Nuts Flakes
Grape-Nuts
Great Grains Pecan
Honey Graham Ohs
Honey Nut Cheerios
Honey-comb
Just Right Crunchy  Nuggets
Just Right Fruit & Nut
Kix
Life
Lucky Charms
Maypo
Muesli Raisins, Dates, & Almonds
Muesli Raisins, Peaches, & Pecans
Mueslix Crispy Blend
```

```
anmelgar@cis106:~/Documents/Csv$ awk -F';' 'NR > 3 {print $1}' cereal.csv | sort
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
Cream of Wheat (Quick)
```

```
Crispix
Crispy Wheat & Raisins
Double Chex
Froot Loops
Frosted Flakes
Frosted Mini-Wheats
Fruit & Fibre Dates, Walnuts, and Oats
Fruitful Bran                                          26 / 28
Fruity Pebbles
Golden Crisp
Golden Grahams
Grape-Nuts
Grape Nuts Flakes
Great Grains Pecan
Honey-comb
Honey Graham Ohs
Honey Nut Cheerios
Just Right Crunchy  Nuggets
Just Right Fruit & Nut
Kix
Life
Lucky Charms
Maypo
```

```
anmelgar@cis106:~/Documents/Csv$ awk -F';' 'NR > 3 {print $1,4}' cereal.csv
100% Natural Bran 4
All-Bran 4
All-Bran with Extra Fiber 4
Almond Delight 4
Apple Cinnamon Cheerios 4
Apple Jacks 4                              27 / 28
Basic 4 4
Bran Chex 4
Bran Flakes 4
Cap'n'Crunch 4
Cheerios 4
Cinnamon Toast Crunch 4
Clusters 4
Cocoa Puffs 4
Corn Chex 4
Corn Flakes 4
Corn Pops 4
Count Chocula 4
Cracklin' Oat Bran 4
Cream of Wheat (Quick) 4
Crispix 4
Crispy Wheat & Raisins 4
Double Chex 4
Froot Loops 4
Frosted Flakes 4
Frosted Mini-Wheats 4
Fruit & Fibre Dates, Walnuts, and Oats 4
Fruitful Bran 4
Fruity Pebbles 4
Golden Crisp 4
Golden Grahams 4
Grape Nuts Flakes 4
Grape-Nuts 4
Great Grains Pecan 4
Honey Graham Ohs 4
Honey Nut Cheerios 4
Honey-comb 4
Just Right Crunchy  Nuggets 4
Just Right Fruit & Nut 4
Kix 4
Life 4
Lucky Charms 4
Maypo 4
```

```
anmelgar@cis106:~/Documents/Csv$ awk -F',' 'NR > 3 {print $1,4}' cereal.csv
 40% Natural Bran;Q;C;120;3;5;15;2;8;8;135;0;3;1;1;33.983679
 4l-Bran;K;C;70;4;1;260;9;7;5;320;25;3;1;0.33;59.425505
 4l-Bran with Extra Fiber;K;C;50;4;0;140;14;8;0;330;25;3;1;0.5;93.704912
 4mond Delight;R;C;110;2;2;200;1;14;8;-1;25;3;1;0.75;34.384843
 4ple Cinnamon Cheerios;G;C;110;2;2;180;1.5;10.5;10;70;25;1;1;0.75;29.509541
 4ple Jacks;K;C;110;2;0;125;1;11;14;30;25;2;1;1;33.174094
 4sic 4;G;C;130;3;2;210;2;18;8;100;25;3;1.33;0.75;37.038562
 4an Chex;R;C;90;2;1;200;4;15;6;125;25;1;1;0.67;49.120253
 4an Flakes;P;C;90;3;0;210;5;13;5;190;25;3;1;0.67;53.313813
 4p'n'Crunch;Q;C;120;1;2;220;0;12;12;35;25;2;1;0.75;18.042851
 4eerios;G;C;110;6;2;290;2;17;1;105;25;1;1;1.25;50.764999
 4nnamon Toast Crunch;G;C;120;1;3;210;0;13;9;45;25;2;1;0.75;19.823573
 4usters;G;C;110;3;2;140;2;13;7;105;25;3;1;0.5;40.400208
 4coa Puffs;G;C;110;1;1;180;0;12;13;55;25;2;1;1;22.736446
 4rn Chex;R;C;110;2;0;280;0;22;3;25;25;1;1;1;41.445019
 4rn Flakes;K;C;100;2;0;290;1;21;2;35;25;1;1;1;45.863324
 4rn Pops;K;C;110;1;0;90;1;13;12;20;25;2;1;1;35.782791
 4unt Chocula;G;C;110;1;1;180;0;12;13;65;25;2;1;1;22.396513
 4acklin' Oat Bran;K;C;110;3;3;140;4;10;7;160;25;3;1;0.5;40.448772
 4eam of Wheat (Quick);N;H;100;3;0;80;1;21;0;-1;0;2;1;1;64.533816
 4ispix;K;C;110;2;0;220;1;21;3;30;25;3;1;1;46.895644
 4ispy Wheat & Raisins;G;C;100;2;1;140;2;11;10;120;25;3;1;0.75;36.176196
 4uble Chex;R;C;100;2;0;190;1;18;5;80;25;3;1;0.75;44.330856
 4oot Loops;K;C;110;2;1;125;1;11;13;30;25;2;1;1;32.207582
 4osted Flakes;K;C;110;1;0;200;1;14;11;25;25;1;1;0.75;31.435973
 4osted Mini-Wheats;K;C;100;3;0;0;3;14;7;100;25;2;1;0.8;58.345141
Fruit & Fibre Dates 4
 4uitful Bran;K;C;120;3;0;240;5;14;12;190;25;3;1.33;0.67;41.015492
 4uity Pebbles;P;C;110;1;1;135;0;13;12;25;25;2;1;0.75;28.025765
 4lden Crisp;P;C;100;2;0;45;0;11;15;40;25;1;1;0.88;35.252444
 4lden Grahams;G;C;110;1;1;280;0;15;9;45;25;2;1;0.75;23.804043
 4ape Nuts Flakes;P;C;100;3;1;140;3;15;5;85;25;3;1;0.88;52.076897
 4ape-Nuts;P;C;110;3;0;170;3;17;3;90;25;3;1;0.25;53.371007
 4eat Grains Pecan;P;C;120;3;3;75;3;13;4;100;25;3;1;0.33;45.811716
 4ney Graham Ohs;Q;C;120;1;2;220;1;12;11;45;25;2;1;1;21.871292
 4ney Nut Cheerios;G;C;110;3;1;250;1.5;11.5;10;90;25;1;1;0.75;31.072217
 4ney-comb;P;C;110;1;0;180;0;14;11;35;25;1;1;1.33;28.742414
 4st Right Crunchy  Nuggets;K;C;110;2;1;170;1;17;6;60;100;3;1;1;36.523683
 4st Right Fruit & Nut;K;C;140;3;1;170;2;20;9;95;100;3;1.3;0.75;36.471512
 4x;G;C;110;2;1;260;0;21;3;40;25;2;1;1.5;39.241114
 4fe;Q;C;100;4;2;150;2;12;6;95;25;2;1;0.67;45.328074
 4cky Charms;G;C;110;2;1;180;0;12;12;55;25;2;1;1;26.734515
 4ypo;A;H;100;4;1;0;0;16;3;95;25;2;1;1;54.850917
Muesli Raisins 4
Muesli Raisins 4
 4eslix Crispy Blend;K;C;160;3;2;150;3;17;13;160;25;3;1.5;0.67;30.313351
```