

# Question 1

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```

student@student-VirtualBox:~$ 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
uidd:x:107:114:/run/uidd:/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:cis106vm,,,:/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
debian-tor:x:128:138:/var/lib/tor:/bin/false

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student@student-VirtualBox:~$ tac /etc/passwd
debian-tor:x:128:138:/var/lib/tor:/bin/false
_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:cis106vm,,,:/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
uidd:x:107:114:/run/uidd:/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
```

```
student@student-VirtualBox:~$ 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:/var/run/ircd:/usr/sbin/nologin$
17 gnats:x:41:41:Gnats Bug-Reporting System (admin)/usr/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 uidd:x:107:114:/:run/uidd:/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:cis106vm,,,:/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 debian-tor:x:128:138:/:var/lib/tor:/bin/false$
```

```
student@student-VirtualBox:~$ 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@student-VirtualBox:~$ tail -5 /etc/passwd
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
student:x:1000:1000:cis106vm,,,:/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
debian-tor:x:128:138:/:var/lib/tor:/bin/false
```

## Question 2



```
student@student-VirtualBox:~$ 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
uidd
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
debian-tor
```

```
student@student-VirtualBox:~$ 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
```

```
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
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
debian-tor:/bin/false
```



```
student@student-VirtualBox:~$ 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
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
debian-tor => /bin/false
```

```

student@student-VirtualBox:~$ 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:/var/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:110:/:home/syslog:/usr/sbin/nologin
_apt:x:65534:/:nonexistent:/usr/sbin/nologin
tss:x:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:114:/:run/uuidd:/usr/sbin/nologin
tcpdump:x:115:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:123:/:var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:125:/:nonexistent:/bin/false
colord:x:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:127:/:var/lib/geoclue:/usr/sbin/nologin
pulse:x:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:65534:/:run/gnome-initial-setup:/bin/false
gdm:x:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
sssd:x:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
student:x:1000:cis106vm,,,:/home/student:/bin/bash
systemd-coredump:x:999:systemd Core Dumper:/:/usr/sbin/nologin
_flatpak:x:137:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
debian-tor:x:138:/:var/lib/tor:/bin/false

```

## Question 3

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```

student@student-VirtualBox:~$ paste shopping.md tasks.md
## Shopping      ## Tasks
1. Apples:       1. Do Laundry:
2. Meat:         2. Cook lunch:
3. Bread:        3. Clean room:
student@student-VirtualBox:~$ wc -l Documents/Books/dracula.txt
15860 Documents/Books/dracula.txt
student@student-VirtualBox:~$ wc -w Documents/Books/pride-and-prejudice.txt
124749 Documents/Books/pride-and-prejudice.txt
student@student-VirtualBox:~$ 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
debian-tor:x:128:138::/var/lib/tor:/bin/false
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
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup:/bin/false
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
kernoops:x:116:65534: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:103:106::/nonexistent:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
nm-openvpn:x:118:124: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:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
root:x:0:0:root:/root:/bin/bash
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
saned:x:117:123::/var/lib/saned:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
student:x:1000:1000:cis106vm,,,:/home/student:/bin/bash
sync:x:4:65534:sync:/bin:/bin/sync
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
systemd-coredump:x:999:999: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:108:115::/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
uuuid:x:107:114::/run/uuid:/usr/sbin/nologin
whoopsie:x:120:125::/nonexistent:/bin/false
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
student@student-VirtualBox:~$ █

```

## Question 4

---

```
student@student-VirtualBox:~$ 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'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@student-VirtualBox:~/Documents/Books$ grep -i "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 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 likelihood undo the effects of your **loveliness** and amiable 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."

in the lane. But little had she dared to hope that so much **love love**.

The possibility of Mr. Collins's fancying himself in **love** with and **lovers** were of all people the most disagreeable. Such were happiness, and so dishonorable to the stability of her **lover**, she **love**-making relieved them from a great deal of his company. The **loved** you as you deserve."

not. There are few people whom I really **love**, and still fewer of me; no wonder if they **love** her better. But, whatever may be their one day, "your sister is crossed in **love**, I find. I congratulate in **love** now and then. It is something to think of, and it gives After a week spent in professions of **love** and schemes of easily falls in **love** with a pretty girl for a few weeks, and when he was violently in **love** with only a few days before."

"But that expression of 'violently in **love**' is so hackneyed, so was **Mr. Bingley's love**?"

the very essence of **love**?"

"Oh, yes!—of that kind of **love** which I suppose him to have felt. them, from what she saw, to be very seriously in **love**, their "You are too sensible a girl, Lizzy, to fall in **love** merely myself, and of Mr. Wickham too. He shall not be in **love** with me, "I beg your pardon, I will try again. At present I am not in **love** aunt, that I have never been much in **love**; for had I really sort of girl. There can be no **love** in all this. My watchfulness **love** with him, I cannot say that I regret my comparative **loved** absurdities, but she had known Sir William's too long. He pleased to see it healthful and **lovely** as ever. On the stairs for making **love** to a girl whom he did not care about, and who was could she discern any symptom of **love**; and from the whole of his was gone. "My dear, Eliza, he must be in **love** with you, or he effect of **love**, and the object of that **love** her friend Eliza, she questions—about her pleasure in being at Hunsford, her **love** of of objection; all **loveliness** and goodness as she is!—her and **love** you."

be **loved** sister?"

been in **love** with her for so many months! So much in **love** as to feeling a serious attachment, I had often seen him in **love**

```
student@student-VirtualBox:~/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."
"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."
in the lane. But little had she dared to hope that so much love
love.
The possibility of Mr. Collins's fancying himself in love with
love-making relieved them from a great deal of his company. The
not. There are few people whom I really love, and still fewer of
me; no wonder if they love her better. But, whatever may be their
one day, "your sister is crossed in love, I find. I congratulate
in love now and then. It is something to think of, and it gives
After a week spent in professions of love and schemes of
easily falls in love with a pretty girl for a few weeks, and when
he was violently in love with only a few days before."
"Put that expression of 'violently in love' in so backward, so
```

 q4.4

```
student@student-VirtualBox:~/Documents/Books$ grep -n '^l[aeiou][a-z][aeiou]' pride-and-prejudice.txt
14254:license, especially commercial redistribution.
14456:lieu of a refund. If you received the work electronically, the person
14472:limitation permitted by the applicable state law. The invalidity or
```

## Question 5

---

```
student@student-VirtualBox:~/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
```

```
student@student-VirtualBox:~/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 1171 Deluxe Sedan made in Europe
```

```
student@student-VirtualBox:~/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
```

```
student@student-VirtualBox:~/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;307.0;175.0;4166.;10.5;70;US
```

```
student@student-VirtualBox:~/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
```



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

```
student@student-VirtualBox:~$ 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
```

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

## Question 6

```
student@student-VirtualBox:~$ grep -n "/bin/bash" /etc/passwd | wc -l
2
student@student-VirtualBox:~$ grep -n "/sbin/nologin" /etc/passwd | wc -l
39
student@student-VirtualBox:~$ cd ~/Documents/Csv
student@student-VirtualBox:~/Documents/Csv$ grep -i "ford" cars.csv | wc -l
53
student@student-VirtualBox:~/Documents/Csv$ cd ../Books
student@student-VirtualBox:~/Documents/Books$ grep -o -w "\w\{5\}" bible.txt | wc -w
97926
student@student-VirtualBox:~/Documents/Books$
```