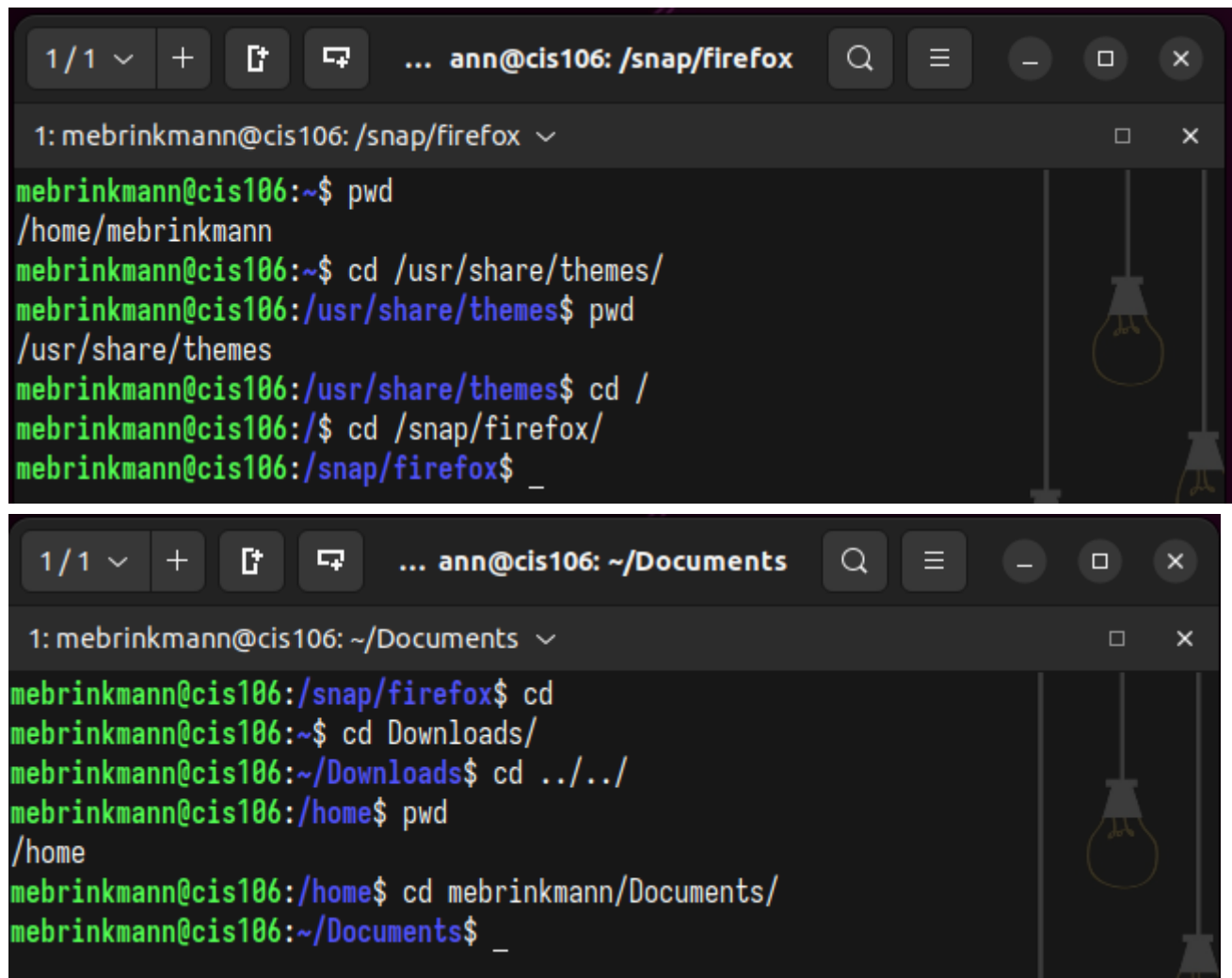


# Lab 4 The Linux FS

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## Question 1



The image shows two terminal windows. The top window has a title bar that reads "... ann@cis106: /snap/firefox". The terminal content shows a user named mebrinkmann navigating from their home directory to /usr/share/themes and then to /snap/firefox. The bottom window has a title bar that reads "... ann@cis106: ~/Documents". The terminal content shows the user navigating from /snap/firefox to their home directory, then to ~/Downloads, and finally to ~/Documents.

```
1: mebrinkmann@cis106: /snap/firefox
mebrinkmann@cis106:~$ pwd
/home/mebrinkmann
mebrinkmann@cis106:~$ cd /usr/share/themes/
mebrinkmann@cis106:/usr/share/themes$ pwd
/usr/share/themes
mebrinkmann@cis106:/usr/share/themes$ cd /
mebrinkmann@cis106:/$ cd /snap/firefox/
mebrinkmann@cis106:/snap/firefox$ _
```

```
1: mebrinkmann@cis106: ~/Documents
mebrinkmann@cis106:/snap/firefox$ cd
mebrinkmann@cis106:~$ cd Downloads/
mebrinkmann@cis106:~/Downloads$ cd ../../
mebrinkmann@cis106:/home$ pwd
/home
mebrinkmann@cis106:/home$ cd mebrinkmann/Documents/
mebrinkmann@cis106:~/Documents$ _
```

## Question 2

```
1: mebrinkmann@cis106: ~/lab4files
mebrinkmann@cis106:~/Documents$ cd /usr/share/
mebrinkmann@cis106:/usr/share$ ls /home/mebrinkmann/lab4files/
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv     globe.avi      Linux.pdf     Tux.png     website.html
mebrinkmann@cis106:/usr/share$ cd ~/lab4files/
mebrinkmann@cis106:~/lab4files$ ls -l
total 6580
-rw-rw-r-- 1 mebrinkmann mebrinkmann 20471 Feb 22 2022 countries.json
-rw-rw-r-- 1 mebrinkmann mebrinkmann 284042 Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 mebrinkmann mebrinkmann 764176 Feb 22 2022 document.docx
-rw-rw-r-- 1 mebrinkmann mebrinkmann 742478 Feb 22 2022 globe.avi
-rw-rw-r-- 1 mebrinkmann mebrinkmann 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 mebrinkmann mebrinkmann 2600138 Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 mebrinkmann mebrinkmann 8704 Feb 22 2022 sample.xls
-rw-rw-r-- 1 mebrinkmann mebrinkmann 42777 Feb 22 2022 Tux.png
-rw-rw-r-- 1 mebrinkmann mebrinkmann 2114053 Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 mebrinkmann mebrinkmann 137453 Feb 22 2022 website.html
mebrinkmann@cis106:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 mebrinkmann mebrinkmann 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 mebrinkmann mebrinkmann 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 mebrinkmann mebrinkmann 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 mebrinkmann mebrinkmann 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 mebrinkmann mebrinkmann 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 mebrinkmann mebrinkmann 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 mebrinkmann mebrinkmann 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 mebrinkmann mebrinkmann 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 mebrinkmann mebrinkmann 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 mebrinkmann mebrinkmann 135K Feb 22 2022 website.html
```

```
1: mebrinkmann@cis106: ~/lab4files
mebrinkmann@cis106:~/lab4files$ ls -lhS
total 6.5M
-rw-rw-r-- 1 mebrinkmann mebrinkmann 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 mebrinkmann mebrinkmann 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 mebrinkmann mebrinkmann 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 mebrinkmann mebrinkmann 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 mebrinkmann mebrinkmann 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 mebrinkmann mebrinkmann 135K Feb 22 2022 website.html
-rw-rw-r-- 1 mebrinkmann mebrinkmann 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 mebrinkmann mebrinkmann 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 mebrinkmann mebrinkmann 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 mebrinkmann mebrinkmann 76 Feb 22 2022 helloWorld.c
mebrinkmann@cis106:~/lab4files$ ls -lhSgG
total 6.5M
-rw-rw-r-- 1 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 135K Feb 22 2022 website.html
-rw-rw-r-- 1 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 76 Feb 22 2022 helloWorld.c
```

```
mebrinkmann@cis106:~/lab4files$ ls -lhSgGi
total 6.5M
670789 -rw-rw-r-- 1 2.5M Feb 22 2022 Linux.pdf
671102 -rw-rw-r-- 1 2.1M Feb 22 2022 Ubuntu.pdf
671517 -rw-rw-r-- 1 747K Feb 22 2022 document.docx
671518 -rw-rw-r-- 1 726K Feb 22 2022 globe.avi
671258 -rw-rw-r-- 1 278K Feb 22 2022 csvfile.csv
671533 -rw-rw-r-- 1 135K Feb 22 2022 website.html
657491 -rw-rw-r-- 1 42K Feb 22 2022 Tux.png
671100 -rw-rw-r-- 1 20K Feb 22 2022 countries.json
671528 -rw-rw-r-- 1 8.5K Feb 22 2022 sample.xls
671527 -rw-rw-r-- 1 76 Feb 22 2022 helloWorld.c
mebrinkmann@cis106:~/lab4files$ ls -Xr
sample.xls  Ubuntu.pdf  countries.json  document.docx  helloWorld.c
Tux.png     Linux.pdf   website.html   csvfile.csv    globe.avi
mebrinkmann@cis106:~/lab4files$ ls -Xr1
sample.xls
Tux.png
Ubuntu.pdf
Linux.pdf
countries.json
website.html
document.docx
csvfile.csv
helloWorld.c
globe.avi
mebrinkmann@cis106:~/lab4files$ _
```

## Question 4

```

cis106: /dev/disk/by-id

2: mebrinkmann@cis106: /dev/disk/by-id ~

mebrinkmann@cis106:~$ pwd
/home/mebrinkmann
mebrinkmann@cis106:~$ cd /usr/share/icons/default/
mebrinkmann@cis106:/usr/share/icons/default$ cd /proc/sys/net/ipv4/
mebrinkmann@cis106:/proc/sys/net/ipv4$ cd; ls ~/cis106/
CheatSheets FinalReport Labs WeekReports
mebrinkmann@cis106:~$ ls ~/Downloads/
'Absolute Path VS Relative Path Cheat sheet.png'
mebrinkmann@cis106:~$ cd /dev/disk/by-id/
mebrinkmann@cis106:/dev/disk/by-id$ exa ~/ -la
.rw----- 5.6k mebrinkmann 17 Mar 15:29 .bash_history
.rw-r--r-- 220 mebrinkmann  6 Feb 13:26 .bash_logout
.rw-r--r-- 3.8k mebrinkmann  6 Feb 13:26 .bashrc
drwx----- - mebrinkmann 28 Feb 18:44 .cache
drwx----- - mebrinkmann 17 Mar 14:17 .config
drwxrwxr-x - mebrinkmann 11 Feb 17:30 .dotnet
drwxrwxr-x - mebrinkmann 28 Feb 17:56 .fonts
.rw----- 12k mebrinkmann 14 Feb 18:54 .formatter.sh.swp
.rw-rw-r-- 66 mebrinkmann 13 Feb 12:53 .gitconfig
drwx----- - mebrinkmann 22 Feb 13:29 .gnupg
.rw----- 20 mebrinkmann 28 Feb 19:05 .lessht
drwx----- - mebrinkmann 13 Feb 13:11 .local
drwx----- - mebrinkmann 13 Feb 13:17 .mozilla
drwx----- - mebrinkmann 11 Feb 17:18 .pki
.rw-r--r-- 807 mebrinkmann  6 Feb 13:26 .profile
drwx----- - mebrinkmann 13 Feb 12:57 .ssh
.rw-r--r--  0 mebrinkmann 11 Feb 16:35 .sudo_as_admin_successful
drwx----- - mebrinkmann 13 Feb 13:17 .thunderbird
.rw-r----- 5 mebrinkmann 17 Mar 13:49 .vboxclient-clipboard.pid
.rw-r----- 5 mebrinkmann 17 Mar 13:49 .vboxclient-draganddrop.pid
.rw-r----- 5 mebrinkmann 17 Mar 13:49 .vboxclient-seamless.pid
.rw-r----- 6 mebrinkmann 17 Mar 13:49 .vboxclient-vmvga-session-tty2.pid
.rw----- 783 mebrinkmann 14 Feb 18:54 .viminfo
drwxrwxr-x - mebrinkmann 11 Feb 17:18 .vscode
drwxrwxr-x - mebrinkmann  3 Mar 22:32 cis106
drwxr-xr-x - mebrinkmann 14 Mar 18:04 Desktop
drwxr-xr-x - mebrinkmann 14 Mar 18:55 Documents
drwxr-xr-x - mebrinkmann 17 Mar 14:00 Downloads
.rw-rw-r-- 92 mebrinkmann 13 Feb 13:08 gitcommands.txt
drwxrwxr-x - mebrinkmann 22 Feb 2022 lab4files

cis106: /dev/disk/by-id

2: mebrinkmann@cis106: /dev/disk/by-id ~

.rw-rw-r-- 3.5M mebrinkmann 17 Mar 13:59 lab4files.zip
drwxr-xr-x - mebrinkmann  6 Feb 13:42 Music
drwxr-xr-x - mebrinkmann 28 Feb 18:02 Pictures
drwxrwxr-x - mebrinkmann 27 Feb 2022 practicels
.rw-rw-r-- 2.2M mebrinkmann 21 Feb 21:10 practicels.tar.xz
drwxr-xr-x - mebrinkmann  6 Feb 13:42 Public
drwx----- - mebrinkmann 11 Feb 17:04 snap
drwxr-xr-x - mebrinkmann  6 Feb 13:42 Templates
drwxr-xr-x - mebrinkmann  6 Feb 13:42 Videos
mebrinkmann@cis106:/dev/disk/by-id$ ls /usr/share/themes/ -lt
total 120
drwxr-xr-x 7 root root 4096 Aug  9 2022 Yaru
drwxr-xr-x 5 root root 4096 Aug  9 2022 Yaru-bark
drwxr-xr-x 5 root root 4096 Aug  9 2022 Yaru-bark-dark
drwxr-xr-x 5 root root 4096 Aug  9 2022 Yaru-blue
drwxr-xr-x 5 root root 4096 Aug  9 2022 Yaru-blue-dark
drwxr-xr-x 7 root root 4096 Aug  9 2022 Yaru-dark
drwxr-xr-x 3 root root 4096 Aug  9 2022 Yaru-dark-hdpi
drwxr-xr-x 3 root root 4096 Aug  9 2022 Yaru-dark-xhdpi
drwxr-xr-x 3 root root 4096 Aug  9 2022 Yaru-hdpi
drwxr-xr-x 5 root root 4096 Aug  9 2022 Yaru-magenta

```

```

drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-magenta-dark
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-olive
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-olive-dark
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-prussiangreen
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-prussiangreen-dark
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-purple
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-purple-dark
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-red
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-red-dark
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-sage
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-sage-dark
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-viridian
drwxr-xr-x 5 root root 4096 Aug 9 2022 Yaru-viridian-dark
drwxr-xr-x 3 root root 4096 Aug 9 2022 Yaru-xhdp
drwxr-xr-x 4 root root 4096 Aug 9 2022 Default
drwxr-xr-x 4 root root 4096 Aug 9 2022 Emacs
drwxr-xr-x 3 root root 4096 Aug 9 2022 Raleigh
drwxr-xr-x 4 root root 4096 Aug 9 2022 Adwaita

```

cis106: /dev/disk/by-id

2: mebrinkmann@cis106: /dev/disk/by-id

```

mebrinkmann@cis106:/dev/disk/by-id$ ls /usr/share/ -lX
total 1396
drwxr-xr-x 4 root root 4096 Feb 28 18:12 accountsservice
drwxr-xr-x 4 root root 4096 Aug 9 2022 HighContrast
drwxr-xr-x 2 root root 4096 Aug 9 2022 aclocal
drwxr-xr-x 2 root root 4096 Aug 9 2022 acpi-support
drwxr-xr-x 2 root root 4096 Aug 9 2022 adduser
drwxr-xr-x 6 root root 4096 Aug 9 2022 aisleriot
drwxr-xr-x 3 root root 4096 Feb 28 18:12 alacarte
drwxr-xr-x 11 root root 4096 Feb 11 16:36 alsa
drwxr-xr-x 2 root root 4096 Aug 9 2022 alsa-base
drwxr-xr-x 3 root root 4096 Aug 9 2022 alsa-card-profile
drwxr-xr-x 2 root root 4096 Feb 11 17:05 appdata
drwxr-xr-x 3 root root 4096 Feb 11 22:00 app-info
drwxr-xr-x 2 root root 16384 Mar 14 18:05 applications
drwxr-xr-x 4 root root 4096 Feb 11 17:33 apport
drwxr-xr-x 4 root root 4096 Feb 11 22:00 apps
drwxr-xr-x 2 root root 4096 Aug 9 2022 apturl
drwxr-xr-x 2 root root 4096 Aug 9 2022 aspell
drwxr-xr-x 2 root root 4096 Aug 9 2022 avahi
drwxr-xr-x 3 root root 4096 Aug 9 2022 backgrounds
drwxr-xr-x 2 root root 4096 Feb 22 14:03 base-files
drwxr-xr-x 2 root root 4096 Aug 9 2022 base-passwd
drwxr-xr-x 4 root root 4096 Aug 9 2022 bash-completion
drwxr-xr-x 2 root root 4096 Feb 11 16:36 binfmts
drwxr-xr-x 4 root root 4096 Aug 9 2022 branding
drwxr-xr-x 3 root root 4096 Aug 9 2022 brltty
drwxr-xr-x 132 root root 4096 Feb 11 22:00 bug
drwxr-xr-x 2 root root 4096 Feb 11 16:46 build-essential
drwxr-xr-x 3 root root 4096 Aug 9 2022 ca-certificates
drwxr-xr-x 3 root root 4096 Feb 11 21:59 caffeine-indicator
drwxr-xr-x 2 root root 4096 Feb 11 21:58 catdoc
drwxr-xr-x 3 root root 4096 Aug 9 2022 cmake
drwxr-xr-x 5 root root 4096 Feb 11 17:05 code
drwxr-xr-x 3 root root 4096 Aug 9 2022 cogl
drwxr-xr-x 3 root root 4096 Aug 9 2022 color
drwxr-xr-x 7 root root 4096 Aug 9 2022 colord
drwxr-xr-x 2 root root 4096 Feb 22 14:03 common-licenses
drwxr-xr-x 2 root root 28672 Aug 9 2022 consolefonts

```



```

is106: /dev/disk/by-id
2: mebrinkmann@cis106: /dev/disk/by-id
drwxr-xr-x 2 root root 4096 Aug 9 2022 console-setup
drwxr-xr-x 2 root root 4096 Aug 9 2022 consoletrans
drwxr-xr-x 3 root root 4096 Feb 28 18:56 cowsay
drwxr-xr-x 18 root root 4096 Aug 9 2022 cups
drwxr-xr-x 8 root root 4096 Feb 11 16:36 dbus-1
drwxr-xr-x 3 root root 4096 Aug 9 2022 dconf
drwxr-xr-x 2 root root 4096 Aug 9 2022 debconf
drwxr-xr-x 3 root root 4096 Aug 9 2022 debhelper
drwxr-xr-x 3 root root 4096 Aug 9 2022 debianutils
drwxr-xr-x 3 root root 4096 Aug 9 2022 defaults
drwxr-xr-x 2 root root 4096 Feb 28 18:12 desktop-directories
drwxr-xr-x 2 root root 4096 Aug 9 2022 dict
drwxr-xr-x 3 root root 4096 Aug 9 2022 dictionaries-common
drwxr-xr-x 2 root root 4096 Feb 11 16:36 distro-info
drwxr-xr-x 4 root root 4096 Aug 9 2022 djvu
drwxr-xr-x 2 root root 4096 Aug 9 2022 dns
drwxr-xr-x 2 root root 4096 Aug 9 2022 dnsmasq-base
drwxr-xr-x 2161 root root 69632 Mar 17 15:10 doc
drwxr-xr-x 2 root root 4096 Feb 11 22:00 doc-base
drwxr-xr-x 3 root root 4096 Feb 11 16:46 dpkg
drwxr-xr-x 3 root root 4096 Aug 9 2022 emacs
drwxr-xr-x 2 root root 4096 Aug 9 2022 emacsen-common
drwxr-xr-x 2 root root 4096 Aug 9 2022 enchant-2
drwxr-xr-x 3 root root 4096 Aug 9 2022 eog
drwxr-xr-x 2 root root 4096 Feb 28 18:33 epiphany-browser
drwxr-xr-x 3 root root 4096 Aug 9 2022 evince
drwxr-xr-x 3 root root 4096 Feb 11 16:37 evolution-data-server
drwxr-xr-x 2 root root 4096 Feb 28 18:56 figlet
drwxr-xr-x 3 root root 4096 Aug 9 2022 file
drwxr-xr-x 2 root root 4096 Aug 9 2022 file-roller
drwxr-xr-x 5 root root 4096 Mar 17 15:10 fish
drwxr-xr-x 3 root root 4096 Feb 11 17:35 flameshot
drwxr-xr-x 3 root root 4096 Feb 11 22:00 flatpak
drwxr-xr-x 3 root root 4096 Aug 9 2022 fontconfig
drwxr-xr-x 8 root root 4096 Aug 9 2022 fonts
drwxr-xr-x 3 root root 4096 Aug 9 2022 fonts-droid-fallback
drwxr-xr-x 4 root root 4096 Aug 9 2022 fonts-sil-abyssinica
drwxr-xr-x 4 root root 4096 Aug 9 2022 fonts-sil-padauk
drwxr-xr-x 3 root root 4096 Aug 9 2022 foo2qpdf
drwxr-xr-x 3 root root 4096 Aug 9 2022 foo2zjs

```

```

cis106: /dev/disk/by-id
2: mebrinkmann@cis106: /dev/disk/by-id
drwxr-xr-x 5 root root 4096 Feb 11 16:37 fwupd
drwxr-xr-x 2 root root 4096 Aug 9 2022 gamemode
drwxr-xr-x 5 root root 4096 Feb 28 18:56 games
drwxr-xr-x 3 root root 4096 Aug 9 2022 gcc
drwxr-xr-x 3 root root 4096 Aug 9 2022 GConf
drwxr-xr-x 6 root root 4096 Aug 9 2022 gdb
drwxr-xr-x 5 root root 4096 Aug 9 2022 gdm
drwxr-xr-x 6 root root 4096 Feb 11 17:35 geany
drwxr-xr-x 3 root root 4096 Feb 28 18:40 geary
drwxr-xr-x 3 root root 4096 Aug 9 2022 gedit
drwxr-xr-x 2 root root 4096 Feb 11 17:35 GeoIP
drwxr-xr-x 3 root root 4096 Aug 9 2022 gettext
drwxr-xr-x 4 root root 4096 Aug 9 2022 ghostscript
drwxr-xr-x 4 root root 4096 Feb 11 21:58 git-core
drwxr-xr-x 3 root root 4096 Feb 14 18:02 gitweb
drwxr-xr-x 3 root root 4096 Aug 9 2022 glade
drwxr-xr-x 3 root root 4096 Aug 9 2022 glvnd
drwxr-xr-x 4 root root 4096 Feb 11 16:36 gnome
drwxr-xr-x 5 root root 4096 Feb 28 18:12 gnome-applets
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-background-properties
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-bluetooth
drwxr-xr-x 5 root root 4096 Aug 9 2022 gnome-control-center
drwxr-xr-x 2 root root 4096 Feb 22 14:03 gnome-initial-setup
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-logs
drwxr-xr-x 3 root root 4096 Feb 11 17:33 gnome-mahjongg
drwxr-xr-x 4 root root 4096 Feb 28 18:12 gnome-panel
drwxr-xr-x 2 root root 4096 Feb 22 14:03 gnome-remote-desktop
drwxr-xr-x 3 root root 4096 Aug 9 2022 gnome-session
drwxr-xr-x 3 root root 4096 Aug 9 2022 gnome-settings-daemon
drwxr-xr-x 7 root root 4096 Feb 11 16:36 gnome-shell
drwxr-xr-x 2 root root 4096 Feb 11 22:00 gnome-software
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-system-monitor
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-todo
drwxr-xr-x 2 root root 4096 Feb 11 21:59 gnome-tweaks
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-video-effects
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnupg
drwxr-xr-x 3 root root 4096 Aug 9 2022 grilo-plugins
drwxr-xr-x 3 root root 4096 Aug 9 2022 groff
drwxr-xr-x 3 root root 4096 Feb 11 16:37 grub

```

```

cis106: /dev/disk/by-id
2: mebrinkmann@cis106: /dev/disk/by-id
drwxr-xr-x 3 root root 4096 Aug 9 2022 grub-gfxpayload-lists
drwxr-xr-x 3 root root 4096 Aug 9 2022 gst-plugins-base
drwxr-xr-x 3 root root 4096 Aug 9 2022 gtk-doc
drwxr-xr-x 2 root root 4096 Aug 9 2022 gtk-engines
drwxr-xr-x 4 root root 4096 Aug 9 2022 gtksourceview-4
drwxr-xr-x 3 root root 4096 Aug 9 2022 guile
drwxr-xr-x 2 root root 4096 Aug 9 2022 gupnp-av
drwxr-xr-x 4 root root 4096 Aug 9 2022 gvfs
drwxr-xr-x 64 root root 4096 Feb 28 18:33 help
drwxr-xr-x 4 root root 4096 Feb 6 13:31 help-langpack
drwxr-xr-x 12 root root 4096 Feb 11 16:39 hplip
drwxr-xr-x 2 root root 4096 Aug 9 2022 hunspell
drwxr-xr-x 2 root root 4096 Feb 11 21:58 hwdata
drwxr-xr-x 2 root root 4096 Aug 9 2022 hyphen
drwxr-xr-x 4 root root 4096 Aug 9 2022 i18n
drwxr-xr-x 6 root root 4096 Aug 9 2022 ibus
drwxr-xr-x 7 root root 4096 Aug 9 2022 ibus-table
drwxr-xr-x 40 root root 4096 Feb 28 18:27 icons
drwxr-xr-x 2 root root 4096 Mar 2 07:38 ImageMagick-6
drwxr-xr-x 3 root root 4096 Aug 9 2022 im-config
drwxr-xr-x 3 root root 4096 Feb 28 18:12 indicator-application
drwxr-xr-x 3 root root 4096 Feb 28 18:12 indicator-power
drwxr-xr-x 3 root root 4096 Aug 9 2022 indicators
drwxr-xr-x 2 root root 4096 Feb 22 14:04 info
drwxr-xr-x 7 root root 4096 Feb 11 16:36 initramfs-tools
drwxr-xr-x 3 root root 4096 Feb 6 13:30 installed-tests
drwxr-xr-x 3 root root 4096 Aug 9 2022 ipp-usb
drwxr-xr-x 2 root root 4096 Aug 9 2022 iptables
drwxr-xr-x 3 root root 4096 Aug 9 2022 iso-codes
drwxr-xr-x 2 root root 4096 Feb 28 18:12 java
drwxr-xr-x 5 root root 4096 Feb 11 21:58 javascript
drwxr-xr-x 2 root root 4096 Feb 28 18:26 kconf_update
drwxr-xr-x 3 root root 4096 Aug 9 2022 kde4
drwxr-xr-x 2 root root 4096 Feb 22 14:03 keyrings
drwxr-xr-x 6 root root 4096 Feb 28 18:26 kf5
drwxr-xr-x 2 root root 4096 Feb 28 18:32 knotifications5
drwxr-xr-x 4 root root 4096 Feb 28 18:44 kservices5
drwxr-xr-x 2 root root 4096 Feb 28 18:26 kservicetypes5
drwxr-xr-x 3 root root 4096 Aug 9 2022 language-selector
drwxr-xr-x 2 root root 4096 Feb 11 16:36 language-support

```



```

cis106: /dev/disk/by-id
2: mebrinkmann@cis106: /dev/disk/by-id
drwxr-xr-x 2 root root 4096 Feb 11 16:36 language-support
drwxr-xr-x 2 root root 4096 Aug 9 2022 language-tools
drwxr-xr-x 2 root root 4096 Feb 11 21:59 libcaca
drwxr-xr-x 2 root root 4096 Aug 9 2022 libc-bin
drwxr-xr-x 2 root root 4096 Aug 9 2022 libdebuginfod-common
drwxr-xr-x 2 root root 4096 Feb 11 16:36 libdrm
drwxr-xr-x 2 root root 4096 Aug 9 2022 libexttextcat
drwxr-xr-x 4 root root 4096 Aug 9 2022 libgnomekbd
drwxr-xr-x 2 root root 4096 Aug 9 2022 libgweather
drwxr-xr-x 2 root root 4096 Feb 28 18:12 libgweather-4
drwxr-xr-x 2 root root 12288 Feb 11 16:36 libinput
drwxr-xr-x 3 root root 4096 Aug 9 2022 liblangtag
drwxr-xr-x 3 root root 4096 Aug 9 2022 liblouis
drwxr-xr-x 3 root root 4096 Aug 9 2022 liblouisutdml
drwxr-xr-x 2 root root 4096 Feb 11 17:35 libmysofa
drwxr-xr-x 6 root root 4096 Feb 11 16:37 libreoffice
drwxr-xr-x 3 root root 4096 Aug 9 2022 librevenge
drwxr-xr-x 2 root root 4096 Aug 9 2022 libthai
drwxr-xr-x 3 root root 16384 Aug 9 2022 libwacom
drwxr-xr-x 3 root root 4096 Aug 9 2022 lightdm
drwxr-xr-x 4 root root 4096 Aug 9 2022 lintian
drwxr-xr-x 2 root root 4096 Aug 9 2022 linux-sound-base
drwxr-xr-x 246 root root 4096 Feb 28 18:26 locale
drwxr-xr-x 10 root root 4096 Feb 6 13:31 locale-langpack
drwxr-xr-x 2 root root 4096 Aug 9 2022 locales
drwxr-xr-x 2 root root 4096 Feb 11 16:46 lto-disabled-list
drwxr-xr-x 3 root root 4096 Aug 9 2022 m2380w
drwxr-xr-x 38 root root 4096 Feb 28 18:27 man
drwxr-xr-x 2 root root 4096 Aug 9 2022 man-db
drwxr-xr-x 3 root root 4096 Feb 11 21:58 mate-panel
drwxr-xr-x 3 root root 4096 Aug 9 2022 maven-repo
drwxr-xr-x 2 root root 12288 Aug 9 2022 media-player-info
drwxr-xr-x 2 root root 4096 Feb 28 18:56 menu
drwxr-xr-x 2 root root 4096 Feb 11 21:59 mesa-demos
drwxr-xr-x 2 root root 4096 Feb 28 18:44 metainfo
drwxr-xr-x 2 root root 4096 Feb 11 17:35 mfx
drwxr-xr-x 15 root root 4096 Feb 28 18:27 mime
drwxr-xr-x 2 root root 4096 Aug 9 2022 misc
drwxr-xr-x 2 root root 4096 Aug 9 2022 mobile-broadband-provider-info
drwxr-xr-x 3 root root 4096 Aug 9 2022 ModemManager

```

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cis106: /dev/disk/by-id
2: mebrinkmann@cis106: /dev/disk/by-id
drwxr-xr-x 2 root root 4096 Aug 9 2022 mousetweaks
drwxr-xr-x 2 root root 4096 Aug 9 2022 mythes
drwxr-xr-x 4 root root 4096 Aug 9 2022 nano
drwxr-xr-x 3 root root 4096 Aug 9 2022 nautilus
drwxr-xr-x 3 root root 4096 Feb 11 17:35 nautilus-python
drwxr-xr-x 3 root root 4096 Aug 9 2022 nautilus-share
drwxr-xr-x 5 root root 4096 Feb 11 21:59 nemo
drwxr-xr-x 2 root root 4096 Feb 11 21:59 netpbm
drwxr-xr-x 3 root root 4096 Feb 11 16:36 netplan
drwxr-xr-x 2 root root 4096 Feb 11 17:35 numpy3
drwxr-xr-x 3 root root 4096 Feb 21 18:42 openal
drwxr-xr-x 2 root root 4096 Feb 11 16:38 openvpn
drwxr-xr-x 3 root root 4096 Aug 9 2022 orca
drwxr-xr-x 2 root root 4096 Aug 9 2022 os-prober
drwxr-xr-x 3 root root 4096 Aug 9 2022 p11-kit
drwxr-xr-x 2 root root 4096 Feb 11 22:01 package-data-downloads
drwxr-xr-x 3 root root 4096 Aug 9 2022 PackageKit
drwxr-xr-x 2 root root 4096 Feb 11 16:36 pam
drwxr-xr-x 2 root root 4096 Mar 7 18:14 pam-configs
drwxr-xr-x 3 root root 4096 Aug 9 2022 perl
drwxr-xr-x 31 root root 4096 Feb 14 18:02 perl5
drwxr-xr-x 2 root root 4096 Aug 9 2022 perl-openssl-defaults
drwxr-xr-x 3 root root 4096 Feb 11 16:36 pipewire
drwxr-xr-x 4 root root 4096 Mar 2 07:39 pixmaps
drwxr-xr-x 2 root root 4096 Mar 7 18:14 pkgconfig
drwxr-xr-x 3 root root 4096 Aug 9 2022 plymouth
drwxr-xr-x 2 root root 4096 Aug 9 2022 pnm2ppa
drwxr-xr-x 3 root root 4096 Feb 11 22:01 pocketsphinx
drwxr-xr-x 4 root root 4096 Aug 9 2022 polkit-1
drwxr-xr-x 6 root root 4096 Aug 9 2022 poppler
drwxr-xr-x 5 root root 4096 Aug 9 2022 ppd
drwxr-xr-x 2 root root 4096 Aug 9 2022 ppp
drwxr-xr-x 2 root root 4096 Aug 9 2022 publicsuffix
drwxr-xr-x 3 root root 4096 Aug 9 2022 pulseaudio
drwxr-xr-x 2 root root 4096 Aug 9 2022 pyshared
drwxr-xr-x 6 root root 4096 Feb 11 16:36 python3
drwxr-xr-x 3 root root 4096 Aug 9 2022 python-apt
drwxr-xr-x 2 root root 4096 Feb 28 18:27 qlogging-categories5
drwxr-xr-x 4 root root 4096 Feb 28 18:31 qt5
drwxr-xr-x 2 root root 4096 Aug 9 2022 readline

```

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cis106: /dev/disk/by-id
2: mebrinkmann@cis106: /dev/disk/by-id
drwxr-xr-x 5 root root 4096 Aug 9 2022 remmina
drwxr-xr-x 3 root root 4096 Aug 9 2022 rhythmbox
drwxr-xr-x 2 root root 4096 Feb 28 18:56 rig
drwxr-xr-x 3 root root 4096 Aug 9 2022 rsync
drwxr-xr-x 2 root root 4096 Aug 9 2022 rsyslog
drwxr-xr-x 4 root root 4096 Feb 11 21:58 rubygems-integration
drwxr-xr-x 5 root root 4096 Aug 9 2022 rygel
drwxr-xr-x 5 root root 4096 Feb 11 21:59 samba
drwxr-xr-x 3 root root 4096 Aug 9 2022 seahorse
drwxr-xr-x 3 root root 4096 Aug 9 2022 secureboot
drwxr-xr-x 3 root root 4096 Aug 29 2021 sensible-utils
drwxr-xr-x 3 root root 4096 Aug 9 2022 session-migration
drwxr-xr-x 9 root root 4096 Aug 9 2022 sgml
drwxr-xr-x 2 root root 4096 Aug 9 2022 sgml-base
drwxr-xr-x 2 root root 4096 Aug 9 2022 sgml-data
drwxr-xr-x 4 root root 4096 Aug 9 2022 snmp
drwxr-xr-x 3 root root 4096 Feb 22 14:03 software-properties
drwxr-xr-x 3 root root 4096 Feb 11 17:35 solid
drwxr-xr-x 11 root root 4096 Feb 28 18:12 sounds
drwxr-xr-x 2 root root 12288 Aug 9 2022 source-highlight
drwxr-xr-x 4 root root 4096 Aug 9 2022 speech-dispatcher
drwxr-xr-x 2 root root 4096 Aug 9 2022 ssl-cert
drwxr-xr-x 7 root root 4096 Aug 9 2022 system-config-printer
drwxr-xr-x 2 root root 4096 Mar 7 18:14 systemd
drwxr-xr-x 3 root root 4096 Feb 11 21:58 systemtap
drwxr-xr-x 2 root root 4096 Aug 9 2022 tabset
drwxr-xr-x 3 root root 4096 Aug 9 2022 tcltk
drwxr-xr-x 2 root root 4096 Jan 17 2022 terminfo
drwxr-xr-x 2 root root 4096 Feb 11 21:58 tex-common
drwxr-xr-x 7 root root 4096 Feb 11 21:59 texlive
drwxr-xr-x 6 root root 4096 Feb 11 21:59 texmf
drwxr-xr-x 32 root root 4096 Aug 9 2022 themes
drwxr-xr-x 2 root root 4096 Feb 11 16:37 thumbnailers
drwxr-xr-x 5 root root 4096 Feb 11 17:35 tilix
drwxr-xr-x 2 root root 4096 Aug 9 2022 totem
drwxr-xr-x 5 root root 4096 Aug 9 2022 tracker3
drwxr-xr-x 5 root root 4096 Aug 9 2022 tracker3-miners
drwxr-xr-x 3 root root 4096 Aug 9 2022 transmission
drwxr-xr-x 3 root root 4096 Aug 9 2022 ubuntu

```

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cis106: /dev/disk/by-id
2: mebrinkmann@cis106: /dev/disk/by-id
drwxr-xr-x 4 root root 4096 Aug 9 2022 ubuntu-drivers-common
drwxr-xr-x 3 root root 4096 Feb 22 14:03 ubuntu-release-upgrader
drwxr-xr-x 3 root root 4096 Aug 9 2022 ubuntu-wayland
drwxr-xr-x 2 root root 4096 Aug 9 2022 ucf
drwxr-xr-x 4 root root 4096 Aug 9 2022 ufw
drwxr-xr-x 2 root root 4096 Aug 9 2022 unattended-upgrades
drwxr-xr-x 3 root root 4096 Feb 28 18:12 unity
drwxr-xr-x 3 root root 4096 Aug 9 2022 update-manager
drwxr-xr-x 5 root root 4096 Feb 22 14:03 update-notifier
drwxr-xr-x 5 root root 4096 Feb 28 18:12 upstart
drwxr-xr-x 2 root root 4096 Aug 9 2022 usb-creator
drwxr-xr-x 2 root root 4096 Aug 9 2022 usb_modeswitch
drwxr-xr-x 3 root root 4096 Aug 9 2022 vala
drwxr-xr-x 5 root root 4096 Feb 11 16:36 vim
drwxr-xr-x 5 root root 4096 Feb 11 17:35 vlc
drwxr-xr-x 5 root root 4096 Aug 9 2022 vulkan
drwxr-xr-x 2 root root 4096 Feb 11 21:59 w3m
drwxr-xr-x 2 root root 4096 Aug 9 2022 wayland-sessions
drwxr-xr-x 5 root root 4096 Aug 9 2022 X11
drwxr-xr-x 3 root root 4096 Feb 11 21:58 xapps-common
drwxr-xr-x 3 root root 4096 Aug 9 2022 xdg-desktop-portal
drwxr-xr-x 11 root root 4096 Aug 9 2022 xml
drwxr-xr-x 2 root root 4096 Aug 9 2022 xml-core
drwxr-xr-x 2 root root 4096 Feb 28 18:12 xsessions
drwxr-xr-x 6 root root 4096 Aug 9 2022 yelp
drwxr-xr-x 4 root root 4096 Aug 9 2022 yelp-xsl
drwxr-xr-x 2 root root 4096 Aug 9 2022 zenity
drwxr-xr-x 20 root root 4096 Feb 11 16:36 zoneinfo
drwxr-xr-x 3 root root 4096 Aug 9 2022 zoneinfo-icu
drwxr-xr-x 4 root root 4096 Feb 11 17:35 zsh
drwxr-xr-x 2 root root 4096 Feb 6 13:31 gir-1.0
drwxr-xr-x 3 root root 4096 Feb 11 16:36 glib-2.0
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-bluetooth-3.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 goa-1.0
drwxr-xr-x 4 root root 4096 Feb 11 22:01 gstreamer-1.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 gtk-4.0
drwxr-xr-x 4 root root 4096 Feb 11 21:59 gtksourceview-2.0
drwxr-xr-x 4 root root 4096 Feb 11 21:59 gtksourceview-3.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 gupnp-dlna-2.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 org.gnome.Characters
drwxr-xr-x 3 root root 4096 Aug 9 2022 zoneinfo-icu
drwxr-xr-x 4 root root 4096 Feb 11 17:35 zsh
drwxr-xr-x 2 root root 4096 Feb 6 13:31 gir-1.0
drwxr-xr-x 3 root root 4096 Feb 11 16:36 glib-2.0
drwxr-xr-x 2 root root 4096 Aug 9 2022 gnome-bluetooth-3.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 goa-1.0
drwxr-xr-x 4 root root 4096 Feb 11 22:01 gstreamer-1.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 gtk-4.0
drwxr-xr-x 4 root root 4096 Feb 11 21:59 gtksourceview-2.0
drwxr-xr-x 4 root root 4096 Feb 11 21:59 gtksourceview-3.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 gupnp-dlna-2.0
drwxr-xr-x 3 root root 4096 Aug 9 2022 org.gnome.Characters
drwxr-xr-x 2 root root 4096 Feb 11 16:38 drirc.d
mebrinkmann@cis106:/dev/disk/by-id$ _

```

## Question 5

```
1 / 1  +  [ ]  [ ]  Tilix: mebrinkmann@cis106: ~/Downloads

1: mebrinkmann@cis106: ~/Downloads  v

mebrinkmann@cis106:~$ cd /
mebrinkmann@cis106:/$ pwd
/
mebrinkmann@cis106:/$ cd /home/
mebrinkmann@cis106:/home$ pwd
/home
mebrinkmann@cis106:/home$ cd mebrinkmann
mebrinkmann@cis106:~$ pwd
/home/mebrinkmann
mebrinkmann@cis106:~$ cd Downloads
mebrinkmann@cis106:~/Downloads$ pwd
/home/mebrinkmann/Downloads
mebrinkmann@cis106:~/Downloads$ _
```

```
1 / 1  +  [ ]  [ ]  Tilix: mebrinkmann@cis106: ~/Documents

1: mebrinkmann@cis106: ~/Documents  v

mebrinkmann@cis106:~$ cd /usr/share/themes/Adwaita
mebrinkmann@cis106:/usr/share/themes/Adwaita$ pwd
/usr/share/themes/Adwaita
mebrinkmann@cis106:/usr/share/themes/Adwaita$ cd ~/Documents/
mebrinkmann@cis106:~/Documents$ pwd
/home/mebrinkmann/Documents
mebrinkmann@cis106:~/Documents$ _
```