

# Lab 4 Submission

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## Question 1

```
Tilix: jalopez@cis106vm: /snap/firefox
1: jalopez@cis106vm: /snap/firefox
jalopez@cis106vm:~$ pwd
/home/jalopez
jalopez@cis106vm:~$ cd /usr/share/themes/
jalopez@cis106vm:/usr/share/themes$ pwd
/usr/share/themes
jalopez@cis106vm:/usr/share/themes$ cd /
jalopez@cis106vm:/ $ cd /snap/firefox/
jalopez@cis106vm:/snap/firefox$
```

```
Tilix: jalopez@cis106vm: ~/Documents
1: jalopez@cis106vm: ~/Documents
jalopez@cis106vm:/snap/firefox$ cd
jalopez@cis106vm:~$ cd Downloads/
jalopez@cis106vm:~/Downloads$ cd ../../
jalopez@cis106vm:/home$ pwd
/home
jalopez@cis106vm:/home$ cd jalopez/Documents/
jalopez@cis106vm:~/Documents$
```

## Question 2

```
1/1  +  [ ] [ ] Tilix: jalopez@cis106vm: ~/lab4files  [ ] [ ] [ ] [ ] [ ]
1: jalopez@cis106vm: ~/lab4files  [ ] [ ]
jalopez@cis106vm:/snap/firefox$ cd
jalopez@cis106vm:~$ cd Downloads/
jalopez@cis106vm:~/Downloads$ cd ../../
jalopez@cis106vm:/home$ pwd
/home
jalopez@cis106vm:/home$ cd jalopez/Documents/
jalopez@cis106vm:~/Documents$ cd /usr/share/
jalopez@cis106vm:/usr/share$ ls /home/jalopez/lab4files/
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv     globe.avi      Linux.pdf     Tux.png     website.html
jalopez@cis106vm:/usr/share$ cd /home/jalopez/lab4files/
jalopez@cis106vm:~/lab4files$ ls -l
total 6580
-rw-rw-r-- 1 jalopez jalopez 20471 Feb 22 2022 countries.json
-rw-rw-r-- 1 jalopez jalopez 284042 Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 jalopez jalopez 764176 Feb 22 2022 document.docx
-rw-rw-r-- 1 jalopez jalopez 742478 Feb 22 2022 globe.avi
-rw-rw-r-- 1 jalopez jalopez 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 jalopez jalopez 2600138 Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 jalopez jalopez 8704 Feb 22 2022 sample.xls
-rw-rw-r-- 1 jalopez jalopez 42777 Feb 22 2022 Tux.png
-rw-rw-r-- 1 jalopez jalopez 2114053 Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 jalopez jalopez 137453 Feb 22 2022 website.html
jalopez@cis106vm:~/lab4files$
```

```
1/1  +  [ ] [ ] Tilix: jalopez@cis106vm: ~/lab4files  [ ] [ ] [ ] [ ] [ ]
1: jalopez@cis106vm: ~/lab4files  [ ] [ ]
jalopez@cis106vm:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 jalopez jalopez 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 jalopez jalopez 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 jalopez jalopez 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 jalopez jalopez 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 jalopez jalopez 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 jalopez jalopez 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 jalopez jalopez 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 jalopez jalopez 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 jalopez jalopez 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 jalopez jalopez 135K Feb 22 2022 website.html
jalopez@cis106vm:~/lab4files$ ls -lhs
total 6.5M
-rw-rw-r-- 1 jalopez jalopez 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 jalopez jalopez 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 jalopez jalopez 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 jalopez jalopez 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 jalopez jalopez 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 jalopez jalopez 135K Feb 22 2022 website.html
-rw-rw-r-- 1 jalopez jalopez 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 jalopez jalopez 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 jalopez jalopez 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 jalopez jalopez 76 Feb 22 2022 helloWorld.c
jalopez@cis106vm:~/lab4files$
```

```
1/1 + [Tilix: jalopez@cis106vm: ~/lab4files] [Q] [≡] [–] [□] [×]
1: jalopez@cis106vm: ~/lab4files
jalopez@cis106vm:~/lab4files$ ls -lhSgGi
total 6.5M
934059 -rw-rw-r-- 1 2.5M Feb 22 2022 Linux.pdf
934061 -rw-rw-r-- 1 2.1M Feb 22 2022 Ubuntu.pdf
934064 -rw-rw-r-- 1 747K Feb 22 2022 document.docx
934065 -rw-rw-r-- 1 726K Feb 22 2022 globe.avi
934063 -rw-rw-r-- 1 278K Feb 22 2022 csvfile.csv
934068 -rw-rw-r-- 1 135K Feb 22 2022 website.html
934060 -rw-rw-r-- 1 42K Feb 22 2022 Tux.png
934062 -rw-rw-r-- 1 20K Feb 22 2022 countries.json
934067 -rw-rw-r-- 1 8.5K Feb 22 2022 sample.xls
934066 -rw-rw-r-- 1 76 Feb 22 2022 helloWorld.c
jalopez@cis106vm:~/lab4files$ ls -Xr
sample.xls  Ubuntu.pdf  countries.json  document.docx  helloWorld.c
Tux.png     Linux.pdf   website.html   csvfile.csv    globe.avi
jalopez@cis106vm:~/lab4files$
```

### Question 3

```
1/1 + [T] [C] Tilix: jalopez@cis106vm: ~/Downloads [Q] [≡] [–] [□] [X]

1:jalopez@cis106vm: ~/Downloads ▾

jalopez@cis106vm:/etc$ tree ~/lab4files/
/home/jalopez/lab4files/
├── countries.json
├── csvfile.csv
├── document.docx
├── globe.avi
├── helloWorld.c
├── Linux.pdf
├── sample.xls
├── Tux.png
├── Ubuntu.pdf
└── website.html

0 directories, 10 files
jalopez@cis106vm:/etc$ cd ~/Downloads/
jalopez@cis106vm:~/Downloads$ tree -fp ../lab4files/
[drwxrwxr-x] ../lab4files
├── [-rw-rw-r--] ../lab4files/countries.json
├── [-rw-rw-r--] ../lab4files/csvfile.csv
├── [-rw-rw-r--] ../lab4files/document.docx
├── [-rw-rw-r--] ../lab4files/globe.avi
├── [-rw-rw-r--] ../lab4files/helloWorld.c
├── [-rw-rw-r--] ../lab4files/Linux.pdf
├── [-rw-rw-r--] ../lab4files/sample.xls
├── [-rw-rw-r--] ../lab4files/Tux.png
├── [-rw-rw-r--] ../lab4files/Ubuntu.pdf
└── [-rw-rw-r--] ../lab4files/website.html

0 directories, 10 files
jalopez@cis106vm:~/Downloads$
```

```
1/1 + [T] [C] Tilix: jalopez@cis106vm: ~/Downloads [Q] [≡] [–] [□] [X]

1:jalopez@cis106vm: ~/Downloads ▾ AI [□] [X]

jalopez@cis106vm:~/Downloads$ tree -tug ../lab4files/
[jalopez jalopez] ../lab4files/
├── [jalopez jalopez] Linux.pdf
├── [jalopez jalopez] Tux.png
├── [jalopez jalopez] Ubuntu.pdf
├── [jalopez jalopez] sample.xls
├── [jalopez jalopez] globe.avi
├── [jalopez jalopez] document.docx
├── [jalopez jalopez] csvfile.csv
├── [jalopez jalopez] countries.json
├── [jalopez jalopez] website.html
└── [jalopez jalopez] helloWorld.c

0 directories, 10 files
jalopez@cis106vm:~/Downloads$ exa --help
Usage:
  exa [options] [files...]

META OPTIONS
  -?, --help          show list of command-line options
  -v, --version        show version of exa
```

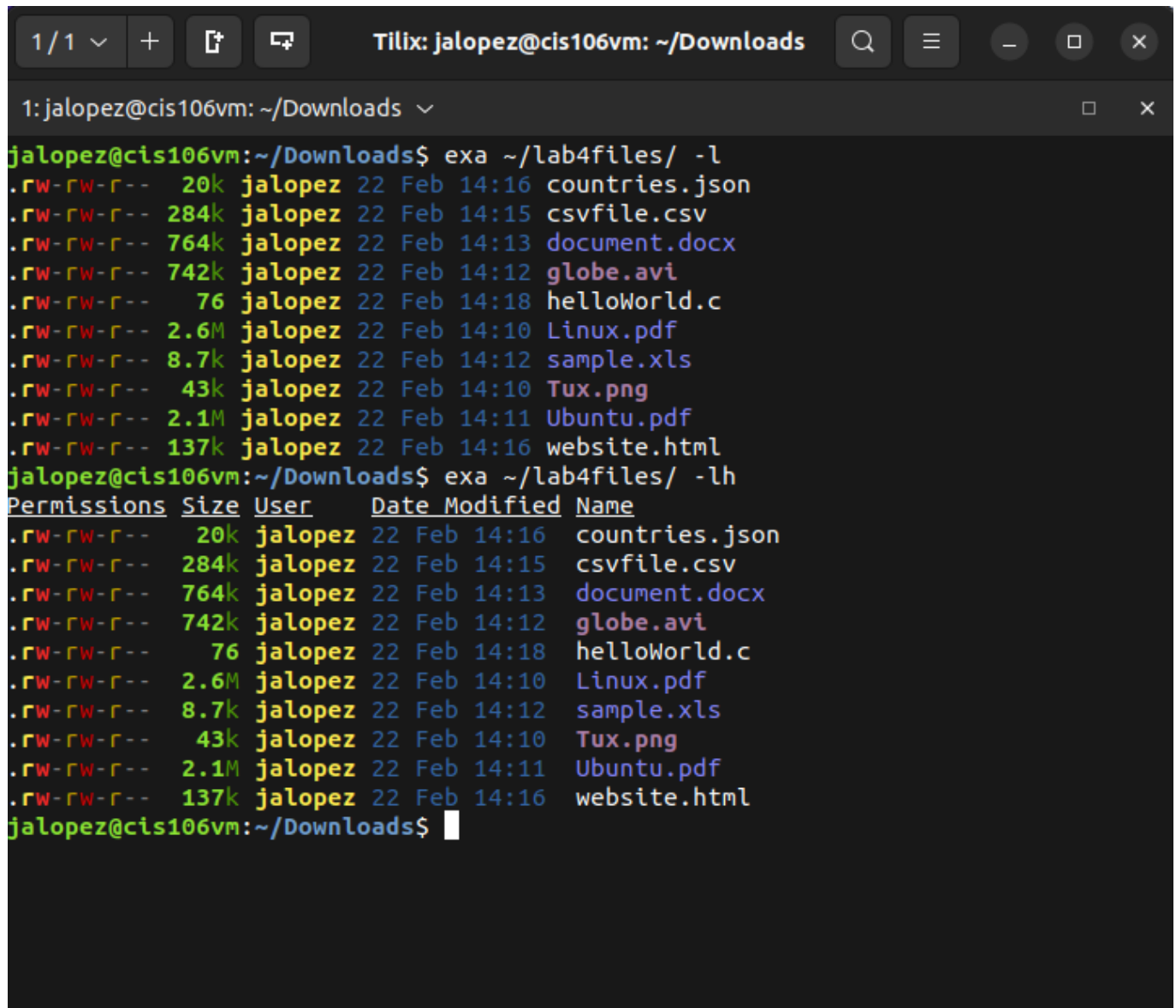
```

-v, --version          show version of cfdisk

```

DISPLAY OPTIONS

-1, --oneline	display one entry per line
-l, --long	display extended file metadata as a table
-G, --grid	display entries as a grid (default)
-x, --across	sort the grid across, rather than downwards
-R, --recurse	recurse into directories
-T, --tree	recurse into directories as a tree
-F, --classify	display type indicator by file names



The image shows a terminal window titled "Tilix: jalopez@cis106vm: ~/Downloads". The terminal displays the output of the command `exa ~/lab4files/ -l`, which lists files with permissions, size, user, date, and name. The output is as follows:

```
jalopez@cis106vm:~/Downloads$ exa ~/lab4files/ -l
.rw-rw-r-- 20k jalopez 22 Feb 14:16 countries.json
.rw-rw-r-- 284k jalopez 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k jalopez 22 Feb 14:13 document.docx
.rw-rw-r-- 742k jalopez 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 jalopez 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M jalopez 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k jalopez 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k jalopez 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M jalopez 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k jalopez 22 Feb 14:16 website.html
```

Then, the command `exa ~/lab4files/ -lh` is executed, which lists the same files with a header row and a blank line between the two listings:

```
jalopez@cis106vm:~/Downloads$ exa ~/lab4files/ -lh
Permissions Size User Date Modified Name
.rw-rw-r-- 20k jalopez 22 Feb 14:16 countries.json
.rw-rw-r-- 284k jalopez 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k jalopez 22 Feb 14:13 document.docx
.rw-rw-r-- 742k jalopez 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 jalopez 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M jalopez 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k jalopez 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k jalopez 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M jalopez 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k jalopez 22 Feb 14:16 website.html
jalopez@cis106vm:~/Downloads$
```



```
1/1 + [icons] Tilix: jalopez@cis106vm: ~/Downloads [search] [menu] [window] [close]

1: jalopez@cis106vm: ~/Downloads ▾ [close] [x]

.rw-rw-r-- 2.6M jalopez 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k jalopez 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k jalopez 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M jalopez 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k jalopez 22 Feb 14:16 website.html
jalopez@cis106vm:~/Downloads$ exa ~/lab4files/ -lh
Permissions Size User Date Modified Name
.rw-rw-r-- 20k jalopez 22 Feb 14:16 countries.json
.rw-rw-r-- 284k jalopez 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k jalopez 22 Feb 14:13 document.docx
.rw-rw-r-- 742k jalopez 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 jalopez 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M jalopez 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k jalopez 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k jalopez 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M jalopez 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k jalopez 22 Feb 14:16 website.html
jalopez@cis106vm:~/Downloads$ exa ~/lab4files/ -lh --no-user -U
Permissions Size Date Created Name
.rw-rw-r-- 20k 15 Oct 22:08 countries.json
.rw-rw-r-- 284k 15 Oct 22:08 csvfile.csv
.rw-rw-r-- 764k 15 Oct 22:08 document.docx
.rw-rw-r-- 742k 15 Oct 22:08 globe.avi
.rw-rw-r-- 76 15 Oct 22:08 helloWorld.c
.rw-rw-r-- 2.6M 15 Oct 22:08 Linux.pdf
.rw-rw-r-- 8.7k 15 Oct 22:08 sample.xls
.rw-rw-r-- 43k 15 Oct 22:08 Tux.png
.rw-rw-r-- 2.1M 15 Oct 22:08 Ubuntu.pdf
.rw-rw-r-- 137k 15 Oct 22:08 website.html
jalopez@cis106vm:~/Downloads$
```

## Question 4 Challenge Question

```

1/1  +  [Icons]  Tilix: jalopez@cis106vm: /usr
1: jalopez@cis106vm: /usr
jalopez@cis106vm:~$ pwd
/home/jalopez
jalopez@cis106vm:~$ cd /usr/
jalopez@cis106vm:/usr$ cd /proc/sys/net/ipv4
jalopez@cis106vm:/proc/sys/net/ipv4$ cd /usr/
jalopez@cis106vm:/usr$ ls share/backgrounds/
Blue_flower_by_Elena_Stravoravdi.jpg
canvas_by_roytanck.jpg
Cherry_Tree_in_Lakones_by_elenastravoravdi.jpg
contest
DSC2943_by_kcpru.jpg
Jammy-Jellyfish_WP_4096x2304_Grey.png
jj_dark_by_Hiking93.jpg
jj_light_by_Hiking93.jpg
Mirror_by_Uday_Nakade.jpg
Optical_Fibers_in_Dark_by_Elena_Stravoravdi.jpg
ubuntu2_by_arman1992.jpg
ubuntu_by_arman1992.jpg
ubuntu-default-greyscale-wallpaper.png
warty-final-ubuntu.png
jalopez@cis106vm:/usr$

```

```

1/1  +  [Icons]  Tilix: jalopez@cis106vm: /dev/disk/by-id
1: jalopez@cis106vm: /dev/disk/by-id
jalopez@cis106vm:/usr$ ls /home/jalopez/cis106
finalproject labs weekreports
jalopez@cis106vm:/usr$ cd /home
jalopez@cis106vm:/home$ ls jalopez/Downloads/
HTxsL2UXNn0ji5E1N-DPiI7QAYo.ttf lab4files.zip
jalopez@cis106vm:/home$ cd /dev/disk/by-id
jalopez@cis106vm:/dev/disk/by-id$ ls -la /home/jalopez/
total 10876
drwxr-x--- 22 jalopez jalopez    4096 Oct 15 22:08 .
drwxr-xr-x  3 root    root      4096 Sep 21 23:20 ..
-rw-r----- 1 jalopez jalopez    2548 Oct 15 22:55 .bash_history
-rw-r----- 1 jalopez jalopez     220 Sep 21 23:20 .bash_logout
-rw-r----- 1 jalopez jalopez    3771 Sep 21 23:20 .bashrc
drwx----- 18 jalopez jalopez    4096 Oct  5 17:27 .cache
drwxrwxr-x  6 jalopez jalopez    4096 Oct  7 23:33 cis106
-rw-rw-r--  1 jalopez jalopez    3520 Oct  5 17:16 .cis106.png
-rw-rw-r--  1 jalopez jalopez 10994579 Oct  7 21:55 .cis106.zip
drwx----- 20 jalopez jalopez    4096 Oct 15 22:56 .config
drwxr-xr-x  2 jalopez jalopez    4096 Oct  5 17:16 Desktop
drwxr-xr-x  2 jalopez jalopez    4096 Sep 21 23:24 Documents
drwxr-xr-x  2 jalopez jalopez    4096 Oct 15 22:08 Downloads
-rw-rw-r--  1 jalopez jalopez     48 Sep 22 00:19 gitcommands.txt
-rw-rw-r--  1 jalopez jalopez     60 Sep 21 23:54 .gitconfig
drwx-----  2 jalopez jalopez    4096 Oct  5 17:14 .gnupg
-rwxrwxr-x  1 jalopez jalopez     350 Sep 21 23:43 installprograms.sh
drwxrwxr-x  2 jalopez jalopez    4096 Feb 22  2022 lab4files
drwx-----  4 jalopez jalopez    4096 Sep 22 00:21 .local
drwx-----  3 jalopez jalopez    4096 Oct  5 17:18 .mozilla
drwxr-xr-x  2 jalopez jalopez    4096 Sep 21 23:24 Music
drwxr-xr-x  3 jalopez jalopez    4096 Sep 22 00:12 Pictures
drwx-----  3 jalopez jalopez    4096 Sep 21 23:38 .pki
-rw-r----- 1 jalopez jalopez     807 Sep 21 23:20 .profile
drwxr-xr-x  2 jalopez jalopez    4096 Sep 21 23:24 Public
drwx-----  6 jalopez jalopez    4096 Sep 21 23:49 snap
drwx-----  2 jalopez jalopez    4096 Sep 21 23:57 .ssh
-rw-r----- 1 jalopez jalopez       0 Sep 21 23:26 .sudo_as_admin_successful
drwxr-xr-x  2 jalopez jalopez    4096 Sep 21 23:24 Templates
drwx-----  6 jalopez jalopez    4096 Oct  5 17:18 .thunderbird
-rw-r----- 1 jalopez jalopez       5 Oct 15 21:56 .vboxclient-clipboard.pid
-rw-r----- 1 jalopez jalopez       5 Oct 15 21:56 .vboxclient-display-svga-x11.pid

```



```

-rw-r----- 1 jalopez jalopez      5 Oct 15 21:56 .vboxclient-draganddrop.pid
-rw-r----- 1 jalopez jalopez      5 Oct 15 21:56 .vboxclient-seamless.pid
drwxr-xr-x  2 jalopez jalopez    4096 Sep 21 23:24 Videos

1/1  +  [ ]  [ ]  Tilix: jalopez@cis106vm: ~
1:jalopez@cis106vm: ~
jalopez@cis106vm:~$ ls -lt /usr/share/backgrounds/
total 25448
lrwxrwxrwx 1 root root      37 Sep 21 17:07 ubuntu-default-greyscale-wallpaper.png -> Jammy-Jellyfish_WP_4
096x2304_Grey.png
-rw-r--r-- 1 root root 2044810 Aug  9 07:51 warty-final-ubuntu.png
drwxr-xr-x 2 root root   4096 Aug  9 07:49 contest
-rw-r--r-- 1 root root 3282920 Apr 14 2022 Blue_flower_by_Elena_Stravoravdi.jpg
-rw-r--r-- 1 root root 152918 Apr 14 2022 canvas_by_roytanck.jpg
-rw-r--r-- 1 root root 4358768 Apr 14 2022 Cherry_Tree_in_Lakones_by_elenastravoravdi.jpg
-rw-r--r-- 1 root root 778698 Apr 14 2022 DSC2943_by_kcpru.jpg
-rw-r--r-- 1 root root 1672978 Apr 14 2022 Jammy-Jellyfish_WP_4096x2304_Grey.png
-rw-r--r-- 1 root root 191945 Apr 14 2022 jj_dark_by_Hiking93.jpg
-rw-r--r-- 1 root root 250557 Apr 14 2022 jj_light_by_Hiking93.jpg
-rw-r--r-- 1 root root 1135788 Apr 14 2022 Mirror_by_Uday_Nakade.jpg
-rw-r--r-- 1 root root 2705552 Apr 14 2022 Optical_Fibers_in_Dark_by_Elena_Stravoravdi.jpg
-rw-r--r-- 1 root root 3891119 Apr 14 2022 ubuntu2_by_arman1992.jpg
-rw-r--r-- 1 root root 5559872 Apr 14 2022 ubuntu_by_arman1992.jpg
jalopez@cis106vm:~$ ls -lX /usr/share
total 1388
drwxr-xr-x  4 root root  4096 Oct  5 17:27 accountsservice
drwxr-xr-x  2 root root  4096 Sep 21 23:45 aclocal
drwxr-xr-x  2 root root  4096 Aug  9 07:49 acpi-support
drwxr-xr-x  2 root root  4096 Aug  9 07:48 adduser
drwxr-xr-x  4 root root  4096 Sep 21 23:37 aisleriot
drwxr-xr-x  3 root root  4096 Oct  5 17:27 alacarte
drwxr-xr-x 11 root root  4096 Aug  9 07:49 alsa
drwxr-xr-x  2 root root  4096 Aug  9 07:49 alsa-base
drwxr-xr-x  3 root root  4096 Aug  9 07:49 alsa-card-profile
drwxr-xr-x  2 root root  4096 Aug  9 07:50 appdata
drwxr-xr-x  3 root root  4096 Sep 22 00:01 app-info
drwxr-xr-x  2 root root 12288 Oct  5 19:48 applications
drwxr-xr-x  4 root root  4096 Sep 21 23:37 appport
drwxr-xr-x  4 root root  4096 Sep 21 23:46 apps
drwxr-xr-x  2 root root  4096 Aug  9 07:49 apturl
drwxr-xr-x  2 root root  4096 Aug  9 07:49 aspell
drwxr-xr-x  2 root root  4096 Aug  9 07:49 avahi
drwxr-xr-x  3 root root  4096 Aug  9 07:49 backgrounds
drwxr-xr-x  2 root root  4096 Aug  9 07:48 base-files
drwxr-xr-x  2 root root  4096 Aug  9 07:48 base-passwd
drwxr-xr-x  4 root root  4096 Aug  9 07:49 bash-completion
drwxr-xr-x  2 root root  4096 Aug  9 07:48 binfmts
drwxr-xr-x  4 root root  4096 Aug  9 07:49 branding
drwxr-xr-x  3 root root  4096 Aug  9 07:50 brltty

```