

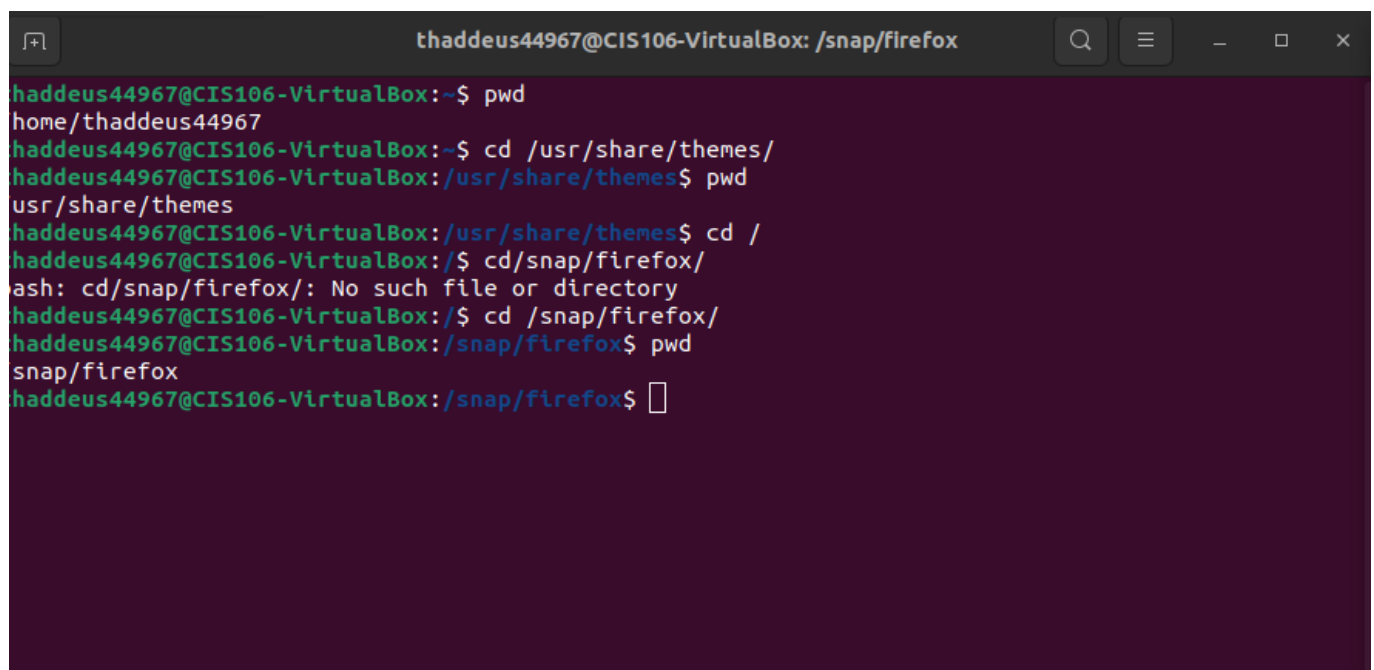
## Question 1 | Moving around the file system

- pwd: Print the absolute path of the current working directory; Present Working Directory.
- cd: Change the shell current working directory; Change Directory.
- ls: list files inside a given directory; List;

Using pwd and cd with absolute path (remember to use the bash autocompletion feature)

1. Start a terminal what is your present working directory?
2. Change your present working directory to `/usr/share/themes`
3. What is your present working directory now?
4. Change your present working directory to the root of the filesystem
5. Change your present working directory to `/snap/firefox/`

Take a screenshot of the terminal only. Your screenshot must show all the command that you used to answer questions 1-5.

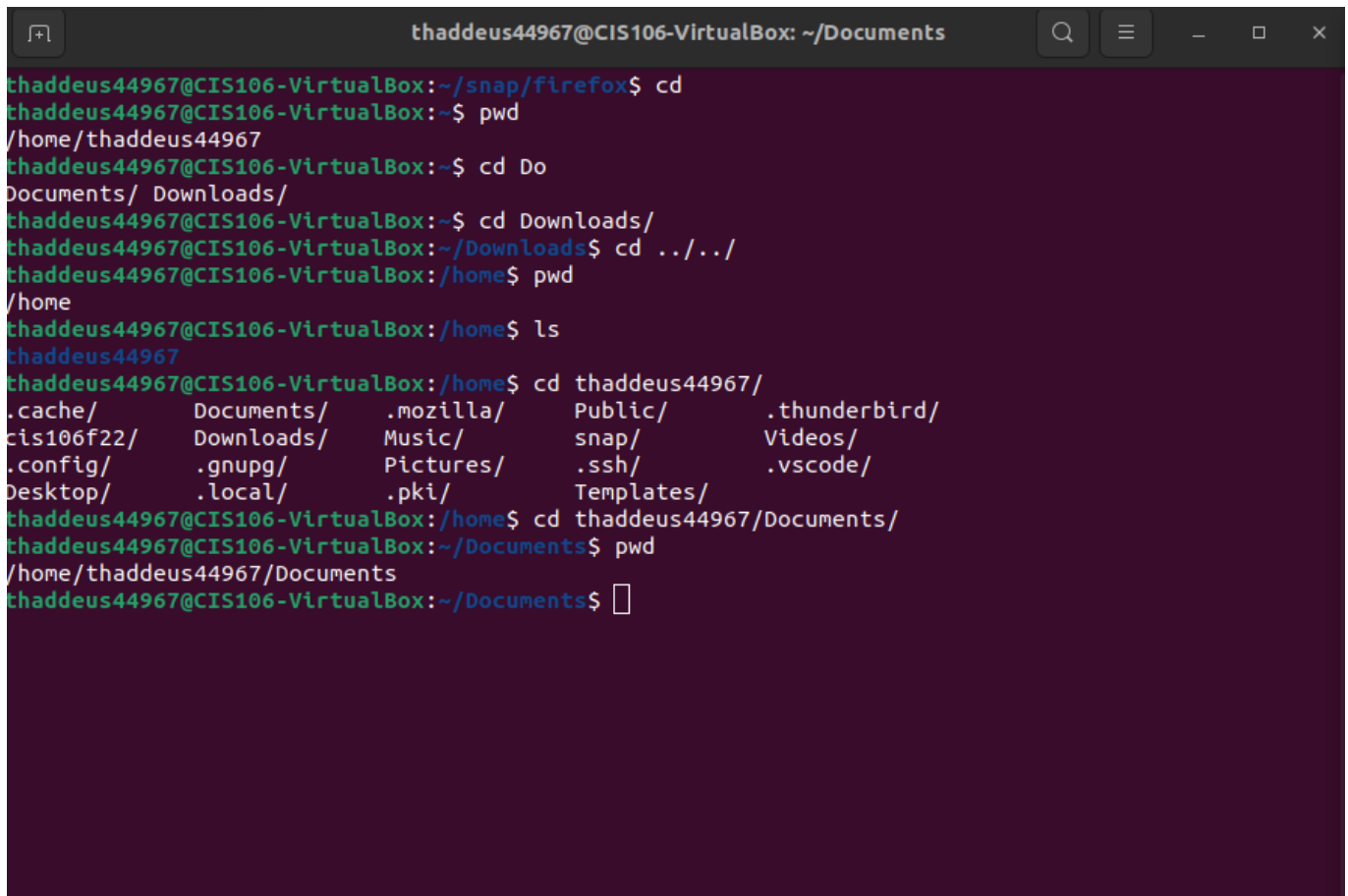


```
thaddeus44967@CIS106-VirtualBox: /snap/firefox
haddeus44967@CIS106-VirtualBox:~$ pwd
home/thaddeus44967
haddeus44967@CIS106-VirtualBox:~$ cd /usr/share/themes/
haddeus44967@CIS106-VirtualBox:/usr/share/themes$ pwd
usr/share/themes
haddeus44967@CIS106-VirtualBox:/usr/share/themes$ cd /
haddeus44967@CIS106-VirtualBox:/$ cd /snap/firefox/
ash: cd /snap/firefox/: No such file or directory
haddeus44967@CIS106-VirtualBox:/$ cd /snap/firefox/
haddeus44967@CIS106-VirtualBox:/snap/firefox$ pwd
snap/firefox
haddeus44967@CIS106-VirtualBox:/snap/firefox$
```

Using pwd and cd with a relative path (remember to use the bash autocompletion feature)

1. Clear your terminal window. Change the working directory to **YOUR** home directory.
2. Change the working directory to the `Downloads` directory.
3. Go back 2 directories.
4. Where are you now?
5. Change the working directory to the `Documents/` directory.

Take a screenshot of the terminal only. only. Your screenshot must show all the commands that you used to answer questions 6-10.



```
thaddeus44967@CIS106-VirtualBox: ~/Documents
thaddeus44967@CIS106-VirtualBox:~/snap/firefox$ cd
thaddeus44967@CIS106-VirtualBox:~$ pwd
/home/thaddeus44967
thaddeus44967@CIS106-VirtualBox:~$ cd Do
Documents/ Downloads/
thaddeus44967@CIS106-VirtualBox:~$ cd Downloads/
thaddeus44967@CIS106-VirtualBox:~/Downloads$ cd ../../
thaddeus44967@CIS106-VirtualBox:/home$ pwd
/home
thaddeus44967@CIS106-VirtualBox:/home$ ls
thaddeus44967
thaddeus44967@CIS106-VirtualBox:/home$ cd thaddeus44967/
.cache/      Documents/  .mozilla/   Public/     .thunderbird/
cis106f22/   Downloads/  Music/      snap/       Videos/
.config/     .gnupg/    Pictures/   .ssh/      .vscode/
Desktop/     .local/    .pki/      Templates/
thaddeus44967@CIS106-VirtualBox:/home$ cd thaddeus44967/Documents/
thaddeus44967@CIS106-VirtualBox:~/Documents$ pwd
/home/thaddeus44967/Documents
thaddeus44967@CIS106-VirtualBox:~/Documents$
```

## Question 2 | The ls command

Download this compressed zip file: [lab4files.zip](#) Decompress the zip file in **your home** directory.

1. Change your present working directory to `/usr/share/`. Using absolute path, list all the files inside the `lab4files` directory.
2. Change your present working directory to `~/lab4files`. Long list all the files inside your current working directory with human readable file sizes.
3. Long list all the files inside `lab4files` with human readable file size, and sorted by file size.
4. Long list all the files inside `lab4files` with human readable file size, sorted by file size. without the user nor the group name, and showing their inode number.
5. list all the files inside `lab4files` sorted by file extension and in reverse order.

Take a screenshot of the terminal only. Your screenshot must show all the commands that you used to answer questions 105. Multiple screenshots may be **required**

```

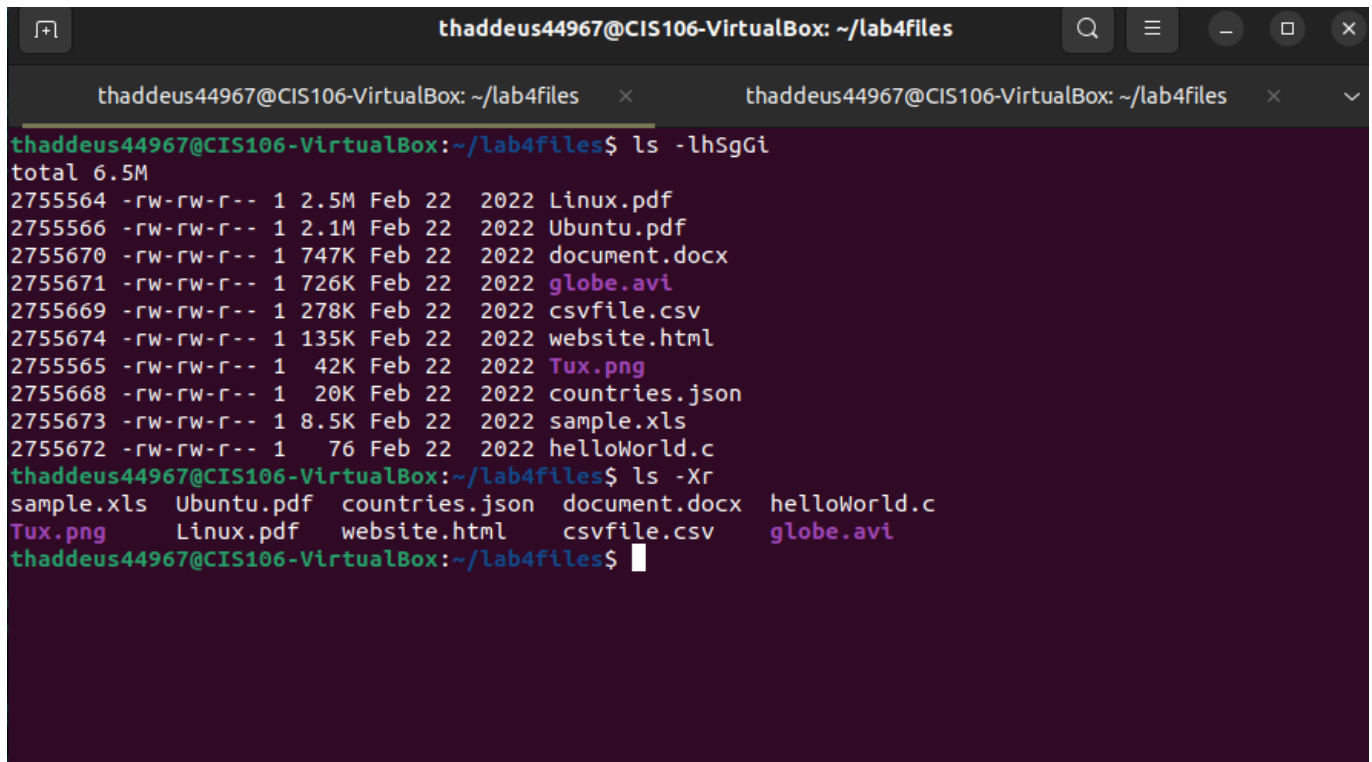
/home/thaddeus44967/Documents
thaddeus44967@CIS106-VirtualBox:~/Documents$ cd /usr/share/
thaddeus44967@CIS106-VirtualBox:/usr/share$ ls /home/thaddeus44967/lab4files/
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv    globe.avi      Linux.pdf     Tux.png     website.html
thaddeus44967@CIS106-VirtualBox:/usr/share$ cd /home/thaddeus44967/lab4files/
thaddeus44967@CIS106-VirtualBox:~/lab4files$ ls -l
total 6580
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 20471 Feb 22 2022 countries.json
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 284042 Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 764176 Feb 22 2022 document.docx
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 742478 Feb 22 2022 globe.avi
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 2600138 Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 8704 Feb 22 2022 sample.xls
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 42777 Feb 22 2022 Tux.png
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 2114053 Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 137453 Feb 22 2022 website.html
thaddeus44967@CIS106-VirtualBox:~/lab4files$ 

```

```

thaddeus44967@CIS106-VirtualBox: ~/lab4files
thaddeus44967@CIS106-VirtualBox: ~/lab4files
thaddeus44967@CIS106-VirtualBox:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 135K Feb 22 2022 website.html
thaddeus44967@CIS106-VirtualBox:~/lab4files$ ls -lS
total 6.5M
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 135K Feb 22 2022 website.html
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 thaddeus44967 thaddeus44967 76 Feb 22 2022 helloWorld.c
thaddeus44967@CIS106-VirtualBox:~/lab4files$ 

```

A screenshot of a terminal window titled 'thaddeus44967@CIS106-VirtualBox: ~/lab4files'. The terminal shows the output of the command 'ls -lhSg'. The output lists files in descending order of size: Linux.pdf (2.5M), Ubuntu.pdf (2.1M), document.docx (747K), globe.avi (726K), csvfile.csv (278K), website.html (135K), Tux.png (42K), countries.json (20K), sample.xls (8.5K), and helloWorld.c (76). Below this, the command 'ls -Xr' is executed, showing a two-column listing of the same files. The terminal window has a dark background and standard window controls at the top.

```
thaddeus44967@CIS106-VirtualBox: ~/lab4files$ ls -lhSgI
total 6.5M
2755564 -rw-rw-r-- 1 2.5M Feb 22 2022 Linux.pdf
2755566 -rw-rw-r-- 1 2.1M Feb 22 2022 Ubuntu.pdf
2755670 -rw-rw-r-- 1 747K Feb 22 2022 document.docx
2755671 -rw-rw-r-- 1 726K Feb 22 2022 globe.avi
2755669 -rw-rw-r-- 1 278K Feb 22 2022 csvfile.csv
2755674 -rw-rw-r-- 1 135K Feb 22 2022 website.html
2755565 -rw-rw-r-- 1 42K Feb 22 2022 Tux.png
2755668 -rw-rw-r-- 1 20K Feb 22 2022 countries.json
2755673 -rw-rw-r-- 1 8.5K Feb 22 2022 sample.xls
2755672 -rw-rw-r-- 1 76 Feb 22 2022 helloWorld.c
thaddeus44967@CIS106-VirtualBox:~/lab4files$ ls -Xr
sample.xls  Ubuntu.pdf  countries.json  document.docx  helloWorld.c
Tux.png    Linux.pdf   website.html   csvfile.csv    globe.avi
thaddeus44967@CIS106-VirtualBox:~/lab4files$
```

### Question 3 | The tree and exa command

*The tree and exa commands are not installed by default in Ubuntu. Make sure that the program is installed in your system before you continue with this question. If you are using an earlier version of Ubuntu, Exa is not available in the default repositories. However, you can install it by running this command: `curl https://cis106.com/assets/installlexa.sh | bash`*

1. Using absolute path and having `/etc` as your present working directory. Display a tree of the directory `lab4files`.
2. Change your present working directory to your `Downloads` directory. Display a tree of the directory `lab4files` with the full path prefix for each file, the file permissions, and the file size in human readable format.
3. Display a tree of the directory `lab4files` sorted by last modified time and showing the file owner and group.
4. Once you have installed exa, list all the options of the exa command.
5. Using exa, long list all the files inside `lab4files`
6. Long list `lab4files` showing the header that indicates what each column means.
7. Long list `lab4files` without the file owner nor group including the header and the date the file was created.

Take a screenshot of the terminal only. Your screenshot must show all the commands that you used to answer questions 1-5. Multiple screenshots may be required



```

thaddeus44967@CIS106-VirtualBox: ~/Downloads
thaddeus44967@CIS106-VirtualBox: ~/Downloads
thaddeus44967@CIS106-VirtualBox:~/etc$ cd /etc/
thaddeus44967@CIS106-VirtualBox:~/etc$ tree ~/lab4files/
/home/thaddeus44967/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
thaddeus44967@CIS106-VirtualBox:~/etc$ cd ~/Downloads/
thaddeus44967@CIS106-VirtualBox:~/Downloads$ tree -fph ../lab4files/
[drwxrwxr-x 4.0K] ../lab4files
├── [-rw-rw-r-- 20K] ../lab4files/countries.json
├── [-rw-rw-r-- 277K] ../lab4files/csvfile.csv
├── [-rw-rw-r-- 746K] ../lab4files/document.docx
├── [-rw-rw-r-- 725K] ../lab4files/globe.avi
├── [-rw-rw-r-- 76] ../lab4files/helloWorld.c
├── [-rw-rw-r-- 2.5M] ../lab4files/Linux.pdf
├── [-rw-rw-r-- 8.5K] ../lab4files/sample.xls
├── [-rw-rw-r-- 42K] ../lab4files/Tux.png
├── [-rw-rw-r-- 2.0M] ../lab4files/Ubuntu.pdf
└── [-rw-rw-r-- 134K] ../lab4files/website.html

0 directories, 10 files
thaddeus44967@CIS106-VirtualBox:~/Downloads$

```

```

thaddeus44967@CIS106-VirtualBox: ~/Downloads
thaddeus44967@CIS106-VirtualBox: ~/Downloads
thaddeus44967@CIS106-VirtualBox:~/Downloads$ tree -tug ../lab4files/
[thaddeus44967 thaddeus44967] ../lab4files/
├── [thaddeus44967 thaddeus44967] Linux.pdf
├── [thaddeus44967 thaddeus44967] Tux.png
├── [thaddeus44967 thaddeus44967] Ubuntu.pdf
├── [thaddeus44967 thaddeus44967] sample.xls
├── [thaddeus44967 thaddeus44967] globe.avi
├── [thaddeus44967 thaddeus44967] document.docx
├── [thaddeus44967 thaddeus44967] csvfile.csv
├── [thaddeus44967 thaddeus44967] countries.json
├── [thaddeus44967 thaddeus44967] website.html
└── [thaddeus44967 thaddeus44967] helloWorld.c

0 directories, 10 files
thaddeus44967@CIS106-VirtualBox:~/Downloads$ exa --help
Usage:
  exa [options] [files...]

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

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

```

```
-f, --classify          display type indicator by file names
--colo[u]r=WHEN        when to use terminal colours (always, auto, never)
--colo[u]r-scale        highlight levels of file sizes distinctly
--icons                display icons
--no-icons              don't display icons (always overrides --icons)

FILTERING AND SORTING OPTIONS
-a, --all              show hidden and 'dot' files
-d, --list-dirs        list directories as files; don't list their contents
-L, --level DEPTH      limit the depth of recursion
-r, --reverse          reverse the sort order
-s, --sort SORT_FIELD  which field to sort by
--group-directories-first list directories before other files
-D, --only-dirs        list only directories
-I, --ignore-glob GLOBS glob patterns (pipe-separated) of files to ignore
Valid sort fields:     name, Name, extension, Extension, size, type,
                        modified, accessed, created, inode, and none.
                        date, time, old, and new all refer to modified.

LONG VIEW OPTIONS
-b, --binary           list file sizes with binary prefixes
-B, --bytes            list file sizes in bytes, without any prefixes
-g, --group            list each file's group
-h, --header           add a header row to each column
```



```

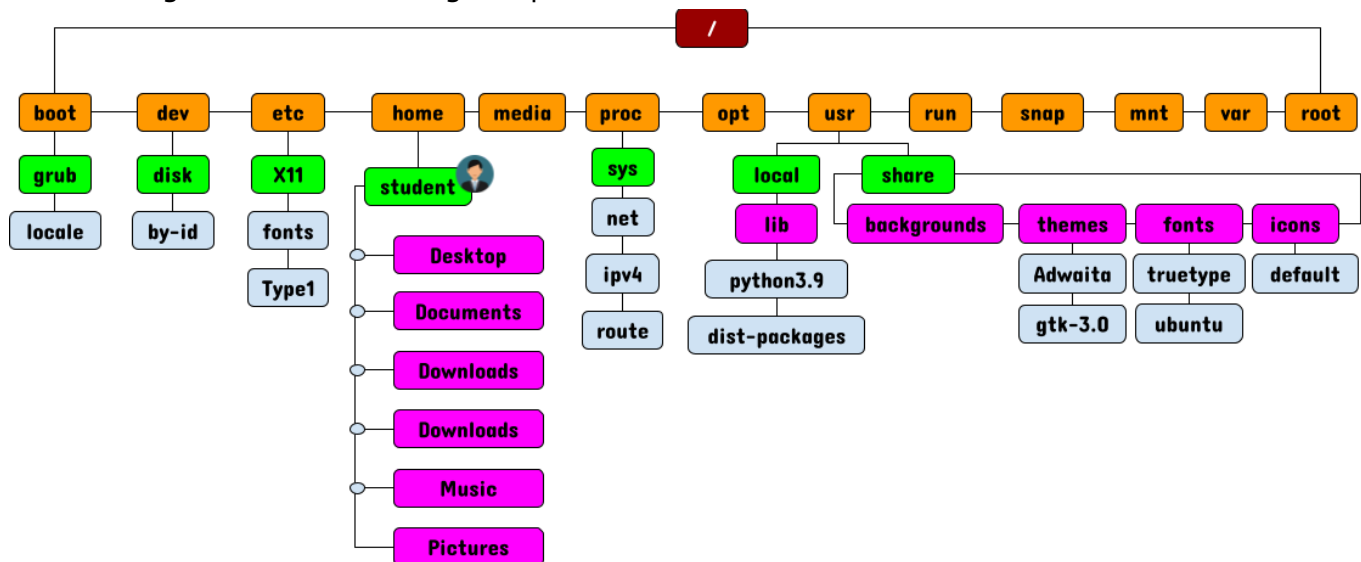
thaddeus44967@CIS106-VirtualBox: ~/Downloads
thaddeus44967@CIS106-VirtualBox: ~/Downloads  x  thaddeus44967@CIS106-VirtualBox: ~/lab4files  x  v
thaddeus44967@CIS106-VirtualBox:~/Downloads$ exa ~/lab4files/ -l
.rw-rw-r-- 20k thaddeus44967 22 Feb 14:16 countries.json
.rw-rw-r-- 284k thaddeus44967 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k thaddeus44967 22 Feb 14:13 document.docx
.rw-rw-r-- 742k thaddeus44967 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 thaddeus44967 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M thaddeus44967 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k thaddeus44967 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k thaddeus44967 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M thaddeus44967 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k thaddeus44967 22 Feb 14:16 website.html
thaddeus44967@CIS106-VirtualBox:~/Downloads$ exa ~/lab4files/ -lh
Permissions Size User Date Modified Name
.rw-rw-r-- 20k thaddeus44967 22 Feb 14:16 countries.json
.rw-rw-r-- 284k thaddeus44967 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k thaddeus44967 22 Feb 14:13 document.docx
.rw-rw-r-- 742k thaddeus44967 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 thaddeus44967 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M thaddeus44967 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k thaddeus44967 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k thaddeus44967 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M thaddeus44967 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k thaddeus44967 22 Feb 14:16 website.html
thaddeus44967@CIS106-VirtualBox:~/Downloads$ 
Permissions Size User Date Modified Name
.rw-rw-r-- 20k thaddeus44967 22 Feb 14:16 countries.json
.rw-rw-r-- 284k thaddeus44967 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k thaddeus44967 22 Feb 14:13 document.docx
.rw-rw-r-- 742k thaddeus44967 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 thaddeus44967 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M thaddeus44967 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k thaddeus44967 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k thaddeus44967 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M thaddeus44967 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k thaddeus44967 22 Feb 14:16 website.html
thaddeus44967@CIS106-VirtualBox:~/Downloads$ exa ~/lab4files/ -lh --no-user -U
Permissions Size Date Created Name
.rw-rw-r-- 20k 5 Oct 09:11 countries.json
.rw-rw-r-- 284k 5 Oct 09:11 csvfile.csv
.rw-rw-r-- 764k 5 Oct 09:11 document.docx
.rw-rw-r-- 742k 5 Oct 09:11 globe.avi
.rw-rw-r-- 76 5 Oct 09:11 helloWorld.c
.rw-rw-r-- 2.6M 5 Oct 09:11 Linux.pdf
.rw-rw-r-- 8.7k 5 Oct 09:11 sample.xls
.rw-rw-r-- 43k 5 Oct 09:11 Tux.png
.rw-rw-r-- 2.1M 5 Oct 09:11 Ubuntu.pdf
.rw-rw-r-- 137k 5 Oct 09:11 website.html
thaddeus44967@CIS106-VirtualBox:~/Downloads$ 

```

## Question 4 | Challenge Question



Use this image as a visual aid during this question



1. Open a new terminal. What is your present/current working directory

```
thaddeus44967@CIS106-VirtualBox: /usr/share
thaddeus44967@CIS106-VirtualBox: /usr/share x thaddeus44967@CIS106-VirtualBox: ~/lab4files x
thaddeus44967@CIS106-VirtualBox: ~/Downloads$ pwd
/home/thaddeus44967/Downloads
```

2. Change your present/current working directory to the `default` directory located inside `/usr`

```
thaddeus44967@CIS106-VirtualBox: ~/Downloads$ cd /usr
thaddeus44967@CIS106-VirtualBox: /usr$ cd /usr/share/icons/default
thaddeus44967@CIS106-VirtualBox: /usr/share/icons/default$ pwd
/usr/share/icons/default
```

3. Change your present/current working directory to the `ipv4` directory located inside `/proc`

```
thaddeus44967@CIS106-VirtualBox: ~$ cd /proc/
thaddeus44967@CIS106-VirtualBox: /proc$ cd /sys/ipv4/
bash: cd: /sys/ipv4/: No such file or directory
thaddeus44967@CIS106-VirtualBox: /proc$ cd /proc/sys
thaddeus44967@CIS106-VirtualBox: /proc/sys$ ls
abi debug dev fs kernel net user vm
thaddeus44967@CIS106-VirtualBox: /proc/sys$ cd /vm/
bash: cd: /vm/: No such file or directory
thaddeus44967@CIS106-VirtualBox: /proc/sys$ cd /proc/sys/vm
thaddeus44967@CIS106-VirtualBox: /proc/sys/vm$ pwd
/proc/sys/vm
```

4. Change you represent/current working directory to the previous present/working directory.

```
thaddeus44967@CIS106-VirtualBox: /proc/sys
thaddeus44967@CIS106-VirtualBox: /proc/sys/vm$ pwd
/proc/sys/vm
thaddeus44967@CIS106-VirtualBox: /proc/sys/vm$ cd ../
thaddeus44967@CIS106-VirtualBox: /proc/sys$ pwd
/proc/sys
```

5. List all the files inside `share/backgrounds` without changing your present working directory.

```
thaddeus44967@CIS106-VirtualBox: /proc/sys

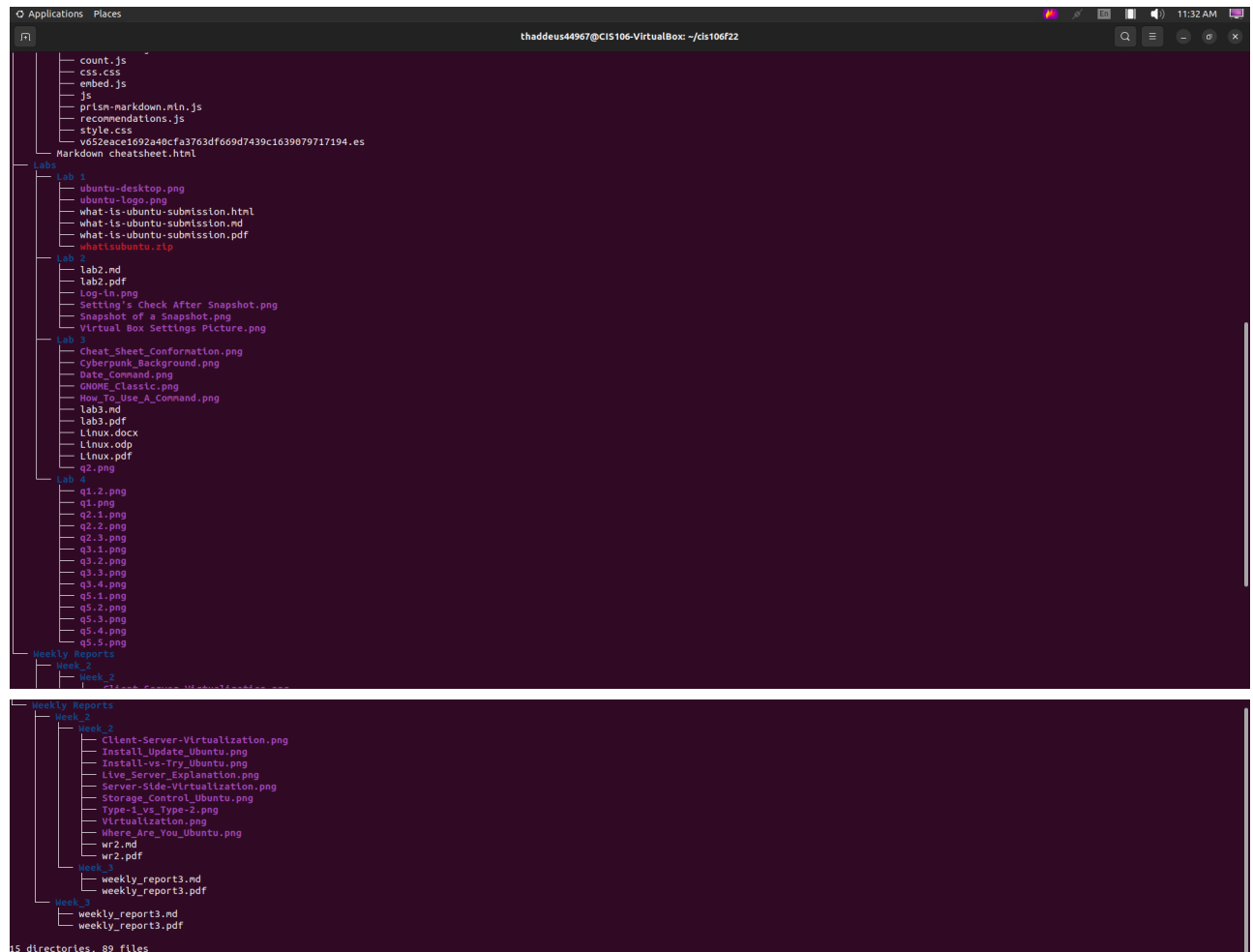
thaddeus44967@CIS106-VirtualBox: /proc/sys$ pwd
/proc/sys
thaddeus44967@CIS106-VirtualBox: /proc/sys$ tree /usr/share/backgrounds/
/usr/share/backgrounds/
├── Blue_flower_by_Elena_Stravoravdi.jpg
├── canvas_by_roytanck.jpg
├── Cherry_Tree_in_Lakones_by_elenastravoravdi.jpg
├── contest
│   └── jammy.xml
├── 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 -> Jammy-Jellyfish_WP_4096x2304_Grey.png
└── warty-final-ubuntu.png

1 directory, 14 files
thaddeus44967@CIS106-VirtualBox: /proc/sys$ ls /usr/share/backgrounds/
Blue_flower_by_Elena_Stravoravdi.jpg      jj_light_by_Hiking93.jpg
canvas_by_roytanck.jpg                    Mirror_by_Uday_Nakade.jpg
Cherry_Tree_in_Lakones_by_elenastravoravdi.jpg  Optical_Fibers_in_Dark_by_Elena_Stravoravdi.jpg
contest                                    ubuntu2_by_arman1992.jpg
DSC2943_by_kcpru.jpg                      ubuntu_by_arman1992.jpg
Jammy-Jellyfish_WP_4096x2304_Grey.png      ubuntu-default-greyscale-wallpaper.png
jj_dark_by_Hiking93.jpg                    warty-final-ubuntu.png
thaddeus44967@CIS106-VirtualBox: /proc/sys$ pwd
/proc/sys
```

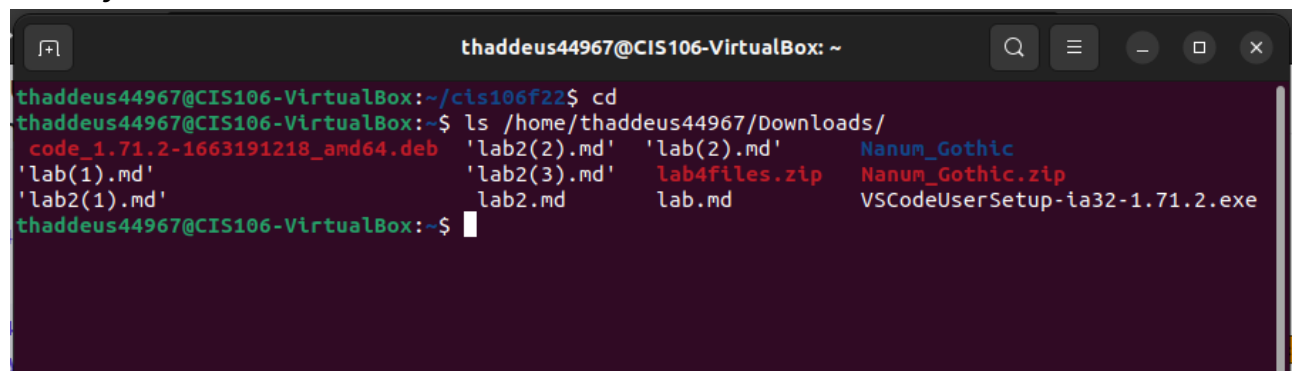
6. List all the files inside your `cis106` directory located in YOUR home directory.

```
thaddeus44967@CIS106-VirtualBox: ~/cis106f22

thaddeus44967@CIS106-VirtualBox: ~/cis106f22$ ls -l
total 24
drwxrwxr-x 6 thaddeus44967 thaddeus44967 4096 Oct 2 17:19 .
drwxr-x--- 22 thaddeus44967 thaddeus44967 4096 Oct 5 11:02 ..
drwxrwxr-x 3 thaddeus44967 thaddeus44967 4096 Oct 2 22:27 Cheatsheets
drwxrwxr-x 8 thaddeus44967 thaddeus44967 4096 Oct 2 22:55 .git
drwxrwxr-x 6 thaddeus44967 thaddeus44967 4096 Oct 5 08:53 Labs
drwxrwxr-x 4 thaddeus44967 thaddeus44967 4096 Oct 2 22:54 'Weekly Reports'
thaddeus44967@CIS106-VirtualBox: ~/cis106f22$ ls -lh --all
total 24K
drwxrwxr-x 6 thaddeus44967 thaddeus44967 4.0K Oct 2 17:19 .
drwxr-x--- 22 thaddeus44967 thaddeus44967 4.0K Oct 5 11:02 ..
drwxrwxr-x 3 thaddeus44967 thaddeus44967 4.0K Oct 2 22:27 Cheatsheets
drwxrwxr-x 8 thaddeus44967 thaddeus44967 4.0K Oct 2 22:55 .git
drwxrwxr-x 6 thaddeus44967 thaddeus44967 4.0K Oct 5 08:53 Labs
drwxrwxr-x 4 thaddeus44967 thaddeus44967 4.0K Oct 2 22:54 'Weekly Reports'
thaddeus44967@CIS106-VirtualBox: ~/cis106f22$ tree -c /cis106f22
/cis106f22
├── Cheatsheets
│   ├── Linux Workshop Ubuntu Software Installation cheat sheet.png
│   └── markdown_cheatsheet_files
│       ├── 1659102698-SatsGlow.png
│       ├── a_002.html
│       ├── a_003.html
│       ├── a_004.html
│       ├── a_data_003
│       │   ├── common.bundle.a59fbd1efae764ccd959d61e4925fee.js
│       │   ├── recommendations.10022e97346f1c6e3798931bb08e4bb5.css
│       │   ├── recommendations.bundle.920bc472e4859a8d8aa346b4ba2ab4f4.js
│       │   └── recommendations.load.9d352c9674ae8172f8669d3aa3a905e9.js
│       ├── a_data_004
│       │   ├── api.js
│       │   ├── cb=gapi.es
│       │   ├── common.bundle.33bc87b2c4f9324203cc85b7dd1d0492.js
│       │   ├── config.js
│       │   └── iframe_data
│       │       ├── mbase.es
│       │       └── iframe.html
│       ├── lounge.46ac8cae270fbd103ff8c0bf581143c6.css
│       ├── lounge.bundle.4a4252944de199d2e7f3e9e3eb9bc54.js
│       ├── lounge.load.8ec9a3bb67bcd3fa25977c9ac7c3c810.js
│       ├── noavatar92.png
│       ├── pixel.gif
│       ├── sdk_002.js
│       └── sdk.js
├── a.html
├── analytics.js
├── app.js
├── carbon.js
├── CE7IK5QM.json
├── count-data.js
├── count.js
```



- List all the files inside your **Downloads** directory. Your present working directory has to be **/home** before you can list all the files.



- Change your present/current working directory to **disk/by-id** and from there long list all the files in your home directory including hidden files.

```

thaddeus44967@CIS106-VirtualBox: /dev/disk/by-id

thaddeus44967@CIS106-VirtualBox: /usr/share/themes$ cd /dev/disk/by-id
thaddeus44967@CIS106-VirtualBox: /dev/disk/by-id$ ls
ata-VBOX_CD-ROM_VB2-01700376          ata-VBOX_HARDDISK_VBe8f67dae-582f8643-part2
ata-VBOX_HARDDISK_VBe8f67dae-582f8643  ata-VBOX_HARDDISK_VBe8f67dae-582f8643-part3
ata-VBOX_HARDDISK_VBe8f67dae-582f8643-part1
thaddeus44967@CIS106-VirtualBox: /dev/disk/by-id$ ls -l --all
total 0
drwxr-xr-x 2 root root 140 Oct  5 08:32 .
drwxr-xr-x 8 root root 160 Oct  5 08:32 ..
lrwxrwxrwx 1 root root  9 Oct  5 08:32 ata-VBOX_CD-ROM_VB2-01700376 -> ../../sr0
lrwxrwxrwx 1 root root  9 Oct  5 08:32 ata-VBOX_HARDDISK_VBe8f67dae-582f8643 -> ../../sda
lrwxrwxrwx 1 root root 10 Oct  5 08:32 ata-VBOX_HARDDISK_VBe8f67dae-582f8643-part1 -> ../../sda1
lrwxrwxrwx 1 root root 10 Oct  5 08:32 ata-VBOX_HARDDISK_VBe8f67dae-582f8643-part2 -> ../../sda2
lrwxrwxrwx 1 root root 10 Oct  5 08:32 ata-VBOX_HARDDISK_VBe8f67dae-582f8643-part3 -> ../../sda3
thaddeus44967@CIS106-VirtualBox: /dev/disk/by-id$

```

9. List all the files sorted by modification time inside the `share/themes` directory.

```

thaddeus44967@CIS106-VirtualBox: /usr/share/themes$ cd
thaddeus44967@CIS106-VirtualBox: $ cd /usr/share/themes/
thaddeus44967@CIS106-VirtualBox: /usr/share/themes$ ls -ln
adwaita, adwaita-dark, default, emacs, highcontrast, raleigh, varu, varu-bark, varu-bark-dark,
varu-blue, varu-blue-dark, varu-dark, varu-dark-hdpi, varu-dark-xdpl, varu-hdpi, varu-magenta,
varu-magenta-dark, varu-olive, varu-olive-dark, varu-prussiangreen, varu-prussiangreen-dark,
varu-purple, varu-purple-dark, varu-red, varu-red-dark, varu-sage, varu-sage-dark, varu-viridian,
varu-viridian-dark, varu-xdpl
thaddeus44967@CIS106-VirtualBox: /usr/share/themes$ ls -lg
total 120
drwxr-xr-x 4 root 4096 Aug  9 07:49 adwaita
drwxr-xr-x 4 root 4096 Aug  9 07:49 adwaita-dark
drwxr-xr-x 4 root 4096 Aug  9 07:49 default
drwxr-xr-x 4 root 4096 Aug  9 07:49 emacs
drwxr-xr-x 4 root 4096 Aug  9 07:49 highcontrast
drwxr-xr-x 3 root 4096 Aug  9 07:49 raleigh
drwxr-xr-x 7 root 4096 Aug  9 07:50 varu
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-bark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-bark-dark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-blue
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-blue-dark
drwxr-xr-x 7 root 4096 Aug  9 07:50 varu-dark
drwxr-xr-x 3 root 4096 Aug  9 07:50 varu-dark-hdpi
drwxr-xr-x 3 root 4096 Aug  9 07:50 varu-dark-xdpl
drwxr-xr-x 3 root 4096 Aug  9 07:50 varu-hdpi
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-magenta
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-magenta-dark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-olive
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-olive-dark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-prussiangreen
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-prussiangreen-dark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-purple
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-purple-dark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-red
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-red-dark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-sage
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-sage-dark
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-viridian
drwxr-xr-x 5 root 4096 Aug  9 07:50 varu-viridian-dark
drwxr-xr-x 3 root 4096 Aug  9 07:50 varu-xdpl
thaddeus44967@CIS106-VirtualBox: /usr/share/themes$

```

List all the files sorted by file extension inside the `/usr/share` directory.

```

thaddeus44967@CIS106-VirtualBox: /usr/share$ cd ../
thaddeus44967@CIS106-VirtualBox: /usr/share$ ls -Xg
total 1356
drwxr-xr-x 4 root 4096 Oct  2 20:13 accountsservice
drwxr-xr-x 2 root 4096 Sep 21 21:31 aclocal
drwxr-xr-x 2 root 4096 Aug  9 07:49 acpi-support
drwxr-xr-x 2 root 4096 Aug  9 07:48 adduser
drwxr-xr-x 4 root 4096 Sep 21 17:39 alisleriot
drwxr-xr-x 3 root 4096 Oct  2 20:13 alacarte
drwxr-xr-x 11 root 4096 Aug  9 07:49 alsa
drwxr-xr-x 2 root 4096 Aug  9 07:49 alsa-base
drwxr-xr-x 3 root 4096 Aug  9 07:49 alsa-card-profile
drwxr-xr-x 2 root 4096 Sep 21 17:32 appdata
drwxr-xr-x 2 root 16384 Oct  5 08:37 applications
drwxr-xr-x 4 root 4096 Sep 21 17:39 apport
drwxr-xr-x 4 root 4096 Sep 21 21:35 apps
drwxr-xr-x 2 root 4096 Aug  9 07:49 apturl
drwxr-xr-x 2 root 4096 Aug  9 07:49 aspell
drwxr-xr-x 2 root 4096 Aug  9 07:49 aub1
drwxr-xr-x 3 root 4096 Aug  9 07:49 backgrounds
drwxr-xr-x 2 root 4096 Aug  9 07:48 base-files
drwxr-xr-x 2 root 4096 Aug  9 07:48 base-passwd
drwxr-xr-x 4 root 4096 Aug  9 07:49 bash-completion
drwxr-xr-x 2 root 4096 Sep 25 15:38 binfmts
drwxr-xr-x 4 root 4096 Aug  9 07:49 branding
drwxr-xr-x 3 root 4096 Aug  9 07:50 britty
drwxr-xr-x 131 root 4096 Sep 21 21:34 bug
drwxr-xr-x 2 root 4096 Sep 21 21:31 build-essential
drwxr-xr-x 3 root 4096 Aug  9 07:48 ca-certificates
drwxr-xr-x 3 root 4096 Sep 21 21:34 caffeine-indicator
drwxr-xr-x 2 root 4096 Sep 21 21:31 catdoc
drwxr-xr-x 3 root 4096 Aug  9 07:49 cnake
drwxr-xr-x 5 root 4096 Sep 21 17:32 code
drwxr-xr-x 3 root 4096 Aug  9 07:50 coql
drwxr-xr-x 3 root 4096 Aug  9 07:49 color
drwxr-xr-x 7 root 4096 Aug  9 07:49 colord
drwxr-xr-x 2 root 4096 Aug  9 07:48 common-licenses
drwxr-xr-x 2 root 32768 Aug  9 07:48 consolefonts
drwxr-xr-x 2 root 4096 Aug  9 07:48 console-setup
drwxr-xr-x 2 root 4096 Aug  9 07:48 consoletrans
drwxr-xr-x 3 root 4096 Oct  2 21:15 cowsay
drwxr-xr-x 18 root 4096 Aug  9 07:49 cups
drwxr-xr-x 8 root 4096 Aug  9 07:50 dbus-1
drwxr-xr-x 3 root 4096 Aug  9 07:49 dconf
drwxr-xr-x 2 root 4096 Aug  9 07:48 debconf
drwxr-xr-x 3 root 4096 Aug  9 07:49 debhelper
drwxr-xr-x 3 root 4096 Aug  9 07:48 debutils
drwxr-xr-x 3 root 4096 Aug  9 07:49 defaults
drwxr-xr-x 2 root 4096 Oct  2 20:13 desktop-directories
drwxr-xr-x 2 root 4096 Aug  9 07:52 dict
drwxr-xr-x 3 root 4096 Aug  9 07:49 dictionaries-common
drwxr-xr-x 2 root 4096 Aug  9 07:48 distro-info
drwxr-xr-x 4 root 4096 Aug  9 07:49 djvu
drwxr-xr-x 2 root 4096 Aug  9 07:49 dns
drwxr-xr-x 3 root 4096 Aug  9 07:49 docbook-4

```

```
Applications Places thaddeus44967@CIS106-VirtualBox: /usr/share

d/wxf-xf-x 2 root 4096 Aug 9 07:49 dnsmasq-base
d/wxf-xf-x 2019 root 69632 Oct 5 10:13 doc
d/wxf-xf-x 2 root 4096 Sep 21 21:34 doc-base
d/wxf-xf-x 3 root 4096 Sep 21 21:31 dpkg
d/wxf-xf-x 3 root 4096 Aug 9 07:49 enaccs
d/wxf-xf-x 2 root 4096 Aug 9 07:49 enaccen-common
d/wxf-xf-x 2 root 4096 Aug 9 07:49 enchant-2
d/wxf-xf-x 3 root 4096 Aug 9 07:49 eqg
d/wxf-xf-x 3 root 4096 Aug 9 07:49 evince
d/wxf-xf-x 3 root 4096 Sep 25 15:38 evolution-data-server
d/wxf-xf-x 2 root 4096 Oct 2 22:15 figlet
d/wxf-xf-x 3 root 4096 Aug 9 07:49 file
d/wxf-xf-x 2 root 4096 Aug 9 07:49 file-roller
d/wxf-xf-x 5 root 4096 Oct 5 10:13 flash
d/wxf-xf-x 3 root 4096 Sep 21 21:29 flameshot
d/wxf-xf-x 3 root 4096 Aug 9 07:49 fontconfig
d/wxf-xf-x 8 root 4096 Aug 9 07:50 fonts
d/wxf-xf-x 3 root 4096 Aug 9 07:49 fonts-droid-fallback
d/wxf-xf-x 4 root 4096 Aug 9 07:49 fonts-sil-abyssinica
d/wxf-xf-x 4 root 4096 Aug 9 07:49 fonts-sil-padauk
d/wxf-xf-x 3 root 4096 Aug 9 07:50 foo2pdf
d/wxf-xf-x 3 root 4096 Aug 9 07:50 FooZjs
d/wxf-xf-x 5 root 4096 Aug 9 07:49 fwupd
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gamemode
d/wxf-xf-x 3 root 4096 Oct 2 21:14 games
d/wxf-xf-x 3 root 4096 Aug 9 07:48 gcc
d/wxf-xf-x 3 root 4096 Aug 9 07:49 GConf
d/wxf-xf-x 6 root 4096 Aug 9 07:49 gdb
d/wxf-xf-x 5 root 4096 Aug 9 07:49 gdm
d/wxf-xf-x 6 root 4096 Sep 21 21:29 gdm
d/wxf-xf-x 3 root 4096 Aug 9 07:49 gedit
d/wxf-xf-x 2 root 4096 Sep 21 21:30 GeoIP
d/wxf-xf-x 3 root 4096 Aug 9 07:48 gettext
d/wxf-xf-x 4 root 4096 Aug 9 07:49 ghostscript
d/wxf-xf-x 4 root 4096 Sep 21 21:31 git-core
d/wxf-xf-x 3 root 4096 Sep 21 21:31 gitweb
d/wxf-xf-x 3 root 4096 Aug 9 07:49 glade
d/wxf-xf-x 3 root 4096 Aug 9 07:49 glend
d/wxf-xf-x 4 root 4096 Sep 21 16:39 gnome
d/wxf-xf-x 5 root 4096 Oct 2 20:13 gnome-applets
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnome-background-properties
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnome-bluetooth
d/wxf-xf-x 5 root 4096 Aug 9 07:49 gnome-control-center
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnome-initial-setup
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnome-logs
d/wxf-xf-x 3 root 4096 Sep 21 17:39 gnome-nautilus
d/wxf-xf-x 4 root 4096 Oct 2 20:13 gnome-panel
d/wxf-xf-x 2 root 4096 Sep 21 16:39 gnome-remote-desktop
d/wxf-xf-x 3 root 4096 Aug 9 07:49 gnome-session
d/wxf-xf-x 3 root 4096 Aug 9 07:49 gnome-settings-daemon
d/wxf-xf-x 7 root 4096 Sep 21 16:39 gnome-shell
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnome-system-monitor
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnome-todo
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnome-video-effects
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnupg

d/wxf-xf-x 2 root 4096 Aug 9 07:49 gnupg
d/wxf-xf-x 3 root 4096 Aug 9 07:49 gpgui-plugins
d/wxf-xf-x 3 root 4096 Aug 9 07:49 groff
d/wxf-xf-x 3 root 4096 Aug 9 07:49 grub
d/wxf-xf-x 3 root 4096 Aug 9 07:49 grub-gfxpayload-lists
d/wxf-xf-x 3 root 4096 Aug 9 07:49 gtk-plugins-base
d/wxf-xf-x 3 root 4096 Aug 9 07:50 gtk-doc
d/wxf-xf-x 2 root 4096 Aug 9 07:49 gtk-engines
d/wxf-xf-x 4 root 4096 Aug 9 07:49 gtksourceview-4
d/wxf-xf-x 3 root 4096 Aug 9 07:49 galle
d/wxf-xf-x 2 root 4096 Aug 9 07:50 gimp-av
d/wxf-xf-x 4 root 4096 Aug 9 07:49 gvim
d/wxf-xf-x 63 root 4096 Oct 2 20:13 help
d/wxf-xf-x 4 root 4096 Sep 21 16:39 help-langpack
d/wxf-xf-x 12 root 4096 Sep 25 15:38 hplip
d/wxf-xf-x 2 root 4096 Aug 9 07:52 hunspell
d/wxf-xf-x 2 root 4096 Sep 21 21:31 hwdata
d/wxf-xf-x 2 root 4096 Aug 9 07:52 hyphen
d/wxf-xf-x 4 root 4096 Aug 9 07:48 i18n
d/wxf-xf-x 6 root 4096 Aug 9 07:49 ibus
d/wxf-xf-x 7 root 4096 Aug 9 07:50 ibus-table
d/wxf-xf-x 39 root 4096 Sep 21 21:35 icons
d/wxf-xf-x 2 root 4096 Sep 21 21:34 ImageMagick-6
d/wxf-xf-x 3 root 4096 Aug 9 07:49 in-config
d/wxf-xf-x 3 root 4096 Oct 2 20:13 indicator-application
d/wxf-xf-x 3 root 4096 Oct 2 20:13 indicator-power
d/wxf-xf-x 3 root 4096 Aug 9 07:50 indicators
d/wxf-xf-x 2 root 4096 Oct 5 08:37 info
d/wxf-xf-x 7 root 4096 Aug 9 07:52 initramfs-tools
d/wxf-xf-x 3 root 4096 Sep 21 16:39 installed-tests
d/wxf-xf-x 3 root 4096 Aug 9 07:50 lpp-usb
d/wxf-xf-x 2 root 4096 Aug 9 07:49 iptables
d/wxf-xf-x 3 root 4096 Aug 9 07:48 iso-codes
d/wxf-xf-x 2 root 4096 Oct 2 20:13 jave
d/wxf-xf-x 5 root 4096 Sep 21 21:31 javascript
d/wxf-xf-x 3 root 4096 Aug 9 07:49 kdes
d/wxf-xf-x 2 root 4096 Sep 21 16:39 keyrings
d/wxf-xf-x 3 root 4096 Aug 9 07:49 language-selector
d/wxf-xf-x 2 root 4096 Aug 9 07:49 language-support
d/wxf-xf-x 2 root 4096 Aug 9 07:49 language-tools
d/wxf-xf-x 2 root 4096 Sep 21 21:34 libaccs
d/wxf-xf-x 2 root 4096 Aug 9 07:48 libc-bin
d/wxf-xf-x 2 root 4096 Aug 9 07:49 libdebuginfod-common
d/wxf-xf-x 2 root 4096 Aug 9 07:49 libdrm
d/wxf-xf-x 2 root 4096 Aug 9 07:50 libexttextcat
d/wxf-xf-x 4 root 4096 Aug 9 07:49 libgdmcommon
d/wxf-xf-x 2 root 4096 Aug 9 07:49 libgweather
d/wxf-xf-x 2 root 4096 Oct 2 20:13 libgweather-4
d/wxf-xf-x 2 root 4096 Aug 9 07:49 libinput
d/wxf-xf-x 3 root 4096 Aug 9 07:50 liblangtag
d/wxf-xf-x 3 root 4096 Aug 9 07:50 liblouis
d/wxf-xf-x 3 root 4096 Aug 9 07:50 liblouisutdml
d/wxf-xf-x 2 root 4096 Sep 21 16:31 libnss3
d/wxf-xf-x 6 root 4096 Sep 21 16:29 libreoffice
```

```
Applications Places thaddeus44967@CIS106-VirtualBox: /usr/share

drwxr-xr-x 3 root 4096 Aug 9 07:50 libvenge
drwxr-xr-x 2 root 4096 Aug 9 07:49 libtba1
drwxr-xr-x 3 root 20480 Aug 9 07:49 libwascon
drwxr-xr-x 3 root 4096 Aug 9 07:49 lightdm
drwxr-xr-x 4 root 4096 Aug 9 07:48 lintian
drwxr-xr-x 2 root 4096 Aug 9 07:49 linux-sound-base
drwxr-xr-x 241 root 4096 Oct 2 20:13 locale
drwxr-xr-x 10 root 4096 Sep 21 16:30 locale-langpack
drwxr-xr-x 2 root 4096 Aug 9 07:48 locales
drwxr-xr-x 2 root 4096 Sep 21 21:31 lto-disabled-list
drwxr-xr-x 4 root 4096 Sep 24 22:03 lua
drwxr-xr-x 3 root 4096 Aug 9 07:50 m2300w
drwxr-xr-x 37 root 4096 Sep 21 16:31 man
drwxr-xr-x 2 root 4096 Aug 9 07:49 man-db
drwxr-xr-x 3 root 4096 Sep 21 21:31 mate-panel
drwxr-xr-x 3 root 4096 Aug 9 07:49 maven-repo
drwxr-xr-x 2 root 12288 Aug 9 07:50 media-player-info
drwxr-xr-x 2 root 4096 Oct 2 21:14 menu
drwxr-xr-x 2 root 4096 Sep 21 21:32 mesa-demos
drwxr-xr-x 2 root 4096 Sep 21 21:31 metaInfo
drwxr-xr-x 2 root 4096 Sep 21 16:31 nfx
drwxr-xr-x 15 root 4096 Sep 22 15:19 nline
drwxr-xr-x 2 root 4096 Aug 9 07:49 nlscc
drwxr-xr-x 2 root 4096 Aug 9 07:50 mobile-broadband-provider-info
drwxr-xr-x 3 root 4096 Aug 9 07:50 ModemManager
drwxr-xr-x 2 root 4096 Aug 9 07:50 mousesteaks
drwxr-xr-x 2 root 4096 Aug 9 07:52 mythes
drwxr-xr-x 4 root 4096 Aug 9 07:49 nano
drwxr-xr-x 3 root 4096 Aug 9 07:49 nautilus
drwxr-xr-x 3 root 4096 Sep 21 21:30 nautilus-python
drwxr-xr-x 3 root 4096 Aug 9 07:50 nautilus-share
drwxr-xr-x 5 root 4096 Sep 21 21:32 nemo
drwxr-xr-x 2 root 4096 Sep 21 21:34 netipm
drwxr-xr-x 3 root 4096 Aug 9 07:48 netplan
drwxr-xr-x 2 root 4096 Sep 21 21:30 numpy3
drwxr-xr-x 3 root 4096 Sep 21 16:31 open-vn-tools
drwxr-xr-x 2 root 4096 Aug 9 07:50 openvpn
drwxr-xr-x 3 root 4096 Aug 9 07:50 orca
drwxr-xr-x 2 root 4096 Aug 9 07:50 os-prober
drwxr-xr-x 3 root 4096 Aug 9 07:49 pii-kit
drwxr-xr-x 2 root 4096 Sep 22 15:17 package-data-downloads
drwxr-xr-x 3 root 4096 Aug 9 07:49 PackageKit
drwxr-xr-x 2 root 4096 Aug 9 07:48 pam
drwxr-xr-x 2 root 4096 Oct 5 08:36 pam-configs
drwxr-xr-x 3 root 4096 Aug 9 07:49 perl
drwxr-xr-x 31 root 4096 Sep 21 21:31 perl5
drwxr-xr-x 2 root 4096 Aug 9 07:50 perl-openssl-defaults
drwxr-xr-x 3 root 4096 Aug 9 07:49 pipewire
drwxr-xr-x 4 root 4096 Sep 25 15:38 pixmaps
drwxr-xr-x 2 root 4096 Oct 5 08:36 plasacfg
drwxr-xr-x 3 root 4096 Aug 9 07:49 plymouth
drwxr-xr-x 2 root 4096 Aug 9 07:50 pm2ppa
drwxr-xr-x 3 root 4096 Sep 21 16:32 pocketsphinx
drwxr-xr-x 4 root 4096 Aug 9 07:48 polkit-1
drwxr-xr-x 6 root 4096 Aug 9 07:49 poppler

drwxr-xr-x 6 root 4096 Aug 9 07:49 poppler
drwxr-xr-x 5 root 4096 Aug 9 07:49 ppp
drwxr-xr-x 2 root 4096 Aug 9 07:50 ppp
drwxr-xr-x 2 root 4096 Aug 9 07:49 publicsuffix
drwxr-xr-x 3 root 4096 Aug 9 07:49 pulseaudio
drwxr-xr-x 2 root 4096 Aug 9 07:52 pysshd
drwxr-xr-x 6 root 4096 Sep 25 15:38 python3
drwxr-xr-x 3 root 4096 Aug 9 07:49 python-apt
drwxr-xr-x 3 root 4096 Sep 21 21:30 qt5
drwxr-xr-x 2 root 4096 Aug 9 07:48 readline
drwxr-xr-x 5 root 4096 Aug 9 07:50 rawmima
drwxr-xr-x 3 root 4096 Aug 9 07:50 rdiffbackup
drwxr-xr-x 2 root 4096 Oct 2 21:15 rig
drwxr-xr-x 3 root 4096 Aug 9 07:49 rsync
drwxr-xr-x 2 root 4096 Aug 9 07:48 rsyslog
drwxr-xr-x 4 root 4096 Sep 21 21:31 rubygems-integration
drwxr-xr-x 5 root 4096 Aug 9 07:50 rsyslog
drwxr-xr-x 5 root 4096 Sep 21 21:34 samba
drwxr-xr-x 3 root 4096 Aug 9 07:50 seaborse
drwxr-xr-x 3 root 4096 Aug 9 07:50 secureboot
drwxr-xr-x 3 root 4096 Aug 29 20:21 sensible-utils
drwxr-xr-x 3 root 4096 Aug 9 07:49 session-migration
drwxr-xr-x 9 root 4096 Aug 9 07:49 sgml
drwxr-xr-x 2 root 4096 Aug 9 07:49 sgml-base
drwxr-xr-x 2 root 4096 Aug 9 07:49 sgml-data
drwxr-xr-x 4 root 4096 Aug 9 07:49 snmp
drwxr-xr-x 3 root 4096 Aug 9 07:49 software-properties
drwxr-xr-x 3 root 4096 Sep 21 21:30 solid
drwxr-xr-x 11 root 4096 Oct 2 20:13 sounds
drwxr-xr-x 2 root 12288 Aug 9 07:49 source-highlight
drwxr-xr-x 4 root 4096 Aug 9 07:50 speech-dispatcher
drwxr-xr-x 2 root 4096 Aug 9 07:49 ssl-cert
drwxr-xr-x 7 root 4096 Aug 9 07:51 system-config-printer
drwxr-xr-x 2 root 4096 Oct 5 08:36 systemd
drwxr-xr-x 3 root 4096 Sep 21 21:31 systentap
drwxr-xr-x 2 root 4096 Aug 9 07:48 tablet
drwxr-xr-x 3 root 4096 Aug 9 07:50 tcltk
drwxr-xr-x 2 root 4096 Jan 17 2022 termInfo
drwxr-xr-x 2 root 4096 Sep 21 21:31 tex-common
drwxr-xr-x 7 root 4096 Sep 21 21:32 toollive
drwxr-xr-x 6 root 4096 Sep 21 21:31 txmfr
drwxr-xr-x 32 root 4096 Aug 9 07:50 vulkan
drwxr-xr-x 2 root 4096 Sep 21 16:39 thumbnails
drwxr-xr-x 5 root 4096 Sep 21 21:30 tilix
drwxr-xr-x 2 root 4096 Aug 9 07:50 tuten
drwxr-xr-x 5 root 4096 Aug 9 07:49 tracker3
drwxr-xr-x 5 root 4096 Aug 9 07:49 tracker3-miners
drwxr-xr-x 3 root 4096 Aug 9 07:50 transmission
drwxr-xr-x 3 root 4096 Aug 9 07:50 ubuntu
drwxr-xr-x 4 root 4096 Aug 9 07:49 ubuntu-drivers-common
drwxr-xr-x 3 root 4096 Sep 21 16:39 ubuntu-release-upgrader
drwxr-xr-x 3 root 4096 Aug 9 07:50 ubuntu-wayland
drwxr-xr-x 2 root 4096 Aug 9 07:48 ucf
drwxr-xr-x 4 root 4096 Aug 9 07:49 ufw
drwxr-xr-x 7 root 4096 Aug 9 07:50 unattended-upgrades

drwxr-xr-x 2 root 4096 Aug 9 07:50 unattended-upgrades
drwxr-xr-x 3 root 4096 Oct 2 20:13 unity
drwxr-xr-x 3 root 4096 Aug 9 07:50 update-manager
drwxr-xr-x 5 root 4096 Aug 9 07:50 update-notifier
drwxr-xr-x 5 root 4096 Oct 2 20:13 upstart
drwxr-xr-x 2 root 4096 Aug 9 07:50 usb-creator
drwxr-xr-x 2 root 4096 Aug 9 07:50 usb_modeswitch
drwxr-xr-x 3 root 4096 Aug 9 07:49 vala
drwxr-xr-x 5 root 4096 Sep 21 16:39 vlm
drwxr-xr-x 5 root 4096 Sep 22 15:17 virtualbox
drwxr-xr-x 5 root 4096 Sep 21 21:30 vlc
drwxr-xr-x 5 root 4096 Aug 9 07:50 vulkan
drwxr-xr-x 2 root 4096 Sep 21 21:34 w3m
drwxr-xr-x 2 root 4096 Aug 9 07:49 wayland-sessions
drwxr-xr-x 5 root 4096 Aug 9 07:50 xsl
drwxr-xr-x 3 root 4096 Sep 21 21:31 xapps-common
drwxr-xr-x 3 root 4096 Aug 9 07:49 xdg-desktop-portal
drwxr-xr-x 11 root 4096 Aug 9 07:49 xsl
drwxr-xr-x 2 root 4096 Aug 9 07:49 xsl-core
drwxr-xr-x 2 root 4096 Oct 2 20:13 xsessions
drwxr-xr-x 6 root 4096 Aug 9 07:49 yelp
drwxr-xr-x 4 root 4096 Aug 9 07:49 yelp-xsl
drwxr-xr-x 2 root 4096 Aug 9 07:50 zenity
drwxr-xr-x 20 root 4096 Sep 21 16:39 zoneinfo
drwxr-xr-x 3 root 4096 Aug 9 07:48 zoneinfo-tcu
drwxr-xr-x 4 root 4096 Sep 21 21:29 zsh
drwxr-xr-x 2 root 4096 Sep 21 16:30 zip4.0
drwxr-xr-x 3 root 4096 Aug 9 07:48 zlib2.0
drwxr-xr-x 2 root 4096 Aug 9 07:49 gnome-bluetooth-3.0
drwxr-xr-x 3 root 4096 Aug 9 07:49 gpa-1.0
drwxr-xr-x 4 root 4096 Sep 21 16:31 gstreamer-1.0
drwxr-xr-x 3 root 4096 Aug 9 07:49 gtk-4.0
drwxr-xr-x 4 root 4096 Sep 21 21:32 gtksourceview-2.0
drwxr-xr-x 4 root 4096 Sep 21 21:32 gtksourceview-3.0
drwxr-xr-x 3 root 4096 Aug 9 07:50 gupnp-dlna-2.0
drwxr-xr-x 3 root 4096 Aug 9 07:49 org.gnome.Characters
drwxr-xr-x 2 root 4096 Aug 9 07:50 drirc.d
thaddeus44967@CIS106-VirtualBox: /usr/share$
```