Week Report 4

Practice from the presentation The Linux File system:

Practice 1

Practice 2

```
jybaez@CIS-106VM:~$ wget https://cis106.com/assets/practicels.tar.xz
--2023-03-18 17:07:57--  https://cis106.com/assets/practicels.tar.xz
Resolving cis106.com (cis106.com)... 185.199.108.153
Connecting to cis106.com (cis106.com)|185.199.108.153|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2229212 (2.1M) [application/x-xz]
Saving to: 'practicels.tar.xz'

practicels.tar.xz          100%[======================================>]   2.12M  12.7MB/s    in 0.2s

2023-03-18 17:07:58 (12.7 MB/s) - 'practicels.tar.xz' saved [2229212/2229212]

jybaez@CIS-106VM:~$ tar Jxf practicels.tar.xz
jybaez@CIS-106VM:~$ ls
Cis106S23  Documents  Gitcommands.txt  Pictures    practicels.tar.xz  snap       Videos
Desktop    Downloads  Music            practicels  Public             Templates
jybaez@CIS-106VM:~$ ls -a
.              Cis106S23  Gitcommands.txt  .pki               Templates
..             .config    .gitconfig       practicels         .vboxclient-clipboard.pid
.bash_history  Desktop    .gnupg           practicels.tar.xz  .vboxclient-draganddrop.pid
.bash_logout   Documents  .lesshst         .profile           .vboxclient-seamless.pid
.bashrc        .dotnet    .local           Public             .vboxclient-vmsvga-session-tty2.pid
.cache         Downloads  Music            snap               Videos
.cis106.png    .fonts     Pictures         .ssh               .vscode
jybaez@CIS-106VM:~$ ls -l
total 2228
drwxrwxr-x 5 jybaez jybaez    4096 Mar 18 16:32 Cis106S23
drwxr-xr-x 2 jybaez jybaez    4096 Mar  4 22:06 Desktop
drwxr-xr-x 2 jybaez jybaez    4096 Mar 14 19:05 Documents
drwxr-xr-x 7 jybaez jybaez    4096 Mar 18 16:43 Downloads
-rw-rw-r-- 1 jybaez jybaez      91 Mar  4 21:04 Gitcommands.txt
drwxr-xr-x 2 jybaez jybaez    4096 Mar  4 19:11 Music
drwxr-xr-x 5 jybaez jybaez    4096 Mar 18 17:05 Pictures
drwxrwxr-x 2 jybaez jybaez    4096 Feb 27  2022 practicels
-rw-rw-r-- 1 jybaez jybaez 2229212 Feb 21 21:10 practicels.tar.xz
drwxr-xr-x 2 jybaez jybaez    4096 Mar  4 19:11 Public
drwx------ 5 jybaez jybaez    4096 Mar  4 20:25 snap
drwxr-xr-x 2 jybaez jybaez    4096 Mar  4 19:11 Templates
drwxr-xr-x 3 jybaez jybaez    4096 Mar 14 18:30 Videos
jybaez@CIS-106VM:~$ ls -lh
total 2.2M
drwxrwxr-x 5 jybaez jybaez 4.0K Mar 18 16:32 Cis106S23
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 22:06 Desktop
drwxr-xr-x 2 jybaez jybaez 4.0K Mar 14 19:05 Documents
drwxr-xr-x 7 jybaez jybaez 4.0K Mar 18 16:43 Downloads
-rw-rw-r-- 1 jybaez jybaez   91 Mar  4 21:04 Gitcommands.txt
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Music
drwxr-xr-x 5 jybaez jybaez 4.0K Mar 18 17:05 Pictures
drwxrwxr-x 2 jybaez jybaez 4.0K Feb 27  2022 practicels
-rw-rw-r-- 1 jybaez jybaez 2.2M Feb 21 21:10 practicels.tar.xz
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Public
drwx------ 5 jybaez jybaez 4.0K Mar  4 20:25 snap
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Templates
drwxr-xr-x 3 jybaez jybaez 4.0K Mar 14 18:30 Videos
jybaez@CIS-106VM:~$ ls -lht
total 2.2M
drwxr-xr-x 5 jybaez jybaez 4.0K Mar 18 17:05 Pictures
drwxr-xr-x 7 jybaez jybaez 4.0K Mar 18 16:43 Downloads
drwxrwxr-x 5 jybaez jybaez 4.0K Mar 18 16:32 Cis106S23
drwxr-xr-x 2 jybaez jybaez 4.0K Mar 14 19:05 Documents
drwxr-xr-x 3 jybaez jybaez 4.0K Mar 14 18:30 Videos
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 22:06 Desktop
-rw-rw-r-- 1 jybaez jybaez   91 Mar  4 21:04 Gitcommands.txt
drwx------ 5 jybaez jybaez 4.0K Mar  4 20:25 snap
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Music
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Public
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Templates
-rw-rw-r-- 1 jybaez jybaez 2.2M Feb 21 21:10 practicels.tar.xz
drwxrwxr-x 2 jybaez jybaez 4.0K Feb 27  2022 practicels
```
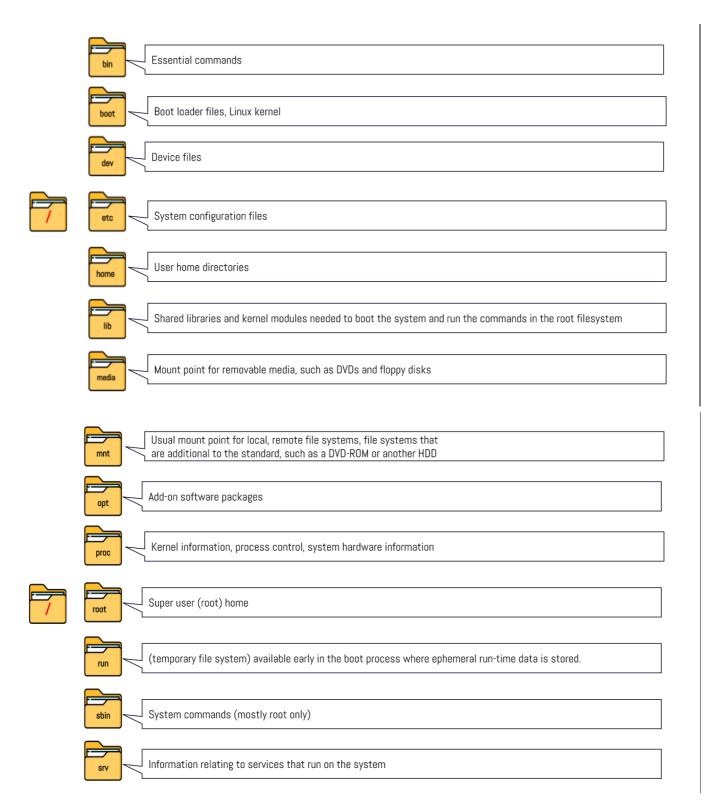
```
jybaez@CIS-106VM:~$ ls -lhgGS
total 2.2M
-rw-rw-r-- 1 2.2M Feb 21 21:10 practicels.tar.xz
drwxrwxr-x 5 4.0K Mar 18 16:32 Cis106S23
drwxr-xr-x 2 4.0K Mar  4 22:06 Desktop
drwxr-xr-x 2 4.0K Mar 14 19:05 Documents
drwxr-xr-x 7 4.0K Mar 18 16:43 Downloads
drwxr-xr-x 2 4.0K Mar  4 19:11 Music
drwxr-xr-x 5 4.0K Mar 18 17:05 Pictures
drwxrwxr-x 2 4.0K Feb 27  2022 practicels              3 / 7
drwxr-xr-x 2 4.0K Mar  4 19:11 Public
drwx------ 5 4.0K Mar  4 20:25 snap
drwxr-xr-x 2 4.0K Mar  4 19:11 Templates
drwxr-xr-x 3 4.0K Mar 14 18:30 Videos
-rw-rw-r-- 1   91 Mar  4 21:04 Gitcommands.txt
jybaez@CIS-106VM:~$ ls -mr
Videos, Templates, snap, Public, practicels.tar.xz, practicels, Pictures, Music, Gitcommands.txt,
Downloads, Documents, Desktop, Cis106S23
jybaez@CIS-106VM:~$ ls -1x
Cis106S23       Desktop  Documents  Downloads  Gitcommands.txt  Music  Pictures  practicels
practicels.tar.xz  Public    snap      Templates  Videos
jybaez@CIS-106VM:~$
```
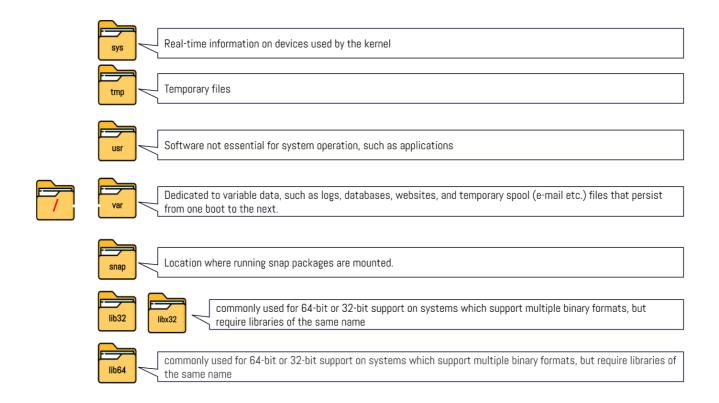
Practice 3

```
jybaez@CIS-106VM:~$ pwd
/home/jybaez
jybaez@CIS-106VM:~$ cd /
jybaez@CIS-106VM:/$ cd usr/share/themes
jybaez@CIS-106VM:/usr/share/themes$ cd ../../
jybaez@CIS-106VM:/usr$ ls -A ~
.bash_history   .fonts              .profile
.bash_logout    Gitcommands.txt     Public
.bashrc         .gitconfig          snap
.cache          .gnupg              .ssh
.cis106.png     .lesshst            Templates
Cis106S23       .local              .vboxclient-clipboard.pid
.config         Music               .vboxclient-draganddrop.pid
Desktop         Pictures            .vboxclient-seamless.pid
Documents       .pki                .vboxclient-vmsvga-session-tty2.pid
.dotnet         practicels          Videos
Downloads       practicels.tar.xz   .vscode
jybaez@CIS-106VM:/usr$ cd; ls -tX Cis106S23
 Labs  'Week Reports'   WR4.md
jybaez@CIS-106VM:~$ ls -rR ~/Cis106S23
/home/jybaez/Cis106S23:
 WR4.md  'Week Reports'   Labs

'/home/jybaez/Cis106S23/Week Reports':
wr4-p2.3.png  wr4-p2.1.png  WR3.md      fs1.2.png
wr4-p2.2.png  wr4-p1.png    fs1.3.png   fs1.1.png

/home/jybaez/Cis106S23/Labs:
Lab3  Lab2  Lab1

/home/jybaez/Cis106S23/Labs/Lab3:
q2.1.png  q1.1.png  Presentation.odp  Lab3.pdf  Lab3.md  baseball.pdf

/home/jybaez/Cis106S23/Labs/Lab2:
 VM.png                       Snapshots.png        Lab2.md
'Virtualization Enabled.png'  'Laptop Specs.png'
'Ubuntu Installer.png'        Lab2.pdf

/home/jybaez/Cis106S23/Labs/Lab1:
whatisubuntu.txt              ubuntu-logo.png        resume.png
what-is-ubuntu.pdf            ubuntu-desktop.png     johndoe.jpeg
what-is-ubunt-submission.pdf  Resume.submission.pdf  johndoeinfo.txt
what-is-ubunt-submission.md   Resume.submission.md
```

```
jybaez@CIS-106VM:~$ ls -lh ~
total 2.2M
drwxrwxr-x 5 jybaez jybaez 4.0K Mar 18 16:32 Cis106S23
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 22:06 Desktop
drwxr-xr-x 2 jybaez jybaez 4.0K Mar 14 19:05 Documents
drwxr-xr-x 7 jybaez jybaez 4.0K Mar 18 16:43 Downloads
-rw-rw-r-- 1 jybaez jybaez   91 Mar  4 21:04 Gitcommands.txt
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Music
drwxr-xr-x 5 jybaez jybaez 4.0K Mar 18 17:15 Pictures
drwxrwxr-x 2 jybaez jybaez 4.0K Feb 27  2022 practicels
-rw-rw-r-- 1 jybaez jybaez 2.2M Feb 21 21:10 practicels.tar.xz
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Public
drwx------ 5 jybaez jybaez 4.0K Mar  4 20:25 snap
drwxr-xr-x 2 jybaez jybaez 4.0K Mar  4 19:11 Templates
drwxr-xr-x 3 jybaez jybaez 4.0K Mar 14 18:30 Videos
```

```
jybaez@CIS-106VM:~$ ls -lgG --full-time ~
total 2228
drwxrwxr-x 5       4096 2023-03-18 16:32:07.343155505 -0400 Cis106S23
drwxr-xr-x 2       4096 2023-03-04 22:06:49.076832433 -0500 Desktop
drwxr-xr-x 2       4096 2023-03-14 19:05:56.523836977 -0400 Documents
drwxr-xr-x 7       4096 2023-03-18 16:43:56.873743675 -0400 Downloads
-rw-rw-r-- 1         91 2023-03-04 21:04:24.278398657 -0500 Gitcommands.txt
drwxr-xr-x 2       4096 2023-03-04 19:11:07.508000000 -0500 Music
drwxr-xr-x 5       4096 2023-03-18 17:15:15.368522188 -0400 Pictures
drwxrwxr-x 2       4096 2022-02-27 13:46:18.000000000 -0500 practicels
-rw-rw-r-- 1    2229212 2023-02-21 21:10:00.000000000 -0500 practicels.tar.xz
drwxr-xr-x 2       4096 2023-03-04 19:11:07.508000000 -0500 Public
drwx------ 5       4096 2023-03-04 20:25:15.840892976 -0500 snap
drwxr-xr-x 2       4096 2023-03-04 19:11:07.508000000 -0500 Templates
drwxr-xr-x 3       4096 2023-03-14 18:30:31.083657898 -0400 Videos
jybaez@CIS-106VM:~$
```

The Linux File system directories and their purpose:

bin	Essential commands
boot	Boot loader files, Linux kernel
dev	Device files
etc	System configuration files
home	User home directories
lib	Shared libraries and kernel modules needed to boot the system and run the commands in the root filesystem
media	Mount point for removable media, such as DVDs and floppy disks
mnt	Usual mount point for local, remote file systems, file systems that are additional to the standard, such as a DVD-ROM or another HDD
opt	Add-on software packages
proc	Kernel information, process control, system hardware information
root	Super user (root) home
run	(temporary file system) available early in the boot process where ephemeral run-time data is stored.
sbin	System commands (mostly root only)
srv	Information relating to services that run on the system

sys	Real-time information on devices used by the kernel
tmp	Temporary files
usr	Software not essential for system operation, such as applications
var	Dedicated to variable data, such as logs, databases, websites, and temporary spool (e-mail etc.) files that persist from one boot to the next.
snap	Location where running snap packages are mounted.
lib32 / libx32	commonly used for 64-bit or 32-bit support on systems which support multiple binary formats, but require libraries of the same name
lib64	commonly used for 64-bit or 32-bit support on systems which support multiple binary formats, but require libraries of the same name

All the commands for navigating the filesystem

Command	What it does	Syntax	Example
pwd	Prints current directory	pwd	pwd
cd	Change current working directory	cd	cd
ls	Displays all files inside of a given directory	ls	ls

Basic terminology

- **File system:** The way files are stored and organized.

- **Current directory:** The directory in which you are in at that moment.

- **parent directory:** The directory above another directory.

- **the difference between your home directory and the home directory:** The home directory stores all the users home directories. Your home directory has your personal files.

- **pathname:** Indicates the location of the file in the filesystem.

- **relative path:** The location of a file starting from the current working directory or a directory that is located inside the current working directory.

- **absolute path:** The location of the file starting at the root of the file system.