

Lab 4

Question 1: The linux filesystem

Create a table that includes the following directories and their usage:

Table1

Directory	Function
bin	Essential commands
dev	Device files
etc	System configuration files
home	User home directories
media	Mount point for removable media, such as DVDs and floppy disks
opt	Add-on software packages
proc	Kernel information, process control system hardware information
srv	Information relating to services that run on the system
usr	Software not essential for system operation, such as applications

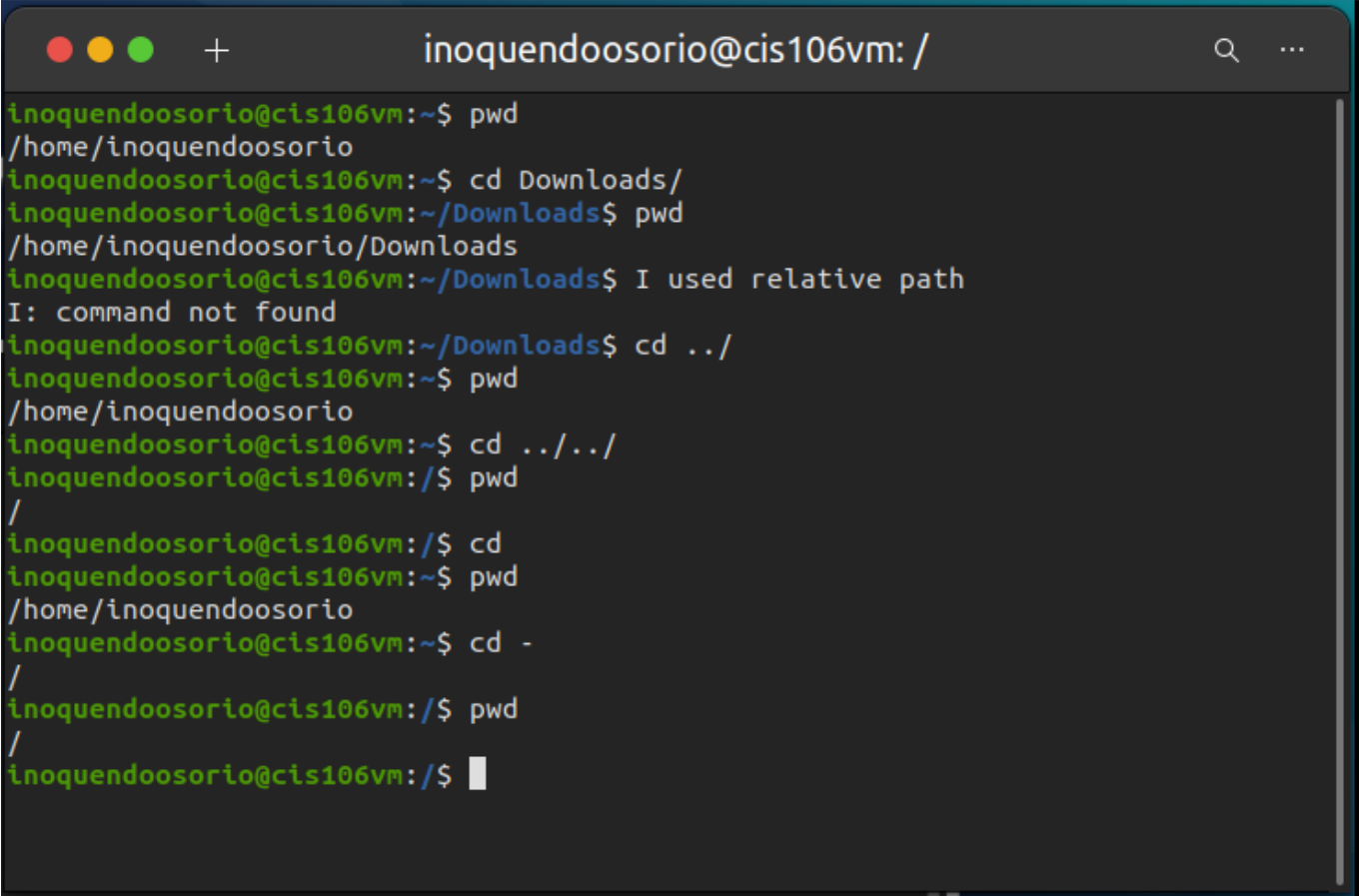
Create a table of the commands used for navigating the file system (cd, pwd, ls). Your table must include the following:

- The command,
- What the command does
- The syntax/formula of how to use the commands,
- An example

Table 2

Command	What it does	Syntax	Example
pwd	Used for displaying the current working directory.	pwd	Ex. pwd
cd	Used for changing the current working directory. When no directory is given, cd changes the current working directory to the current user's home directory.	cd + destination	Ex. cd ~/Downloads/
ls	Used for displaying all the files inside a given directory. When no directory is specified, ls displays the files in the current working directory.	ls + destination	Ex. ls Music/

Complete all the practice located in the presentation (including the challenge). Take a screenshot of your terminal after every practice.



```
inoquendoosorio@cis106vm: /
inoquendoosorio@cis106vm:~$ pwd
/home/inoquendoosorio
inoquendoosorio@cis106vm:~$ cd Downloads/
inoquendoosorio@cis106vm:~/Downloads$ pwd
/home/inoquendoosorio/Downloads
inoquendoosorio@cis106vm:~/Downloads$ I used relative path
I: command not found
inoquendoosorio@cis106vm:~/Downloads$ cd ../
inoquendoosorio@cis106vm:~$ pwd
/home/inoquendoosorio
inoquendoosorio@cis106vm:~$ cd ../../
inoquendoosorio@cis106vm:/$ pwd
/
inoquendoosorio@cis106vm:/$ cd
inoquendoosorio@cis106vm:~$ pwd
/home/inoquendoosorio
inoquendoosorio@cis106vm:~$ cd -
/
inoquendoosorio@cis106vm:/$ pwd
/
inoquendoosorio@cis106vm:/$
```

```

inoquendoosorio@cis106vm: ~/practicels
inoquendoosorio@cis106vm:~$ wget https://cis106.com/assets/practicels.tar.xz
--2022-03-12 14:04:17-- 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  ---KB/s   in 0.08s

2022-03-12 14:04:17 (26.0 MB/s) - 'practicels.tar.xz' saved [2229212/2229212]

inoquendoosorio@cis106vm:~$ tar Jxf practicels.tar.xz
inoquendoosorio@cis106vm:~$ cd practicels/
inoquendoosorio@cis106vm:~/practicels$ ls
book.txt      history-debian.pdf  movie.mp4      song.mp3      tux-penguin.gif
countries.xml  homework.docx      people.csv     tux-nobg.png
inoquendoosorio@cis106vm:~/practicels$ ls -a
.      countries.xml      movie.mp4      tux-nobg.png
..     history-debian.pdf people.csv     tux-penguin.gif
book.txt homework.docx      song.mp3
inoquendoosorio@cis106vm:~/practicels$ ls -l
total 2932
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio  1043 Feb 27 13:39 book.txt
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio  23972 Feb 27 13:46 countries.xml
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 163057 Feb 27 13:41 history-debian.pdf
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 111303 Feb 22 14:14 homework.docx
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 1570024 Feb 27 13:42 movie.mp4
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 284042 Feb 27 13:45 people.csv
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 764176 Feb 27 13:44 song.mp3
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 21314 Feb 27 13:40 tux-nobg.png
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 44299 Jan 31 2020 tux-penguin.gif
inoquendoosorio@cis106vm:~/practicels$ ls -lh
total 2.9M
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 1.1K Feb 27 13:39 book.txt
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 24K Feb 27 13:46 countries.xml
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 160K Feb 27 13:41 history-debian.pdf
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 109K Feb 22 14:14 homework.docx
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 1.5M Feb 27 13:42 movie.mp4
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 278K Feb 27 13:45 people.csv
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 747K Feb 27 13:44 song.mp3
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 21K Feb 27 13:40 tux-nobg.png
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 44K Jan 31 2020 tux-penguin.gif
inoquendoosorio@cis106vm:~/practicels$ ls -lht
total 2.9M

```

```
inoquendoosorio@cis106vm: ~/practicels
inoquendoosorio@cis106vm:~/practicels$ ls -lht
total 2.9M
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 24K Feb 27 13:46 countries.xml
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 278K Feb 27 13:45 people.csv
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 747K Feb 27 13:44 song.mp3
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 1.5M Feb 27 13:42 movie.mp4
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 160K Feb 27 13:41 history-debian.pdf
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 21K Feb 27 13:40 tux-nobg.png
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 1.1K Feb 27 13:39 book.txt
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 109K Feb 22 14:14 homework.docx
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 44K Jan 31 2020 tux-penguin.gif
inoquendoosorio@cis106vm:~/practicels$ ls -lhgG
total 2.9M
-rw-rw-r-- 1 1.1K Feb 27 13:39 book.txt
-rw-rw-r-- 1 24K Feb 27 13:46 countries.xml
-rw-rw-r-- 1 160K Feb 27 13:41 history-debian.pdf
-rw-rw-r-- 1 109K Feb 22 14:14 homework.docx
-rw-rw-r-- 1 1.5M Feb 27 13:42 movie.mp4
-rw-rw-r-- 1 278K Feb 27 13:45 people.csv
-rw-rw-r-- 1 747K Feb 27 13:44 song.mp3
-rw-rw-r-- 1 21K Feb 27 13:40 tux-nobg.png
-rw-rw-r-- 1 44K Jan 31 2020 tux-penguin.gif
inoquendoosorio@cis106vm:~/practicels$ ls -lhgGS
total 2.9M
-rw-rw-r-- 1 1.5M Feb 27 13:42 movie.mp4
-rw-rw-r-- 1 747K Feb 27 13:44 song.mp3
-rw-rw-r-- 1 278K Feb 27 13:45 people.csv
-rw-rw-r-- 1 160K Feb 27 13:41 history-debian.pdf
-rw-rw-r-- 1 109K Feb 22 14:14 homework.docx
-rw-rw-r-- 1 44K Jan 31 2020 tux-penguin.gif
-rw-rw-r-- 1 24K Feb 27 13:46 countries.xml
-rw-rw-r-- 1 21K Feb 27 13:40 tux-nobg.png
-rw-rw-r-- 1 1.1K Feb 27 13:39 book.txt
inoquendoosorio@cis106vm:~/practicels$ ls -mr
tux-penguin.gif, tux-nobg.png, song.mp3, people.csv, movie.mp4, homework.docx,
history-debian.pdf, countries.xml, book.txt
inoquendoosorio@cis106vm:~/practicels$ ls -lX
people.csv
homework.docx
tux-penguin.gif
song.mp3
movie.mp4
history-debian.pdf
tux-nobg.png
book.txt
countries.xml
inoquendoosorio@cis106vm:~/practicels$
```

```
inoquendoosorio@cis106vm: ~
inoquendoosorio@cis106vm:~/practicels$ pwd
/home/inoquendoosorio/practicels
inoquendoosorio@cis106vm:~/practicels$ cd
inoquendoosorio@cis106vm:~$ cd /
inoquendoosorio@cis106vm:/$ cd usr/share/themes/
inoquendoosorio@cis106vm:/usr/share/themes$ cd ../../
inoquendoosorio@cis106vm:/usr$ ls -A ~
.bash_history      .icons             .sudo_as_admin_successful
.bash_logout       .image             Templates
.bashrc            .local             .themes
.cache             .mozilla           .thunderbird
.cis106.png         Music              .vboxclient-clipboard.pid
cis106-Spring22     Pictures           .vboxclient-display-svga-x11.pid
.config            .pki               .vboxclient-draganddrop.pid
Desktop            practicels         .vboxclient-seamless.pid
Documents          practicels.tar.xz  Videos
Downloads          .profile           .viminfo
.frozen-bubble     Public             .vscode
.gitconfig         snap              .zoom
.gnupg             .ssh

inoquendoosorio@cis106vm:/usr$ cd; ls -tX cis106-Spring22
cheatSheets finalProject labs weeklyReports
inoquendoosorio@cis106vm:~$ ls -rR ~/cis106-Spring22
/home/inoquendoosorio/cis106-Spring22:
weeklyReports labs finalProject cheatSheets

/home/inoquendoosorio/cis106-Spring22/weeklyReports:
week3 week2 week1 week0

/home/inoquendoosorio/cis106-Spring22/weeklyReports/week3:
week3.pdf      package-box.png
week3.md       install-single-command.png
ubuntu-update-command.png 'install-&-remove-single-command.png'
remove-single-command.png

/home/inoquendoosorio/cis106-Spring22/weeklyReports/week2:
week2.pdf week2.md pictures

/home/inoquendoosorio/cis106-Spring22/weeklyReports/week2/pictures:
virtualBox-settings-6.png server-side-pic.png Pi3.png
virtualBox-settings-5.png PiZero.png Pi3A+.png
virtualBox-settings-4.png PiFirstModel.png exploring-VirtualBox-1.png
virtualBox-settings-3.png "Pi-diferentOS's.png" client-side-pic.png
virtualBox-settings-2.png Pi4.png
virtualBox-settings-1.png Pi400.png

/home/inoquendoosorio/cis106-Spring22/weeklyReports/week1:
```



```

inoquendoosorio@cis106vm: ~
virtualBox-settings-1.png  Pi400.png

/home/inoquendoosorio/cis106-Spring22/weeklyReports/week1:

/home/inoquendoosorio/cis106-Spring22/weeklyReports/week0:

/home/inoquendoosorio/cis106-Spring22/labs:
lab4 lab3 lab2 lab1 lab0

/home/inoquendoosorio/cis106-Spring22/labs/lab4:
q1.3.png q1.2.png q1.1.png lab4.md lab4.jpeg

/home/inoquendoosorio/cis106-Spring22/labs/lab3:
q2.1.png q1.1.png linux.pdf lab3.pdf
q1.2.png linux-presentation.odp linux.odt lab3.md

/home/inoquendoosorio/cis106-Spring22/labs/lab2:
q4.1.png q3.1.png q2.1.png lab2.pdf lab2.md

/home/inoquendoosorio/cis106-Spring22/labs/lab1:

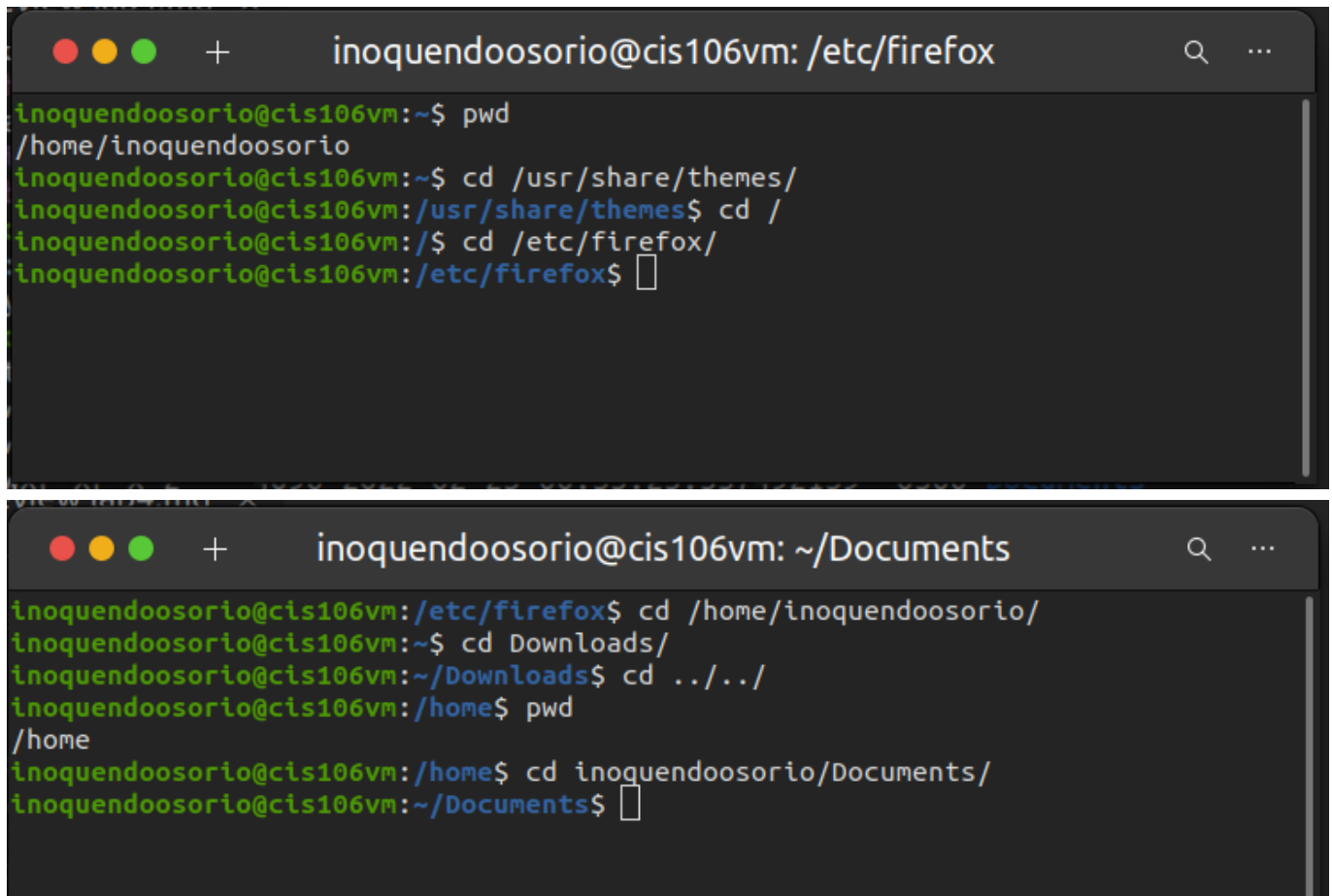
/home/inoquendoosorio/cis106-Spring22/labs/lab0:

/home/inoquendoosorio/cis106-Spring22/finalProject:

/home/inoquendoosorio/cis106-Spring22/cheatSheets:
'The LS command Cheat Sheet.png'
markdown-cheatsheet.pdf
'Linux Workshop Ubuntu Software installation cheat sheet.png'
'Absolute Path VS Relative Path Cheat sheet.png'
inoquendoosorio@cis106vm:~$ ls -lgG -full-time ~
ls: invalid option -- '-'
Try 'ls --help' for more information.
inoquendoosorio@cis106vm:~$ ls -lgG --full-time ~
total 2224
drwxrwxr-x 7 4096 2022-02-26 16:26:49.777134636 -0500 cis106-Spring22
drwxr-xr-x 2 4096 2022-02-24 19:30:37.458304308 -0500 Desktop
drwxr-xr-x 2 4096 2022-02-23 00:33:25.337492159 -0500 Documents
drwxr-xr-x 2 4096 2022-03-01 18:01:58.956779745 -0500 Downloads
drwxr-xr-x 2 4096 2022-02-23 00:33:25.337492159 -0500 Music
drwxr-xr-x 2 4096 2022-02-23 00:33:25.337492159 -0500 Pictures
drwxrwxr-x 2 4096 2022-02-27 13:46:18.000000000 -0500 practicels
-rw-rw-r-- 1 2229212 2022-03-08 16:39:55.000000000 -0500 practicels.tar.xz
drwxr-xr-x 2 4096 2022-02-23 00:33:25.337492159 -0500 Public
drwx----- 4 4096 2022-02-23 00:59:47.804068505 -0500 snap
drwxr-xr-x 2 4096 2022-02-23 00:33:25.337492159 -0500 Templates
drwxr-xr-x 2 4096 2022-02-23 00:33:25.337492159 -0500 Videos
inoquendoosorio@cis106vm:~$ 

```

Question 2 | The pwd and cd command



The image shows two terminal window screenshots. The top window has a title bar 'inoquendoosorio@cis106vm: /etc/firefox' and shows the following commands and output: `inoquendoosorio@cis106vm:~$ pwd` outputs `/home/inoquendoosorio`; `inoquendoosorio@cis106vm:~$ cd /usr/share/themes/`; `inoquendoosorio@cis106vm:/usr/share/themes$ cd /`; `inoquendoosorio@cis106vm:/$ cd /etc/firefox/`; and `inoquendoosorio@cis106vm:/etc/firefox$` with a cursor. The bottom window has a title bar 'inoquendoosorio@cis106vm: ~/Documents' and shows: `inoquendoosorio@cis106vm:/etc/firefox$ cd /home/inoquendoosorio/`; `inoquendoosorio@cis106vm:~$ cd Downloads/`; `inoquendoosorio@cis106vm:~/Downloads$ cd ../../`; `inoquendoosorio@cis106vm:/home$ pwd` outputs `/home`; `inoquendoosorio@cis106vm:/home$ cd inoquendoosorio/Documents/`; and `inoquendoosorio@cis106vm:~/Documents$` with a cursor.

```
inoquendoosorio@cis106vm:~$ pwd
/home/inoquendoosorio
inoquendoosorio@cis106vm:~$ cd /usr/share/themes/
inoquendoosorio@cis106vm:/usr/share/themes$ cd /
inoquendoosorio@cis106vm:/$ cd /etc/firefox/
inoquendoosorio@cis106vm:/etc/firefox$

inoquendoosorio@cis106vm:/etc/firefox$ cd /home/inoquendoosorio/
inoquendoosorio@cis106vm:~$ cd Downloads/
inoquendoosorio@cis106vm:~/Downloads$ cd ../../
inoquendoosorio@cis106vm:/home$ pwd
/home
inoquendoosorio@cis106vm:/home$ cd inoquendoosorio/Documents/
inoquendoosorio@cis106vm:~/Documents$
```

Question 3 | The ls command

```
inoquendoosorio@cis106vm: ~/lab4files

inoquendoosorio@cis106vm:~$ cd /usr/share/
inoquendoosorio@cis106vm:/usr/share$ ls /home/inoquendoosorio/lab4files/
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv    globe.avi      Linux.pdf     Tux.png     website.html
inoquendoosorio@cis106vm:/usr/share$ cd ~/lab4files/
inoquendoosorio@cis106vm:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 20K Feb 22 14:16 countries.json
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 278K Feb 22 14:15 csvfile.csv
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 747K Feb 22 14:13 document.docx
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 726K Feb 22 14:12 globe.avi
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 76 Feb 22 14:18 helloWorld.c
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 2.5M Feb 22 14:10 Linux.pdf
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 8.5K Feb 22 14:12 sample.xls
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 42K Feb 22 14:10 Tux.png
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 2.1M Feb 22 14:11 Ubuntu.pdf
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 135K Feb 22 14:16 website.html
inoquendoosorio@cis106vm:~/lab4files$ ls -lhs
total 6.5M
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 2.5M Feb 22 14:10 Linux.pdf
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 2.1M Feb 22 14:11 Ubuntu.pdf
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 747K Feb 22 14:13 document.docx
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 726K Feb 22 14:12 globe.avi
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 278K Feb 22 14:15 csvfile.csv
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 135K Feb 22 14:16 website.html
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 42K Feb 22 14:10 Tux.png
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 20K Feb 22 14:16 countries.json
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 8.5K Feb 22 14:12 sample.xls
-rw-rw-r-- 1 inoquendoosorio inoquendoosorio 76 Feb 22 14:18 helloWorld.c
inoquendoosorio@cis106vm:~/lab4files$ ls -lhSgGi
total 6.5M
1981055 -rw-rw-r-- 1 2.5M Feb 22 14:10 Linux.pdf
1981057 -rw-rw-r-- 1 2.1M Feb 22 14:11 Ubuntu.pdf
1981060 -rw-rw-r-- 1 747K Feb 22 14:13 document.docx
1981061 -rw-rw-r-- 1 726K Feb 22 14:12 globe.avi
1981059 -rw-rw-r-- 1 278K Feb 22 14:15 csvfile.csv
1981064 -rw-rw-r-- 1 135K Feb 22 14:16 website.html
1981056 -rw-rw-r-- 1 42K Feb 22 14:10 Tux.png
1981058 -rw-rw-r-- 1 20K Feb 22 14:16 countries.json
1981063 -rw-rw-r-- 1 8.5K Feb 22 14:12 sample.xls
1981062 -rw-rw-r-- 1 76 Feb 22 14:18 helloWorld.c
inoquendoosorio@cis106vm:~/lab4files$ ls -Xr
sample.xls  Ubuntu.pdf  countries.json  document.docx  helloWorld.c
Tux.png     Linux.pdf   website.html   csvfile.csv    globe.avi
inoquendoosorio@cis106vm:~/lab4files$
```

Question 4 | The tree command


```

inoquendoosorio@cis106vm: ~/Downloads

inoquendoosorio@cis106vm:~$ cd /etc/
inoquendoosorio@cis106vm:/etc$ tree ~/lab4files/
/home/inoquendoosorio/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
inoquendoosorio@cis106vm:/etc$ cd ~/Downloads/
inoquendoosorio@cis106vm:~/Downloads$ tree ../lab4files/ -fph
../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

```

```

inoquendoosorio@cis106vm: ~/Downloads

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

0 directories, 10 files
inoquendoosorio@cis106vm:~/Downloads$ tree ../lab4files/ -X
<?xml version="1.0" encoding="UTF-8"?>
<tree>
  <directory name="../lab4files/">
    <file name="countries.json"></file>
    <file name="csvfile.csv"></file>
    <file name="document.docx"></file>
    <file name="globe.avi"></file>
    <file name="helloWorld.c"></file>
    <file name="Linux.pdf"></file>
    <file name="sample.xls"></file>
  
```

```
<file name="Tux.png"></file>
<file name="Ubuntu.pdf"></file>
<file name="website.html"></file>
</directory>
<report>
  <directories>0</directories>
  <files>10</files>
</report>
</tree>
noquendoosorio@cis106vm:~/Downloads$ tree ../lab4files/ -J
{
  "type": "directory", "name": "../lab4files/", "contents": [
    { "type": "file", "name": "countries.json" },
    { "type": "file", "name": "csvfile.csv" },
    { "type": "file", "name": "document.docx" },
    { "type": "file", "name": "globe.avi" },
    { "type": "file", "name": "helloWorld.c" },
    { "type": "file", "name": "Linux.pdf" },
    { "type": "file", "name": "sample.xls" },
    { "type": "file", "name": "Tux.png" },
    { "type": "file", "name": "Ubuntu.pdf" },
    { "type": "file", "name": "website.html" }
  ],
  "type": "report", "directories": 0, "files": 10
}
```

Question 5 | The exa command. A modern tool to replace ls


```
inoquendoosorio@cis106vm: ~  
inoquendoosorio@cis106vm:~$ 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  
  --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 content  
  
  -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  
  --git-ignore         ignore files mentioned in '.gitignore'  
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  
  -H, --links          list each file's number of hard links  
  -i, --inode          list each file's inode number  
  -m, --modified       use the modified timestamp field  
  -n, --numeric        list numeric user and group IDs  
  -S, --blocks         show number of file system blocks  
  -t, --time FIELD     which timestamp field to list (modified, accessed, create  
)  
  -u, --accessed       use the accessed timestamp field  
  -U, --created        use the created timestamp field  
  --changed            use the changed timestamp field  
  --time-style         how to format timestamps (default, iso, long-iso, full-iso)  
)  
  --no-permissions     suppress the permissions field  
  --octal-permissions  list each file's permission in octal format
```



```

inoquendoosorio@cis106vm:~$ exa -l lab4files/
.rw-rw-r-- 20k inoquendoosorio 22 Feb 14:16 countries.json
.rw-rw-r-- 284k inoquendoosorio 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k inoquendoosorio 22 Feb 14:13 document.docx
.rw-rw-r-- 742k inoquendoosorio 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 inoquendoosorio 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M inoquendoosorio 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k inoquendoosorio 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k inoquendoosorio 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M inoquendoosorio 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k inoquendoosorio 22 Feb 14:16 website.html
inoquendoosorio@cis106vm:~$ exa -T lab4files/
lab4files
├── countries.json
├── csvfile.csv
├── document.docx
├── globe.avi
├── helloWorld.c
├── Linux.pdf
├── sample.xls
├── Tux.png
├── Ubuntu.pdf
└── website.html
inoquendoosorio@cis106vm:~$ exa -lh
Permissions Size User Date Modified Name
drwxrwxr-x - inoquendoosorio 26 Feb 16:26 cis106-Spring22
drwxr-xr-x - inoquendoosorio 24 Feb 19:30 Desktop
drwxr-xr-x - inoquendoosorio 23 Feb 00:33 Documents
drwxr-xr-x - inoquendoosorio 12 Mar 18:31 Downloads
drwxrwxr-x - inoquendoosorio 22 Feb 14:18 lab4files
drwxr-xr-x - inoquendoosorio 23 Feb 00:33 Music
drwxr-xr-x - inoquendoosorio 23 Feb 00:33 Pictures
drwxrwxr-x - inoquendoosorio 27 Feb 13:46 practicels
.rw-rw-r-- 2.2M inoquendoosorio 8 Mar 16:39 practicels.tar.xz
drwxr-xr-x - inoquendoosorio 23 Feb 00:33 Public
drwx----- - inoquendoosorio 23 Feb 00:59 snap
drwxr-xr-x - inoquendoosorio 23 Feb 00:33 Templates
drwxr-xr-x - inoquendoosorio 23 Feb 00:33 Videos
inoquendoosorio@cis106vm:~$ exa -l --no-time --no-user
drwxrwxr-x - cis106-Spring22
drwxr-xr-x - Desktop
drwxr-xr-x - Documents
drwxr-xr-x - Downloads
drwxrwxr-x - lab4files
drwxr-xr-x - Music
drwxr-xr-x - Pictures
drwxrwxr-x - practicels
.rw-rw-r-- 2.2M practicels.tar.xz
drwxr-xr-x - Public
drwx----- - snap
drwxr-xr-x - Templates
drwxr-xr-x - Videos
inoquendoosorio@cis106vm:~$

```