


# Lab 4

## Question 1: The linux filesystem

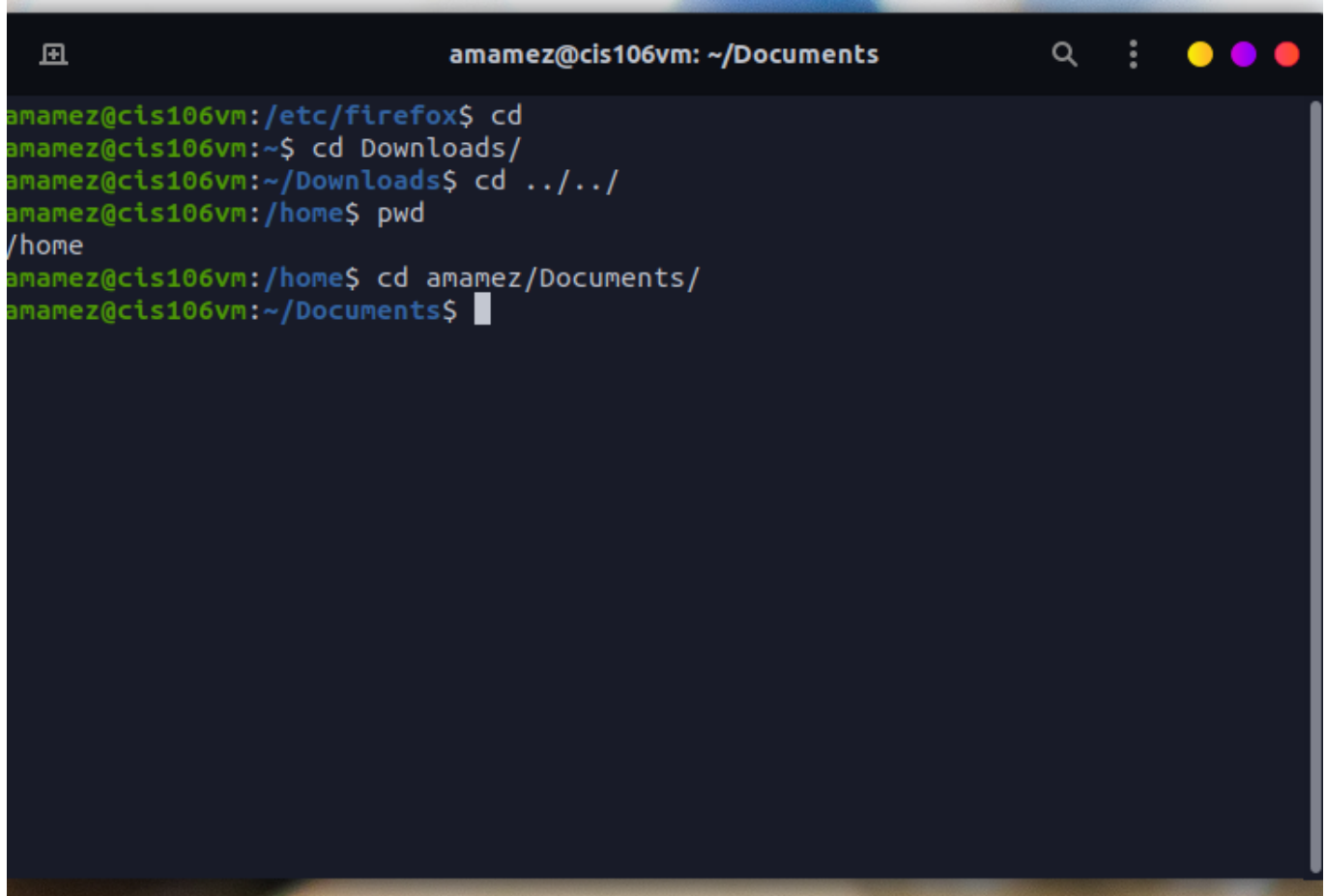
Directory	Function
bin	Essential commands
dev	Device files
etc	System configuration files
home	User home directories
media	Mount point for removable media, such as DVDs and floppy disks.
opt	Add-on software packages
proc	Kernel information, process control, system hardware information
srv	Information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

Command	What is does	Syntax	Example
cd	used for changing the current working directory.	<b>cd + destination</b>	cd Download
pwd	used for displaying the current working directory.	<b>pwd</b>	pwd
ls	used for displaying all the files inside a given directory.	<b>ls -option files/directories</b>	ls -a ~/Pictures

## Question 2: The linux filesystem



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



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

### Question 3

```
amamez@cis106vm: ~/lab4files

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

```
amamez@cis106vm: ~/lab4files

amamez@cis106vm:~/lab4files$ ls -lhSgGi
total 6.5M
1096662 -rw-rw-r-- 1 2.5M Feb 22 14:10 Linux.pdf
1096664 -rw-rw-r-- 1 2.1M Feb 22 14:11 Ubuntu.pdf
1096667 -rw-rw-r-- 1 747K Feb 22 14:13 document.docx
1096668 -rw-rw-r-- 1 726K Feb 22 14:12 globe.avi
1096666 -rw-rw-r-- 1 278K Feb 22 14:15 csvfile.csv
1096671 -rw-rw-r-- 1 135K Feb 22 14:16 website.html
1096663 -rw-rw-r-- 1 42K Feb 22 14:10 Tux.png
1096665 -rw-rw-r-- 1 20K Feb 22 14:16 countries.json
1096670 -rw-rw-r-- 1 8.5K Feb 22 14:12 sample.xls
1096669 -rw-rw-r-- 1 76 Feb 22 14:18 helloWorld.c
amamez@cis106vm:~/lab4files$ ls -Xr
sample.xls  Ubuntu.pdf  countries.json  document.docx  helloWorld.c
Tux.png     Linux.pdf   website.html    csvfile.csv    globe.avi
amamez@cis106vm:~/lab4files$
```

## Question 4

```
amamez@cis106vm:~/lab4files$ cd /etc/
amamez@cis106vm:/etc$ tree ~/lab4files/
/home/amamez/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
amamez@cis106vm:/etc$
```

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

```
0 directories, 0 files
amamez@cis106vm:~/Downloads$ tree ../lab4files/ XML
../lab4files/
├── countries.json
├── csvfile.csv
├── document.docx
├── globe.avi
├── helloWorld.c
├── Linux.pdf
├── sample.xls
├── Tux.png
├── Ubuntu.pdf
└── website.html
XML [error opening dir]
```

```
0 directories, 10 files
amamez@cis106vm:~/Downloads$ tree ../lab4files/ JSON
../lab4files/
├── countries.json
├── csvfile.csv
├── document.docx
├── globe.avi
├── helloWorld.c
├── Linux.pdf
├── sample.xls
├── Tux.png
├── Ubuntu.pdf
└── website.html
JSON [error opening dir]
```

## Question 5

```

amamez@cis106vm:~/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
  --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
  --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, created)
  -u, --accessed      use the accessed timestamp field
  -U, --created       use the created timestamp field
  --changed           use the changed timestamp field

```

```

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

```

```
countries.json
— csvfile.csv
— document.docx
— globe.avi
— helloWorld.c
— Linux.pdf
— sample.xls
— Tux.png
— Ubuntu.pdf
— website.html
amamez@cis106vm:~$
```

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```
— website.html
amamez@cis106vm:~$ exa -h lab4files
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv    globe.avi      Linux.pdf     Tux.png     website.html
amamez@cis106vm:~$
```

```
eated)
amamez@cis106vm:~$ exa -lhU lab4files
Permissions Size User Date Created Name
.rw-rw-r-- 20k amamez 14 Mar 19:15 countries.json
.rw-rw-r-- 284k amamez 14 Mar 19:15 csvfile.csv
.rw-rw-r-- 764k amamez 14 Mar 19:15 document.docx
.rw-rw-r-- 742k amamez 14 Mar 19:15 globe.avi
.rw-rw-r-- 76 amamez 14 Mar 19:15 helloWorld.c
.rw-rw-r-- 2.6M amamez 14 Mar 19:15 Linux.pdf
.rw-rw-r-- 8.7k amamez 14 Mar 19:15 sample.xls
.rw-rw-r-- 43k amamez 14 Mar 19:15 Tux.png
.rw-rw-r-- 2.1M amamez 14 Mar 19:15 Ubuntu.pdf
.rw-rw-r-- 137k amamez 14 Mar 19:15 website.html
amamez@cis106vm:~$
```