Question 1: The linux filesystem

Table 1

Directory	Function
bin	is the essential commands
dev	Contains files for all devices
etc	This folder contains all system configuration files
home	This is where you desktop lies at.
media	This file contains devices that can be removed
opt	This is where installed addons located at.
proc	This file holds your whole linux system details
srv	Information relating to services that run on the system
usr	Software not essential for the system application, such as applications

Table 2

Command	What it does	Syntax	Example
pwd	This command is used for displaying the current working directory	`pwd`	`/home/don`
cd	This command is used for changing the working directory when there aren't any give cd changes	`cd Videos/`	`~/Videos`
ls	Used for displaying all the files in the current working directory dir, tree, exa are command similar to is.	`cd /home` + `cd ~/lab4files/` + `lS`	`exa -lS`

Question 2

```
don@dono:/etc/firefox$ pwd
/etc/firefox
don@dono:/etc/firefox$ cd /usr/share/themes/
don@dono:/usr/share/themes$ pwd
/usr/share/themes
don@dono:/usr/share/themes$ cd /
don@dono:/$ cd /etc/firefox/
don@dono:/etc/firefox$ _
```

```
don@dono:/etc/firefox$ cd
don@dono:~$ cd Downloads/
don@dono:~/Downloads$ cd ../../
don@dono:/home$ pwd
/home
don@dono:/home$ cd don/Documents/
don@dono:~/Documents$ _
```

Question 3

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

```
don@dono:~/lab4files$ ls -lhSgGi
total 6.5M
2374354 -rw-rw-r-- 1 2.5M Feb 22 14:10 Linux.pdf
2374408 -rw-rw-r-- 1 2.1M Feb 22 14:11 Ubuntu.pdf
2374516 -rw-rw-r-- 1 747K Feb 22 14:13 document.docx
2374517 -rw-rw-r-- 1 726K Feb 22 14:12 globe.avi
2374515 -rw-rw-r-- 1 278K Feb 22 14:15 csvfile.csv
2374520 -rw-rw-r-- 1 135K Feb 22 14:16 website.html
2374395 -rw-rw-r-- 1  42K Feb 22 14:10 Tux.png
2374514 -rw-rw-r-- 1  20K Feb 22 14:16 countries.json
2374519 -rw-rw-r-- 1 8.5K Feb 22 14:12 sample.xls
2374518 -rw-rw-r-- 1   76 Feb 22 14:18 helloWorld.c
don@dono:~/lab4files$ ls -Xr
sample.xls  Tux.png  Ubuntu.pdf  Linux.pdf  countries.json  website.html  document.docx  csvfile.csv  helloWorld.c  globe.avi
don@dono:~/lab4files$ _
```

Question 4

```
                    don@dono: /etc          ×              don@dono: ~/lab4files           ×     ▾
don@dono:~/lab4files$ ls -lhSgGi
total 6.5M
2374354 -rw-rw-r-- 1 2.5M Feb 22 14:10 Linux.pdf
2374408 -rw-rw-r-- 1 2.1M Feb 22 14:11 Ubuntu.pdf
2374516 -rw-rw-r-- 1 747K Feb 22 14:13 document.docx
2374517 -rw-rw-r-- 1 726K Feb 22 14:12 globe.avi
2374515 -rw-rw-r-- 1 278K Feb 22 14:15 csvfile.csv
2374520 -rw-rw-r-- 1 135K Feb 22 14:16 website.html
2374395 -rw-rw-r-- 1  42K Feb 22 14:10 Tux.png
2374514 -rw-rw-r-- 1  20K Feb 22 14:16 countries.json
2374519 -rw-rw-r-- 1 8.5K Feb 22 14:12 sample.xls
2374518 -rw-rw-r-- 1   76 Feb 22 14:18 helloWorld.c
don@dono:~/lab4files$ ls -Xr
sample.xls  Tux.png  Ubuntu.pdf  Linux.pdf  countries.json  website.html
  document.docx  csvfile.csv  helloWorld.c  globe.avi
don@dono:~/lab4files$ cd /etc/
don@dono:/etc$ tree ~/lab4files/
/home/don/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
don@dono:/etc$ _
```

```
                    don@dono: ~/Downloads          ×                          don@d
don@dono:/etc$ cd ~/Downloads/
don@dono:~/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
don@dono:~/Downloads$ _
```

```
0 directories, 10 files
don@dono:~/Downloads$ ../lab4files/
bash: ../lab4files/: Is a directory
don@dono:~/Downloads$ ../
bash: ../: Is a directory
don@dono:~/Downloads$ ..
..: command not found
don@dono:~/Downloads$ ../../
bash: ../../: Is a directory
don@dono:~/Downloads$ cd
don@dono:~$ cd ~/lab4files/
don@dono:~/lab4files$ tree -tcug
.
├── [don        don        ]  countries.json
├── [don        don        ]  csvfile.csv
├── [don        don        ]  document.docx
├── [don        don        ]  globe.avi
├── [don        don        ]  helloWorld.c
├── [don        don        ]  Linux.pdf
├── [don        don        ]  sample.xls
├── [don        don        ]  Tux.png
├── [don        don        ]  Ubuntu.pdf
└── [don        don        ]  website.html

0 directories, 10 files
don@dono:~/lab4files$ _
```

```
don@dono:~/lab4files$ tree -X
<?xml version="1.0" encoding="UTF-8"?>
<tree>
  <directory name=".">
    <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>
```

```
don@dono:~/lab4files$ tree -J
[{"type":"directory","name": ".","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

```
                        don@dono:~                           ×              don@dono: ~/lab4files                    ×    ▼
don@dono:~$ 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
  --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
  --no-filesize     suppress the filesize field
  --no-user         suppress the user field
  --no-time         suppress the time field
  --git             list each file's Git status, if tracked or ignored
  -@, --extended    list each file's extended attributes and sizes
don@dono:~$ _
```

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

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

```
don@dono:~$ exa -1lg lab4files/
.rw-rw-r--   20k don don 22 Feb 14:16 countries.json
.rw-rw-r-- 284k don don 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k don don 22 Feb 14:13 document.docx
.rw-rw-r-- 742k don don 22 Feb 14:12 globe.avi
.rw-rw-r--   76 don don 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M don don 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k don don 22 Feb 14:12 sample.xls
.rw-rw-r--  43k don don 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M don don 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k don don 22 Feb 14:16 website.html
```