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name: Dipali
class: cis106
semester: spring 22
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Lab 4 | The Linux Filesystem

Question 1

Table 1

Directory	Function
bin	has the essential commands that includes many commands, scripts, and executable files
dev	provide device files
etc	has system configuration files, which can be edited by a text editor
home	contains a home folder for each user. It contains the user's data file and user-specific configuration files
media	mount point for removable media, such as DVDs and floppy disks
opt	add-on software packages that are optional
proc	contains kernel information, process control, system hardware information
srv	contains information relating to services that run on the system
usr	software not essential for system operation, such as applications

Table 2

Command	What it does	Syntax	Example
cd	used for changing the current working directory	cd + destination	cd Downloads
pwd	displays the current working directory	pwd	type pwd on command line and it shows current directory in the next line like /home/jdoe
ls	used for listing the content of a given directory or the file/directory itself	ls + directory name	ls ~/practicels

Question 2

```
Activities Applications ▾ Terminal ▾ Mar 10 21:24
dkrana@cis106: /etc/firefox

dkrana@cis106:~$ pwd
/home/dkrana
dkrana@cis106:~$ cd /usr/share/themes
dkrana@cis106:/usr/share/themes$ pwd
/usr/share/themes
dkrana@cis106:/usr/share/themes$ cd /
dkrana@cis106:/$ cd /etc/firefox/
dkrana@cis106:/etc/firefox$
```

```
Activities Applications ▾ Terminal ▾ Mar 10 21:30
dkrana@cis106: ~/Documents

dkrana@cis106:/etc/firefox$ cd
dkrana@cis106:~$ cd Downloads/
dkrana@cis106:~/Downloads$ cd ../../
dkrana@cis106:/home$ pwd
/home
dkrana@cis106:/home$ cd dkrana/Documents/
dkrana@cis106:~/Documents$
```

Question 3

```
Activities Applications ▾ Terminal ▾ Mar 10 21:40
dkrana@cis106: ~/lab4files

dkrana@cis106:~$ cd /usr/share
dkrana@cis106:/usr/share$ ls /home/dkrana/lab4files/
countries.json csvfile.csv document.docx globe.avi helloWorld.c Linux.pdf sample.xls Tux.png Ubuntu.pdf website.html
dkrana@cis106:/usr/share$ cd ~/lab4files/
dkrana@cis106:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 dkrana dkrana 20K Feb 22 14:16 countries.json
-rw-rw-r-- 1 dkrana dkrana 278K Feb 22 14:15 csvfile.csv
-rw-rw-r-- 1 dkrana dkrana 747K Feb 22 14:13 document.docx
-rw-rw-r-- 1 dkrana dkrana 726K Feb 22 14:12 globe.avi
-rw-rw-r-- 1 dkrana dkrana 76 Feb 22 14:18 helloWorld.c
-rw-rw-r-- 1 dkrana dkrana 2.5M Feb 22 14:10 Linux.pdf
-rw-rw-r-- 1 dkrana dkrana 8.5K Feb 22 14:12 sample.xls
-rw-rw-r-- 1 dkrana dkrana 42K Feb 22 14:10 Tux.png
-rw-rw-r-- 1 dkrana dkrana 2.1M Feb 22 14:11 Ubuntu.pdf
-rw-rw-r-- 1 dkrana dkrana 135K Feb 22 14:16 website.html
dkrana@cis106:~/lab4files$ ls -lhs
total 6.5M
-rw-rw-r-- 1 dkrana dkrana 2.5M Feb 22 14:10 Linux.pdf
-rw-rw-r-- 1 dkrana dkrana 2.1M Feb 22 14:11 Ubuntu.pdf
-rw-rw-r-- 1 dkrana dkrana 747K Feb 22 14:13 document.docx
-rw-rw-r-- 1 dkrana dkrana 726K Feb 22 14:12 globe.avi
-rw-rw-r-- 1 dkrana dkrana 278K Feb 22 14:15 csvfile.csv
-rw-rw-r-- 1 dkrana dkrana 135K Feb 22 14:16 website.html
-rw-rw-r-- 1 dkrana dkrana 42K Feb 22 14:10 Tux.png
-rw-rw-r-- 1 dkrana dkrana 20K Feb 22 14:16 countries.json
-rw-rw-r-- 1 dkrana dkrana 8.5K Feb 22 14:12 sample.xls
-rw-rw-r-- 1 dkrana dkrana 76 Feb 22 14:18 helloWorld.c
dkrana@cis106:~/lab4files$
```

```
Activities Applications Terminal Mar 10 21:44
dkrana@cis106: ~/lab4files

dkrana@cis106:~/lab4files$ ls -lhSgGi
total 6.5M
1057983 -rw-rw-r-- 1 2.5M Feb 22 14:10 Linux.pdf
1057994 -rw-rw-r-- 1 2.1M Feb 22 14:11 Ubuntu.pdf
1057997 -rw-rw-r-- 1 747K Feb 22 14:13 document.docx
1057998 -rw-rw-r-- 1 726K Feb 22 14:12 globe.avi
1057996 -rw-rw-r-- 1 278K Feb 22 14:15 csvfile.csv
1058015 -rw-rw-r-- 1 135K Feb 22 14:16 website.html
1057990 -rw-rw-r-- 1 42K Feb 22 14:10 Tux.png
1057995 -rw-rw-r-- 1 20K Feb 22 14:16 countries.json
1058006 -rw-rw-r-- 1 8.5K Feb 22 14:12 sample.xls
1057999 -rw-rw-r-- 1 76 Feb 22 14:18 helloWorld.c
dkrana@cis106:~/lab4files$ ls -Xr
sample.xls Tux.png Ubuntu.pdf Linux.pdf countries.json website.html document.docx csvfile.csv helloWorld.c globe.avi
dkrana@cis106:~/lab4files$
```

)

Question 4

```
dkrana@cis106:~/lab4files$ cd /etc/
dkrana@cis106:/etc$ tree ~/lab4files/
/home/dkrana/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
dkrana@cis106:/etc$
```

```
dkrana@cis106:~/Downloads$ tree ../lab4files/ -tug
../lab4files/
├── [dkrana dkrana ] Linux.pdf
├── [dkrana dkrana ] Tux.png
├── [dkrana dkrana ] Ubuntu.pdf
├── [dkrana dkrana ] sample.xls
├── [dkrana dkrana ] globe.avi
├── [dkrana dkrana ] document.docx
├── [dkrana dkrana ] csvfile.csv
├── [dkrana dkrana ] countries.json
├── [dkrana dkrana ] website.html
└── [dkrana dkrana ] helloWorld.c

0 directories, 10 files
```

```
dkrana@cis106:~/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>
```

```
dkrana@cis106:~/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
  }
]
dkrana@cis106:~/Downloads$
```

Question 5

```

Activities Applications Terminal Mar 10 22:12
dkrana@cis106: ~/Downloads

dkrana@cis106:~/Downloads$ exa --help
Usage:
  exa [options] [files...]

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

DISPLAY OPTIONS
  -l, --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
dkrana@cis106:~/Downloads$

```

```

dkrana@cis106:~$ exa -l lab4files/
.rw-rw-r-- 20k dkrana 22 Feb 14:16 countries.json
.rw-rw-r-- 284k dkrana 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k dkrana 22 Feb 14:13 document.docx
.rw-rw-r-- 742k dkrana 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 dkrana 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M dkrana 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k dkrana 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k dkrana 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M dkrana 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k dkrana 22 Feb 14:16 website.html
dkrana@cis106:~$ exa -T lab4files/
lab4files
├── countries.json
├── csvfile.csv
├── document.docx
├── globe.avi
├── helloWorld.c
├── Linux.pdf
├── sample.xls
├── Tux.png
├── Ubuntu.pdf
└── website.html

```

```
dkrana@cis106:~$ exa -lh lab4files/
Permissions Size User Date Modified Name
.rw-rw-r-- 20k dkrana 22 Feb 14:16 countries.json
.rw-rw-r-- 284k dkrana 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k dkrana 22 Feb 14:13 document.docx
.rw-rw-r-- 742k dkrana 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 dkrana 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M dkrana 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k dkrana 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k dkrana 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M dkrana 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k dkrana 22 Feb 14:16 website.html
dkrana@cis106:~$ exa -l --no-user --no-time lab4files/
.rw-rw-r-- 20k countries.json
.rw-rw-r-- 284k csvfile.csv
.rw-rw-r-- 764k document.docx
.rw-rw-r-- 742k globe.avi
.rw-rw-r-- 76 helloWorld.c
.rw-rw-r-- 2.6M Linux.pdf
.rw-rw-r-- 8.7k sample.xls
.rw-rw-r-- 43k Tux.png
.rw-rw-r-- 2.1M Ubuntu.pdf
.rw-rw-r-- 137k website.html
dkrana@cis106:~$
```