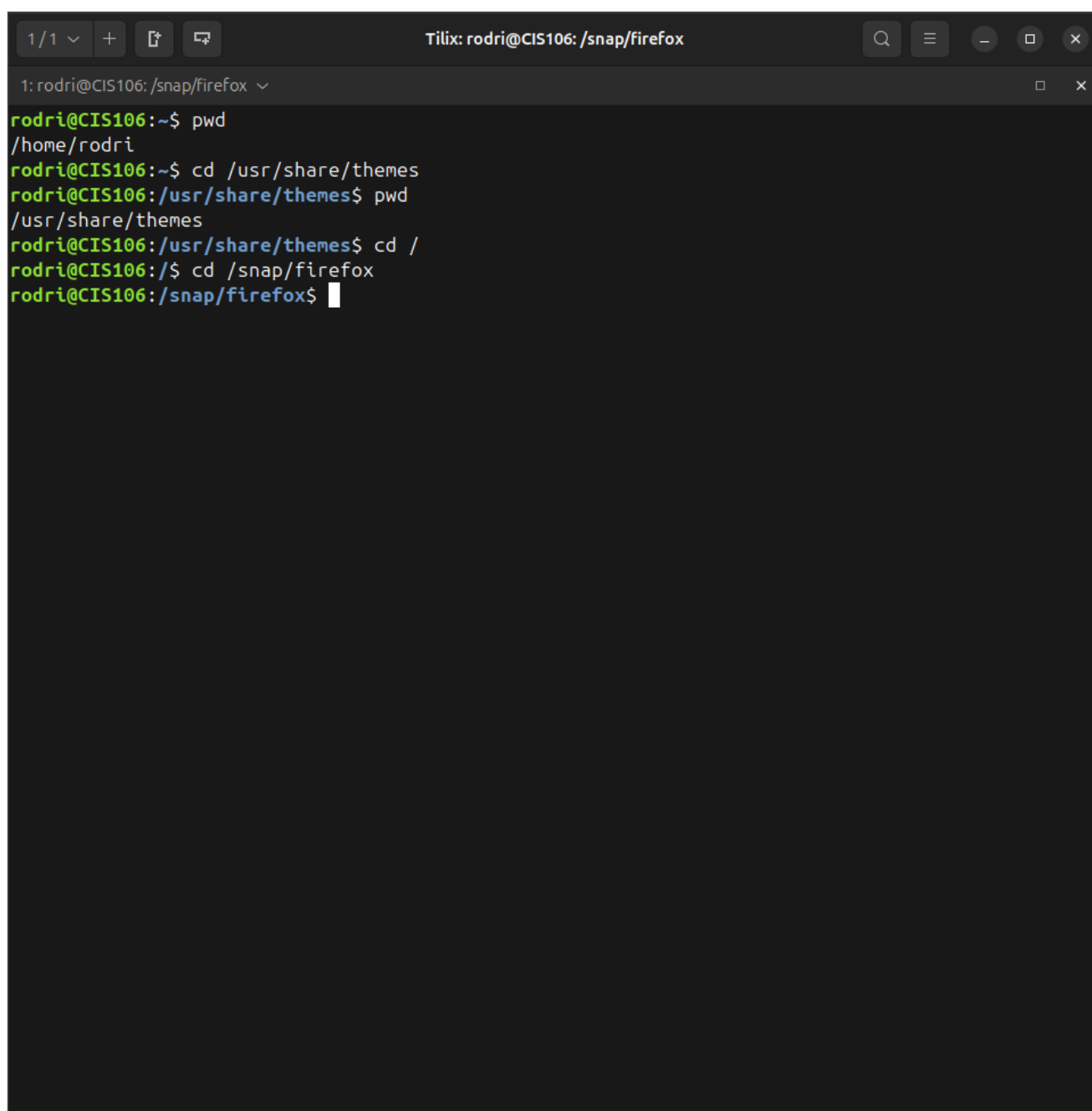
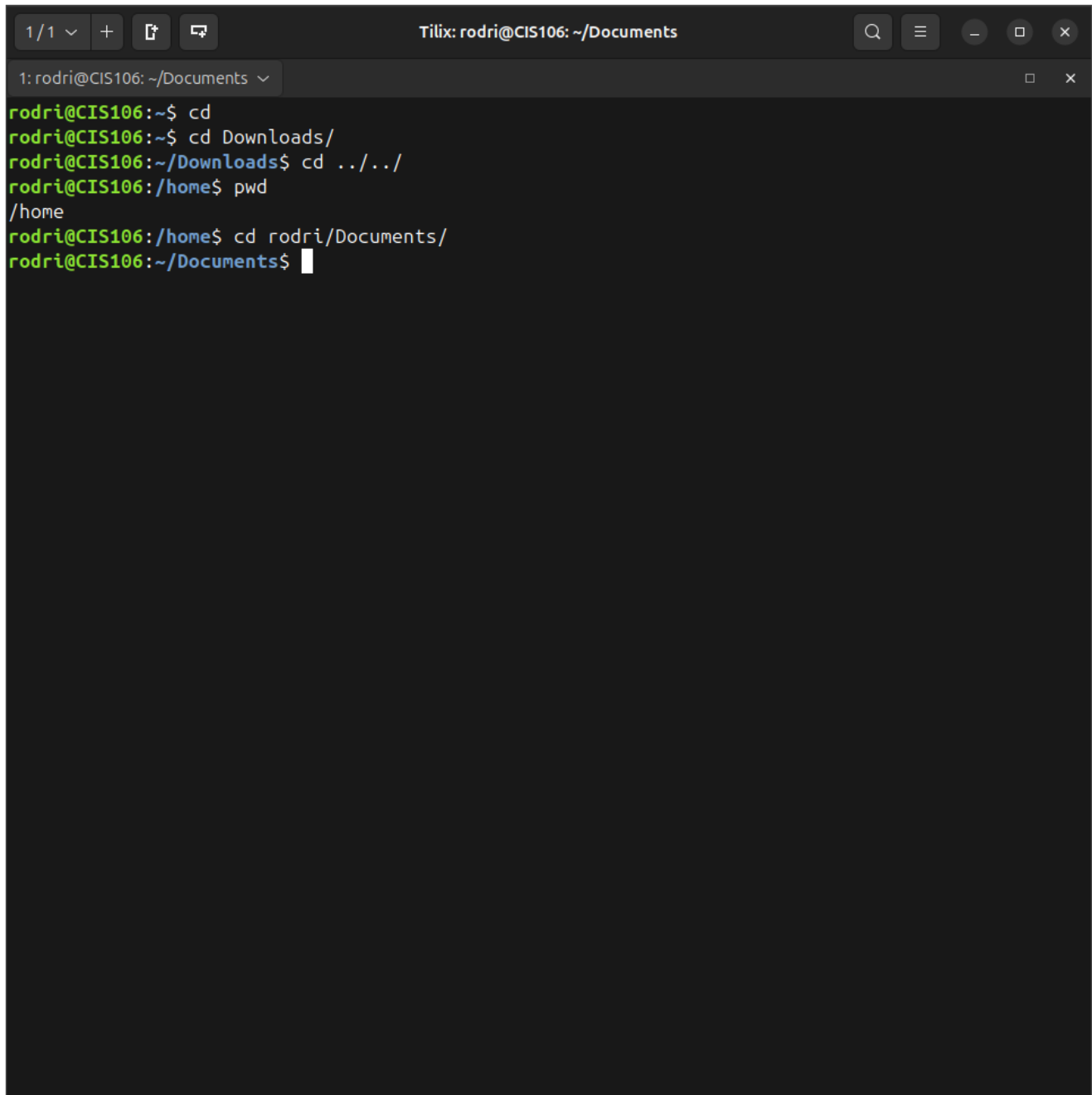


Lab 4 Submission

Question 1



```
Tilix: rodri@CIS106: /snap/firefox
1: rodri@CIS106: /snap/firefox
rodri@CIS106:~$ pwd
/home/rodri
rodri@CIS106:~$ cd /usr/share/themes
rodri@CIS106:/usr/share/themes$ pwd
/usr/share/themes
rodri@CIS106:/usr/share/themes$ cd /
rodri@CIS106:/$ cd /snap/firefox
rodri@CIS106:/snap/firefox$
```



A terminal window titled "Tilix: rodri@CIS106: ~/Documents" with standard window controls. The terminal shows a series of commands and their outputs:

```
rodri@CIS106:~$ cd
rodri@CIS106:~$ cd Downloads/
rodri@CIS106:~/Downloads$ cd ../../
rodri@CIS106:/home$ pwd
/home
rodri@CIS106:/home$ cd rodri/Documents/
rodri@CIS106:~/Documents$
```

Question 2

```

1/1 v + D Q
Tilix: rodri@CIS106: ~/lab4files
1: rodri@CIS106: ~/lab4files
rodri@CIS106:~$ cd usr/share/
bash: cd: usr/share/: No such file or directory
rodri@CIS106:~$ cd /usr/share/
rodri@CIS106:~/usr/share$ ls -l /lab4files
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv    globe.avi      Linux.pdf     Tux.png     website.html
rodri@CIS106:~/usr/share$ cd - /lab4files/
rodri@CIS106:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 rodri rodri 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 rodri rodri 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 rodri rodri 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 rodri rodri 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 rodri rodri 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 rodri rodri 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 rodri rodri 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 rodri rodri 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 rodri rodri 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 rodri rodri 135K Feb 22 2022 website.html
rodri@CIS106:~/lab4files$ ls -lhs
total 6.5M
-rw-rw-r-- 1 rodri rodri 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 rodri rodri 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 rodri rodri 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 rodri rodri 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 rodri rodri 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 rodri rodri 135K Feb 22 2022 website.html
-rw-rw-r-- 1 rodri rodri 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 rodri rodri 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 rodri rodri 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 rodri rodri 76 Feb 22 2022 helloWorld.c
rodri@CIS106:~/lab4files$

-r, --reverse
    reverse order while sorting

-R, --recursive
    list subdirectories recursively

-s, --size
    print the allocated size of
    each file, in blocks

-S
    sort by file size, largest
    first

--sort=WORD
    sort by WORD instead of name:
    none (-U), size (-S), time
    (-t), version (-v), extension
    (-X), width

--time=WORD
    select which timestamp used to
    display or sort; access time
    (-u): atime, access, use; meta-
    data change time (-c): ctime,
    status; modified time (de-
    fault): mtime, modification;
    birth time: birth, creation;

    with -l, WORD determines which
    time to show; with --sort=time,
    sort by WORD (newest first)

--time-style=TIME_STYLE
    time/date format with -l; see
    TIME_STYLE below

-t
    sort by time, newest first; see
    --time

Manual page ls(1) line 189/342 67% (press h for help or q to quit)

```

```

1/1 v + D Q
Tilix: rodri@CIS106: ~/lab4files
1: rodri@CIS106: ~/lab4files
rodri@CIS106:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 rodri rodri 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 rodri rodri 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 rodri rodri 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 rodri rodri 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 rodri rodri 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 rodri rodri 135K Feb 22 2022 website.html
-rw-rw-r-- 1 rodri rodri 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 rodri rodri 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 rodri rodri 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 rodri rodri 76 Feb 22 2022 helloWorld.c
rodri@CIS106:~/lab4files$ ls -lhsG
total 6.5M
560090 -rw-rw-r-- 1 2.5M Feb 22 2022 Linux.pdf
560173 -rw-rw-r-- 1 2.1M Feb 22 2022 Ubuntu.pdf
560598 -rw-rw-r-- 1 747K Feb 22 2022 document.docx
560599 -rw-rw-r-- 1 726K Feb 22 2022 globe.avi
560547 -rw-rw-r-- 1 278K Feb 22 2022 csvfile.csv
560602 -rw-rw-r-- 1 135K Feb 22 2022 website.html
560168 -rw-rw-r-- 1 42K Feb 22 2022 Tux.png
560456 -rw-rw-r-- 1 20K Feb 22 2022 countries.json
560601 -rw-rw-r-- 1 8.5K Feb 22 2022 sample.xls
560600 -rw-rw-r-- 1 76 Feb 22 2022 helloWorld.c
rodri@CIS106:~/lab4files$ ls -lXr
total 6580
-rw-rw-r-- 1 rodri rodri 8704 Feb 22 2022 sample.xls
-rw-rw-r-- 1 rodri rodri 42777 Feb 22 2022 Tux.png
-rw-rw-r-- 1 rodri rodri 2114053 Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 rodri rodri 2600138 Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 rodri rodri 20471 Feb 22 2022 countries.json
-rw-rw-r-- 1 rodri rodri 137453 Feb 22 2022 website.html
-rw-rw-r-- 1 rodri rodri 764176 Feb 22 2022 document.docx
-rw-rw-r-- 1 rodri rodri 284042 Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 rodri rodri 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 rodri rodri 742478 Feb 22 2022 globe.avi
rodri@CIS106:~/lab4files$

environment variable)

-r, --reverse
    reverse order while sorting

-R, --recursive
    list subdirectories recursively

-s, --size
    print the allocated size of
    each file, in blocks

-S
    sort by file size, largest
    first

--sort=WORD
    sort by WORD instead of name:
    none (-U), size (-S), time
    (-t), version (-v), extension
    (-X), width

--time=WORD
    select which timestamp used to
    display or sort; access time
    (-u): atime, access, use; meta-
    data change time (-c): ctime,
    status; modified time (de-
    fault): mtime, modification;
    birth time: birth, creation;

    with -l, WORD determines which
    time to show; with --sort=time,
    sort by WORD (newest first)

--time-style=TIME_STYLE
    time/date format with -l; see
    TIME_STYLE below

-t
    sort by time, newest first; see
    --time

Manual page ls(1) line 188/342 67% (press h for help or q to quit)

```

Question 3

```

Tilix: rodri@CIS106: ~
1: rodri@CIS106: ~
/home/rodri/Downloads
The current directory is:
/home/rodri/cis106

All files (including hidden files) in /
bin, bin.usr-is-merged, boot, cdrom, dev, etc, home, lib, lib64, lib.usr-is-merged, lost+found, media, mnt, opt, proc, root, run, sbin, sbin.usr-is-merged, snap, srv, swap.img, sys, usr, var

All files (including hidden files) in /home/rodri
.bash_history, .bash_logout, .bashrc, .bastetrc, .cache, cis106, .config, Desktop, Documents, .dotnet, Downloads, .fonts, .gitconfig, .gnupg, .irb_history, .jpg, lab4files, lab4_script.sh, .lessht, .librewolf, .local, Music, Pictures, .pki, practicels, .profile, Public, .python_history, scripts, snap, .ssh, .sudo_as_admin_successful, Templates, .var, Videos, .viminfo, .vscode, website, .wget-hsts

All files (including hidden files) in /home/rodri/Downloads
challengeOutput1.png, lab4files.zip, lab4_script.sh, .my_secret_stuff, Office, piccolo.jpg, practicels.tar.xz, Terminus.zip

All files (including hidden files) in /home/rodri/cis106
cheatSheets, .git, labs, notes, weekReports
rodri@CIS106:~$ bash lab4_script.sh
The current user is rodri. It's home directory is /home/rodri
The current directory is:
/home/rodri/Downloads
The current directory is:
/home/rodri/cis106

All files (including hidden files) in /
bin, bin.usr-is-merged, boot, cdrom, dev, etc, home, lib, lib64, lib.usr-is-merged, lost+found, media, mnt, opt, proc, root, run, sbin, sbin.usr-is-merged, snap, srv, swap.img, sys, usr, var

All files (including hidden files) in /home/rodri
.bash_history, .bash_logout, .bashrc, .bastetrc, .cache, cis106, .config, Desktop, Documents, .dotnet, Downloads, .fonts, .gitconfig, .gnupg, .irb_history, .jpg, lab4files, lab4_script.sh, .lessht, .librewolf, .local, Music, Pictures, .pki, practicels, .profile, Public, .python_history, scripts, snap, .ssh, .sudo_as_admin_successful, Templates, .var, Videos, .viminfo, .vscode, website, .wget-hsts

All files (including hidden files) in /home/rodri/Downloads
challengeOutput1.png, lab4files.zip, lab4_script.sh, .my_secret_stuff, Office, piccolo.jpg, practicels.tar.xz, Terminus.zip

All files (including hidden files) in /home/rodri/cis106
cheatSheets, .git, labs, notes, weekReports
rodri@CIS106:~$

```

Question 4 (Challenge Question)

- [Script Source Code](#)

```

Tilix: rodri@CIS106: ~/cis106/labs/lab4
1: rodri@CIS106: ~/cis106/labs/lab4
rodri@CIS106:~/cis106/labs/lab4$ bash challenge_lab4.sh
Changing to: /home/rodri/Pictures
Changing to: /home/rodri/Videos
Current PWD: /home/rodri/Videos
Previous PWD: /home/rodri/Pictures

Long list of /home/rodri/cis106
total 16K
drwxrwxr-x 2 rodri rodri 4.0K Mar  8 20:53 cheatSheets
drwxrwxr-x 6 rodri rodri 4.0K Mar 21 21:55 labs
drwxrwxr-x 6 rodri rodri 4.0K Mar 21 20:01 notes
drwxrwxr-x 6 rodri rodri 4.0K Mar 21 19:00 weekReports
rodri@CIS106:~/cis106/labs/lab4$ bash challenge_lab4.sh
Changing to: /home/rodri/Pictures
Changing to: /home/rodri/Videos
Current PWD: /home/rodri/Videos
Previous PWD: /home/rodri/Pictures

Long list of /home/rodri/cis106
total 16K
drwxrwxr-x 2 4.0K Mar  8 20:53 cheatSheets
drwxrwxr-x 6 4.0K Mar 21 21:55 labs
drwxrwxr-x 6 4.0K Mar 21 20:01 notes
drwxrwxr-x 6 4.0K Mar 21 19:00 weekReports
rodri@CIS106:~/cis106/labs/lab4$ bash challenge_lab4.sh
Changing to: /home/rodri/Pictures
Changing to: /home/rodri/Videos
Current PWD: /home/rodri/Videos
Previous PWD: /home/rodri/Pictures

Long list of /home/rodri/cis106
total 28K
drwxrwxr-x 7 4.0K 03/21/25 .
drwxr-x-- 28 4.0K 03/21/25 ..
drwxrwxr-x 2 4.0K 03/08/25 cheatSheets
drwxrwxr-x 8 4.0K 03/21/25 .git
drwxrwxr-x 6 4.0K 03/21/25 labs
drwxrwxr-x 6 4.0K 03/21/25 notes
drwxrwxr-x 6 4.0K 03/21/25 weekReports
rodri@CIS106:~/cis106/labs/lab4$

```