

Question 1 | Using the * Wildcard

In your home directory, you should have a directory called lab6, if you don't have it, make sure to run the curl command in the READ ME part of this lab.

1. List all the log files located in the lab6 directory.
2. Create a directory called log-files inside the lab6 directory. Move all the log files to the log-files directory.
3. List all the configuration files in the etc directory. (*Configuration files have the extension of .conf*)
4. Long list all the configuration files in the etc directory that start with letter h or letter p **sorted by file size**. Modify the ls command with the proper options so that the output looks like this: (*Notice the date*)

```
-rw-r--r-- 1 7.5K 08/19/21 /etc/pnm2ppa.conf
```

```
tflipi@cis106: ~/lab6
tflipi@cis106:~/lab6$ ls *.log
88_Application-log.log  dpkg.log          ubuntu-advantage.log
alternatives.log       fontconfig.log    ubuntu-advantage-timer.log
apache01-error.log     gpu-manager.log   vboxadd-install.log
apache22.log           history.log        vboxadd-setup.log
bootstrap.log          http404.log
tflipi@cis106:~/lab6$ mkdir log-files
tflipi@cis106:~/lab6$ mv *.log log-files/
tflipi@cis106:~/lab6$ ls /etc/*.conf
/etc/adduser.conf      /etc/host.conf      /etc/resolv.conf
/etc/apg.conf          /etc/kernel-img.conf /etc/rsyslog.conf
/etc/appstream.conf   /etc/kernelloops.conf /etc/rygel.conf
/etc/brltty.conf       /etc/ld.so.conf      /etc/sensors3.conf
/etc/ca-certificates.conf /etc/libao.conf      /etc/smi.conf
/etc/debconf.conf      /etc/libaudit.conf   /etc/sudo.conf
/etc/deluser.conf      /etc/logrotate.conf  /etc/sudo_logsrvd.conf
/etc/e2scrub.conf      /etc/mke2fs.conf     /etc/sysctl.conf
/etc/fprintd.conf      /etc/nftables.conf   /etc/ucf.conf
/etc/fuse.conf          /etc/nsswitch.conf   /etc/usb_modeswitch.conf
/etc/gai.conf           /etc/pam.conf         /etc/xattr.conf
/etc/hdparm.conf        /etc/pnm2ppa.conf
```

```
tflipi@cis106: ~/lab6
tflipi@cis106:~/lab6$ ls -ls /etc/[hp]*.conf
8 -rw-r--r-- 1 root root 4436 Dec 16 2020 /etc/hdparm.conf
4 -rw-r--r-- 1 root root 92 Oct 15 2021 /etc/host.conf
4 -rw-r--r-- 1 root root 552 Aug 12 2020 /etc/pam.conf
8 -rw-r--r-- 1 root root 7649 Aug 9 2022 /etc/pnm2ppa.conf
tflipi@cis106:~/lab6$
```

Question 2 | Using the ? wildcard

1. List only the hidden files inside the lab6 directory.
2. List all the files with a 2 letter file extension in the lab6 directory
3. Inside the lab6 directory, list all the files that start with letter l, have one character after letter l, and the letters st. The the rest of the file name is irrelevant.
4. Inside the lab6 directory, list all the files that have an _ and two characters before the file extension.

```
tflipi@cis106: ~/lab6
tflipi@cis106:~/lab6$ ls -a
.          .bash_logout  file_00.sh  file_04.sh  log-files
..         .bashrc       file_01.sh  file_05.sh  lost.txt
25Games.lst Document.doc  file_02.sh  last.txt    .profile
apache03.err Expenses.xls  file_03.sh  list.txt    trip22-info.doc
tflipi@cis106:~/lab6$ ls *.??
file_00.sh  file_01.sh  file_02.sh  file_03.sh  file_04.sh  file_05.sh
tflipi@cis106:~/lab6$ ls l?st*
last.txt  list.txt  lost.txt
tflipi@cis106:~/lab6$ ls lab6/*_??.*
ls: cannot access 'lab6/*_??.*': No such file or directory
tflipi@cis106:~/lab6$ ls *_??.*
file_00.sh  file_01.sh  file_02.sh  file_03.sh  file_04.sh  file_05.sh
tflipi@cis106:~/lab6$
```

Question 3 | Using the [] Wildcard

1. List all the files that start with an uppercase letter
2. List all the files that start with an uppercase letter or a numbers
3. List all the files that have a number in the file name
4. List all the files that start with a lowercase letter and have a number before the file extension.

```
tflipi@cis106: ~/lab6
tflipi@cis106:~/lab6$ ls [A-Z]*
Document.doc  Expenses.xls
tflipi@cis106:~/lab6$ ls [A-Z0-9]*
25Games.lst  Document.doc  Expenses.xls
tflipi@cis106:~/lab6$ ls * [0-9] *
ls: cannot access '[0-9]': No such file or directory
25Games.lst  Expenses.xls  file_02.sh  file_05.sh  lost.txt
25Games.lst  Expenses.xls  file_02.sh  file_05.sh  lost.txt
apache03.err  file_00.sh  file_03.sh  last.txt  trip22-info.doc
apache03.err  file_00.sh  file_03.sh  last.txt  trip22-info.doc
Document.doc  file_01.sh  file_04.sh  list.txt
Document.doc  file_01.sh  file_04.sh  list.txt

log-files:
88_Application-log.log  dpkg.log  ubuntu-advantage.log
alternatives.log  fontconfig.log  ubuntu-advantage-timer.log
apache01-error.log  gpu-manager.log  vboxadd-install.log
apache22.log  history.log  vboxadd-setup.log
bootstrap.log  http404.log

log-files:
88_Application-log.log  dpkg.log  ubuntu-advantage.log
alternatives.log  fontconfig.log  ubuntu-advantage-timer.log
apache01-error.log  gpu-manager.log  vboxadd-install.log
apache22.log  history.log  vboxadd-setup.log
bootstrap.log  http404.log
tflipi@cis106:~/lab6$ ls [a-z]*[0-9]*.*
apache03.err  file_01.sh  file_03.sh  file_05.sh
file_00.sh  file_02.sh  file_04.sh  trip22-info.doc
tflipi@cis106:~/lab6$
```

Question 4 | Using brace expansion.

The curly braces are not a wildcard but they are equally useful. The curly braces allow you to generate arbitrary strings to use with commands.

Problem1:

In the lab6 directory, create the following directory structure. Display a tree of the directory.

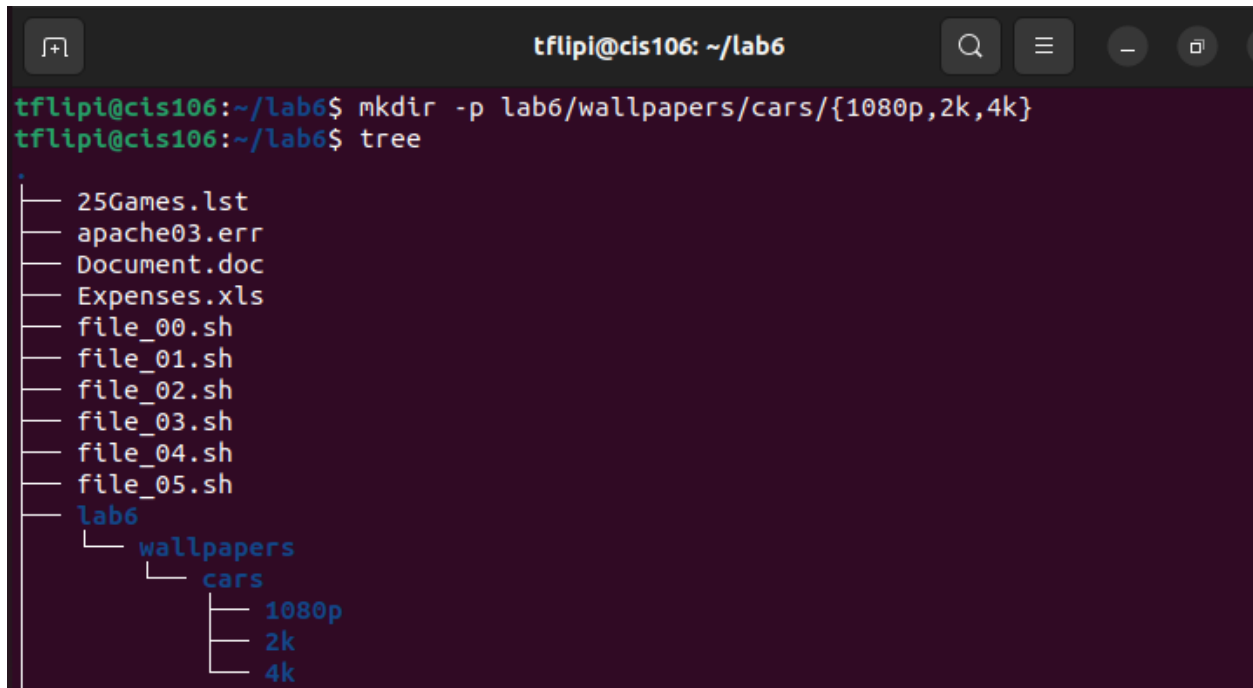
wallpapers/

└─ cars

│ └─ 1080p

│ └─ 2k

└─ 4k

A terminal window with a dark background. The title bar shows 'tflipi@cis106: ~/lab6'. The prompt is 'tflipi@cis106:~/lab6\$'. The user enters 'mkdir -p lab6/wallpapers/cars/{1080p,2k,4k}'. The prompt changes to 'tflipi@cis106:~/lab6\$' and the user enters 'tree'. The output shows a directory tree starting from the root of the filesystem, listing various files and directories, including 'lab6' which contains 'wallpapers' and 'cars' subdirectories.

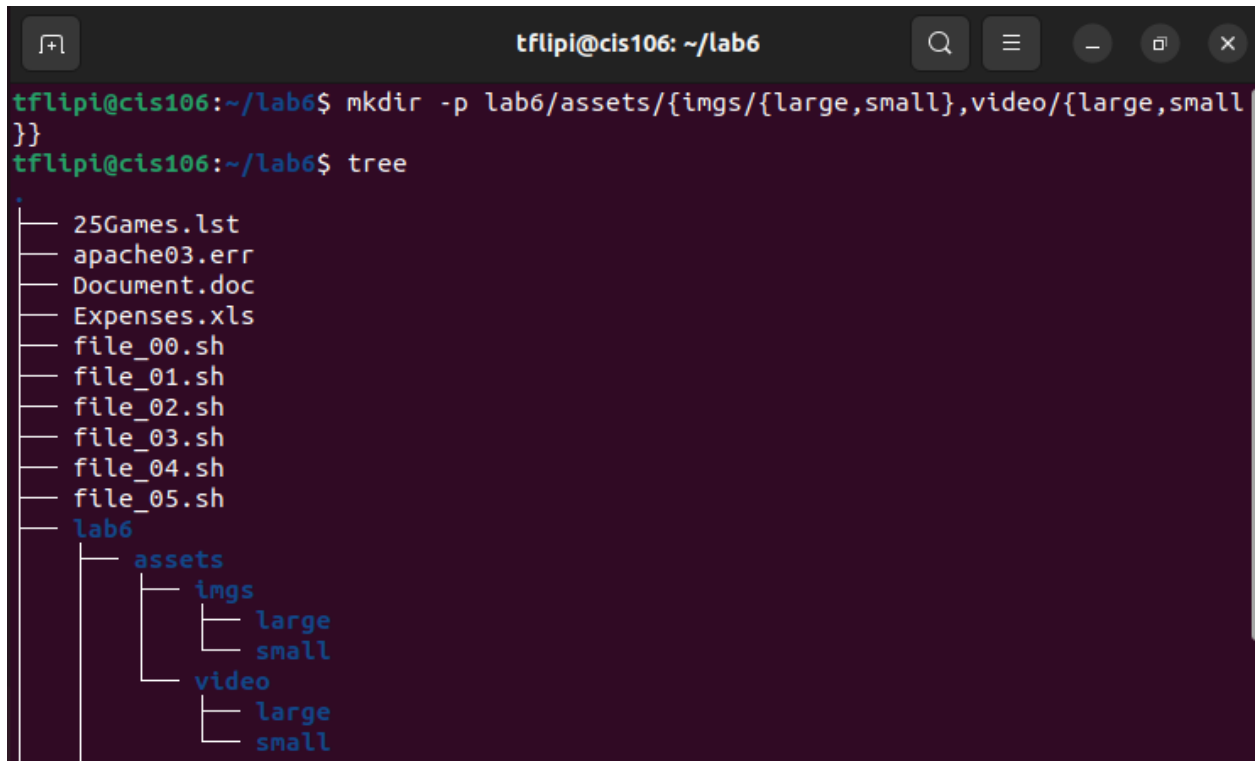
```
tflipi@cis106:~/lab6$ mkdir -p lab6/wallpapers/cars/{1080p,2k,4k}
tflipi@cis106:~/lab6$ tree
.
├── 25Games.lst
├── apache03.err
├── Document.doc
├── Expenses.xls
├── file_00.sh
├── file_01.sh
├── file_02.sh
├── file_03.sh
├── file_04.sh
├── file_05.sh
├── lab6
│   ├── wallpapers
│   │   └── cars
│   │       ├── 1080p
│   │       ├── 2k
│   │       └── 4k
```

Problem2:

Clear your terminal. in the lab6 directory, create the following directory structure. Display a tree of the directory.

assets/

```
├─ imgs
│   ├── large
│   └─ small
└─ video
    ├── large
    └─ small
```

A terminal window titled 'tflipi@cis106: ~/lab6' with search, menu, and window control icons. The user enters 'mkdir -p lab6/assets/{imgs/{large,small},video/{large,small}}' and then 'tree'. The output shows a directory tree with files like 25Games.lst, apache03.err, Document.doc, Expenses.xls, file_00.sh through file_05.sh, and the newly created 'lab6' directory containing 'assets' (with 'imgs' and 'video' subdirectories) and 'video' (with 'large' and 'small' subdirectories).

```
tflipi@cis106: ~/lab6
tflipi@cis106:~/lab6$ mkdir -p lab6/assets/{imgs/{large,small},video/{large,small}}
tflipi@cis106:~/lab6$ tree
.
├── 25Games.lst
├── apache03.err
├── Document.doc
├── Expenses.xls
├── file_00.sh
├── file_01.sh
├── file_02.sh
├── file_03.sh
├── file_04.sh
├── file_05.sh
├── lab6
│   ├── assets
│   │   ├── imgs
│   │   │   ├── large
│   │   │   └── small
│   │   └── video
│   │       ├── large
│   │       └── small
└──
```

Problem3:

Clear your terminal. in the lab6 directory, create the following directory structure. You need to create the pdf files as well. Remember mkdir creates directories while touch creates files. Display a tree of the directory.

docs/

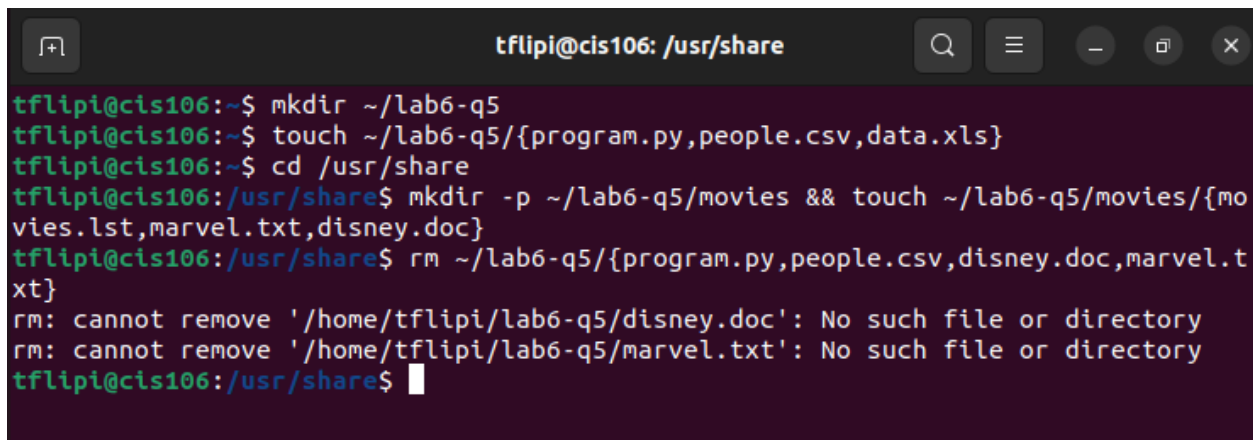
```
└─ books
    ├── history
    │   ├── fall
    │   │   └─ book.pdf (this is a file not a directory)
    │   └─ spring
    │       └─ book.pdf (this is a file not a directory)
    └─ math
        ├── fall
        │   └─ book.pdf (this is a file not a directory)
        └─ spring
            └─ book.pdf (this is a file not a directory)
```

```
tflipi@cis106:~/lab6$ mkdir -p lab6/docs/books/{history/{fall,spring},math/{fall,spring}}
touch lab6/docs/books/history/fall/book.pdf
touch lab6/docs/books/history/spring/book.pdf
touch lab6/docs/books/math/fall/book.pdf
touch lab6/docs/books/math/spring/book.pdf
tflipi@cis106:~/lab6$ tree
```

```
tree
└─ docs
    └─ books
        ├── history
        │   ├── fall
        │   │   └─ book.pdf
        │   └─ spring
        │       └─ book.pdf
        └─ math
            ├── fall
            │   └─ book.pdf
            └─ spring
                └─ book.pdf
```

Problem 4: Brace expansion comes handy in other scenarios too. Here are some examples:

1. Create a directory in your home directory called lab6-q5. From the root of the filesystem create 3 files in the lab6-q5 directory called: program.py, people.csv, data.xls.
2. Change your current working directory to /usr/share. Create a directory in the lab6-q5 directory called movies. Create 3 files in the ~/lab6-q5/movies directory called movies.lst, marvel.txt and disney.doc.
3. Remove the files: program.py, people.csv, disney.doc, and marvel.txt.



```
tflipi@cis106: /usr/share

tflipi@cis106:~$ mkdir ~/lab6-q5
tflipi@cis106:~$ touch ~/lab6-q5/{program.py,people.csv,data.xls}
tflipi@cis106:~$ cd /usr/share
tflipi@cis106:/usr/share$ mkdir -p ~/lab6-q5/movies && touch ~/lab6-q5/movies/{movies.lst,marvel.txt,disney.doc}
tflipi@cis106:/usr/share$ rm ~/lab6-q5/{program.py,people.csv,disney.doc,marvel.txt}
rm: cannot remove '/home/tflipi/lab6-q5/disney.doc': No such file or directory
rm: cannot remove '/home/tflipi/lab6-q5/marvel.txt': No such file or directory
tflipi@cis106:/usr/share$
```

Challenge Question

Run this curl command:
`curl https://cis106.com/assets/lab6cq.sh | bash`

This will create a directory in your home directory called: challenge-Lab6 This directory has a bunch of files. Organize these file so that each file type has its own directory. Each file type must be moved to its respective directory. When you are done, the challenge-Lab6 directory should look like this:

challenge-lab6/

```
├─ audio
|   ├── aac
|   |   └─ all-aac-files-here
|   └─ mp3
|       └─ all-mp3-files-here
├─ docs
|   ├── docx
|   |   └─ all-docs-files-here
|   └─ pdf
|       └─ all-pdf-files-here
└─ xls
    └─ all-xls-files-here
└─ images
    ├── jpg
    |   └─ all-jpg-files-here
    └─ png
        └─ all-png-files-here
```



```
tflipi@cis106: ~/challenge-Lab6

tflipi@cis106:~$ curl https://cis106.com/assets/lab6cq.sh | bash
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           %             0         0    225         0  --:--:-- --:--:-- --:--:--   225
tflipi@cis106:~$ mkdir -p ~/challenge-Lab6/{audio/{aac,mp3},docs/{docx,pdf,xls},i
images/{jpg,png}}
mv ~/challenge-Lab6/*.aac ~/challenge-Lab6/audio/aac/
mv ~/challenge-Lab6/*.mp3 ~/challenge-Lab6/audio/mp3/
mv ~/challenge-Lab6/*.docx ~/challenge-Lab6/docs/docx/
mv ~/challenge-Lab6/*.pdf ~/challenge-Lab6/docs/pdf/
mv ~/challenge-Lab6/*.xls ~/challenge-Lab6/docs/xls/
mv ~/challenge-Lab6/*.jpg ~/challenge-Lab6/images/jpg/
mv ~/challenge-Lab6/*.png ~/challenge-Lab6/images/png/
mv: cannot stat '/home/tflipi/challenge-Lab6/*.xls': No such file or directory
tflipi@cis106:~$ cd challenge-Lab6/
```

```
tflipi@cis106: ~/challenge-Lab6

tflipi@cis106:~/challenge-Lab6$ tree
.
├── audio
│   ├── aac
│   │   ├── song1.aac
│   │   └── song2.aac
│   └── mp3
│       ├── song1.mp3
│       └── song2.mp3
├── docs
│   ├── docx
│   │   ├── docs1.docx
│   │   └── docs2.docx
│   ├── pdf
│   │   ├── docs1.pdf
│   │   └── docs2.pdf
│   └── xls
├── image1.gif
├── image2.gif
├── images
│   ├── jpg
│   │   ├── image1.jpg
│   │   └── image2.jpg
│   └── png
│       ├── image1.png
│       └── image2.png
├── program.go
├── program.py
├── program.rb
└── program.sh

10 directories, 18 files
tflipi@cis106:~/challenge-Lab6$
```