

cs405 - file system worksheet

As usual submit your answers as a text or pdf to submit.o.bot with the subject line

file systems Team x

For this worksheet use some Unix system (either Mac OS X or Linux).
You can view a binary file by using:

```
hexdump -C filename | more
```

Pipe it to more because the dump might be very large.

- 1) Using hex dump or another hex editor open files of the following types. Report on what characters the file starts with.
 - a) PDF
 - b) Zip (a compression format developed by Phil Katz)
 - c) gif
 - d) mp3

Try it on a few other file types

- e)
- f)
- g)

- 2) What might be the purpose of this information?
- 3) Can you unzip a pptx file? If so, describe what you find?
- 4) Are other Office documents the same?

5) Create two files labeled a and b.

```
echo howdyA > a  
echo howdyB > b
```

create a hard link to a called la (e/ a)

The syntax for creating a link is

```
ln target newname
```

where `target` is the name of the original file and `newname` is the name of the link. After this command filenames `target` and `newname` point to the same file.

Now create a symbolic link to b called lb using the command

```
ln -s target newname
```

Now using `ls -l` answer the following

a) What is the difference between a and b in the listing?

b) What is the difference between la and lb?

c) What are the contents of (this shouldn't be surprising)

a _____

b _____

la _____

lb _____

d) If you delete file b what happens?

e) If you delete file a what happens?

f) When would you use hard links and when would you use symbolic?

6) What are the read/write permissions of la?

7) What command would you use to change the permissions of la to

a) only you can read and write to the file _____

b) you and your group can read or write. the world has no access:

8) What are the special directory names:

. _____

.. _____

~ _____

Disk A

Interface: USB 3, USB 2

Capacity: 2TB

Spindle Speed 5200RPM

Average Seek Time read/write 10.5ms/12ms

Track to track seek time: 1ms

Transfer rate: 80MB/s

Buffer Memory: 8MB

Disk B

Interface: USB 3, USB 2

Capacity: 2TB

Spindle Speed 10000RPM

Average Seek Time read/write 12.2ms/14ms

Track to track seek time: 1ms

Transfer rate: 200MB/s

Buffer Memory: 32MB

- 9) I do research with colleagues in New Mexico, which requires that we frequently share about 1TB of files (each file is about 5-10GB in size). At the end of every week I FedEx an external HD to them. Right now I have Disk A connected to my desktop via USB2.

I am tired of waiting for the files to transfer to the hard disk.

I can afford either to get a USB3 card for my desktop or a new hard drive, Disk B.

Disk A

Interface: USB 3, USB 2

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Spindle Speed 5200RPM

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Track to track seek time: 1ms

Transfer rate: 80MB/s

Buffer Memory: 8MB

Disk B

Interface: USB 3, USB 2

Capacity: 2TB

Spindle Speed 10000RPM

Average Seek Time read/write 12.2ms/14ms

Track to track seek time: 1ms

Transfer rate: 200MB/s

Buffer Memory: 32MB

Which should I buy and why?