Homework 2

Due: October 24, 2019

Points: 100

UNIX/Linux Questions

Please put the answers to these two question in a text file called *linux.txt* or a PDF file called *linux.pdf*

1. *(8 points)* Please list all the directories on the CSIF containing the program *gcc*.

   ```
   /usr/bin/gcc
   /usr/lib/gcc
   ```

2. *(12 points)* Suppose I have a file called *x* in my current working directory. File *y* is a (hard) link to this file, and file *z* is a symbolic link to it also. I now give the command *"mv x a"*. What would the outputs of the following commands be, and why?

   a. `cat x`

   Since *x* is renamed to *a* (`ls -i` shows inode number is same, so it was a renaming operation), *x* is no longer a valid inode refence and will yield:

   ```
   cat x: No such file or directory
   ```

   b. `cat y`

   Since *y* is a **hard link** to the original file x, its **inode** is the same and will have the same contents as *x* originally. Even if *x* is renamed, *y* retains its information and is unaffected by the renaming of *x*. By running `cat y` will yield whatever contens was in *x* or *y* without any changes.

   c. `cat z`

   Since *z* is a **symbolic** or **soft link** to *x*, it simply points to the filename *x* and **NOT** its **inode**. Hence the deletion of *x* will result in *z* pointing towards an invalid file/directory. Ergo, entering `cat z` will yield:

   ```
   cat z: No such file or directory
   ```