**CIS Homework 3, Winter 19**

Introduction to Linux Commands

Total points: 130

**Due**: Friday, March 29, 2019

**Hints:**

* It is always a good idea to test your solution on a Linux system.
* Google the solution if you don’t have yet.
* (15 points) Please explain what the Linux commands do: “cd ..”, “cd /” and “cd ~”.

“cd ..”: change to the parent directory of the current directory

“cd /” change to the root directory

“cd ~” change to the user’s home directory

* (20 points) What each of the following command does? Please explain.
* chmod u+x example\_a : make example\_a executable by the user who owns the file
* chmod o-rw example\_b: allow users outside of the file’s group to read and write to the file
* chmod 777 example\_c: allow anyone to read, write, and execute the file
* chmod 640 example\_d: allow the user to read and write, and the group to read
* (25 points) Please briefly explain what the following Linux commands do.
* Pwd: print the current working directory
* mkdir: create a directory with a given name
* echo: output the strings passed to echo
* grep: searches for lines that match the given pattern
* wc: newline, word, and byte count of a file
* (10 points) Suppose there are two directories “HW1” and “HW2” in the directory “CIS241”. Right now, there is a file “project.c” in the directory “HW1”. Give the Linux command(s) you would use to complete the following tasks. **Note thtat the working directory of the system is “HW1”.**
* Copy “project.c” from “HW1” to “HW2”

cp project.c ../HW2/

* Create a new directory “HW3” in the directory “CIS241”, and move “project.c” from “HW1” to “HW3”

mkdir ../HW3/

cp project.c ../HW3/

* (20 points) Please explain which kinds of files will be shown when each of the following commands gets executed.
* ls \*.txt - files ending in ‘.txt’
* ls a\*.c – files that start with ‘a’ and end in ‘.c’
* ls ab?.\* files starting with ‘
* ls [^a-g]\* files not including a-g
* ls [abc]\* all files
* (20 points) Please answer the following questions regarding links in Linux file system.
* What is the command to create a hard link?

ln

* What is the command to create a symbolic/soft link?

ln -s

* When you create a hard link to file **target**, how many physical copies of the contents of the file **target** are there in the file system?

two

* When you create a symbolic link to file **target**, how many physical copies of the contents of the file **target** are there in the file system?

one

* (15 points) It is straightforward when file permissions (r, w, x) are set on a regular file. What do they mean when they are set on a directory? Explain each of them.

R – list contents of the directory

w – can write files/directories in the directory

x – can move through the contents of the directory

* (5 points) What does the .. entry point to in the root (/) directory?

nothing