SE 3F03 – Assignment 1

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Due date: 3 February in class

Problem 1 (5 points)

   a. What is your home directory? How did you find out?

   b. What is your user ID? How did you find out?

   c. To what group(s) do you belong? How did you find out?

   d. If you remove execute permission for yourself from a directory (see `chmod`), are you still allowed to create files in that directory? Can you "cd" into it? Can you "ls" it? Can you "ls -l" it?

   e. How can you kill a process?

Problem 2 (5 points)

Write a shell script that lists all the files in the current directory that are at most 100 bytes. Name this script `tiny`. For example, my `tiny` script outputs in one of my directories

```
NN:~/bin%tiny
93 lat2pdf
56 pdf
76 t1
34 test
49 tf
51 tkd
```

Hint: you can use the `wc` and `cut` commands.

   For the next shell scripts, you can use the `sed` editor.

   Ensure that these shell scripts output a message and exit if not the right number or type of arguments is given. Write comments in these scripts, so one can easily understand how they work.

Problem 3 (5 points)

Write a shell script `newer` that lists all the files in the current directory that are newer than a given file, which is an argument to `newer`. For example, my `newer` script produces in one of my directories

```
NN:~/bin%newer ifs.sh
tiny
find_tiny
showfiles
svnx
findex
```

Hint: you can do this in one line.

Problem 4   (5 points)

Write a shells script `rename` that renames a file or a set of files. For example, if I have files `test1.c`, `test2.c`, `test1.h`, `test2.h` and run
```
    rename test TEST test*
```
it renames these files to `TEST1.c`, `TEST.c`, `TEST1.h`, `TEST2.h`

   Your script should take three arguments:
```
    rename pattern1 pattern2 file(s)
```
where `pattern1` is the string to be replaced by `pattern2`, and `file(s)` is a file or a set of files, e.g. `test*`
Your script should also do some error checking; e.g. if I call
```
NN:~/bin%rename test
Usage: rename pattern1 pattern2 file(s)
```
my script outputs the above message and exits.

Problem 5   (10 points)

Write a NASM assembly program that computes the expression

$$x^3 - 3x^2 + x - 10$$

for a given input integer x. The input x should be read from the standard input and the result should be printed on the standard output.

   Write a `makefile` such that when `make` is typed an executable `a1asm` is created. Do not worry about overflows in this computation.

Submit

- answers to Problem 1

- hard copy of your programs for Problems 2 to 5

- the code for these programs to the SVN server `https://websvn.mcmaster.ca/se3f03/A1` as

    - `https://websvn.mcmaster.ca/se3f03/A1/P2/tiny`
    - `https://websvn.mcmaster.ca/se3f03/A1/P3/newer`
    - `https://websvn.mcmaster.ca/se3f03/A1/P4/rename`
    - `https://websvn.mcmaster.ca/se3f03/A1/P5/` contains all the files for this problem