CS2750 **System Programming and Tools**
Assignment # 3 Due Date: March 14, 2018

More shellscripts

Submit all the code and any data files electronically. Write the code in `bash`. Make sure that temporary files, if any, are removed in the event of an interrupt. You *may* set up and use a personal `git` server to keep multiple versions of your assignment.

1. Write a script to present a user with the same information as 'ls -l' but in a more meaningful (or user-friendly) manner. You will be using multiple file operators to gather information about the file and present it to the user. Here are the possibilities you need to account for:

   - Check if the file exists. If it does not, just say so and continue on with the next file.
   - If the file is a directory, say so. Also let the user know if he/she may search the directory contents. You do not have to go into the directory for files.
   - If the file is a regular file, say so, and if it is not a regular file or directory, tell the user that it is a special type of file.
   - Let the user know if he/she owns the file/directory.
   - Let the user know if he has read/write/execute permissions on file but skip the execute permissions if the file is a directory.

   Perform all the above operations in a function. Make calls to the function using a loop on each file specified as a parameter.

   Name your script `fileinfo`. If the use does not specify any parameter, print a help message and exit. Do the same if the user specifies the option `-h`.

2. Write a script to print the contents of specified directory in the form of a tree. Use the following format (example from my home directory on delmar):

```
|-------Makefile
|-------abc
|-------abecd
|       |-------foobar
|-------bin
|       |-------handin
|       |-------handin.c
|-------c
|       |-------mem.c
|       |-------str_print
|       |-------str_print.c
|-------ch.c
```

```
|-------foobar
|-------fubar
|-------git
|       |------project
|       |      |-------file1
|       |      |-------hello.c
|-------hello.c
```

Call your script `dirtree`. Start the tree in the current directory if no parameter is specified. If a parameter is given, start the tree at that directory.

3. Write a script to perform bubblesort on an array. You will be a given a set of integers in a file. Read in the file into an array, sort the array, and write it back into another file. If the input file is named `foobar`, name the output file `foobar.sorted`. I have created three files that you can use as input in the directory `~bhatias/cs2750/`.

Submission

Create a directory *username*`.3` in your home where *username* is your user name on delmar. Keep all programs and datafiles for this assignment in this directory.

You do not have to submit any hard copy of the code. Write the code in `bash` using `delmar`. Follow good programming principles and document your scripts well. Do not forget to take care of issues that can cause a wrong utility to execute than the one you intended.

After you are done with the assignment, execute the following commands:

```
% cd
% chmod 755 ~
% ~bhatias/bin/handin cs2750 3
% chmod 700 ~
```