CS2750 **System Programming and Tools**
Assignment # 1 Due Date: February 14, 2018

Unix shell scripts

Create a directory in your home directory and name it `$USER.1` where `$USER` is your username on delmar. Create all shellscripts (and data files) in this directory.

1. [25pt] Modify the shellscript 411 using the *here* document. It should be invoked as `411 name`. If `name` is not found in the directory, it should issue a message to that effect. In addition, it should prompt the user to correct the name, or ask the user if he wants to terminate the program. If the user so indicates, terminate the program.

2. [25pt] Write a simple script to print the numbers 1 through n, one on each line. n will be specified as a command line argument but if it is not specified, use a default value of 20. If the number to be printed is divisible by 3, print the string `Fizz` instead. If the number is divisible by 5, print the string `Buzz`. If the number is divisible by both 3 and 5, print the string `FizzBuzz`. This script should be called `fizzbuzz`.

3. [25pt] Write a script to give me a list of all files in a directory hierarchy sorted by size. This implies that you should give me just the file names, and not the complete path, for all files in the specified directory as well as the subdirectories underneath. If there are any files with size zero, ask the user whether to delete those files (giving relative path name for the file, relative to current directory), and delete them if the user says yes. The script should allow for directories to be specified as command line parameters. Use the current directory as default if no directory is specified on the command line. The script should be named `flcln`.

   Hint: I'll suggest looking for the `find` command and its various options to do this assignment.

4. [50pt] Write a script to help me organize all my books in a computer. I want to enter a list of books with the following information:

   ```
   Booktitle:
   Author(s):
   Publisher:
   Year of publication:
   ```

   Each item is to be kept in the file that will be simply called `books`. The script itself will be called `bookinfo`. Check for the optional argument and if it is a number, allow me to enter as many books as specified. If the argument is `print`, print the entire list of books to the file `book_print`. Print the books using the format I showed for entering data, but make sure that the file is formatted in columns.

   I'll suggest organizing the books as one book per line, with different fields separated by the character `~`.

   Example of data in file:

```
The Ultimate Hitchhiker's Guide to the Galaxy~Douglas Adams~Del Ray~2002
```

Example of same entry in print:

```
Booktitle:             The Ultimate Hitchhiker's Guide to the Galaxy
Author(s):             Douglas Adams
Publisher:             Del Ray
Year of publication:   2002
```

Add an option to search for a pattern and print only the books that match the pattern. For example, the command

```
bookinfo -f "Douglas Adams" print
```

will only print the books that contains the pattern ”Douglas Adams” anywhere in them. You should be able to handle regular expressions for search and ignore case if the oprion `-i` is specified.

Submit a collection with at least ten books of your choice with the script.

Specify any nice features you have added in a `README` file.

Submission

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 1
% chmod 700 ~
```