CSCE 3600: Systems Programming

Minor Assignment 4 – More Writing Bash Programs

Due: 11:59 PM on Monday, February 22, 2016

PROGRAM DESCRIPTION:

This assignment will require you to create two independent bash programs.

1. Write a bash script called **`myseq`** that prints a sequence of integers to the screen based on the command line arguments. The syntax is as follows:

   `myseq [start] stop [step]`

   The optional parameters **`start`** and **`step`** are assumed to be 1 if not present. You may assume that **`step`** is always positive and that all arguments are given in the correct order. If, however, **`stop`** is less than **`start`**, you will subtract **`step`** at each interval. In each case, to add or subtract the **`step`** value based on the arguments, you will create a function to implement adding/subtracting and printing out the values. If no arguments, or too many arguments, are given, you are to display a "usage statement", such as **`usage: myseq [start] stop [step]`**, and exit the program with a failure value.

   SAMPLE OUTPUT (user input shown in **bold green**):

```
mat0299@faculty:~/csce3600/sp16$ ./myseq
usage: myseq [start] stop [step]
mat0299@faculty:~/csce3600/sp16$ ./myseq 139 38 23 9
usage: myseq [start] stop [step]
mat0299@faculty:~/csce3600/sp16$ ./myseq 3 17 4
3
7
11
15
mat0299@faculty:~/csce3600/sp16$ ./myseq 3
1
2
3
mat0299@faculty:~/csce3600/sp16$ ./myseq 3 -5
3
2
1
0
-1
-2
-3
-4
-5
mat0299@faculty:~/csce3600/sp16$ ./myseq 100 -20 17
100
83
66
```

```
49
32
15
-2
-19
mat0299@faculty:~/csce3600/sp16$ ./myseq 2 11 3
2
5
8
11
```

2. Write a bash script called **mybytes** that will print information about the files in the current directory based on the command line arguments (or lack thereof). The syntax is as follows:

   mybytes [file]…

   If no arguments are given, your program will default to all non-hidden files in your current directory. Your program will report the following statistics:

   - The number of ordinary, readable, and executable files in your current directory.
   - The number of non-existent (if files specified in command line arguments do not exist) or "other" types of files in your current directory.
   - The number of directories in your current directory.
   - The number of ordinary and readable files in your current directory.
   - The total number of bytes (size) contained in ordinary and readable files in your current directory.

   Please note that no duplication of file counts is allowed (e.g., directories are counted as directories only, but not executable files even though they are executable, since they are not ordinary files). Also, only count data from the current directory and not sub-directories (i.e., files inside directories in the current directories.

   SAMPLE OUTPUT (user input shown in **bold green**)**:**

```
mat0299@faculty:~/csce3600/sp16$ ls -l
total 76
-rwx------ 1 mat0299 mat0299 7285 Jan 22 01:21 a.out
-rw------- 1 mat0299 mat0299   83 Jan 25 08:40 file1
-rw------- 1 mat0299 mat0299    0 Jan 21 19:35 mat2_file
-rw------- 1 mat0299 mat0299   84 Jan 21 19:31 mat_file
-rw------- 1 mat0299 mat0299  382 Jan 22 01:21 minor1.c
-rwx------ 1 mat0299 mat0299 1464 Feb  8 11:27 minor3.sh
-rwx------ 1 mat0299 mat0299  996 Feb 13 23:19 mybytes
-rw------- 1 mat0299 mat0299  373 Jan 21 19:23 myfile
-rw------- 1 mat0299 mat0299   55 Jan 25 08:48 myfile1
-rw------- 1 mat0299 mat0299   55 Jan 25 08:49 myfile2
-rwx------ 1 mat0299 mat0299  633 Feb 13 18:29 myseq
-rw------- 1 mat0299 mat0299   41 Jan 22 09:10 newFile
-rw------- 1 mat0299 mat0299   18 Jan 21 19:28 sample
```

```
-rw------- 1 mat0299 mat0299   32 Jan 25 08:43 sample1
drwx------ 2 mat0299 mat0299 4096 Jan 22 00:49 sec001
-rw------- 1 mat0299 mat0299  126 Jan 21 16:40 sysbuf.c
drwx------ 4 mat0299 mat0299 4096 Feb 13 17:07 test
-rwx------ 1 mat0299 mat0299  194 Feb 13 17:11 test1.sh
-rw------- 1 mat0299 mat0299   14 Jan 25 08:44 t_file
mat0299@faculty:~/csce3600/sp16$ ./mybytes
================ file data ================
ordinary, readable, executable files : 5
non-existent or other types of files : 0
directory files                      : 2
ordinary and readable files          : 12
total bytes in ordinary files        : 1263
mat0299@faculty:~/csce3600/sp16$ ./mybytes unknown_file
================ file data ================
ordinary, readable, executable files : 0
non-existent or other types of files : 1
directory files                      : 0
ordinary and readable files          : 0
total bytes in ordinary files        : 0
mat0299@faculty:~/csce3600/sp16$ ./mybytes minor*
================ file data ================
ordinary, readable, executable files : 1
non-existent or other types of files : 0
directory files                      : 0
ordinary and readable files          : 1
total bytes in ordinary files        : 382
mat0299@faculty:~/csce3600/sp16$ ./mybytes minor* sampl*
================ file data ================
ordinary, readable, executable files : 1
non-existent or other types of files : 0
directory files                      : 0
ordinary and readable files          : 3
total bytes in ordinary files        : 432
```

REQUIREMENTS:

- Your code should be well documented in terms of comments. For example, good comments in general consist of a header (with your name, course section, date, and brief description), comments for each variable, and commented blocks of code.
- Your program will be graded based largely on whether it works correctly on the CSE machines (e.g., `cse01`, `cse02`, …, `cse06`), so you should make sure that your program compiles and runs on a CSE machine.
- Please pay attention to the **SAMPLE OUTPUT** for how this program is expected to work. If you have any questions about this, please contact your instructor, TAs, or IA assigned to this course to ensure you understand these directions.
- This is an individual programming assignment that must be the sole work of the individual student.

SUBMISSION:

- You will electronically submit your two bash programs to the **Minor Assignment 4** dropbox in Blackboard by the due date.