**Linux Shell Scripting III**

## **Due date**

Refer to the due time on BrightSpace

## Procedure

You must also demo the lab prior to the end of classes. Labs that have not been demoed will receive a score of 0.

You will create a script file to perform basic calculations.

1. Create a script file called ***mycalc.sh*** using **vim**.
2. The first line of your script file should force the use of the **bash** shell.
3. At the header of the script file there should be a section of comments that contains the following
   1. assignment number
   2. your name and student number
   3. lab section number
   4. name of the script file
   5. the date
   6. a description of what the script file does
4. It is recommended that your script file is commented throughout the script.
5. The script file should perform the following operations: '**+'** and '**-'** (addition and subtraction).
6. The script must have two functions:
   1. Each named *add* and *subtract*
   2. Each of the functions must accept two integer numbers as parameters
   3. The functions must perform the desired algebraic operation
7. The script file should support two modes of operation, either with no parameters or with three parameters.  If the incorrect number of parameters is provided, the script should output an error and quit.
   1. If three parameters are provided, the second parameter must be **+** or **-** :

* The first and third parameters must be numbers.
* The user can enter integer numbers only.
* The result should be displayed on the screen and the program exit.
* The example below demonstrates how the plus operation should work. Do a similar operation for '-'
* Example:

**./mycalc 12 + 3**

**The sum of 12 plus 3 equals 15**

If no parameters are provided the script should do the following:

* A menu should be provided allowing the user to either *Exit* or *Do a Calculation*.
* Allow upper or lower case menu selections. See Menu 1 below.

**Menu 1**

|  |
| --- |
| C) Calculation |
| X) Exit |

* If the 'C' menu option is selected from Menu 1, the screen should clear and the user should be prompted to enter a number. See Menu 2 below.
* You don’t need to check if the input numbers are integers

**Menu 2**

Please enter an integer number or **X** to exit:

* If a number is entered into Menu 2, the screen should clear and a new menu should be displayed. See Menu 3 below.

**Menu3**

+) Add

- ) Subtract

X) Exit

* If + or - is entered the screen should clear and the user should be prompted to enter a second number. See Menu 2 above.
* If a second number was entered the calculated result should be displayed on the screen.
* After three seconds the screen should clear and Menu 1 should be displayed again.

1. Error checking should be done to make sure of the following:

* Either no parameters or three parameters are entered.
* If three parameters are entered then the second parameter must be one of the following + or -.
* Any invalid choices in the menu system should be recognized/identified, and the user should be presented the menu item again.
* You don’t need to check if the input numbers are integers.

1. Make a copy of the file with a .txt extension. Upload this file to Brightspace. Do not zip the file.

**Marking Guide:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Criteria | 3 Points | 2 Points | 1 Point | 0 Points | Points |
| Output | Matches output exactly as stated in the lab. | Very close to what is stated in the lab | Has output, but is missing or outputting incorrectly | No output | /3 |
| Errors | None | Minor errors but still runs | Major errors but still runs | Does not run | /3 |
| Comments | Code is fully documented including identification comments | Code has some documentation including identification comments | Only identification comments are included | No comments | /3 |
| Control Structures | Decision structures and/or loops work and are as taught | Decision structures and/or loops work and but not as taught | Decision structures and /or loops are present but some do not work | Decision structures and /or loops are present but do not work | /3 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Criteria | 3 Points | | 2 Points | | | 1 Point | | 0 Points | Points |
| Lab specific skills such as arithmetic, loops and parameters | Lab specific skills work and are done as taught | | Lab specific skills work and are not done as taught | | | Some Lab specific skills work | | Lab specific skills does not work at all | /3 |
| Student is able to explain what their code is doing | | No hesitation and obviously knows what the code is doing | | Minor difficulty explaining their code or is unsure of some aspect | Major difficulty explaining their code or barely understands what some of the structures do. | | Cannot explain. | | /3 |
| Following the specification(s) as listed in the lab assignment | | Perfect | | Minor deviation and/or may be missing minor items | Major deviations and/or pieces missing | | Completely incorrect | | /3 |