Systems Scripting

Semester 2, 2021

Assignment 1: Bash scripting

Submission Deadline: Friday 19th March 2021 Midnight

For each task write a short report describing your solution concept and how you arrived at it. This should be done on the top of each solution script file as comments. Failure to do so attracts penalty.

Please note that this is an **individual project** and it has to be all done by yourself only.

Task 1

Write a bash script that searches for patterns in files located in a folder. The script should be called with two input parameter arguments. Ensure that arguments are provided. The first parameter should be a path of a folder and the second parameter should be a string pattern.

The script should search the provided folder and print out the following details for only files identified (that is no sub-folder should be considered):

- Name of the file.
- Size of the file in bytes.
- How many times the input string pattern (second parameter) appeared in the file (case insensitive).

Use an array structure to store the file names for those that contain the input string pattern (second parameter) at least twice.

An until loop should be used to iterate through the above array and print out to the terminal all the file names as well as write them into a file named report.txt. Use comments to properly document your script.

[32 marks]

Task 2

Write an interactive bash script that implements a set of menus for writing to a file, printing out a file content, renaming a file and exiting the script. The write, print and rename operations should be implemented using functions.

When the user selects the write option, the script should demand for the name of the file to write into, and continuously demand for inputs and write them to the file until the user enters the word "end" then the script should finish writing and return back to the menu options.

When the print option is selected, the script should demand for the name of the file to be printed and output its content. Then return back to the menu options. Ensure that file exist before outputting all of its content to the screen.

When the rename option is selected, the script should demand for the name of the file to be renamed and the new target name. Ensure that the file exist before renaming. The exit option should terminate the script with goodbye message. Properly comment your code.

[32 marks]

Task 3
Write a bash script that automates the creation and deletion of user accounts. The script should accept as input argument, a file containing a list of user names to be created on the system. Enforce that the user provides this input file when running the script.

The script should check if the usernames already exist on the system before creating the accounts. If a user account exit, the script should notify the user and skip that user name to the next one. Make sure to create a home directory as well. When the input list has been exhausted and all the user account created, output the content of "/etc/passwd" file and "/home" directory to the terminal for verification.

In a next step, the script should ask if user wants to delete the newly created accounts? If yes, the script should delete the accounts including their home directories and output again the content of "/etc/passwd" file and "/home" directory for verification. If no, the script should terminate with appropriate message.

Use functions to implement the account creation and deletion operations. The functions should in each case accept one parameter. **This script should only be tested/executed with root user privileges. Ensure its enforcement**. Properly comment your code.

[36 marks]

Submission Instruction:
Each task should be solved with a different script file. Put the solution scripts into a folder and name the folder as follows: **firstname-surname-studentID**. Create a Zip archive from the folder. It should have the name: **firstname-surname-studentID.zip** E.g., Farshad-Toosi-12345678.zip. Upload this archive to Canvas.

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Any question regarding this project should be communicated to Farshad.toosi@cit.ie