SOFTWARE SYSTEM DEVELOPMENT - Monsoon – 2021
Assignment 1 – Shell Programming
Submission Due Date: 14th September 2021, 10.00 PM

IMPORTANT INSTRUCTIONS

1. This assignment is an individual submission, NOT a group activity.
2. Total Marks of the assignment is 100 with duration of 2 weeks.
3. All script submissions should be in .sh file format and should run on BASH Shell.
4. The naming convention for the script file is **q<question_no>.sh**, eg: q1.sh
5. Inputs/output should fit the criteria mentioned in respective questions. Unless it is specified, all input/output criteria are open to interpretation.
6. Evaluation will be conducted based on a fixed grading rubric (syntax, logic, input and output) and the marks are divided as per prescribed weightage in respective question.
7. For queries, reach out to TAs via Course MS Teams Group Channel – ***Assignment Queries.***
8. Submissions should be done via the Moodle only.

Q1: Write a SHELL script which does the following (Total: 10 Marks)

a. When the script is executed from the current directory, it should print all the directories ONLY present in its current directory (**5 Marks**)
b. The output should sort the directory listing by size in decreasing order (**5 Marks**)

Additional Notes: Size of the directory should be in human readable form and in any form i.e., in Bytes/MB/KB/GB. Columns should be tab separated. Output should only display the absolute directory name and its size. Path of the directory should not be displayed.

Expected Input: No inputs are required to be passed via script
Expected Output:

Directory1_Name <size_name>
Directory2_Name <size_name>
Directory3_Name <size_name>
…

Q2: Write a SHELL Script which does the following: (Total: 10 Marks)

a. Pass input.txt and output.txt files as arguments to the shell script
b. The input.txt should contain some random text
c. Print all the words ending with **ing** in new line inside output.txt file

Additional Notes: Ensure that the text in the input.txt should contain words ending with ‘ing’. TAs will evaluate the script by using their own input.txt contain statements with string ending with ‘ing’

Expected Input: script.sh input.txt output.txt
Expected Output: Inside Output.txt file

Searching

Meaning
….

Q3: Write a SHELL Script which does the following: (Total: 25 Marks)

a. Take a word (string) as an input as an argument
b. Check whether the input word contains any BASH command by permuting the letters of the input word.(**10 Marks**)
    a. If a BASH Command exists, print YES, followed by a tab and then BASH command(s)
    b. Else print NO.
c. If there is more than one command, print them with a tab delimiter and in **sorted order**. (**15 Marks**)

Additional Note to be followed strictly:

- All the requirements should be addressed via single SHELL script ONLY.
- Do not consider substrings of the input word.
- In case of multiple commands strictly delimit them with a tab delimiter.
- There should not be any leading/trailing tab delimiters.
- Same command must NOT occur more than once in the answer.

Expected Input: script.sh rids
Expected Output: YES dirs

Expected Input: script.sh atc
Expected Output: YES cat tac

…

Q4: Write a SHELL Script which does the following: (Total: 30 Marks)

a. If you pass one INTEGER as an argument to the BASH script, then return its equivalent ROMAN Number as output (**10 Marks**)
b. If you pass two INTEGERS as two arguments the BASH script, return the SUM of two integers in the form of ROMAN numbers (**10 Marks**)
c. If you pass two ROMAN numbers as two arguments the BASH script, return the SUM of two ROMAN numbers in the form of INTEGERS (**10 Marks**)

Additional Note: All the requirements should be addressed via single SHELL script ONLY.

Expected Input: script.sh 77
Expected Output: LXXVIII

Q5: Write a SHELL Script which does the following: (Total: 25 Marks)

a. Create a directory **temp_activity**

b. Inside this directory, create files **temp<i>.txt**, substitute <i> with numbers from 1 to 50. Thus, you'll have 50 files with names temp1.txt, temp2.txt, … Achieve this with a single command without loop. (**5 Marks**)
c. Change the extensions of files from temp1 to temp25 from txt to md (**10 Marks**)
d. For all the files, change the name from
    a. **temp<i>.<extension>** to **temp<i>_modified.<extension>** where **<i>** is between 1 to 50 (**5 Marks**)
    b. Among these files with extension belonging to txt and md, ZIP all the **.txt** files ONLY and name the ZIP file as **txt_compressed.zip** (**5 Marks**)

Additional Note: All the requirements should be addressed via single SHELL script ONLY.