

CS241 : Assignment V

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Shell Scripting Questions

1. Write a shell script to find the Greatest Common Divisor (GCD) of two given numbers A and B.
2. Extract the attached “shell_question.tar” it has subdirectories 1, 2, 3 and output. Sub-directories 1, 2 and 3 are having files 1.out, 2.out and 3.out respectively. Write a shell script in the directory “shell_question” (generated after extracting shell_question.tar) that contains two functions; (1) num_load(), (2) value_sum(). Use the shell commands (grep, awk etc) inside these functions such that
 - function num_load() searches a string pattern “num loads from remote cache” from the files 1.out, 2.out and 3.out present in the sub-directories 1,2 and 3 respectively and stores the associated results (rows containing “num loads from remote cache” from each 1.out, 2.out and 3.out) in a file (name it 1.output) inside the “output” sub-directory;
 - function value_sum() performs the summation operation considering all the columns which are having numeric values for all the 3 rows of the file “1.output” and store the result in a file 2.output inside the “output” sub-directory.
3. If you work on terminal, something you traverse deep down in directories. Then for coming few directories up in path we have to execute `cd ../` command several times. It is quite frustrating, so why not we can have a utility where we just have to type the name of directory and we can directly jump to that without executing “`cd ../`” command again and again. Save the script as “jump.sh” .
4. Write a shell script to define a function `line_count` that counts the number of lines in the file provided as a command line argument.

5. Write a shell script that read an array of integers. The task is to find those numbers that occur only once. e.g. input array : {0, 1, 2, 3, 2, 0, 3} output: 1
6. Write a shell scripts to count number of vowels in “vowels.txt” file ignoring the case.
7. Write a scripts which copies the content of file1 to file2 without using cp command It should check If file has a read permissions if not it should print an error message. If file2 exists then it should ask the user whether he wants to overwrite it.
8. Write a shell script to accept two filenames and check if both exists. If second file exists then append the content of first file to second file.

9. Write a shell script to display a directory listing as follows. Your home directory is <home directory name>

File name	date	time	permission
Filename1	date	time	permission
Filename2	date	time	permission
Filename3	date	time	permission

.....

.....

Total no. of files: <total number>

Total no of directory: <number>

Also, write the following output snippet of displayed directory listing in the file final_output.txt

Total no. of files: <total number>

Total no of directory: <number>

10. Write a shell script for accepting the following information and storing it in a file. CD No., Movie Name, Language, Price and Date of release
11. Write a shell script to examine all the number from 1 to 999 and display all those number whose sum of cube of the digit is equal to the number. e.g. $371 = 3 \times 3 \times 3 + 7 \times 7 \times 7 + 1 \times 1 \times 1$
12. Write a shell script to read two matrices from the user and add them & display their output on the terminal. You have to create a function add in the shell program that will perform the addition of matrices. You can use any of the loop among while, for, until.
13. To debug the following shell program debug.sh, use the command **bash -x ./shell-program_name**. (Note: line numbers are not the part of the program)

Program: debug.sh

1. #!/bin/sh

2. touch /home/user/Downloads/sample.txt
3. file=/home/user/Downloads/sample.txt
4. trap "rm -f \$file && echo file deleted; exit" 0 2 15
- 5.
6. echo "pid is \$\$"
7. while ((COUNTER < 10))
8. do
9. sleep 1
10. ((COUNT ++))
11. echo \$COUNT
12. done
13. exit 0

Demonstrate how to debug–

- the debug.sh shell program through command-line.
- the shell program by using debug options in the shell program instead of command-line.
- only a code snippet of shell program using **set -x** and **set +x** options for the shell program.

What is the oputput of the program after debugging?

Note: Questions 1-13 are some set of problems. During the evaluation, we may ask similar kind of questions.
