BCSE – 3rd year – 1st Semester – 2018
Assignment – I
Operating Systems Laboratory

1. Write a shell script that has 2 user created variables, userv1 and userv2. Ask for the values of the variables from the user and take in any type (real/integer/character) for the 2 variables. Print them as: (i) value of userv2 followed by value of userv1 separated by a comma and (ii) value of userv1 using single quotes followed by value of userv2 using double quotes separated from userv1 by the word "and".

2. Write a shell script that counts and prints the total number of files in the current working directory and in all of its sub-directories. Also (i) print the total no. of files (not directories) in each subdirectory with the name of the subdirectory, (ii) print only those file names that have been accessed within the past 2 days.

3. Write a shell script that takes 4 file names (containing C programs) as command line arguments and prints the frequency of the occurrences of the following 3 strings "printf", "scanf", "int" in each file. The output (in tabular format) should clearly denote the frequency of the occurrences of each string in each file.

4. Write a shell script that accepts a file name as an input. The program then asks for a string of characters (that is, any word) to be provided by the user. The file will be searched to find whether it contains the given word. (i) If the file contains the given word, the program will display the total number of occurrences of the word. (ii) The program is also required to display the line number/s in which the word has occurred as well the frequency of the word in that line. (Note: the word may occur more than once in a given line). (iii) If the file does not contain the word, an appropriate message will be displayed.

5. Extend the shell script written in question (4) to perform the following task: User is asked to enter another word. (i) The first word (entered in question (4)) will have to be matched with the contents of the file and replaced by the second word, if a match occurs. (ii) If the first word does not occur in the file, an appropriate message will be displayed, (iii) Ignore replacing Partial matches, but show that partial matches do exist.

6. Develop a Linux shell *JUBCSEIII*, that will display a prompt, accept user commands and execute them.

   The overview of the functions of *JUBCSEIII* is as follows:

   - At startup, the shell will display welcome message: Hi! Good <....> according to the time of the day and then the prompt string: BCSE!!, and ready to accept command.
   - A command line has the following syntax: command[argument/s]
   - When a valid command is entered by the user, the shell will execute the command. Commands may run in the foreground as well as in the background.
   - The shell will return an appropriate error message when the command is invalid, or when there are problems with either the arguments or the execution of the command.

   The commands to be executed by *JUBCSEIII* are given below:

   (i)   **newdir** *directoryname* <action: creates a new directory>
   (ii)   **editfile** [*filename*]   ([] denotes that the argument is optional)
           <action : the file will be opened with the vi editor if filename is given otherwise
                    the vi editor for a new file will be opened.>
   (iii)   **content** *filename* <action: prints the contents of a file on the screen>
   (iv)   **info** [*filename*]   ([] denotes that the argument is optional)
   action: displays essential information about the file specified, it must list the following:
   - full path of the file
   - size of the file
   - last modification date
   - name of the creator

   (v)   **exitbcse** <action: this will quit the shell>

BE READY WITH Assignment I by: August 27, 2018
1st OS Lab Viva: August 27th and August 28th, 2018 (all groups)