Punjab University College of Information and Technology
System Programming

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[20 Points]   [30 Minutes]

Q1. Write a shell script named "showTable" that MUST use a function to display table of a number according to the command line arguments passed to the script. This script should have a total of **5** or **6** arguments.

Rules for arguments are as follow.

(Rule 1) No arguments   =>   Exit with proper message

(Rule 2) greater then 6 arguments   =>   Exit with proper message

(Rule 3) **showTable.sh 2** (if only one argument is given then display the table of given number from 1 to 10).

(Rule 4) **showTable.sh 2 -s 3** (if -s argument is given then display the table of given number from 3 to 10).

(Rule 5) **showTable.sh 2 -e 13** (if -e argument is given then display the table of given number from 1 to 13).

(Rule 6) **showTable.sh 2 -s 1 -e 10**   (here "2" is the table you must display, "-s" is an option and "1" is the starting value of table. "-e" is an option and "10" is the ending value of table.)

(Rule 7) **showTable.sh 2 -s 1 -e 10 -r** (here "2" is the table you must display, "-s" is an option and "1" is the starting value of table. "-e" is an option and "10" is the ending value of table.)
   If added "-r", you must display table in reverse.

Note: The script should do proper error handling and input validation like the argument is an integer or not, or the number of arguments are valid or not and the starting limit is less than the ending limit or not!

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[10 points]   [20 Minutes]

Q2. Write a shell script that takes name of a running process as **argument** (MUST be a running process) and displays information of the process in the following format:

PID: 1234
Name: abc
PPID: 5678
STATE: running
[Hint: see status file of the process in /proc directory]

[30 Points]   [20 Minutes]

Q3. Write a Shell script named "showMeOwner". This script should contain a function named "showAllOwners". This script should take user name as argument and search and display all files owned by this user in your home directory in the following format:

"Filename" | "File type" | "Owner"

Rules for the arguments are as follow:

No argument   =>   Exit with proper message
greater then 1 arguments   =>   Exit with proper message

Note: The script should do proper error handling and input validation like the argument is an integer or not, or the number of arguments are valid or not and the starting limit is less than the ending limit or not!

[40 Points]   [60 Minutes]

Q4. Suppose I have some files of different extensions(txt,doc,csv,mp3.mp4) in my folder, the script will create exactly one folder for each file extension type and then move all the file of same extension in that folder. For example I have files like
123.txt
1236.doc
19as.mp3
Asd.mp4
Lol.mp4
After running your script we have 4 different folders of extension name and each folder contain files of same extension
Txt = 123.txt
Doc = 1236.doc
Mp3 = 19as.mp3
Mp4 = Asd.mp4, lol.mp4