CS-213 : EndSem Exam

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November 27, 2019

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Duration of exam : 180 min.   Total marks : 100.

Instructions

1. Do not ask questions/doubts to instructors/invigilators/TAs. If there are some assumptions to be made in the questions, state your assumptions in a separate file for each question. (assumptions-x.txt), where x is your question number.

2. Check resources directory in your home directory. It contains manuals, and list of websites which you have access to in addition to Moodle.

3. *Current working directory tree* means all the text files in the current directory, its subdirectories, and so on.

4. Put all solution scripts in a tar ball called rollno.tar.gz and submit the tar ball.

5. Copying is fatal.

Questions

1. Create a bash script to count the number of files in the current working directory (in Linux directories are special files so count them also!). [submit que-1.sh, 5 marks].

2. Create a bash script which makes all the files in the current directory with extension ".sh" executable. Script should not change file permissions of other files. Also it should not change read and write permissions of any file. [submit que-2.sh, 15 marks].

3. Create bash script which takes two inputs string1 and string2 and, replaces all occurrences of string1 by string2 in all the text files in the current working directory tree.

   We will run your program like this : $ que-3.sh samplestring1 samplestring2

   [submit que-3.sh, 20 marks].

4. *Toy Spell checker and corrector*: Given below is the list of ten words along with its two allowed *mis-spellings* (in reality there may be many). On each line there are three words : w $w1$ $w2$ where $w1$ are $w2$ are variations(ways of misspelling) of word w.

   (a) car rac cra
   (b) sky yks syk
   (c) small smlla sallm
   (d) large lareg lager
   (e) bank bakn bnka
   (f) book obok oobk
   (g) pen nep enp
   (h) nitro ortin nitor
   (i) lake kale alek

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(j) plus lusp lups

Write a bash script to detect and correct such mis-spellings in a given input text file.

We will run your program like this : $ que-4.sh randomfile.txt
Output should be corrected randomfile.txt.

(*Hint: You may want to use bash arrays for this question.*)   [submit que-4.sh, 20 marks].

5. The 'last' command in Linux shows the details of successful log-in and log-out session details of all users on a system. Write an AWK script to extract the username, date logged-in, log-in time and log-out time from the output of the 'last' command. The AWK script should ask for a roll number to be entered and should output the details as shown in the example below:
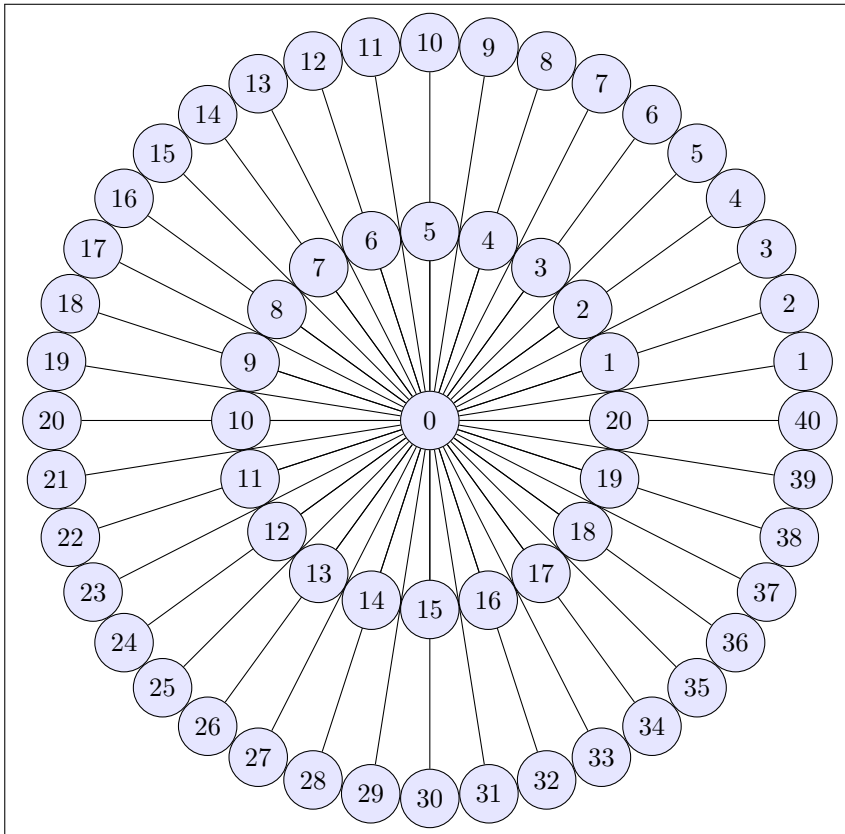
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Enter Roll Number : CS03M020

User CS03M020 last logged in on *Sun Nov 24*

Session lasted from *21:50 to 22:04*

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In the above example (last two lines), the *italicized* parts indicate the data extracted. Enter your Roll number instead of the one shown above. If there does not exist an entry for the input roll number, output:

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User CS03M020 did not log in.

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Your script would be run as : **last | awk -f que-5.awk**   [submit que-5.awk, 20 marks].

6. Draw an image with a border, similar to that given below, consisting of N nodes in the inner level, surrounded by $2N$ nodes in the outer level, where N is the sum of digits in your roll number. Here, fill=blue!10, minimum size=2.2em has been used. Hint:You can use loops.

[submit que-6.tex, 20 marks].