

Crack the Shell - Round 3

Guidelines and Rules:

- Participants should mail in their solutions in a single PDF file on or before “**19th Feb. 2011 11:59 Hrs**” to **cracktheshell@pragyan.org**.
 - The name of the file should be the “team-name”.
 - Email should be sent from the same id that has been registered at the pragyan website.
 - Multiple submissions are allowed, but only the last one would be considered.
 - **Answer ANY three out of the following six questions.**
 - These questions have been submitted by contestants. So **do NOT answer your own** question(if it is present)
 - Make any assumptions, if necessary, and also state them.
 - In case of a tie in the scores, the team that submits earlier will be ranked higher.
 - All decisions made by the Judges are final and binding.
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1. Given a set of words, print a crossword like puzzle, where the words are hidden and you have to find out the position of the words. The output should contain the crossword puzzle.

2. Delete all the duplicate files in a directory. Only one copy of each file should exist.

For eg: if there is "file.txt" whose copies are "file1.txt" and "file2.txt". Either file1.txt, file2.txt or file.txt should exist. All others are to be removed.

3. Write A Shell Script To Display The Disk Space Usage Per User Basis In The Given Format:

Total Disk Usage by user

User Space Percent

rich 107340 87.68%

jessica 9868 8.06%

test 5124 4.19%

katie 40 0.03%

barbara 40 0.03%

Total 122420

4. There are a set of folders affected by virus. They are in the form of executables like .exe, .bat etc. What separates them from safe windows executables is that malicious ones have same name as their parent directory. We need to remove all such files. One thing is that there can be many levels of folders (directories within directories)

5. Find the co-ordinates of a given location using bash.

Eg.

input: findlocation Kolkata

output:

Full Address: Kolkata, West Bengal, India,

coordinates: [88.3638950, 22.5726460, 0]

6. We've all seen that the keypad on tmobile phones has letters associated with the digits. 2-ABC, 3-DEF, 4-GHI..... 9-WXYZ.

To type words on the keypad in normal mode one has to press a digit multiple times to get a letter.

For eg: you have to press digit 2 twice to get to B.

To type FIN the key presses required are 333 444 66.

Wouldn't it be nice to just type 3 4 and 6 and see FIN?

Note that "3 4 6" may lead to other words as well (eg: DIM). So how does a user choose from among the list of possible words? Most modern phones support this shortcut notation (it is called T9). Write a program to implement the shortcut feature.

Create/use a dictionary file as required.