USA Computing Olympiad

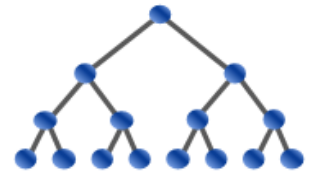OVERVIEW   TRAINING   CONTESTS   HISTORY   STAFF   RESOURCES

USACO 2016 DECEMBER CONTEST, BRONZE
PROBLEM 2. BLOCK GAME

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Contest has ended.

Submitted; Results below show the outcome for each judge test case

1	2	3	4	5	6	7	8	9	10
*	*	*	*	*	*	*	*	*	*
32.2mb 186ms	32.1mb 201ms	32.1mb 201ms	32.3mb 205ms	32.2mb 200ms	32.1mb 205ms	32.1mb 214ms	32.2mb 216ms	32.2mb 195ms	32.6mb 204ms

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English (en)

Farmer John is trying to teach his cows to read by giving them a set of N spelling boards typically used with preschoolers ($1 \le N \le 100$). Each board has a word and an image on each side. For example, one side might have the word 'cat' along with a picture of a cat, and the other side might have the word 'dog' along with a picture of a dog. When the boards are lying on the ground, N words are therefore shown. By flipping over some of the boards, a different set of N words can be exposed.

To help the cows with their spelling, Farmer John wants to fashion a number of wooden blocks, each embossed with a single letter of the alphabet. He wants to make sufficiently many blocks of each letter so that no matter which set of N words is exposed on the upward-facing boards, the cows will be able to spell all of these words using the blocks. For example, if $N = 3$ and the words 'box', 'cat', and 'car' were facing upward, the cows would need at least one 'b' block, one 'o' block, one 'x' block, two 'c' blocks, two 'a' blocks, one 't' block, and one 'r' block.

Please help the Farmer John determine the minimum number of blocks for each letter of the alphabet that he needs to provide, so that irrespective of which face of each board is showing, the cows can spell all N visible words.

INPUT FORMAT (file blocks.in):

Line 1 contains the integer N.

The next N lines each contain 2 words separated by a space, giving the two words on opposite sides of a board. Each word is a string of at most 10 lowercase letters.

OUTPUT FORMAT (file blocks.out):

Please output 26 lines. The first output line should contain a number specifying the number of copies of 'a' blocks needed. The next line should specify the number of 'b' blocks needed, and so on.

SAMPLE INPUT:

```
3
fox box
dog cat
car bus
```

SAMPLE OUTPUT:

```
2
2
2
1
0
1
1
0
0
0

0
0
0
0
2
0
```

```
0
1
1
1
1
0
0
1
0
0
```

In this example, there are N = 3 boards, giving $2^3 = 8$ possibilities for the set of upward-facing words:

```
fox dog car
fox dog bus
fox cat car
fox cat bus
box dog car
box dog bus
box cat car
box cat bus
```
We need enough blocks for each letter of the alphabet so that we can spell all three words, irrespective of which of these eight scenarios occurs.

Problem credits: Viktoriia Schwartz

Language: [C ∨]

Source File: [Choose File] No file chosen

[Submit Solution]

Note: Many issues (e.g., uninitialized variables, out-of-bounds memory access) can cause a program to produce different output when run multiple times; if your program behaves in a manner inconsistent with the official contest results, you should probably look for one of these issues. Timing can also differ slightly from run to run, so it is possible for a program timing out in the official results to occasionally run just under the time limit in analysis mode, and vice versa. Note also that we have recently changed grading servers, and since our new servers run at different speeds from the servers used during older contests, timing results for older contest problems may be slightly off until we manage to re-calibrate everything properly.