

printf("hello, world!\n");

Qualification Round 2012

A. Speaking in Tongues

B. Dancing With the Googlers

C. Recycled Numbers

D. Hall of Mirrors

Contest Analysis

Questions asked

Submissions Speaking in Tongues 15pt Not attempted 17355/19463 users correct (89%) Dancing With the Googlers 10pt Not attempted 12383/13898 users correct (89%) 10pt | Not attempted 10762/12137 users correct (89%) Recycled Numbers 10pt | Not attempted 11746/12326 users correct (95%) 15pt Not attempted 6810/10603 users correct (64%) Hall of Mirrors 15pt Not attempted

 Top Scores 	
hos.lyric	100
qnighy	100
DjinnKahn	100
levlam	100
iwiskimo	100
mystic	100
TripleM	100
aleksey	100
royf	100
krijgertje	100

551/879 users correct

184/259 users correct

(63%) 25pt | Not attempted

(71%)

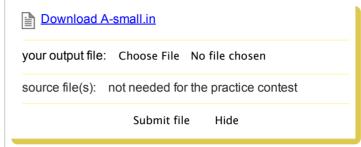
Practice Mode

Contest scoreboard | Sign in

Problem A. Speaking in Tongues

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the <u>Quick-Start Guide</u> to get started.

Small input 15 points



Problem

We have come up with the best possible language here at Google, called Googlerese. To translate text into Googlerese, we take any message and replace each English letter with another English letter. This mapping is *one-to-one* and *onto*, which means that the same input letter always gets replaced with the same output letter, and different input letters always get replaced with different output letters. A letter may be replaced by itself. Spaces are left as-is.

For example (and here is a hint!), our awesome translation algorithm includes the following three mappings: 'a' -> 'y', 'o' -> 'e', and 'z' -> 'q'. This means that "a zoo" will become "y gee".

Googlerese is based on the best possible replacement mapping, and we will never change it. It will always be the same. In every test case. We will not tell you the rest of our mapping because that would make the problem too easy, but there are a few examples below that may help.

Given some text in Googlerese, can you translate it to back to normal text?

Solving this problem

Usually, Google Code Jam problems have 1 Small input and 1 Large input. This problem has only **1 Small input**. Once you have solved the Small input, you have finished solving this problem.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow, one per line.

Each line consists of a string **G** in Googlerese, made up of one or more words containing the letters 'a' - 'z'. There will be exactly one space (' ') character between consecutive words and no spaces at the beginning or at the end of any line.

Output

For each test case, output one line containing "Case #X: S" where X is the case number and S is the string that becomes G in Googlerese.

Limits

 $1 \le \mathbf{T} \le 30$.

G contains at most 100 characters.

None of the text is guaranteed to be valid English.

Sample

Input

3

ejp mysljylc kd kxveddknmc re jsicpdrysi rbcpc ypc rtcsra dkh wyfrepkym veddknkmkrkcd

```
de kr kd eoya kw aej tysr re ujdr lkgc jv
```

Output

Case #1: our language is impossible to understand Case #2: there are twenty six factorial possibilities Case #3: so it is okay if you want to just give up

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