Problem A : Arrangement

Given a 3 x 4 grid of distinct letters. The letters in the grid are rearranged so that no letter remains in the same row or in the same column. In addition it is known that, in the new arrangement, certain given sets of letters appear in the same row or in the same column. You are required to write a program to determine the new arrangement of letters in the grid, assuming that there exists such a unique arrangement.

As an illustration, consider the arrangement given on the left. Assume that after rearrangement of letters no letter remains in the same row or in the same column. In addition, assume that letters in each string of letters: LAJ, KIG, HDB, ACJ and EIG appear in the same row while the pair of letters appearing in each string: KL, AH, ID, GB, JD and LF appears in the same column. On the basis of this information the program should find the new arrangement shown on the right.

Input

The input may contain multiple test cases.

Each test case contains three lines.

The first line gives a sequence of three strings of distinct letters, each of length four. The jth letter in the ith string (i=1, 2, 3; j=1, 2, 3, 4) represents the letter in j^{th} column and i^{th} row of the grid. The second line gives a sequence of strings of distinct letters, each of length three. The letters in each string appear in the same row, after rearrangement. The third line gives a sequence of strings of distinct letters, each of length two. The letters in each string appear in the same column, after rearrangement.

A blank character separates two consecutive strings in a line.

The input terminates with an input line containing 0 for a test case.

Output

For each test case, print in one line, a sequence of three strings of distinct letters, each of length four. The jth letter in the ith string (i=1, 2, 3; j=1, 2, 3, 4) represents the letter in j^{th} column and i^{th} row of the grid after rearrangement.

Use a blank character to separates two consecutive strings in a line.

Sample Input (A.in)
```
ABCD EFGH IJKL
LAJ KIG HDB ACJ EIG
KL AH ID GB JD LF
0
```

Sample Output (A.out)
```
KEIG LAJC FHDB
```