C. Pattern

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Developers often face with regular expression patterns. A pattern is usually defined as a string consisting of characters and metacharacters that sets the rules for your search. These patterns are most often used to check whether a particular string meets the certain rules.

In this task, a pattern will be a string consisting of small English letters and question marks ('?'). The question mark in the pattern is a metacharacter that denotes an arbitrary small letter of the English alphabet. We will assume that a string matches the pattern if we can transform the string into the pattern by replacing the question marks by the appropriate characters. For example, string `aba` matches patterns: `???`, `??a`, `a?a`, `aba`.

Programmers that work for the R1 company love puzzling each other (and themselves) with riddles. One of them is as follows: you are given n patterns of the same length, you need to find a pattern that contains as few question marks as possible, and intersects with each of the given patterns. Two patterns intersect if there is a string that matches both the first and the second pattern. Can you solve this riddle?

Input

The first line contains a single integer n $(1 \le n \le 10^5)$ — the number of patterns. Next n lines contain the patterns.

It is guaranteed that the patterns can only consist of small English letters and symbols '?'. All patterns are non-empty and have the same length. The total length of all the patterns does not exceed 10^5 characters.

Output

In a single line print the answer to the problem — the pattern with the minimal number of signs '?', which intersects with each of the given ones. If there are several answers, print any of them.

Examples

input
2 ?ab ??b
output
xab

input
2 a b
output
?

input
1 ?a?b
output
cacb

Note

Consider the first example. Pattern `xab` intersects with each of the given patterns. Pattern `???` also intersects with each of the given patterns, but it contains more question signs, hence it is not an optimal answer. Clearly, `xab` is the optimal answer, because it doesn't contain any question sign. There are a lot of other optimal answers, for example: `aab`, `bab`, `cab`, `dab` and so on.