

Problem C. Chivas

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 256 mebibytes

This is an interactive problem.

You need to open a combination lock. The code to this combination lock is the string of n (n is odd) lowercase or/and uppercase Latin characters.

You may do three possible operations:

- Decide that it is impossible to determine the code reliably.
- Try to guess the code. You are not allowed to make an incorrect guess.
- Check some code that contains n Latin characters. You will get a response as described below. You are allowed to make at most 1000 such queries.

Let s be the right code and t be the code given by you for a check. Let a be the number of such i that $t_i < s_i$ and b is the number of such i that $t_i \geq s_i$. The response is “<” if $a > b$ and “>=” otherwise.

Characters are compared by their ASCII codes.

You need to guess the code or determine that it is impossible.

Input

The first line contains an odd integer number n ($1 \leq n < 100$): the length of the code. Each of the next lines contains a response to your check query (“<” or “>=”).

Note that the answers are printed only after your queries.

Output

You may output:

- “? { n Latin characters}” — your query.
- “! { n Latin characters}” — your guess. After you print that, your program must terminate immediately.
- “Impossible” — if you think that it is impossible to determine the code reliably. After you print that, your program must terminate immediately.

Don't forget to **flush** the output after each query.

Example

standard input	standard output
1	? Z
>=	? Y
>=	? X
>=	? B
<	? W
<	! X

Note

Note that the code is known before your solution runs and it can not be changed. Still, you are not allowed to guess the code (even correctly) if it is impossible to determine the right code reliably.