# Problem J
## Joust Sort

We are going to organise the letters of the word using a novel algorithm based on the natural instincts of the hoarse chestnut tree: a *grand tournament* between its constituent letters.

We will pick several pairs of letters and have them face off. The result of a match between these letters determines their relative order. For example, if $a < b$, then all occurrences of $a$ in a well-organised word should come before all occurrences of $b$ in that word. If there is no case for $a < b$ or $b < a$, then the individual letters $a$ and $b$ may intersperse among each other in any order.

Given a word, and several such matches, determine a fair rearrangement of the word to meet all of the constraints given. It is possible that multiple such rearrangements exists, or that none exist at all.

### Input

- One line containing the number of orders to follow, $n$ ($1 \leq n \leq 700$).
- $n$ further lines, each containing a distinct ordering of two lowercase letters $a$ and $b$ separated by a < or > character and spaces.
- One final line containing the word to improve, $s$ ($1 \leq |s| \leq 100,000$).

### Output

Output a sorted version of the word, or `IMPOSSIBLE` if the word cannot be sorted according to all of the rules at once.

In case there are multiple answers, you may output any one of them.

| Sample Input 1 | Sample Output 1 |
|---|---|
| 3<br>m > i<br>n < i<br>i > o<br>minion | noniim |

| Sample Input 2 | Sample Output 2 |
|---|---|
| 1<br>b < n<br>banana | banana |

**Sample Input 3**

```
6
b < a
a > b
n < b
a > b
n < b
a > b
bananaman
```

**Sample Output 3**

```
nnnbaaama
```

**Sample Input 4**

```
2
a < b
b < a
unsolvable
```

**Sample Output 4**

```
IMPOSSIBLE
```