# G   Gyrating Glyphs

Time limit: 6s

You are rocking the latest breakthrough in Computer Science: animated fonts. Suddenly, all of your colleagues' code looks amazing, and you are finally motivated to review it. Unfortunately, due to the constant rotations, it is hard to distinguish between the + (plus) and the × (multiply) operators (all the other characters are still readable). The function you are reviewing takes as input $n + 1$ integers $a_0, a_1, \ldots, a_n$ and returns the value
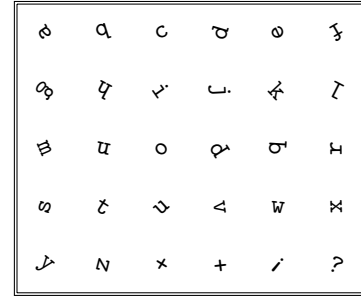
By Wessel van Woerden

$$\left(\ldots \left(\left((a_0 \; \mathrm{op}_1 \; a_1) \; \mathrm{op}_2 \; a_2 \right) \; \mathrm{op}_3 \; a_3 \right) \ldots \mathrm{op}_n \; a_n \right) \mod 10^9 + 7,$$

where the n operators op_1, op_2, $\ldots$, op_n are either + or ×. For example when given input $(a_0, a_1, a_2) = (1, 1, 2)$ with hidden operators $(\mathrm{op}_1, \mathrm{op}_2) = (+, \times)$, then the function returns $((1 + 1) \times 2) = 4 \bmod 10^9 + 7$.

You can still execute the function a few times on some input and read the returned value. Use this to recover the operators.

Interaction

This is an interactive problem. Your submission will be run against an *interactor*, which reads the standard output of your submission and writes to the standard input of your submission. This interaction needs to follow a specific protocol:

The interactor first sends one line containing one integer n ($1 \leq n \leq 4000$), the number of hidden operators.

Then, your program should make at most 275 queries to determine the operators. Each query is made by printing one line of the form "? a_0 a_1 $\ldots$ a_n" ($0 \leq a_i < 10^9 + 7$). The interactor will respond by printing one line with an integer, the value of

$$\left(\ldots \left(\left((a_0 \; \mathrm{op}_1 \; a_1) \; \mathrm{op}_2 \; a_2 \right) \; \mathrm{op}_3 \; a_3 \right) \ldots \mathrm{op}_n \; a_n \right) \mod 10^9 + 7.$$

Make sure you flush the buffer after each write.

When you have determined the operators, print a single line of the form "! s", where s is a string consisting of exactly n characters, which are all "+" (plus) or "x" (multiply)[3]. The ith character of this string should be op_i. This line does not count as one of your queries.

Using more than 275 queries will result in a wrong answer verdict.
A testing tool is provided to help you develop your solution.

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[3]This is the lowercase letter "x", not the Unicode "×" symbol.

Read   **Sample Interaction 1**   **Write**

```
2
```
```
? 1 1 2
```
```
4
```
```
? 1 1 3
```
```
6
```
```
! +x
```

Read   **Sample Interaction 2**   **Write**

```
10
```
```
? 1 1 1 1 1 1 1 1 1 1 1
```
```
5
```
```
? 0 4 2 4 2 4 2 4 2 4 2
```
```
6224
```
```
? 1 2 3 4 5 6 7 8 9 10 11
```
```
640750
```
```
! ++xxx+x+xx
```