Rod Sculpture

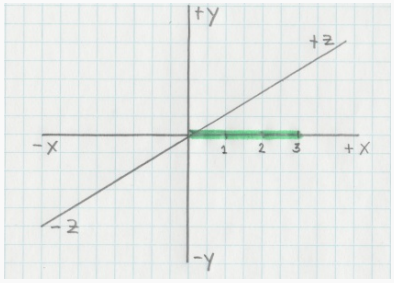
A group of CS students decided to enter The Abstract Art contest at their university. Since none of the students have any specific art skills, they came up with an idea of programming a robot to create their art project. The robot's task is to bend a metal rod according to a specification provided to it.

The first version of the robot is ready and it can perform a limited task of bending a metal rod by ninety degrees in different directions.

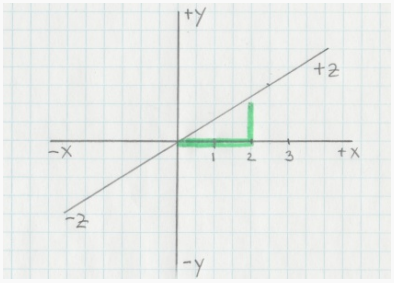
The robot views the metal rod as positioned along the positive X-axis, +x, in a three-dimensional coordinate system anchored at the origin. The rod is of length L (L is an integer in the range 2 <= L <= 100,000). This means that the rod is attached at point (0,0,0) and its free (bendable) end is at (L,0,0). The robot can bend the rod at discrete points starting from (L-1,0,0) down to (1,0,0). At each point i the robot can either:

- not bend the rod at point (i,0,0)
- bend the rod at point (i,0,0) at angle of 90 degrees so that the rod segment from (i,0,0) to (i+1,0,0) is parallel to the axis +y, -y, +z or -z.

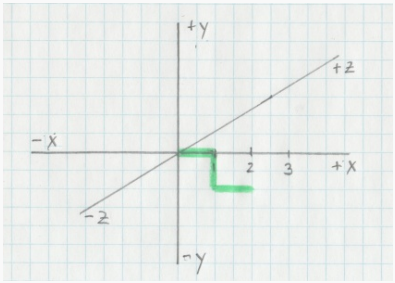
The following example shows what happens for a rod of length L=3 and the sequence of instructions `+y -y`.



initial rod of length L=3



after bend `+y` at (2,0,0)



after bend `-y` at (1,0,0)

Your task is to determine in what direction the last segment of the rod is pointing to. In the above example, that direction is `+x`. You can assume that the rod is thin enough that it can intercept itself.

Input

The first line specifies the length of the rod, L, as an integer 2 <= L <= 100,000. The second line contains L-1 instructions for the robot separated by spaces. The j'th instruction (1 <= j <= L-1) corresponds to a bend at point (L-j, 0, 0) and must be one of the following:

- `No` - do not bend the rod at point (L-j, 0, 0)
- `+y` - bend the rod at point (L-j,0,0) on the positive Y-axis
- `-y` - bend the rod at point (L-j,0,0) on the negative Y-axis
- `+z` - bend the rod at point (L-j,0,0) on the positive Z-axis
- `-z` - bend the rod at point (L-j,0,0) on the negative Z-axis

Output

The direction in which the last segment of the rod is pointing to as `+x`, `-x`, `+y`, `-y`, `+z`, or `-z`.

Example 1

```
Input:
3
+z -z

Output:
+x
```

Example 2

```
Input:
3
+z +y

Output:
+z
```

Example 3

```
Input:
5
No +z No No

Output:
+z
```