

Memory

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

Singing a song with cups of drink, That days are short is what I think. They are like dews in morning early, Therefore, I feel suffered for time gone surely.

Little G used to be a participant in programming contests and he had attended n contests in total, and for the i -th contest, Little G got a_i happiness. However, Little G would also be influenced by past contests since memory also plays an important role to influence one's mood. So we can use following formula to value Little G's mood after the i -th contest:

$$Mood(i) = \sum_{j=1}^i 2^{j-i} \times a_j$$

Now Little G is recalling the past and is curious about the moods after every contest, so he wants to tag the moods for every contest. Specifically, Little G will tag a positive sign (“+”) for the i -th contest if $Mood(i) > 0$, or tag a negative sign (“-”) if $Mood(i) < 0$, or tag a zero (“0”) if $Mood(i) = 0$. But Little G is busy working and working, so he is now asking you, the best programming contestant, to help him tag the moods.

Input

The first line contains one integers n ($1 \leq n \leq 10^5$), denoting the number of contests Little G had attended.

The second line contains n integers a_1, a_2, \dots, a_n ($-10^9 \leq a_i \leq 10^9$), denoting the happiness values after every contest.

Output

Output one line containing a string which is of length n and only contains “+”, “-” or “0”, denoting the mood tags after every contest.

Example

standard input	standard output
10 2 -1 4 -7 4 -8 3 -6 4 -7	+0+-+---+-

Note

- $Mood(1) = 2^0 \times 2 = 2 > 0$
- $Mood(2) = 2^{-1} \times 2 + 2^0 \times (-1) = 0$
- $Mood(3) = 2^{-2} \times 2 + 2^{-1} \times (-1) + 2^0 \times 4 = 4 > 0$
- $Mood(4) = 2^{-3} \times 2 + 2^{-2} \times (-1) + 2^{-1} \times 4 + 2^0 \times (-7) = -5 < 0$
- $Mood(5) = 2^{-4} \times 2 + 2^{-3} \times (-1) + 2^{-2} \times 4 + 2^{-1} \times (-7) + 2^0 \times 4 = \frac{3}{2} > 0$
- ...