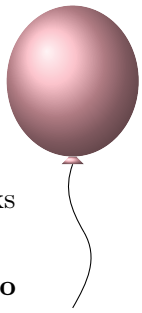
D Morse Code



Morse code is a classical way to communicate over long distances, but there are some drawbacks that increase the transmission time of long messages.

In Morse code, each character in the alphabet is assigned a sequence of dots and dashes such that **no sequence is a prefix of another**. To transmit a string of characters, the sequences corresponding to each character are sent in order. **A dash takes twice as long to transmit as a dot.**

Your alphabet has n characters, where the i-th character appears with frequency f_i in your language. Your task is to design a Morse code encoding scheme, assigning a sequence of dots and dashes to each character, that minimizes the expected transmission time for a single character. In other words, you want to minimize $f_1t_1 + f_2t_2 + \cdots + f_nt_n$, where t_i is the time required to transmit the sequence of dots and dashes assigned to the i-th character.

Input

The first line contains an integer n ($2 \leq n \leq 200$) — the number of characters in the alphabet.

The second line contains n real numbers f_1, f_2, …, f_n ($0 < f_i < 1$) — f_i is the frequency of the i-th character. All values f_1, f_2, …, f_n are given with exactly four digits after the decimal point. The sum of all frequencies is exactly 1.

Output

Print n lines, each containing one string consisting of dots `.` and dashes `-`. The i-th line corresponds to the sequence of dots and dashes that you assign to the i-th character.

If there are multiple valid assignments with the minimum possible expected transmission time, any of them is considered correct.

Samples

Sample input 1	Sample output 1
3 0.3000 0.6000 0.1000	-. . --

Explanation of sample 1.
The alphabet contains three letters, say a, b, and c, with respective frequencies 0.3, 0.6, and 0.1. In the optimal assignment, we assign a to '-.', b to '.', and c to '--'. This gives an expected transmission time of $0.3 \cdot 3 + 0.6 \cdot 1 + 0.1 \cdot 4 = 1.9$ time units per character, which is optimal.

For comparison, the assignment $a \to$ '..', $b \to$ '-', $c \to$ '.-' has an expected transmission time of $0.3 \cdot 2 + 0.6 \cdot 2 + 0.1 \cdot 3 = 2.1$. The assignment $a \to$ '-', $b \to$ '.', $c \to$ '..' has a lower expected transmission time, but is invalid since '.' is a prefix of '..'.

Sample input 2	Sample output 2
3 0.3000 0.4500 0.2500	.. - .-