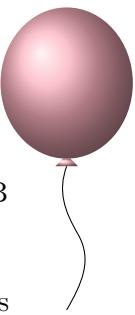




D Morse Code

TIME LIMIT: 2.0s
MEMORY LIMIT: 2048MB



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 $f_1t_1 + f_2t_2 + \dots + f_nt_n$, 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, \dots, f_n ($0 < f_i < 1$) — f_i is the frequency of the i -th character. All values f_1, f_2, \dots, 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 $a \rightarrow ‘..’$, $b \rightarrow ‘-’$, $c \rightarrow ‘.-’$ has an expected transmission time of $0.3 \cdot 2 + 0.6 \cdot 2 + 0.1 \cdot 3 = 2.1$. The assignment $a \rightarrow ‘-’$, $b \rightarrow ‘.’$, $c \rightarrow ‘..’$ has a lower expected



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transmission time, but is invalid since ‘.’ is a prefix of ‘...’.

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