2-Array

We say that a sequence of 2*K elements is interesting if neither the sum of the first K elements, nor the sum of the last K elements, is greater than S.
A sequence A of length N is given. For every element, output the length of the longest interesting subsequence starting with that element.

Input

The first line contains integers N and S ($2 \leq N \leq 100\ 000$, $1 \leq S \leq 2*10^9$).
The following N lines contain the sequence A, one integer per line. The integers are positive and their sum does not exceed $2*10^9$.

Output

Output must consist of N lines. i-th line must contain one integer, the length of the longest interesting subsequence starting with the i-th element. If an interesting subsequence at that position doesn't exist, output 0 (zero).

Sample input   **Sample output**

Sample input	Sample output
5 10000 1 1 1 1 1	4 4 2 2 0
5 9 1 1 10 1 9	2 0 0 2 0
8 3 1 1 1 1 1 1 1 1	6 6 6 4 4 2 2 0