

We say that a sequence of  $2 \cdot K$  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  $S$  ( $2 \leq N \leq 100\,000$ ,  $1 \leq S \leq 2 \cdot 10^9$ ).

The following  $N$  lines contain the sequence  $A$ , one integer per line. The integers are positive and their sum does not exceed  $2 \cdot 10^9$ .

### 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 TESTS

<b>input</b> 5 10000 1 1 1 1 1 1	<b>input</b> 5 9 1 1 10 1 9	<b>input</b> 8 3 1 1 1 1 1 1 1 1
<b>output</b> 4 4 2 2 0	<b>output</b> 2 0 0 2 0	<b>output</b> 6 6 6 4 4 2 2 0