Problem I
Slide Count

In your programming class, you are given an assignment to analyze an integer array using a sliding window algorithm. Specifically, given N integers $w_1, \ldots, w_N$ and some constant C, the sliding window algorithm maintains start and end indices s and e such that

- initially $s = e = 1$;
- as long as $s \leq N$:
  - if $e + 1 > N$, then increment s;
  - else if $w_s + \cdots + w_{e+1} > C$, then increment s;
  - else increment e.

During the execution of this algorithm, each distinct pair of indices (s, e) defines a window. An element w_i belongs to the window defined by (s, e) if $s \leq i \leq e$. Notice that if $s > e$, the window is empty.

Consider the first sample input below. The windows appearing during the execution of the algorithm are defined by $(1, 1)$, $(1, 2)$, $(1, 3)$, $(2, 3)$, $(3, 3)$, $(3, 4)$, $(4, 4)$, $(5, 4)$, $(5, 5)$, and $(6, 5)$.

For each element w_i, determine how many different windows it belongs to during the execution of the sliding window algorithm.

Input

The first line of input contains two integers N ($1 \leq N \leq 100\,000$), which is the number of elements, and C ($1 \leq C \leq 1\,000\,000$), which is the sliding window constant.

The next line contains N integers $w_1, \ldots, w_N$ ($0 \leq w_i \leq C$).

Output

For each element, in order, display the number of different windows it belongs to during the execution of the algorithm.

Sample Input 1	Sample Output 1
5 3 1 1 1 2 2	3 3 4 2 1

Sample Input 2	Sample Output 2
5 10 1 2 3 4 5	4 4 4 5 2