Problem E. Bigger segments

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1.5 seconds
Memory limit:	256 megabytes

Our small boy Askhat noticed an interesting phenomenon — trying to cover an array with "jumps" of bigger and bigger sums may not be as simple as it seems. Of course, now you need to find a way to do it.
You are given a sequence of positive integer numbers of length N.
Divide the given sequence into the maximal number of segments so that:

1. Every element of the sequence belongs to exactly one segment.
2. Sum of the numbers in every segment, except for the first one, is not less than in the previous.

Input

The first line of the input contains the integer N ($1 \le N \le 5 \cdot 10^5$).
The next line contains N positive integers $a_i (1 \le a_i \le 10^9)$, separated by spaces.

Output

Output a single integer — the maximal number of segments the given sequence can be divided into.

Scoring

This task contains five subtasks, with additional constraints:

1. $1 \le N \le 20$, $a_i \le 10^6$. Scored 13 points.
2. $1 \le N \le 500$. Scored 14 points.
3. $1 \le N \le 3000$. Scored 10 points.
4. $1 \le N \le 10^5$. Scored 36 points.
5. Original constraints. Scored 27 points.

Examples

standard input	standard output
4 2 3 1 7	3
5 6 2 3 9 13	3
3 3 1 2	2