

Sandwich (sandwich)

Pompieru is hungry and wants to cook the famous Half-Pound Sandwich. He is given a list of N ingredients, each one with an integer flavor-value V_i .



Figure 1: Famous for a reason.

However, the Half-Pound Sandwich is very special, with some specific rules in its receipt:

1. Ingredients are used in the order they are given. The first ingredient used must be the first one in the list, and so on.
2. The sandwich consists of one or more levels. Each level must include one or more consecutive ingredients, and each ingredient must be part of exactly one level.
3. The total flavor value of each level must be positive.

Given the rules above, determine the maximum number of levels the sandwich can have.

📎 Among the attachments of this task you may find a template file `sandwich.*` with a sample incomplete implementation.

Input

On the first line of the input you are given N , the number of ingredients.

On the second line there are N integers, the i -th of which represents the flavor-value of the i -th ingredient.

Output






On the first and only line of the output print the integer K , the maximum number of levels the sandwich can have.

Constraints

- $2 \leq N \leq 400\,000$.
- $-10^9 \leq V_i \leq 10^9$ for each $i = 0 \dots N - 1$.
- The sum of all flavour-values is positive.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

- Subtask 1 (0 points) Examples.
 
- Subtask 2 (15 points) $N \leq 50, 0 \leq V_i$ for each $i = 0 \dots N - 1$.
 
- Subtask 3 (20 points) $N \leq 500$.
 
- Subtask 4 (20 points) $N \leq 2\,000$.
 
- Subtask 5 (45 points) No additional limitations.
 

Examples

input	output
5 1 2 3 -4 5	4
11 10 -1 1 -9 1 1 1 1 1 1 1	8