Problem A. Special Friend 3

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Note : Implementing Stack/Queue is mandatory in both the questions.

Shivansh invited his special friend to play tennis. But he is in a dilemma whether he should go or not. So to clear out this dilemma, he decided if the answer to the below query is "Yes" then only he will go to play. Else if the answer to the query is "No" then he will not go to play.

So in frustration of this dilemma, he writes a random string, let's say s consisting of a and b characters only and finds the length of the longest balanced subsequence.

If the length of the longest balanced subsequence is $\geq k$ then the answer is "Yes" else "No".

He considers ab as a balanced sequence of length 2, $abab$, $aabb$ are balanced sequence of length 4, but on the other hand bba, ba is not a balanced sequence.

Formally, we can define balanced sequence with :

- e (the empty string) is a balanced sequence of length 0.
- if t_1 is a balanced sequence then so is at_1b.
- if t_1 and t_2 are balanced sequence then so is t_1t_2.

A string s_1 is a subsequence of another string s_2 if you can delete some (or 0) letters from s_2, without changing the order, and get s_1. For example, "xyz" is a subsequence of "xxyyxz".

Input

The first line of input contains the integer k.

The second line of input contains the string s.

$1 \leq k \leq 10^9$

$1 \leq len(s) \leq 10^5$

Output

The only line of output contains "Yes" or "No" (without quotes).

Examples

standard input	standard output
4 abbaab	Yes
2 aaaabbbb	Yes
12 abababababab	No
7 abababb	No
0 a	Yes
0 ab	Yes
1 a	No

Problem B. Beautiful garden

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

NOTE: Implement your own stacks/queues from scratch. Else your submissions will not be considered.

Aniket is fond of spending time in the garden. He visits a beautiful garden and wants to compute its beauty. The garden has n different kind of flowers. There are A_i flowers of i^{th} kind in the garden. He defines the beauty of a garden as follows:

- Beauty $= \sum min(A_{L...R})$ for all $1 \leq L \leq R \leq n$.
- $A_{L..R}$ denotes all elements of Array A from L^{th} index to the R^{th} index.

Now your task is to help him find the beauty of the garden. Since the output of the problem can be very large you are required to return the answer modulo $10^9 + 7$.

Input

The first line contains an integer n. The next line contains an array of n integers denoting the number of flowers of each kind.

Constraints:

- $1 \leq n \leq 10^5$
- $1 \leq A_i \leq 10^5$

Output

Output a single integer denoting the beauty of the garden. Return the answer modulo $10^9 + 7$.

Examples

standard input	standard output
4 4 4 5 1	29
1 3	3
3 1 5 1	10
2 3 3	9
6 87139 69973 37854 73152 94341 89047	1173224
2 58287 76039	192613
4 36868 9449 35322 75009	239215
5 6 6 3 2 7	50