

## B. Make Majority

time limit per test: 1.5 seconds  
memory limit per test: 512 megabytes

You are given a sequence  $[a_1, \dots, a_n]$  where each element  $a_i$  is either 0 or 1. You can apply several (possibly zero) operations to the sequence. In each operation, you select two integers  $1 \leq l \leq r \leq |a|$  (where  $|a|$  is the current length of  $a$ ) and replace  $[a_l, \dots, a_r]$  with a single element  $x$ , where  $x$  is the majority of  $[a_l, \dots, a_r]$ .

Here, the majority of a sequence consisting of 0 and 1 is defined as follows: suppose there are  $c_0$  zeros and  $c_1$  ones in the sequence, respectively.

- If  $c_0 \geq c_1$ , the majority is 0.
- If  $c_0 < c_1$ , the majority is 1.

For example, suppose  $a = [1, 0, 0, 0, 1, 1]$ . If we select  $l = 1, r = 2$ , the resulting sequence will be  $[0, 0, 0, 1, 1]$ . If we select  $l = 4, r = 6$ , the resulting sequence will be  $[1, 0, 0, 1]$ .

Determine if you can make  $a = [1]$  with a finite number of operations.

### Input

Each test contains multiple test cases. The first line contains the number of test cases  $t$  ( $1 \leq t \leq 4 \cdot 10^4$ ). Description of the test cases follows.

The first line of each testcase contains one integer  $n$  ( $1 \leq n \leq 2 \cdot 10^5$ ).

The second line of each testcase contains a string consisting of 0 and 1, describing the sequence  $a$ .

It's guaranteed that the sum of  $n$  over all testcases does not exceed  $2 \cdot 10^5$ .

### Output

For each testcase, if it's possible to make  $a = [1]$ , print YES. Otherwise, print NO. You can output the answer in any case (upper or lower). For example, the strings yEs, yes, Yes, and YES will be recognized as positive responses.

### Example

input	Copy
5	
1	
0	
1	
1	
2	
01	
9	
100000001	
9	
000011000	
output	Copy
No	
Yes	
No	
Yes	
No	

### Note

In the fourth testcase of the example, initially  $a = [1, 0, 0, 0, 0, 0, 0, 1]$ . A valid sequence of operations is:

- Select  $l = 2, r = 8$  and apply the operation.  $a$  becomes  $[1, 0, 1]$ .
- Select  $l = 1, r = 3$  and apply the operation.  $a$  becomes  $[1]$ .

Codeforces Round 958 (Div. 2)

Finished

→ Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

greedy implementation \*900

No tag edit access

→ Contest materials

- Announcement (en) ×
- Video Tutorial (en) ×
- Tutorial #2 (en) ×

