B. Fun Game

time limit per test: 1 second

memory limit per test: 256 megabytes

Vova really loves the XOR operation (denoted as $\oplus$). Recently, when he was going to sleep, he came up with a fun game.

At the beginning of the game, Vova chooses two binary sequences s and t of length n and gives them to Vanya. A binary sequence is a sequence consisting only of the numbers 0 and 1. Vanya can choose integers l, r such that $1 \le l \le r \le n$, and for all $l \le i \le r$ **simultaneously** replace s_i with $s_i \oplus s_{i-l+1}$, where s_i is the i-th element of the sequence s.

In order for the game to be *interesting*, there must be a possibility to win. Vanya wins if, with an **unlimited** number of actions, he can obtain the sequence t from the sequence s. Determine if the game will be *interesting* for the sequences s and t.

Input

Each test consists of multiple test cases. The first line contains an integer q ($1 \le q \le 10^4$) — the number of test cases. Then follows the description of the test cases.

The first line of each test case contains a single integer n ($1 \le n \le 2 \cdot 10^5$) — the length of the sequences s and t.

The second line of each test case contains a binary sequence s of length n.

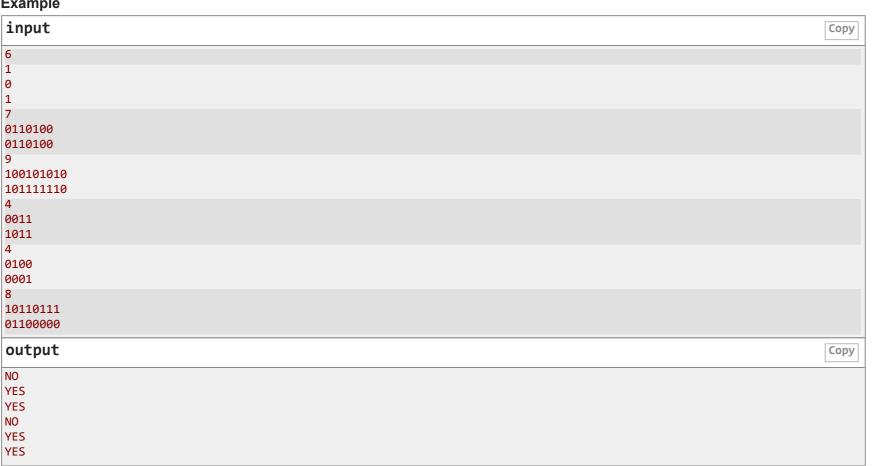The third line of each test case contains a binary sequence t of length n.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, output "`Yes`" if the game will be *interesting*, otherwise output "`No`".

You can output each letter in any case (for example, the strings "`yEs`", "`yes`", "`Yes`", and "`YES`" will be recognized as a positive answer).

Example

input	Copy
6	
1	
0	
1	
7	
0110100	
0110100	
9	
100101010	
101111110	
4	
0011	
1011	
4	
0100	
0001	
8	
10110111	
01100000	

output	Copy
NO	
YES	
YES	
NO	
YES	
YES	

Note

In the first test case, Vanya will not be able to change the sequence s with the only possible action of choosing $l = r = 1$.

In the second test case, the sequences s and t are already equal.

In the third test case, Vanya can act as follows:

1. Choose $l = 3$ and $r = 5$, then s will become `101101010`.
2. Choose $l = 5$ and $r = 6$, then s will become `101111010`.
3. Choose $l = 7$ and $r = 7$, then s will become `101111110`.

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Finished

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