B. Fun Game

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

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 $1 \leq l \leq r \leq n$, and for all $l \leq i \leq r$ **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 ($1 \leq q \leq 10^4$) — 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 ($1 \leq n \leq 2 \cdot 10^5$) — 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.