

B. Marble

Constraint: Time Limit: 3 seconds, Memory: 256MB



Problem description

Consider a one-dimensional track consisting of n consecutive cells. Each cell i contains a symbol s_i , which is either ' $<$ ' or ' $>$ '. A **marble** can be placed on any cell of this track and moves according to the following rules:

- If the marble is currently on cell i and $s_i = '<'$, it will roll **one cell to the left** in the next second.

If $s_i = '>'$, it rolls **one cell to the right** instead.

- After the marble moves, the symbol in that cell **flips its direction** — ' $<$ ' becomes ' $>$ ', and ' $>$ ' becomes ' $<$ '.

This represents the track tile changing its slope after the marble passes over it.

- The marble continues to move until it rolls **off the track**, either through the **left edge** or the **right edge**.

You are asked to answer n **independent scenarios**. In the i -th **scenario**, a marble is placed on the i -th cell of the **original, unmodified track**. For each case, determine **how many seconds** it will take for the marble to leave the track. It is guaranteed that in every case, the marble will exit the track after a finite number of moves.

INPUT	OUTPUT
<p>Each test contains multiple test cases.</p> <p>The first line contains the number of test cases t ($1 \leq t \leq 10^5$).</p> <p>The description of the test cases follows.</p> <p>The first line of each test case contains an integer n ($1 \leq n \leq 5 \times 10^5$).</p> <p>The second line of each test case contains a string $s_1s_2\dots s_n$ of length n consisting of characters '$<$' and '$>$'.</p> <p>It is guaranteed that the sum of n over all test cases does not exceed 5×10^5.</p>	<p>For each test case, for each i ($1 \leq i \leq n$) output the answer if a marble is initially placed on the i-th cell.</p>

Example 1:

INPUT	OUTPUT
5	1
1	2 1
<	1 4 3
2	3 8 8 3
>>	3 3
3	
<><	
4	
><><	
2	
><	

Example 2:

INPUT	OUTPUT
3	3 6 5
3	1 2 3 4
><<	1 4 7 10 8 1
4	
<<<<	
6	
<><<<>	