≡   ✿ Hello, **2024101067**.

HTML Compiler

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✔ **Points:** 100 (partial)
⊘ **Time limit:** 1.0s
☰ **Memory limit:** 64M

❯ **Problem type**

⌄ **Allowed languages**
  C, C++

Shamil is making a parser for HTML files. An HTML file has different tags surrounded by the angular brackets $<$ and $>$.

The first thing he needs to do for this parser is find the longest prefix of the HTML file that forms a valid bracket sequence.

To make his job easier, he has removed all the other characters from the file and now has a string of length N with just the angular brackets. Can you help him find the longest prefix of this string that forms a valid bracket sequence.

A sequence containing just the characters < and > is valid if:

- Opening brackets (<) must be closed by closing brackets (>).
- Opening brackets (<) must be closed in the correct order.
- Every closing bracket (>) has a corresponding opening bracket (<). (An empty sequence is also considered valid).

Input format

The first line contains T, the number of test cases.

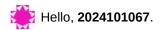T lines follow, each containing a string that Kunwar needs to parse.

Output format

For each testcase, output the length of the longest prefix that makes a valid bracket sequence on a separate line.

Constraints

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$N \leq 10^5$

Subtasks
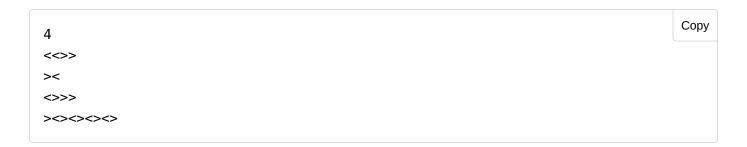
Subtask 1(5 points): $N \leq 10$

Subtsk 2(10 points): $N \leq 100$

Subtask 3(15 points): $N \leq 1000$
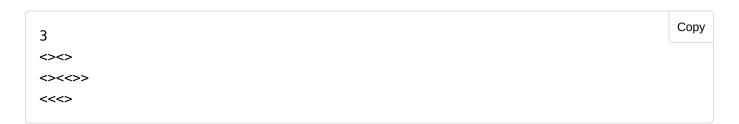
Subtask 4(70 points): Original constraints
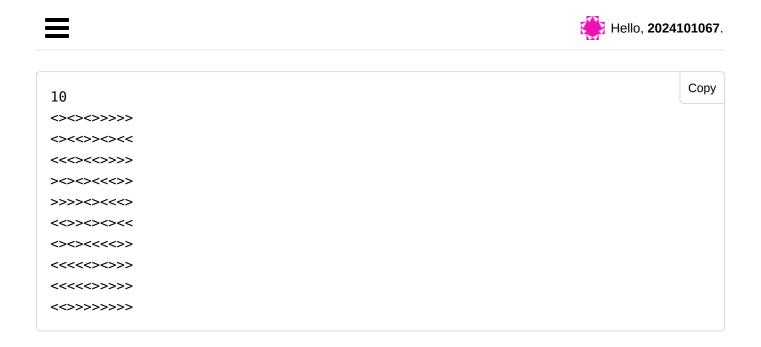
Example 1

Input

```
4
<<>>
><
<>>>
><<><><>
```

Copy

Output

```
4
0
2
0
```

Copy

Input

```
3
<><>
<><<>>
<<<>
```

Copy

Output

```
4
6
0
```

Copy

```
10
<><><>>>>
<><<>><><<
<<<><<<>>>
><<><><<<>
>>>><><<<>
<<>><<><<<
<><<<<<<>>
<<<<<><<>>
<<<<<><>>>
<<>>>>>>>
```
Copy

Output

```
6
8
10
0
0
8
4
0
10
4
```
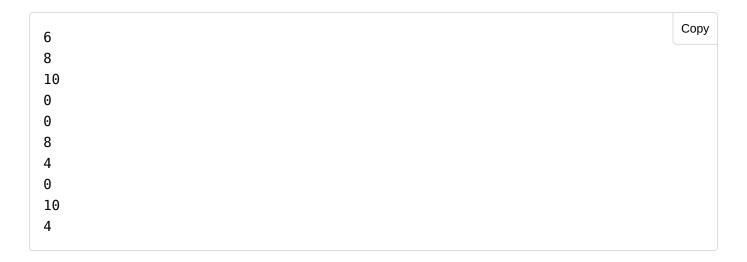Copy

Explanation

For first testcase, the entire string is a valid bracket sequence.

For the second one, there is no prefix with a valid bracket sequence.

For the third one, <> is a valid bracket sequence but all the prefix longer than that do not form a valid sequecnce

For the last one, there is no prefix that is valid. Note that the substring from the second character to the last one does form a valid sequence. However, it is not a prefix.

❷ Clarifications   Report an issue

No clarifications have been made at this time.

Hello, **2024101067**.