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pruthvishalcodi1

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Dinesh and Parsers

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by pruthvishalcodi1

Problem

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Editorial by PruthvishE

A regular bracket sequence is defined as follows:

- $S=""$ is regular.
- $S="<" + S_1 + ">"$ is regular, if S_1 is regular.
- $S=S_1 \text{ concat } S_2$ is regular, if S_1 and S_2 are regular.

If S is regular bracket sequence, for any i , number of closing brackets in $S[0,i]$ should not exceed number of opening brackets. Also, if number of opening brackets is equal to number of closing brackets in $S[0,i]$, $S[0,i]$ is a regular bracket sequence.



Set by PruthvishE

Problem Setter's code :

```
#include <string>
#include <iostream>
using namespace std;

int main()
{
    ios_base::sync_with_stdio(false);
    cin.tie(NULL);
    string exp;
    int test;
    int sum=0;
    int d,b;
    cin >> test;
    while(test--){
        b=0;
        cin >> exp;
        const int len = exp.size();
        d=0;
        sum+=exp.size();
        for(int i=0;i<len;i++){
            if(exp.substr(i,1)==">")
                d--;
            else
                d++;
            if(d==0)
                b=i+1;
            else if(d<0)
                break;
        }
        cout << b << endl;
    }
    return 0;
}
```

Statistics

Difficulty: Medium

Time $O(N)$

Complexity: Required

Knowledge: stacks

Publish Date: Jun 19 2019



Tested by PruthvishE

Problem Tester's code :

```
for _ in range(int(input())):
    s = input()
    st = []
    i = 0
    ans = 0
    while i < len(s):
        if s[i] == '<':
            st.append('<')
        elif st:
            st.pop()
        else:
            break
        i += 1
    if not st:
        ans = i
    print(ans)
```

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