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Counting Valleys



by pkacprzak

Problem

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Gary is an avid hiker. He tracks his hikes meticulously, paying close attention to small details like topography. During his last hike, he took exactly n steps. For every step he took, he noted if it was an *uphill* or a *downhill* step. Gary's hikes start and end at sea level. We define the following terms:

- A *mountain* is a non-empty sequence of consecutive steps *above* sea level, starting with a step *up* from sea level and ending with a step *down* to sea level.
- A *valley* is a non-empty sequence of consecutive steps *below* sea level, starting with a step *down* from sea level and ending with a step *up* to sea level.

Given Gary's sequence of *up* and *down* steps during his last hike, find and print the number of *valleys* he walked through.

Input Format

The first line contains an integer, n , denoting the number of steps in Gary's hike.

The second line contains a single string of n characters. Each character is $\in \{U, D\}$ (where U indicates a step *up* and D indicates a step *down*), and the i^{th} character in the string describes Gary's i^{th} step during the hike.

Constraints

- $2 \leq N \leq 10^6$

Output Format

Print a single integer denoting the number of valleys Gary walked through during his hike.

Sample Input

```
8
UDDDUDUU
```

Sample Output

```
1
```

Explanation

If we represent `_` as sea level, a step up as `/`, and a step down as `\`, Gary's hike can be drawn as:

```
_/\
  \/\
   \/\
```

It's clear that there is only one valley there, so we print **1** on a new line.



Max Score: 15

Difficulty: Easy

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C#



```
1 using System;
2 using System.Collections.Generic;
3 using System.IO;
4 class Solution {
5     static void Main(String[] args) {
6         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution
7         */
8
9         int n = int.Parse(Console.ReadLine());
10        string s = Console.ReadLine();
11        //string s = "UDDUDUUU";
12        int nivel = 0;
13        bool valle = false;
14        int total_valles = 0;
15        for (int i = 0; i < s.Length; i++)
16        {
17            if (s[i] == 'U')
18            {
19                nivel++;
20            }
21            else if (s[i] == 'D')
22            {
23                nivel--;
24            }
25            if (nivel < 0 && !valle)
26            {
27                valle = true;
28            }
29            else if (valle && nivel >= 0)
30            {
31                total_valles++;
32                valle = false;
33            }
34        }
35        Console.WriteLine(total_valles);
36    }
37 }
```

Line: 9 Col: 17

 [Upload Code as File](#)☐ Test against custom input[Run Code](#)[Submit Code](#)

Congrats, you solved this challenge!

✓ Test Case #0
✓ Test Case #3
✓ Test Case #6
✓ Test Case #9
✓ Test Case #12
✓ Test Case #15
✓ Test Case #18

✓ Test Case #1
✓ Test Case #4
✓ Test Case #7
✓ Test Case #10
✓ Test Case #13
✓ Test Case #16
✓ Test Case #19

✓ Test Case #2
✓ Test Case #5
✓ Test Case #8
✓ Test Case #11
✓ Test Case #14
✓ Test Case #17
✓ Test Case #20

 Test Case #21

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