

# Mehmet Beraat SAĞIN

URL : <https://www.spoj.com/problems/MUTDNA/>

## MUTDNA - DNA

*no tags*

Biologists have discovered a strange DNA molecule, best described as a sequence of  $N$  characters from

the set  $\{A, B\}$ . An unlikely sequence of mutations has resulted in a DNA strand consisting only of A's.

Biologists found that very odd, so they began studying the mutations in greater detail.

They discovered two types of mutations. One type results in changing a single character of the sequence ( $A \rightarrow B$  or  $B \rightarrow A$ ). The second type changes a whole prefix of the sequence, specifically

replacing all characters in positions from 1 to  $K$  (for some  $K$  between 1 and  $N$ , inclusive) with the other

character (A with B, B with A).

Compute the least possible number of mutations that could convert the starting molecule to its end

state (containing only A characters). Mutations can occur in any order

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## Input

The first line of input contains the positive integer  $N$  ( $1 \leq N \leq 1\,000\,000$ ), the length of the molecule.

The second line of input contains a string with  $N$  characters, with each character being either A or B.

This string represents the starting state of the molecule.

## Output

The first and only line of output must contain the required minimum number of mutations.

## Example

**Input 1:**

4

ABBA

**Output 1:**

2

**Input 2:**

5

BBABB

**Output 2:**

2

**Input 3:**

12

AAABBBAAABBB

**Output 3:**

4

## SOURCE CODE :

```
#include <iostream>

using namespace std;

main() {
    char DNA[1000001];
    int size;
    cin >> size;
    cin >> DNA;
    char x='A';
    int count=0;
    for(int i=size-1; i>0; i--) {
        if(x!=DNA[i]) {           // IF LAST ELEMENT IS B -> ENTER
            if(x!=DNA[i-1]) {     // IF NEXT TO LAST ELEMENT IS B -> ENTER
                x=DNA[i];
                i--;
            }
            count++;
        }
    }

    if(DNA[0]!=x) {
        count++;
    }

    cout << count << endl;

    return 0;
}
```


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ID	DATE	PROBLEM	RESULT	TIME	MEM	LANG
22613771	2018-10-31 10:09:03	DNA	accepted edit ideone.it	0.02	17M	CPP
22613680	2018-10-31 09:53:45	DNA	time limit exceeded edit ideone.it	-	16M	CPP
22613654	2018-10-31 09:51:22	DNA	time limit exceeded edit ideone.it	-	2.7M	C++ 4.3.2
22613653	2018-10-31 09:51:22	DNA	time limit exceeded edit ideone.it	-	2.7M	C++ 4.3.2
22613574	2018-10-31 09:36:19	DNA	wrong answer edit ideone.it	0.00	2.7M	C++ 4.3.2
22613484	2018-10-31 09:24:32	DNA	time limit exceeded edit ideone.it	-	2.7M	C++ 4.3.2
22613458	2018-10-31 09:21:20	DNA	time limit exceeded edit ideone.it	-	10M	C
22613433	2018-10-31	DNA	time limit exceeded	-	10M	C



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