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Badge Progress (Details)

Points: 126   Rank: 270086

Bear and Steady Gene 🔖

👤 by Errichto

Problem	Submissions	Leaderboard	Discussions	Editorial 🔒

A gene is represented as a string of length n (where n is divisible by 4), composed of the letters A, C, T, and G. It is considered to be *steady* if each of the four letters occurs exactly $\frac{n}{4}$ times. For example, $GACT$ and $AAGTGCCT$ are both steady genes.

Bear Limak is a famous biotechnology scientist who specializes in modifying bear DNA to make it steady. Right now, he is examining a gene represented as a string s. It is not necessarily steady. Fortunately, Limak can choose one (maybe empty) substring of s and replace it with any string of the same length.

Modifying a large substring of bear genes can be dangerous. Given a string s, can you help Limak find the length of the smallest possible substring that he can replace to make s a steady gene?

Note: A substring of a string S is a subsequence made up of zero or more *consecutive* characters of S.

Input Format

The first line contains an interger n divisible by 4, denoting the length of a string s.
The second line contains a string s of length n. Each character is one of the four: A, C, T, G.

Constraints

- $4 \leq n \leq 500\,000$

- n is divisible by 4

Subtask

- $4 \leq n \leq 2000$ in tests worth 30% points.

Output Format

On a new line, print the minimum length of the substring replaced to make s stable.

Sample Input

```
8
GAAATAAA
```

Sample Output

```
5
```

Explanation

One optimal solution is to replace a substring $AAATA$ with $TTCCG$, resulting in $GTTCCGAA$. The replaced substring has length 5, so we print 5 on a new line.

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Current Buffer (saved locally, editable)   Java 7

```java
1   import java.io.*;
2   import java.util.*;
3   import java.text.*;
4   import java.math.*;
5   import java.util.regex.*;
6
7   public class Solution {
8
9       public static void main(String[] args) {
10          /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11      }
12  }
```

Line: 1 Col: 1

↥ Upload Code as File   ☐ Test against custom input

Run Code   Submit Code

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