Making Palindrome

A **palindrome** is a word, phrase, number or other sequence of units that can be read the same way in either direction (the adjustment of punctuation and spaces between words is generally permitted). In this task you have to print minimum number of characters that must be inserted in a string to make it a palindrome.

Input

First line of input contains a single positive integer n < 10000 denoting the length of the string. The next line contains a string of length n containing only printable ascii characters.

Output

A number as described above.

Example

Input:

5
bccc3

Output:

2