Palindrome Everywhere

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

You are given a cycle with n vertices numbered from 0 to $n-1$. For each $0 \le i \le n-1$, there is an undirected edge between vertex i and vertex $((i+1) \bmod n)$ with the color c_i ($c_i = \texttt{R}$ or $\texttt{B}$).

Determine whether the following condition holds for every pair of vertices (i, j) ($0 \le i < j \le n-1$):

- There exists a palindrome route between vertex i and vertex j. Note that the route may **not** be simple. Formally, there must exist a sequence $p = [p_0, p_1, p_2, \ldots, p_m]$ such that:
  - $p_0 = i$, $p_m = j$;
  - For each $0 \le x \le m-1$, either $p_{x+1} = (p_x + 1) \bmod n$ or $p_{x+1} = (p_x - 1) \bmod n$;
  - For each $0 \le x \le y \le m-1$ satisfying $x + y = m - 1$, the edge between p_x and p_{x+1} has the same color as the edge between p_y and p_{y+1}.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \le t \le 10^5$) — the number of test cases. The description of the test cases follows.

The first line of each test case contains an integer n ($3 \le n \le 10^6$) — the number of vertices in the cycle.

The second line contains a string c of length n ($c_i = \texttt{R}$ or $\texttt{B}$) — the color of each edge.

It is guaranteed that the sum of n over all test cases does not exceed 10^6.

Output

For each test case, print "`YES`" (without quotes) if there is a palindrome route between any pair of nodes, and "`NO`" (without quotes) otherwise.

You can output the answer in any case (upper or lower). For example, the strings "`yEs`", "`yes`", "`Yes`", and "`YES`" will be recognized as positive responses.

Example

standard input	standard output
7 5 RRRRR 5 RRRRB 5 RBBRB 6 RBRBRB 6 RRBBRB 5 RBRBR 12 RRBRRBRRBRRB	YES YES YES NO NO YES NO

Note

In the first test case, it is easy to show that there is a palindrome route between any two vertices.

In the second test case, for any two vertices, there exists a palindrome route with only red edges.

In the third test case, the cycle is as follows: $0 \overset{\texttt{R}}{\longleftrightarrow} 1 \overset{\texttt{B}}{\longleftrightarrow} 2 \overset{\texttt{B}}{\longleftrightarrow} 3 \overset{\texttt{R}}{\longleftrightarrow} 4 \overset{\texttt{B}}{\longleftrightarrow} 0$. Take $(i,j) = (0,3)$ as an example, then $0 \xrightarrow{\texttt{R}} 1 \xrightarrow{\texttt{B}} 2 \xrightarrow{\texttt{B}} 3 \xrightarrow{\texttt{R}} 4 \xrightarrow{\texttt{B}} 0 \xrightarrow{\texttt{B}} 4 \xrightarrow{\texttt{R}} 3$ is a palindrome route. Thus, the condition holds for $(i,j) = (0,3)$.

In the fourth test case, when $(i,j) = (0,2)$, there does not exist a palindrome route.