



Switch to Non-IDE mode

Contest Code: FEB222C Problem Code: XORPAL



A (1-indexed) binary string S of length N is called a *xor palindrome* if the value of $S_i \oplus S_{(N+1-i)}$ is the same for all $1 \leq i \leq N$.

For example, 0, 1111 and 0101 are xor palindromes, while 1110 and 110101 are not.

You are given a binary string S of length N . Determine if it is possible to rearrange it to form a xor palindrome or not.

Input Format

- The first line of input contains a single integer T — the number of test cases. The description of T test cases follows.
- The first line of each test case contains an integer N — the length of the binary string S .
- The second line of each test case contains the binary string S containing 0s and 1s only.

Output Format

For each test case, output YES if it is possible to rearrange S to convert it into a xor palindrome. Otherwise output NO.

You may print each character of YES and NO in uppercase or lowercase (for example, yes, yEs, Yes will be considered identical).

Constraints

- $1 \leq T \leq 1000$
- $1 \leq N \leq 10^5$
- S is a binary string, i.e, contains only the characters 0 and 1
- It is guaranteed that the sum of N over all test cases does not exceed $2 \cdot 10^5$.

Subtasks

Subtask #1 (100 points): Original constraints

Sample Input 1

```
4
2
00
4
0011
3
001
4
0001
```

Sample Output 1

```
YES
YES
YES
NO
```

Explanation

Test case 1: 00 is already a xor palindrome. [The value of $S_i \oplus S_{(N+1-i)}$ is 0 for all $1 \leq i \leq N$.]

Test case 2: 0011 is already a xor palindrome. [The value of $S_i \oplus S_{(N+1-i)}$ is 1 for all $1 \leq i \leq N$.]

Test case 3: 001 can be rearranged to form 010 which is a xor palindrome. [The value of $S_i \oplus S_{(N+1-i)}$ is 0 for all $1 \leq i \leq N$.]

Test case 4: It can be proved that 0001 can not be rearranged to form a xor palindrome.

PYTH 3.6

Code gets autosaved every second

1 # cook your dish here

2

0:0

Open File

Run

Submit

Custom Input

Note: Your program will be run with no input.

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