Problem

Chef has a string S consisting of lowercase English characters. Chef defined functions left shift $L(X)$ and right shift $R(X)$ as follows.

- $L(X)$ is defined as shifting all characters of string X one step towards left and moving the first character to the end.
- $R(X)$ is defined as shifting all characters of string X one step towards the right and moving the last character to the beginning.

For example, L("abcd") = "bcda" and R("abcd") = "dabc"

Chef wants to find out whether there exists a string V of the same length as S such that both $L(V) = S$ and $R(V) = S$ holds.

Input:

- The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.
- The first line of each test case contains a string S.

Output:

For each test case, If there exists a valid string V, print "YES", otherwise print "NO" (without the quotes).

Constraints

- $1 \leq T \leq 100$
- $1 \leq |S| \leq 10^6$
- S contains all lower case English alphabets.
- It's guaranteed that the total length of the strings in one test file doesn't exceed 10^6

Sample 1:

Input	Output
4 a ab abcd aaaaa	YES YES NO YES

Explanation:

- In the first test case, Chef can choose $V = S$
- In the second test case, Chef can choose V = "ba" which satisfies both conditions.
- There doesn't exist any valid choice for string V in the third test case.

Problem

Chef has a string S consisting of lowercase English characters. Chef defined functions left shift $L(X)$ and right shift $R(X)$ as follows.

- $L(X)$ is defined as shifting all characters of string X one step towards left and moving the first character to the end.
- $R(X)$ is defined as shifting all characters of string X one step towards the right and moving the last character to the beginning.

For example, L("abcd") = "bcda" and R("abcd") = "dabc"

Chef wants to find out whether there exists a string V of the same length as S such that both $L(V) = S$ and $R(V) = S$ holds.

Input:

- The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.
- The first line of each test case contains a string S.

Output:

For each test case, If there exists a valid string V, print "YES", otherwise print "NO" (without the quotes).

Constraints

- $1 \leq T \leq 100$
- $1 \leq |S| \leq 10^6$
- S contains all lower case English alphabets.
- It's guaranteed that the total length of the strings in one test file doesn't exceed 10^6

Sample 1:

Input	Output
4 a ab abcd aaaaa	YES YES NO YES

Explanation:

- In the first test case, Chef can choose $V = S$
- In the second test case, Chef can choose V = "ba" which satisfies both conditions.
- There doesn't exist any valid choice for string V in the third test case.