Pattern Purifier

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

A research lab stores its data as a string consisting of lowercase English letters.

During preprocessing, the lab employs an automated tool called the *Pattern Purifier*. This tool can detect and remove any **even-length** substring* that is a **palindrome**†. Whenever a substring is removed, the remaining parts of the string are concatenated together, preserving their relative order.

Your task is to determine whether the entire string can be deleted by repeatedly applying such removals.

*A string a is a substring of a string b if a can be obtained from b by deletion of several (possibly, zero or all) characters from the beginning and several (possibly, zero or all) characters from the end. For example, `riz` is a substring of `horizon`, but `rizz` and `ozon` are not.

†A palindrome is a string that reads the same backward and forward. For example, `abba` and `racecar` are palindromes, while `hello` is not.

Input

The first line contains a single integer t ($1 \le t \le 10^4$) — the number of test cases.

Each test case consists of a single string s ($1 \le |s| \le 3 \cdot 10^5$) consisting of lowercase English letters.

It is guaranteed that the sum of $|s|$ over all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case, print `YES` if the entire string can be deleted, and `NO` otherwise.

Example

standard input	standard output
5 hanoonnnah abcd dammittredderimpullupmad uwu manacher	YES NO YES NO NO

Note

In the first test case, one possible sequence of deletions is shown below (the underlined substring is the one being removed and ε denotes the empty string):

$$\texttt{ha}\underline{\texttt{noo}}\texttt{nnah} \to \underline{\texttt{hannah}} \to \varepsilon.$$

In the second test case, no deletion is possible, so the string cannot be removed.

In the third test case, one possible sequence of deletions is:

$$\texttt{dammitt}\underline{\texttt{redder}}\texttt{impullupmad} \to \texttt{dammittimp}\underline{\texttt{ullup}}\texttt{mad} \to \underline{\texttt{dammittimmad}} \to \varepsilon.$$

In the fourth test case, `uwu` is a palindrome, but not an even-length one, so no deletion is possible.