Omo

Opal has reached the gates to strange kingdom of Omo, the land of bizzare, mythical and palindromic creatures called *doges*. In order to test Opal's worthiness of entering the kingdom, the great *doge god* of Omo decides to give her a challenge. In the challenge, Opal is given a word in the language of Omo, consisting of letters in the Omo alphabet. This word can be represented as an array of N integers (numbered from 1 to N) between 1 and 123454321 inclusive.

Opal is given time to memorise the sequence, and then the doge god will give her Q queries. The i-th query is of the form: *Is it possible to rearrange the letters in the subarray from l_i to r_i inclusive, such that the resultant subarray is palindromic?*

Opal is a cybernetic being who possesses the magical power of infinite computation and infinite memory, so she completes the doge god's challenge instantly. Unfortunately, you are not. Can you complete it using a computer program instead?

Input

The first line contains two integers, N and Q . The second line contains N integers: the word that Opal is given.

Then, Q lines follow. The i-th of these lines contains two integers: l_i and r_i.

Output

Output Q lines. The i-th of these lines should contain the answer to the i-th query: either `YES` or `NO`.

Sample Input

```
22 6
87 79 87 95 83 85 67 72 95 68 79 71 69 95 71 79 68 95 72 67 85 83
4 22
9 9
10 17
10 11
9 17
10 18
```

Sample Output

```
YES
YES
NO
NO
YES
YES
```

Explanation

Converted via ASCII, the sample input reads: `WOW_SUCH_DOGE_GOD_HCUS`

1. For the first query, the substring is `_SUCH_DOGE_GOD_HCUS`. This string can be rearranged into `__SUCHDOGEGODHCUS__`, which is a palindrome.
2. For the second query, the substring is `_`. This is already a palindrome.
3. For the third query, the substring is `DOGE_GOD`. It is not possible to rearrange this into a palindrome.
4. For the fourth query, the substring is `DO`. It is not possible to rearrange this into a palindrome.
5. For the fifth query, the substring is `_DOGE_GOD`. This can be rearranged into `_DOGEGOD_`, which is a palindrome.
6. For the sixth query, the substring is `DOGE_GOD_`. This can be similarly rearranged into `_DOGEGOD_`.

Subtasks and Constraints

You are guaranteed that:

- $1 \leq N \leq 100000$.
- $1 \leq Q \leq 100000$.
- The numbers in the array will be between 1 and 123454321 inclusive.
- $1 \leq l_i \leq r_i \leq N$, for each query.

Subtask	Maximum N	Maximum Q
1	1000	1000
2	25000	25000
3	100000	100000