

Same Sum

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

Bobo is working with an integer sequence a_1, a_2, \dots, a_n of length n . He must process q queries in order. Each query is of one of the following two types:

- 1 $L R v$ ($1 \leq L \leq R \leq n, 0 \leq v \leq 2 \cdot 10^5$): for all $i \in [L, R]$, update $a_i \leftarrow a_i + v$;
- 2 $L R$ ($1 \leq L < R \leq n, R - L + 1$ is even): determine if elements a_L, a_{L+1}, \dots, a_R can be divided into $(R - L + 1)/2$ pairs of integers with the same sum.

Your task is to help Bobo process these queries efficiently.

Input

The first line of input contains two integers n, q ($1 \leq n, q \leq 2 \cdot 10^5$).

The second line of input contains n integers a_1, a_2, \dots, a_n ($0 \leq a_i \leq 2 \cdot 10^5$).

Then q lines follow. Each of the following lines contains a query, described in the statement.

Output

For each query of the second type, output “YES” (without quotes) in one line if elements a_L, a_{L+1}, \dots, a_R can be divided into $(R - L + 1)/2$ pairs of integers with the same sum; otherwise, output “NO” (without quotes) in one line.

You can output “YES” and “NO” in any case (for example, strings “yES”, “yes”, and “Yes” will all be recognized as a positive response).

Example

standard input	standard output
8 4	YES
1 2 3 4 5 6 7 8	NO
2 1 8	YES
1 1 4 4	
2 1 6	
2 1 8	