Problem F. Restrooms

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

MIPT university administration is planning to make repairs in the main corridor. Above all, they are going to repair all n restrooms located along the corridor and numbered from 1 to n. Initiative group of MIPT students and professors has made several requests of the following types:

- There should be at least one women's restroom in the segment between l_i^{th} to r_i^{th} restroom inclusive.
- There should be at least one men's restroom in the segment between l_i^{th} to r_i^{th} restroom inclusive.

You should answer if it is possible to satisfy all these requests, and, in case it is possible, output any possible arrangement.

Input

In the first line you are given three integers n, w, m ($1 \le n \le 10^6$, $0 \le w, m \le 10^6$) — number of restrooms, number of requests for women's restroom, number of requests for men's restroom respectively.

In the next $w + m$ lines you are given descriptions of requests, first about women's restrooms, then about men's restrooms. Description of one request consists of two integers l_i, r_i ($1 \le l_i \le r_i \le n$).

Output

In the first line output string ¡¡Yes¿¿ (without quotes), if the way to satisfy all requests exists and ¡¡No¿¿ (without quotes), if it is impossible. If answer is yes, then output in the second line string consisting of n zeros and ones, describing possible way of assigning restrooms to be men's (1) and women's (0).

Examples

standard input	standard output
3 1 1 1 1 3 3	Yes 001
3 1 1 1 1 1 1	No
1 3 0 1 1 1 1 1 1	Yes 0