

Marbles

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 32 megabytes

As a child, Jeyeon had N marbles numbered from 1 to N and infinitely many bags. Each marble is either red or blue. Each marble belonged to its own bag by itself originally.

Jeyeon kept a diary of every change he made to the marbles. The diary consists of M entries. There are three different types of entries:

- $1\ i\ j$: Combine the bag containing marble i and the bag containing marble j . ($1 \leq i, j \leq N$)
- $2\ i$: Lose marble i forever. ($1 \leq i \leq N$)
- $3\ i\ l\ h$: Observe that the bag containing marble i contained at least l and at most h red marbles. ($1 \leq i \leq N, 0 \leq l \leq h \leq N$)

10 years later, Jeyeon, looked at his diary and tried to restore the color of each of his marbles. Please construct a sequence of colors that satisfies all entries of his diary, or state that no such sequence exists.

Input

The first line contains two integers N and M ($2 \leq N \leq 2000, 1 \leq M \leq 4000$).

The next M lines contain the diary entries per the format described above.

The input data are designed such that the marbles i, j in any type-1 entry were in different bags prior to the entry, and the marble lost in the type-2 entry will never be referenced in any subsequent entry.

Output

On the first line, output **YES** if there is a sequence of colors of the N marbles that satisfies all M entries. Otherwise, output **NO**.

If the answer is **YES**, output a string of length N on the next line. The i th character of the string must be **R** if marble i is red, or **B** if marble i is blue. If there are multiple answers, any of them will be accepted.

Examples

standard input	standard output
5 9 1 2 4 1 1 5 3 4 1 2 3 5 0 1 1 4 1 3 4 2 5 2 1 3 4 0 1 3 3 1 1	YES RBRRB
3 4 1 1 2 3 2 1 2 1 2 3 3 3 0 0	NO