Problem B. Associativity Degree

Input file:	*standard input*
Output file:	*standard output*
Time limit:	6 seconds
Memory limit:	512 mebibytes

Consider a binary operation $\circ$ defined on numbers 1 through n:

$$\circ : \{1, \ldots, n\} \times \{1, \ldots, n\} \to \{1, \ldots, n\}.$$

Let us define its *associativity degree* as the number of triplets $i, j, k \in \{1, \ldots, n\}$ for which $\circ$ is associative:

$$i \circ (j \circ k) = (i \circ j) \circ k.$$

Your task is, given n and k, to construct an operation $\circ$ such that its associativity degree is exactly k.

Input

The first line of input contains two integers n and q ($1 \le n \le 64$, $1 \le q \cdot n^2 \le 10^6$).

The i-th of the next q lines contains a single integer k_i ($0 \le k_i \le n^3$).

It is guaranteed that all k_i are distinct.

Output

For each given value of k_i, do the following:

If there is no operation $\circ$ with associativity degree k_i for given n, output "`NO`" on a single line.

Otherwise, output "`YES`" on the first line, followed by n lines containing n integers each. The j-th integer in the i-th line must be equal to $i \circ j$.

Examples

standard input	standard output
3 1 27	YES 1 1 1 1 2 3 1 3 2
1 2 0 1	NO YES 1

Note

The operation from the first sample can be concisely described as $i \circ j = 1 + ((i-1) \cdot (j-1)) \bmod 3$, and it is fully associative.