Matrix

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Construct a matrix of n rows and n columns, satisfying all the following constraints:

- The elements of the matrix are integers ranges from 1 to $2n$ (both inclusive).
- Each integer from 1 to $2n$ (both inclusive) should appear at least once in the matrix.
- Let $a_{i,j}$ be the element on the i-th row and the j-th column, there exists exactly one integer quadruple (x, y, z, w) such that:
  - $1 \leq x < z \leq n$.
  - $1 \leq y < w \leq n$.
  - $a_{x,y}$, $a_{x,w}$, $a_{z,y}$, $a_{z,w}$ are pairwise different.

Input

There is only one test case in each test file.

The first and only line of the input contains one integer n ($2 \leq n \leq 50$) indicating the size of matrix.

Output

If it is possible to construct such a matrix, first output `Yes` in one line. Then output n lines where the i-th line contains n integers $a_{i,1}, a_{i,2}, \cdots, a_{i,n}$ ($1 \leq a_{i,j} \leq 2n$) separated by a space, where $a_{i,j}$ is the element on the i-th row and the j-th column. If there are multiple valid answers, you can output any of them.

If it is impossible to construct such a matrix, just output `No` in one line.

Examples

standard input	standard output
2	Yes 1 2 3 4
3	Yes 3 2 6 4 3 3 3 1 5