

The Magic Suitcase

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

The sorceress Sofia received a new suitcase as a birthday gift. Sofia’s suitcase is equipped with a super-modern electric combination lock. The lock on the suitcase is a square with a side length of n , where each cell of the lock contains a unique number from 1 to n^2 .

Sofia devises her code—a specific arrangement of numbers in the cells of the lock that only she will know. After that, she will rearrange the numbers in a different order, and an intruder who does not know her code will not be able to break the lock. Sofia wants her code to be very secure.

Sofia knows that wizards and sorcerers will try to guess the code to break into her suitcase, so she wants the code for the lock to be an *anti-magic square*—an arrangement of numbers such that all $2n + 2$ sums: the sums of the numbers in the rows, columns, and the two main diagonals, are distinct.

Sofia is currently very busy with spells and potions, so help her come up with such a code that represents an anti-magic square, or tell her that it is not possible to create such a code.

Input

The first line of input contains a single integer n , $1 \leq n \leq 1000$ —the side length of the square.

Output

If the code exists, output “Yes” on the first line. Then output n lines with n numbers in each line—the desired code. If multiple codes are possible, any of them can be output.

If such a code cannot be devised, output “No”.

Examples

standard input	standard output
3	Yes 9 7 3 4 2 5 8 1 6
1	No