Problem L. Almost Equal

Time limit   1000 ms
Mem limit   262144 kB

You are given integer n. You have to arrange numbers from 1 to $2n$, using each of them exactly once, on the circle, so that the following condition would be satisfied:

For every n consecutive numbers on the circle write their sum on the blackboard. Then any two of written on the blackboard $2n$ numbers differ not more than by 1.

For example, choose $n = 3$. On the left you can see an example of a valid arrangement: $1 + 4 + 5 = 10, 4 + 5 + 2 = 11, 5 + 2 + 3 = 10, 2 + 3 + 6 = 11, 3 + 6 + 1 = 10$, $6 + 1 + 4 = 11$, any two numbers differ by at most 1. On the right you can see an invalid arrangement: for example, $5 + 1 + 6 = 12$, and $3 + 2 + 4 = 9$, 9 and 12 differ more than by 1.
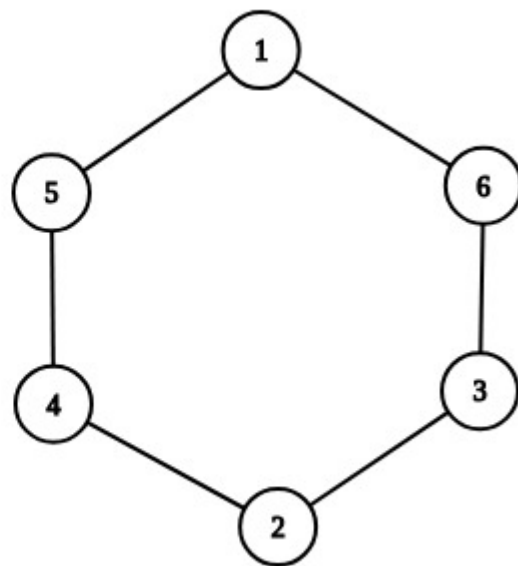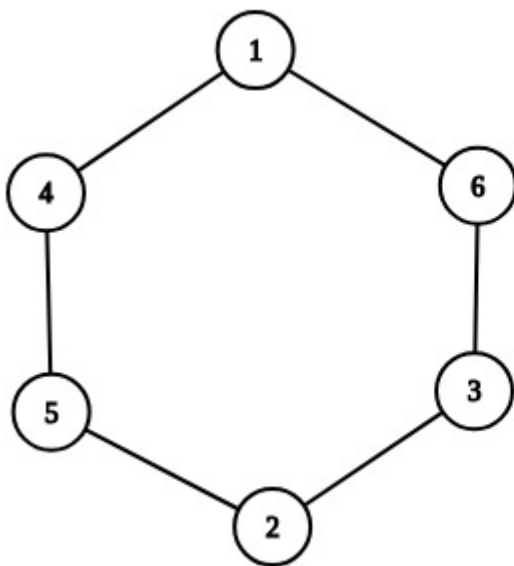
Input

The first and the only line contain one integer n ($1 \leq n \leq 10^5$).

Output

If there is no solution, output "NO" in the first line.

If there is a solution, output "YES" in the first line. In the second line output $2n$ numbers — numbers from 1 to $2n$ in the order they will stay in the circle. Each number should appear only once. If there are several solutions, you can output any of them.

Sample 1

Input	Output
3	YES 1 4 5 2 3 6

Sample 2

Input	Output
4	NO

Note

Example from the statement is shown for the first example.

It can be proved that there is no solution in the second example.