

C. Slava and tanks

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Slava plays his favorite game "Peace Lightning". Now he is flying a bomber on a very specific map.

Formally, map is a checkered field of size $1 \times n$, the cells of which are numbered from 1 to n , in each cell there can be one or several tanks. Slava doesn't know the number of tanks and their positions, because he flies very high, but he can drop a bomb in any cell. All tanks in this cell will be damaged.

If a tank takes damage for the first time, it instantly moves to one of the neighboring cells (a tank in the cell n can only move to the cell $n - 1$, a tank in the cell 1 can only move to the cell 2). If a tank takes damage for the second time, it's counted as destroyed and never moves again. The tanks move only when they are damaged for the first time, they do not move by themselves.

Help Slava to destroy all tanks using as few bombs as possible.

Input

The first line contains a single integer n ($2 \leq n \leq 100\,000$) — the size of the map.

Output

In the first line print m — the minimum number of bombs Slava needs to destroy all tanks.

In the second line print m integers k_1, k_2, \dots, k_m . The number k_i means that the i -th bomb should be dropped at the cell k_i .

If there are multiple answers, you can print any of them.

Examples

input
2
output
3 2 1 2

input
3
output
4 2 1 3 2