



Zen Garden

Zen gardens (also known as karesansoi) are Japanese “dry landscape” gardens created through carefully composed arrangements of gravel, rocks and boulders. Nature is being reduced to its most abstract form, reproducing a natural beauty that one otherwise cannot find in the real world. It is often said that Japan has carried the art of gardens to the highest degree of intellectual refinement that it was possible to attain.

Stofl is currently meditating at the zen garden in the monastery Tofukuji and wants to make his garden into something similar. This particular zen garden is a modern interpretation of a zen garden, where instead of regular stones, round pillars are being used. Despite the arrangement appearing to be random at first glance, several rules guide its appearance.



The n stones are numbered by size from 0 through $n - 1$. They are arranged in a particular order, but it is forbidden to put stone i besides stone $i + 1$. In other words, the absolute difference of the numbers of two adjacent stones must be at least 2.

Given n , find an arbitrary arrangement that fulfills this requirement or state that it is not possible.

Input

A single line with n , the number of stones.

Output

Print a single line with n numbers separated by space; the arrangement of the stones.

If no solution exists, print “impossible” instead.



Limits

There are 8 subtasks.

- In subtask 1, worth 5 points, we have $n = 1$.
- In subtask 2, worth 5 points, we have $n = 2$.
- In subtask 3, worth 5 points, we have $n = 3$.
- In subtask 4, worth 5 points, we have $n = 4$.
- In subtask 5, worth 5 points, we have $n = 5$.
- In subtask 6, worth 25 points, we have $6 \leq n \leq 100$ and n is even.
- In subtask 7, worth 25 points, we have $7 \leq n \leq 99$ and n is odd.
- In subtask 8, worth 25 points, we have $1 \leq n \leq 10\,000$.

Examples

Input	Output
7	2 5 0 4 6 3 1

This is the arrangement in the real zen garden shown in the image above. Note that is only one of many solutions.

Input	Output
2	impossible

With 2 stones, the only possible arrangements would be 0 1 or 1 0, but then the stones 0 and 1 are lying next to each other, which is forbidden.