A permutation is a sequence of integers which contains each integer from 1 to n exactly once. In this problem we are looking for permutations with special properties:

1. **Antimonotonic**: for each consecutive 3 values p_{i-1}, p_i, p_{i+1} $(1 < i < n)$, p_i should either be the smallest or the biggest of the three values.

2. **Cyclic**: The permutation should consist of only one cycle, that is, when we use p_i as a pointer from i to p_i, it should be possible to start at position 1 and follow the pointers and reach all n positions before returning to position 1.

Input

The input file contains several test cases. Each test case consists of a line containing an integer n, $(3 \leq n \leq 10^6)$, the number of integers in the permutation. Input is terminated by $n = 0$.

Output

For each test case print a permutation of the integers 1 to n which is both antimonotonic and cyclic. In case there are multiple solutions, you may print any one. Separate all integers by whitespace characters.

Sample Input

```
3
5
10
0
```

Sample Output

```
3 1 2
4 5 2 3 1
6 10 2 9 3 5 4 7 1 8
```