No wells P44291_en

A sequence of numbers has a well if it contains three consecutive numbers such that the endpoints add up more than twice the one in the middle. Formally, $(x_1, x_2, \ldots, x_n)$ has a well if it exists at least an i with $2 \leq i \leq n-1$ such that $x_{i-1} + x_{i+1} > 2x_i$.

Write a program that, given an integer n, prints all the sequences with no wells that can be obtained by reordering the sequence $(1, 2, \ldots, n)$.

Input

Input consists of several cases, each one with an n between 1 and 10^5.

Output

For every n, print all the permutations with no wells in lexicographical order. Print a line with 10 dashes at the end of every case.

Sample input 1

```
2
4
7
1
```

Sample output 1

```
(1,2)
(2,1)
----------
(1,2,3,4)
(1,3,4,2)
(1,4,3,2)
(2,3,4,1)
(2,4,3,1)
(4,3,2,1)
----------
(1,2,3,4,5,6,7)
(1,3,4,5,6,7,2)
(1,3,5,7,6,4,2)
(1,7,6,5,4,3,2)
(2,3,4,5,6,7,1)
(2,4,6,7,5,3,1)
(2,7,6,5,4,3,1)
(7,6,5,4,3,2,1)
----------
(1)
----------
```

Problem information

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