Prime Ring Plus

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	512 megabytes

Yukikaze is studying number theory. She wonders whether she can arrange all positive integers between 1 and n (n is a positive even integer) into several disjoint cycles such that each cycle contains at least three integers, and the sum of any two adjacent integers is a prime number in any cycle.

Prime numbers are integers greater than 1 and cannot be exactly divided by any positive integer other than itself and 1.

Formally speaking, Yukikaze wants to find k sequences $A_1, A_2, \ldots, A_k$ that satisfy the following conditions:

1. Each sequence contains at least three integers.
2. Each integer between 1 and n appears in exactly one sequence.
3. For any sequence $A_i = \{a_{i,1}, a_{i,2}, \ldots, a_{i,l}\}$, $a_{i,j} + a_{i,j+1}$ is a prime number for any $1 \leq j < l$, and $a_{i,1} + a_{i,l}$ must be a prime number too.

Input

The input contains only one positive even integer n ($2 \leq n \leq 10^4$).

Output

Output the number of cycles k in the first line.

Each of the following k lines starts with a positive integer l denoting the number of integers in the cycle, followed by l integers denoting the integers in the cycle in order. If there are multiple answers, print any. Do **NOT** print any extra spaces at the end of each line.

If it is impossible to arrange these n integers, print -1 in a single line.

Examples

standard input	standard output
8	1 8 1 2 3 8 5 6 7 4
18	3 4 1 2 3 4 6 5 6 7 10 9 8 8 11 12 17 14 15 16 13 18