Goldbach

Time limit: *2000 ms*
Memory limit: *512 MB*

An integer $p > 1$ is called a prime if its only divisors are 1 and p itself. A famous conjecture about primes is Goldbach's conjecture, which states that

Every **even** *integer greater than* **2** *can be expressed as the sum of* **two** *primes.*

The conjecture dates back to the year 1742, but still no one has been able to come up with a proof or find a counterexample to it. We considered asking you prove it here, but realized it would be too easy. Instead we present here a more difficult conjecture, known as Goldbach's second conjecture:

Every **odd** *integer greater than* **5** *can be expressed as the sum of* **three** *primes.*

In this problem we will provide you with an odd integer N greater than 5, and ask you to either find three primes p_1, p_2, p_3 such that $p_1 + p_2 + p_3 = N$, or inform us that N is a counterexample to Goldbach's second conjecture.

Standard input

The input contains a single odd integer N.

Standard output

Output three primes, separated by a single space on a single line, whose sum is N. If there are multiple possible answers, output any one of them. If there are no possible answers, output a single line containing the text `counterexample`.

Constraints and notes

- $5 < N \leq 10^{18}$

Input	Output	Explanation
65	23 31 11	In the sample input N is 65. Consider the three integers $11, 23, 31$. They are all prime, and their sum is 65. Hence they form a valid answer. That is, a line containing $11\ 23\ 31$, $23\ 31\ 11$, or any permutation of the three integers will be accepted. Other possible answers include $11\ 37\ 17$ and $11\ 11\ 43$.