

Fibonacci Decompositions

Problem description

Your task is to write a number as a sum of Fibonacci numbers, where no Fibonacci number is allowed to be used more than once. For example: $20 = 2 + 5 + 13$, where 2, 5, and 13 are all Fibonacci numbers. Fibonacci numbers are defined as follows:

$$F_0 = 0, \quad F_1 = 1, \quad F_n = F_{n-1} + F_{n-2} \text{ for } n \geq 2$$

The Fibonacci number sequence is therefore 0, 1, 1, 2, 3, 5, 8, 13, 21, ...

Input

A number $0 \leq n \leq 1\,000\,000\,000$.

Output

Several Fibonacci numbers without repetitions each in a single line. Their sum has to be n .

Sample input/output

Input	Output
20	2 5 13