
Problem A. Scientest Ayoub

Input file: `standard input`
Output file: `standard output`
Time limit: 1 second
Memory limit: 256 megabytes

Ayoub is a very famous scientist, he spends all his time and money doing research, today he is working on some new research with his assistant Kilani.

In this research, Ayoub has n rabbits. In order to test these rabbits, he has to take every subset of rabbits and test them alone. After that, he will write down the result for each test, Ayoub wants to give every subset a unique number so he can know for each result is for which subset.

Kilani told Ayoub that he can give every rabbit a value, and the number of every subset will be the sum of the values of the rabbits in that subset.

Ayoub liked this idea very much and asked Kilani to do it. Unfortunately, Kilani couldn't do it and he asked you for help.

Given the number of rabbits n , you should give every rabbit a number, so that every subset has a unique sum, and the numbers are between 1 and 10^7

Input

The input will contain one integer n ($1 \leq n \leq 22$) which is the number of rabbits.

Output

You should print n integers, the i_{th} one should be the number given to the i_{th} rabbit.

The numbers should be between 1 and 10^7 , and every subset should have a unique sum.

Examples

standard input	standard output
4	1 2 4 8
2	1 2

Note

A subset of rabbits is a set that can be obtained by removing zero or more rabbits from the set of rabbits.