

A. Santa Claus and Candies

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Santa Claus has n candies, he dreams to give them as gifts to children.

What is the maximal number of children for whose he can give candies if Santa Claus want each kid should get *distinct* positive integer number of candies. Santa Class wants to give all n candies he has.

Input

The only line contains positive integer number n ($1 \leq n \leq 1000$) — number of candies Santa Claus has.

Output

Print to the first line integer number k — maximal number of kids which can get candies.

Print to the second line k *distinct* integer numbers: number of candies for each of k kid. The sum of k printed numbers should be exactly n .

If there are many solutions, print any of them.

Examples

input
5
output
2 2 3

input
9
output
3 3 5 1

input
2
output
1 2