Problem B. Santa Claus and Candies

Time limit 1000 ms

Mem limit 262144 kB

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	Output
5	2 2 3

Input	Output
9	3 3 5 1

Input	Output
2	1 2