

MAKESUM

Pairwise sums of n numbers (i.e. $NC2$ sums) are given in sorted order.

You need to identify the numbers and print them. If there are several solutions print the lexicographically smallest one.

The Output should have natural numbers only.

Input

$NC2 \leq 50$

$NC2$ numbers each $\leq 10^5$

Output

lexicographically smallest set of numbers

Example

Input:

1
2

Output:

1 1

Input:

3
2 2 2

Output:

1 1 1

Input:

6
2 2 2 3 3 3

Output:

1 1 1 2

Input:

1
4

Output:

1 3

(here 2 2 and 3 1 are also possible solutions but we have to print the lexicographically smallest one)