CMPUT 274 - Tangible Computing **Winter 2019**
Morning Problem: Arbitrary Precision Addition

Description

I have two *really* big positive numbers I need added together. Can you help me out?

Recall that the sum of two n-digit numbers is at most an $(n+1)$-digit number.

Note: If the result of adding the two n-digit numbers has fewer than $n+1$ significant digits, you should only print n digits. That is, if the first digit of the resulting $n+1$-digit number is 0, I don't want to know about it, so don't print it. For example:

```
1 + 0 = 01
```

but because the first digit is 0, you should only output 1 in this example, not 01.

On the other hand,

```
95 + 95 = 190
```

which requires $n+1$ digits to represent.

Input

The first line contains a single integer $1 \leq n \leq 100,000$ denoting the number of digits in each number. The second line contains n space-separated digits (i.e. in the range $0-9$), denoting the value of the first number. The third line contains the second n-digit number in the same format. Any digit may be 0.

Output

Output a single line containing space-separated digits, denoting the sum of the two numbers. If the leading digit is 0, do not print it and only print the subsequnt n digits. Otherwise, print all $n+1$ digits. Note that other leading digits may be 0.

Sample Input 1

```
1
1
0
```

Sample Output 1

```
1
```

Explanation: $1+0=01$, but you should not print the most significant 0, so the output is simply 1.

Sample Input 2

```
2
9 5
9 5
```

Sample Output 2

```
1 9 0
```

Explanation: $95 + 95 = 190$

Sample Input 3

```
3
9 9 9
9 9 9
```

Sample Output 3

```
1 9 9 8
```

Explanation: $999 + 999 = 1998$

Sample Input 4

```
3
1 0 0
0 9 9
```

Sample Output 4

```
1 9 9
```

Explanation: $100 + 099 = 0199$, but you should not print the most significant 0, because it is not needed to represent the final number.

Sample Input 5

```
2
0 0
0 0
```

Sample Output 5

```
0 0
```

Explanation: This is a tricky case. $00 + 00 = 000$, but you should not print the most significant 0, because it is not needed to represent the final number. Technically, this could be reduced to just 0, but you do not need to reduce additional leading 0s in this problem.