

## 12393 Non-negative Partial Sums

You are given a sequence of  $n$  numbers  $a_0, \dots, a_{n-1}$ . A cyclic shift by  $k$  positions ( $0 \leq k \leq n - 1$ ) results in the following sequence:  $a_k, a_{k+1}, \dots, a_{n-1}, a_0, a_1, \dots, a_{k-1}$ . How many of the  $n$  cyclic shifts satisfy the condition that the sum of the first  $i$  numbers is greater than or equal to zero for all  $i$  with  $1 \leq i \leq n$ ?

### Input

Each test case consists of two lines. The first contains the number  $n$  ( $1 \leq n \leq 10^6$ ), the number of integers in the sequence. The second contains  $n$  integers  $a_0, \dots, a_{n-1}$  ( $-1000 \leq a_i \leq 1000$ ) representing the sequence of numbers. The input will finish with a line containing '0'.

### Output

For each test case, print one line with the number of cyclic shifts of the given sequence which satisfy the condition stated above.

### Sample Input

```
3
2 2 1
3
-1 1 1
1
-1
0
```

### Sample Output

```
3
2
0
```