

# Circle of Friends

## Time Limit: 7 Seconds

There is a posse of friends sitting in a circle. Each friend is holding a card containing a positive integer.

You would like to split the circle of friends into one or more groups. Each group must be a contiguous subsection of the circle. In addition, for each group, the bitwise *AND* of all values on the cards of the members of the group, taken together, must be nonzero.

Count the number of ways you could split the circle of friends into groups.

### Input

The first line of input contains a single integer  $n$  ( $1 \leq n \leq 2 \cdot 10^5$ ), which is the number of friends in the circle.

Each of the next  $n$  lines contains a single integer  $a$  ( $1 \leq a < 2^{60}$ ). These are the positive integers on the cards held by the friends in the circle, in the order that the friends are sitting. Note that since they're in a circle, the last friend in the list is sitting next to the first friend in the list.

### Output

Output a single integer, which is the number of ways to split the circle of friends into groups. Since this number may be very large, output it modulo 998 244 353.

#### Sample Input 1

```
4
14
13
11
7
```

#### Sample Output 1

```
11
```