Problem A. Another 2048 Problem

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	256 mebibytes

The International Association of "2048" players published rules of the 2048 game for Division 2.

Division 2 player have some numbers at the start (not only powers of two). Every time he can choose two numbers of the same value from them and merge these two numbers into their sum. And these two numbers disappear meanwhile.

If he can get 2048 from a set of numbers with this operation, we call this multiset «winning».

You have n numbers $A_1, \ldots, An$. Find out how many subsequences of A are «winning» ones. Answer can be very large, so output it modulo 998244353.

Input

There are no more than 70 test cases, terminated by a line containing a single zero.

For each test case, the first line contains an integer n ($1 \le n \le 10^5$). The next line contains n integers a_i ($0 \le a_i \le 2048$).

Size of the input file does not exceed 5.5 mebibytes.

Output

For each test case print one integer — answer to the problem.

Examples

standard input	standard output
5 513 511 256 512 256 8 512 512 512 512 512 512 512 512 3 1024 256 512 0	0 163 0