Master of Both IV

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Prof.Chen is the master of arithmetic operations and binary operations. Today's homework for his students, Putata and Budada, is to find the number of non-empty subsequences $\{i_1, i_2, \ldots, i_m\}$ $(1 \le i_1 < i_2 < i_3 \cdots < i_m \le n, 1 \le m \le n)$ of sequence $\{1, 2, \ldots, n\}$ satisfying that $\forall x \in [1, m], a_{i_x} | \bigoplus_{j=1}^{m} a_{i_j}$, where $\{a_n\}$ is a given sequence.

Here $\oplus$ means bitwise exclusive-or operation, $\bigoplus_{j=1}^{m} a_{i_j}$ equals to the bitwise exclusive-or of all elements a_{i_j} for $1 \le j \le m$. We say $x|s$ if and only if there exists an non-negative integer k such that $s = k \cdot x$.

Please help Putata and Budada finish their homework. In order to ruin the legends, please output the answer modulo 998 244 353.

Input

The first line contains one integer t $(1 \le t \le 2 \cdot 10^5)$, denoting the number of test cases.

For each test case, the first line contains one integer n $(1 \le n \le 2 \cdot 10^5)$, denoting the length of the sequence.

The second line contains n integers, the i-th integer is a_i $(1 \le a_i \le n)$, denoting the i-th element in the sequence. It is **possible** that $a_i = a_j$ for $i \ne j$.

It is guaranteed that the sum of n over all testcases does not exceed $2 \cdot 10^5$.

Output

For each test case, output one integer in one line, denoting the answer.

Example

standard input	standard output
2 3 1 2 3 5 3 3 5 1 1	4 11