

or-fantasy

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 512 megabytes

Shivansh is having an array **arr** consisting of **n** non-negative numbers.

You can perform the following operation on the array :

- Select a non - negative integer **X**.
- Select an array element **arr [i]** and set **arr [i]** to **arr [i] & (arr [i] \oplus X)**.
where \oplus represents **Bitwise XOR** operation and $\&$ represents **Bitwise AND** operator.

You can perform this operation any number of times or maybe 0 number of times.

Determine the maximum possible Bitwise XOR of all the elements of the array.

Input

The first line contains a positive integer T denoting the number of test cases.

For each test case:

- The first line contains a positive integer n denoting the number of elements.
- The second line contains n space-separated non-negative integers denoting the elements of the array.

$$1 \leq T \leq 1e5$$

$$1 \leq n \leq 1e6$$

$$0 \leq a_i \leq 1e9$$

The sum of all n doesn't exceed $1e7$.

Output

Print the maximum possible Bitwise XOR of all the elements of the array.

Example

standard input	standard output
3	47
5	29
8 11 2 33 5	111
3	
1 21 9	
5	
3 2 9 4 99	

Note

Use **Fast IO** if coding in **Java**.