Contest Code: FEB222C **Problem Code:** BITSWAPS

Given an array A consisting of N integers $A_1, A_2, \ldots, A_N$, determine if you can sort this array by applying the following operation several times (possibly, zero):

- Pick a pair of indices (i, j) with $i \neq j$ and $A_i \ \& \ A_j \neq 0$, and swap the values of A_i and A_j. Here, $\&$ denotes the bitwise AND operation.

For example, if $A = [6, 4, 2]$, the two possible operations are $(1, 2)$ and $(1, 3)$. $(2, 3)$ cannot be performed because $A_2 \ \& \ A_3 = 4 \ \& \ 2 = 0$.

Input Format

- The first line of input contains a single integer T, denoting the number of test cases. The description of T test cases follows.
- The first line of each test case contains a single integer N.
- The second line contains N space-separated integers $A_1, A_2, \ldots, A_N$

Output Format

For each test case, output the answer on a new line — `YES` if the given array can be sorted by repeatedly applying the given operation, and `NO` otherwise.

You may print each character of the answer string in either uppercase or lowercase (for example, the strings `"yEs"`, `"yes"`, `"Yes"` and `"YES"` will all be treated as identical).

Constraints

- $1 \leq T \leq 10^4$
- $1 \leq N \leq 3 \cdot 10^5$
- $0 \leq A_i < 2^{31}$ for each $1 \leq i \leq N$
- The sum of N over all test cases does not exceed $3 \cdot 10^5$

Subtasks

Subtask #1 (100 points): Original constraints

Sample Input 1

```
4
3
6 4 2
6
9 34 4 24 1 6
6
9 34 24 4 1 6
2
1 0
```

Sample Output 1

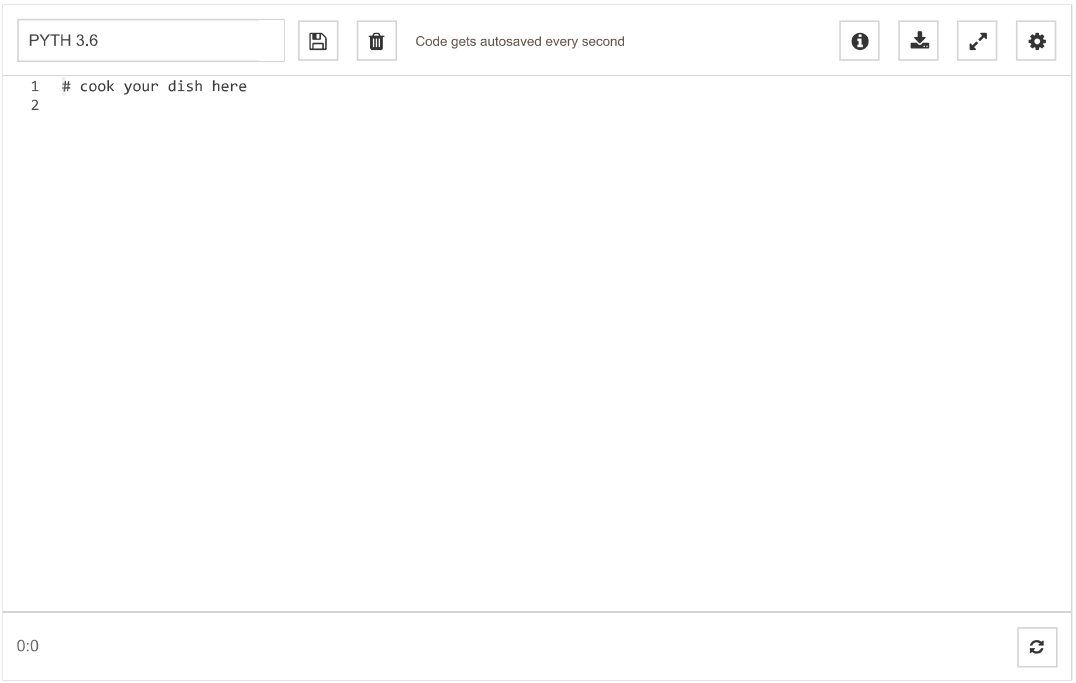
```
Yes
Yes
No
No
```

Explanation

Test case 1: A can be sorted by applying the single operation $(1, 3)$.

Test case 2: A can be sorted by applying the following operations in order: $(1, 5), (2, 6), (2, 3), (4, 5)$.

Test cases 3 **and** 4: It can be shown that no sequence of operations will sort A.



Custom Input

Note: Your program will be run with no input.