

# Game of XOR

Given an array **A** of size **N**. The value of an array is denoted by the bit-wise **XOR** of all elements it contains. Find the bit-wise XOR of the values of all subarrays of A.

## Example 1:

**Input:**

N = 3

A = [1, 2, 3]

**Output:**

2

**Explanation:**

xor[1] = 1

xor[1, 2] = 3

xor[2, 3] = 1

xor[1, 2, 3] = 0

xor[2] = 2

xor[3] = 3

Result :  $1 \wedge 3 \wedge 1 \wedge 0 \wedge 2 \wedge 3 = 2$

## Example 2:

**Input:**

N = 2

A = [1, 2]

**Output:**

0

**Explanation:**

xor[1] = 1

xor[1, 2] = 3

xor[2] = 2

Result :  $1 \wedge 3 \wedge 2 = 0$

**Your Task:**

You don't need to read input or print anything. Your task is to complete the function **gameOfXor()** which takes an integer N and array A[] as input parameters and returns the answer.

**Expected Time Complexity:**  $O(N)$

**Expected Auxiliary Space:**  $O(1)$

**Constraints:**

$$1 \leq N \leq 10^5$$

$$0 \leq A[i] \leq 10^9$$