There is an integer array perm that is a permutation of the first n positive integers, where n is always **odd**.

It was encoded into another integer array encoded of length n - 1, such that encoded[i] = perm[i] XOR perm[i + 1]. For example, if perm = [1,3,2], then encoded = [2,1].

Given the encoded array, return *the original array* perm. It is guaranteed that the answer exists and is unique.

**Example 1:**

**Input:** encoded = [3,1]

**Output:** [1,2,3]

**Explanation:** If perm = [1,2,3], then encoded = [1 XOR 2,2 XOR 3] = [3,1]

**Example 2:**

**Input:** encoded = [6,5,4,6]

**Output:** [2,4,1,5,3]

**Constraints:**

* 3 <= n < 105
* n is odd.
* encoded.length == n - 1