Problem 1787: Make the XOR of All Segments Equal to Zero

Problem Information

Difficulty: Hard
Acceptance Rate: 40.57%
Paid Only: No
Tags: Array, Dynamic Programming, Bit Manipulation

Problem Description

You are given an array `nums`■■■ and an integer `k`■■■■■. The XOR of a segment `[left, right]` where `left <= right` is the `XOR` of all the elements with indices between `left` and `right`, inclusive: `nums[left] XOR nums[left+1] XOR ... XOR nums[right]`.

Return _the minimum number of elements to change in the array_ such that the `XOR` of all segments of size `k`■■■■■■ is equal to zero.

Example 1:

Input: nums = [1,2,0,3,0], k = 1 **Output:** 3 **Explanation:** Modify the array from [_**1**_ ,_**2**_ ,0,_**3**_ ,0] to from [_**0**_ ,_**0**_ ,0,_**0**_ ,0].

Example 2:

Input: nums = [3,4,5,2,1,7,3,4,7], k = 3 **Output:** 3 **Explanation:** Modify the array from [3,4,**_5_** ,**_2_** ,**_1_** ,7,3,4,7] to [3,4,**_7_** ,**_3_** ,**_4_** ,7,3,4,7].

Example 3:

Input: nums = [1,2,4,1,2,5,1,2,6], k = 3 **Output:** 3 **Explanation:** Modify the array from [1,2,**_4,_** 1,2,**_5_** ,1,2,**_6_**] to [1,2,**_3_** ,1,2,**_3_** ,1,2,**_3_**].

Constraints:

* `1 <= k <= nums.length <= 2000` * `■■■■■■0 <= nums[i] < 210`

Code Snippets

C++:

```
class Solution {
public:
int minChanges(vector<int>& nums, int k) {

}
};
```

Java:

```
class Solution {
public int minChanges(int[] nums, int k) {

}
}
```

Python3:

```
class Solution:
def minChanges(self, nums: List[int], k: int) -> int:
```