Problem 2134: Minimum Swaps to Group All 1's Together II

Problem Information

Difficulty: Medium
Acceptance Rate: 65.59%
Paid Only: No
Tags: Array, Sliding Window

Problem Description

A **swap** is defined as taking two **distinct** positions in an array and swapping the values in them.

A **circular** array is defined as an array where we consider the **first** element and the **last** element to be **adjacent**.

Given a **binary** **circular** array `nums`, return _the minimum number of swaps required to group all_`1` _' s present in the array together at **any location**_.

Example 1:

Input: nums = [0,1,0,1,1,0,0] **Output:** 1 **Explanation:** Here are a few of the ways to group all the 1's together: [0,_0_ ,_1_ ,1,1,0,0] using 1 swap. [0,1,_1_ ,1,_0_ ,0,0] using 1 swap. [1,1,0,0,0,0,1] using 2 swaps (using the circular property of the array). There is no way to group all 1's together with 0 swaps. Thus, the minimum number of swaps required is 1.

Example 2:

Input: nums = [0,1,1,1,0,0,1,1,0] **Output:** 2 **Explanation:** Here are a few of the ways to group all the 1's together: [1,1,1,0,0,0,0,1,1] using 2 swaps (using the circular property of the array). [1,1,1,1,1,0,0,0,0] using 2 swaps. There is no way to group all 1's together with 0 or 1 swaps. Thus, the minimum number of swaps required is 2.

Example 3:

Input: nums = [1,1,0,0,1] **Output:** 0 **Explanation:** All the 1's are already grouped together due to the circular property of the array. Thus, the minimum number of swaps required is 0.

Constraints:

* `1 <= nums.length <= 105` * `nums[i]` is either `0` or `1`.

Code Snippets

C++:

```
class Solution {
public:
int minSwaps(vector<int>& nums) {

}
};
```

Java:

```
class Solution {
public int minSwaps(int[] nums) {

}
}
```

Python3:

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