Problem 1524: Number of Sub-arrays With Odd Sum

Problem Information

Difficulty: Medium
Acceptance Rate: 55.86%
Paid Only: No
Tags: Array, Math, Dynamic Programming, Prefix Sum

Problem Description

Given an array of integers `arr`, return _the number of subarrays with an**odd** sum_.

Since the answer can be very large, return it modulo `109 + 7`.

Example 1:

Input: arr = [1,3,5] **Output:** 4 **Explanation:** All subarrays are [[1],[1,3],[1,3,5],[3],[3,5],[5]] All sub-arrays sum are [1,4,9,3,8,5]. Odd sums are [1,9,3,5] so the answer is 4.

Example 2:

Input: arr = [2,4,6] **Output:** 0 **Explanation:** All subarrays are [[2],[2,4],[2,4,6],[4],[4,6],[6]] All sub-arrays sum are [2,6,12,4,10,6]. All sub-arrays have even sum and the answer is 0.

Example 3:

Input: arr = [1,2,3,4,5,6,7] **Output:** 16

Constraints:

* `1 <= arr.length <= 105` * `1 <= arr[i] <= 100`

Code Snippets

C++:

```
class Solution {
public:
int numOfSubarrays(vector<int>& arr) {

}
};
```

Java:

```
class Solution {
public int numOfSubarrays(int[] arr) {

}
}
```

Python3:

```
class Solution:
def numOfSubarrays(self, arr: List[int]) -> int:
```