

Problem 446: Arithmetic Slices II - Subsequence

Problem Information

Difficulty: **Hard**

Acceptance Rate: 54.79%

Paid Only: No

Tags: Array, Dynamic Programming

Problem Description

Given an integer array `nums`, return the number of all the **arithmetic subsequences** of `nums`.

A sequence of numbers is called arithmetic if it consists of **at least three elements** and if the difference between any two consecutive elements is the same.

* For example, `[1, 3, 5, 7, 9]`, `[7, 7, 7, 7]`, and `[3, -1, -5, -9]` are arithmetic sequences. * For example, `[1, 1, 2, 5, 7]` is not an arithmetic sequence.

A **subsequence** of an array is a sequence that can be formed by removing some elements (possibly none) of the array.

* For example, `[2,5,10]` is a subsequence of `[1,2,1,2,4,1,5,10]`.

The test cases are generated so that the answer fits in **32-bit** integer.

Example 1:

Input: `nums = [2,4,6,8,10]` **Output:** `7` **Explanation:** All arithmetic subsequence slices are: `[2,4,6]` `[4,6,8]` `[6,8,10]` `[2,4,6,8]` `[4,6,8,10]` `[2,4,6,10]` `[2,6,10]`

Example 2:

****Input:**** nums = [7,7,7,7,7] ****Output:**** 16 ****Explanation:**** Any subsequence of this array is arithmetic.

****Constraints:****

*`1` <= nums.length <= 1000` *`-231` <= nums[i] <= 231 - 1`

Code Snippets

C++:

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

    }
};
```

Java:

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

    }
}
```

Python3:

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