

Problem 2941: Maximum GCD-Sum of a Subarray

Problem Information

Difficulty: **Hard**

Acceptance Rate: 37.19%

Paid Only: Yes

Tags: Array, Math, Binary Search, Number Theory

Problem Description

You are given an array of integers `nums` and an integer `k`.

The **gcd-sum** of an array `a` is calculated as follows:

* Let `s` be the sum of all the elements of `a`. * Let `g` be the **greatest common divisor** of all the elements of `a`. * The gcd-sum of `a` is equal to `s * g`.

Return **the maximum gcd-sum** of a subarray of `nums` with at least `k` elements.

Example 1:

Input: `nums = [2,1,4,4,4,2], k = 2` **Output:** 48 **Explanation:** We take the subarray `[4,4,4]`, the gcd-sum of this array is $4 * (4 + 4 + 4) = 48$. It can be shown that we can not select any other subarray with a gcd-sum greater than 48.

Example 2:

Input: `nums = [7,3,9,4], k = 1` **Output:** 81 **Explanation:** We take the subarray `[9]`, the gcd-sum of this array is $9 * 9 = 81$. It can be shown that we can not select any other subarray with a gcd-sum greater than 81.

Constraints:

`1 <= nums.length <= 105` `1 <= nums[i] <= 106` `1 <= k <= n`

Code Snippets

C++:

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

    }
};
```

Java:

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

    }
}
```

Python3:

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