

Problem 2654: Minimum Number of Operations to Make All Array Elements Equal to 1

Problem Information

Difficulty: Medium

Acceptance Rate: 54.60%

Paid Only: No

Tags: Array, Math, Number Theory

Problem Description

You are given a **0-indexed** array `nums` consisting of **positive** integers. You can do the following operation on the array **any** number of times:

- * Select an index `i` such that `0 <= i < n - 1` and replace either of `nums[i]` or `nums[i+1]` with their gcd value.

Return **_the minimum** number of operations to make all elements of **_`nums` _equal to_`1`**. If it is impossible, return **`-1`**.

The gcd of two integers is the greatest common divisor of the two integers.

Example 1:

Input: nums = [2,6,3,4] **Output:** 4 **Explanation:** We can do the following operations: - Choose index i = 2 and replace nums[2] with gcd(3,4) = 1. Now we have nums = [2,6,1,4]. - Choose index i = 1 and replace nums[1] with gcd(6,1) = 1. Now we have nums = [2,1,1,4]. - Choose index i = 0 and replace nums[0] with gcd(2,1) = 1. Now we have nums = [1,1,1,4]. - Choose index i = 2 and replace nums[3] with gcd(1,4) = 1. Now we have nums = [1,1,1,1].

Example 2:

Input: nums = [2,10,6,14] **Output:** -1 **Explanation:** It can be shown that it is impossible to make all the elements equal to 1.

Constraints:

```
* `2 <= nums.length <= 50` * `1 <= nums[i] <= 106`
```

Code Snippets

C++:

```
class Solution {  
public:  
    int minOperations(vector<int>& nums) {  
  
    }  
};
```

Java:

```
class Solution {  
public int minOperations(int[] nums) {  
  
}  
}
```

Python3:

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