

Description Editorial Solutions Submissions

Solved

## 2709. Greatest Common Divisor Traversal

Hard

Topics

Companies

Hint

You are given a **0-indexed** integer array `nums`, and you are allowed to **traverse** between its indices. You can traverse between index `i` and index `j`, `i != j`, if and only if `gcd(nums[i], nums[j]) > 1`, where `gcd` is the **greatest common divisor**.

Your task is to determine if for **every pair** of indices `i` and `j` in `nums`, where `i < j`, there exists a **sequence of traversals** that can take us from `i` to `j`.

Return `true` if it is possible to traverse between all such pairs of indices, or `false` otherwise.

Example 1:

**Input:** `nums = [2,3,6]`

**Output:** `true`

**Explanation:** In this example, there are 3 possible pairs of indices: (0, 1), (0, 2), and (1, 2). To go from index 0 to index 1, we can use the sequence of traversals 0 -> 2 -> 1, where we move from index 0 to index 2 because `gcd(nums[0], nums[2]) = gcd(2, 6) = 2 > 1`, and then move from index 2 to index 1 because `gcd(nums[2], nums[1]) = gcd(6, 3) = 3 > 1`. To go from index 0 to index 2, we can just go directly because `gcd(nums[0], nums[2]) = gcd(2, 6) = 2 > 1`. Likewise, to go from index 1 to index 2, we can just go directly because `gcd(nums[1], nums[2]) = gcd(3, 6) = 3 > 1`.

Example 2:

**Input:** `nums = [3,9,5]`

**Output:** `false`

**Explanation:** No sequence of traversals can take us from index 0 to index 2 in this example. So, we return `false`.

Example 3:

**Input:** `nums = [4,3,12,8]`

**Output:** `true`

**Explanation:** There are 6 possible pairs of indices to traverse between: (0, 1), (0, 2), (0, 3), (1, 2), (1, 3), and (2, 3). A valid sequence of traversals exists for each pair, so we return `true`.

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3 Online Test

Code

C++

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