6019. Replace Non-Coprime Numbers in Array

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User Accepted:	0
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Total Accepted:	0
Total Submissions:	0
Difficulty:	Hard

You are given an array of integers `nums` . Perform the following steps:

1. Find **any** two **adjacent** numbers in `nums` that are **non-coprime**.
2. If no such numbers are found, **stop** the process.
3. Otherwise, delete the two numbers and **replace** them with their **LCM (Least Common Multiple)**.
4. **Repeat** this process as long as you keep finding two adjacent non-coprime numbers.

Return *the **final** modified array.* It can be shown that replacing adjacent non-coprime numbers in **any** arbitrary order will lead to the same result.

The test cases are generated such that the values in the final array are **less than or equal** to 10^8 .

Two values `x` and `y` are **non-coprime** if `GCD(x, y) > 1` where `GCD(x, y)` is the **Greatest Common Divisor** of `x` and `y` .

Example 1:

```
Input: nums = [6,4,3,2,7,6,2]
Output: [12,7,6]
Explanation:
- (6, 4) are non-coprime with LCM(6, 4) = 12. Now, nums = [12,3,2,7,6,2].
- (12, 3) are non-coprime with LCM(12, 3) = 12. Now, nums = [12,2,7,6,2].
- (12, 2) are non-coprime with LCM(12, 2) = 12. Now, nums = [12,7,6,2].
- (6, 2) are non-coprime with LCM(6, 2) = 6. Now, nums = [12,7,6].
There are no more adjacent non-coprime numbers in nums.
Thus, the final modified array is [12,7,6].
Note that there are other ways to obtain the same resultant array.
```

Example 2:

```
Input: nums = [2,2,1,1,3,3,3]
Output: [2,1,1,3]
Explanation:
- (3, 3) are non-coprime with LCM(3, 3) = 3. Now, nums = [2,2,1,1,3,3].
- (3, 3) are non-coprime with LCM(3, 3) = 3. Now, nums = [2,2,1,1,3].
- (2, 2) are non-coprime with LCM(2, 2) = 2. Now, nums = [2,1,1,3].
There are no more adjacent non-coprime numbers in nums.
Thus, the final modified array is [2,1,1,3].
Note that there are other ways to obtain the same resultant array.
```

Constraints:

- `1 <= nums.length <= 10^5`
- `1 <= nums[i] <= 10^5`
- The test cases are generated such that the values in the final array are **less than or equal** to 10^8 .

JavaScript

```
const gcd = (a, b) => b == 0 ? a : gcd(b, a % b);

const replaceNonCoprimes = (a) => {
    let st = [];
    for (let x of a) {
        if (st.length == 0) {
            st.push(x);
        } else {
            while (st.length && gcd(st[st.length - 1], x) != 1) {
                let last = st.pop(), g = gcd(x, last);
                x = x / g * last;
```

```
            }
            st.push(x);
        }
    }
    return st;
};
```

Custom Testcase | Use Example Testcases

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