

# Problem 3266: Final Array State After K Multiplication Operations II

## Problem Information

**Difficulty:** Hard

**Acceptance Rate:** 12.52%

**Paid Only:** No

**Tags:** Array, Heap (Priority Queue), Simulation

## Problem Description

You are given an integer array `nums`, an integer `k`, and an integer `multiplier`.

You need to perform `k` operations on `nums`. In each operation:

- \* Find the \*\*minimum\*\* value `x` in `nums`. If there are multiple occurrences of the minimum value, select the one that appears \*\*first\*\*.
- \* Replace the selected minimum value `x` with `x \* multiplier`.

After the `k` operations, apply \*\*modulo\*\* `10<sup>9</sup> + 7` to every value in `nums`.

Return an integer array denoting the \_final state\_ of `nums` after performing all `k` operations and then applying the modulo.

**Example 1:**

**Input:** nums = [2,1,3,5,6], k = 5, multiplier = 2

**Output:** [8,4,6,5,6]

**Explanation:**

Operation | Result ---|--- After operation 1 | [2, 2, 3, 5, 6] After operation 2 | [4, 2, 3, 5, 6] After operation 3 | [4, 4, 3, 5, 6] After operation 4 | [4, 4, 6, 5, 6] After operation 5 | [8, 4, 6, 5, 6]  
After applying modulo | [8, 4, 6, 5, 6]

**Example 2:**

**\*\*Input:\*\*** nums = [100000,2000], k = 2, multiplier = 1000000

**\*\*Output:\*\*** [999999307,999999993]

**\*\*Explanation:\*\***

Operation | Result ---|--- After operation 1 | [100000, 2000000000] After operation 2 | [1000000000000, 20000000000] After applying modulo | [999999307, 999999993]

**\*\*Constraints:\*\***

$*^1 \leq \text{nums.length} \leq 104$   $*^1 \leq \text{nums}[i] \leq 109$   $*^1 \leq k \leq 109$   $*^1 \leq \text{multiplier} \leq 106$

## Code Snippets

### C++:

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

}
};
```

### Java:

```
class Solution {
public int[] getFinalState(int[] nums, int k, int multiplier) {

}
}
```

### Python3:

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