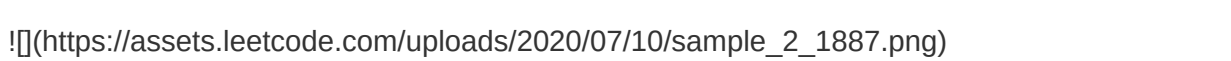
Problem 1558: Minimum Numbers of Function Calls to Make Target Array

Problem Information

Difficulty: Medium
Acceptance Rate: 62.81%
Paid Only: No
Tags: Array, Greedy, Bit Manipulation

Problem Description

You are given an integer array `nums`. You have an integer array `arr` of the same length with all values set to `0` initially. You also have the following `modify` function:



You want to use the modify function to convert `arr` to `nums` using the minimum number of calls.

Return _the minimum number of function calls to make_`nums` _from_`arr`.

The test cases are generated so that the answer fits in a **32-bit** signed integer.

Example 1:

Input: nums = [1,5] **Output:** 5 **Explanation:** Increment by 1 (second element): [0, 0] to get [0, 1] (1 operation). Double all the elements: [0, 1] -> [0, 2] -> [0, 4] (2 operations). Increment by 1 (both elements) [0, 4] -> [1, 4] -> **[1, 5]** (2 operations). Total of operations: 1 + 2 + 2 = 5.

Example 2:

Input: nums = [2,2] **Output:** 3 **Explanation:** Increment by 1 (both elements) [0, 0] -> [0, 1] -> [1, 1] (2 operations). Double all the elements: [1, 1] -> **[2, 2]** (1 operation). Total of operations: 2 + 1 = 3.

Example 3:

Input: nums = [4,2,5] **Output:** 6 **Explanation:** (initial)[0,0,0] -> [1,0,0] -> [1,0,1] -> [2,0,2] -> [2,1,2] -> [4,2,4] -> **[4,2,5]**(nums).

Constraints:

* `1 <= nums.length <= 105` * `0 <= nums[i] <= 109`

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:
```