Logo

STUDENT REPORT

DETAILS

Name

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EXPERIMENT

Title

MINIMUM ARRAY SUM

Description

Paul is given an array A of length N. He must perform the following Operations on the array sequentially:

* Choose any two integers from the array and calculate their average.

* If an element is less than the average, update it to 0. However, if the element is greater than or equal to the average, he need not update it.

Your task is to help Paul find and return an integer value, representing the minimum possible sum of all the elements in the array by performing the above operations.

Note: An exact average should be calculated, even if it results in a decimal.

Input Format:

input1: An integer value N, representing the size of the array A.

input2: An integer array A.

Output Format:

Return an integer value, representing the minimum possible sum of all the elements in the array by

Sample Input

5
1 2 3 4 5

Sample Output

5

Source Code:

```
def min_sum_after_operations(A):
    A.sort()  # Step 1: Sort the array
    N = len(A)

    # If the array has only one element, return it.
    if N == 1:
        return A[0]

    # Use a two-pointer approach: one from the start (small) and one from the end (large)
    small_index = 0
    large_index = N - 1

    while small_index < large_index:
        # Calculate the average of the smallest and largest remaining elements
        average = (A[small_index] + A[large_index]) / 2

        # Update the small element if it's less than the average
        if A[small_index] < average:
            A[small_index] = 0  # Set to zero if it's smaller than average

        # Move the small index forward
        small_index += 1

    # Return the sum of the modified array
    return sum(A)

# Example usage:
A = [1,2,3,4,5]
result = min_sum_after_operations(A)
print(result)  # Output will be the minimized sum
```

RESULT

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