

# 2256. Minimum Average Difference

## Description

You are given a **0-indexed** integer array `nums` of length `n`.

The **average difference** of the index `i` is the **absolute difference** between the average of the **first** `i + 1` elements of `nums` and the average of the **last** `n - i - 1` elements. Both averages should be **rounded down** to the nearest integer.

Return *the index with the minimum average difference*. If there are multiple such indices, return the **smallest** one.

### Note:

- The **absolute difference** of two numbers is the absolute value of their difference.
- The **average** of `n` elements is the **sum** of the `n` elements divided ( **integer division** ) by `n`.
- The average of `0` elements is considered to be `0`.

### Example 1:

**Input:** `nums = [2,5,3,9,5,3]`  
**Output:** `3`  
**Explanation:**  
– The average difference of index 0 is:  $|2 / 1 - (5 + 3 + 9 + 5 + 3) / 5| = |2 / 1 - 25 / 5| = |2 - 5| = 3$ .  
– The average difference of index 1 is:  $|(2 + 5) / 2 - (3 + 9 + 5 + 3) / 4| = |7 / 2 - 20 / 4| = |3 - 5| = 2$ .  
– The average difference of index 2 is:  $|(2 + 5 + 3) / 3 - (9 + 5 + 3) / 3| = |10 / 3 - 17 / 3| = |3 - 5| = 2$ .  
– The average difference of index 3 is:  $|(2 + 5 + 3 + 9) / 4 - (5 + 3) / 2| = |19 / 4 - 8 / 2| = |4 - 4| = 0$ .  
– The average difference of index 4 is:  $|(2 + 5 + 3 + 9 + 5) / 5 - 3 / 1| = |24 / 5 - 3 / 1| = |4 - 3| = 1$ .  
– The average difference of index 5 is:  $|(2 + 5 + 3 + 9 + 5 + 3) / 6 - 0| = |27 / 6 - 0| = |4 - 0| = 4$ .  
The average difference of index 3 is the minimum average difference so return 3.

### Example 2:

**Input:** `nums = [0]`  
**Output:** `0`  
**Explanation:**  
The only index is 0 so return 0.  
The average difference of index 0 is:  $|0 / 1 - 0| = |0 - 0| = 0$ .

### Constraints:

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

