#2239 

Find Closest Number to Zero

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Problem Definition (1)

- **Source**: Leetcode 
- Title: **Find Closest Number to Zero**
- Difficulty: easy
- Type: **Arrays**

Problem Definition (1)

Given an integer array `nums` of size `n`, return *the number with the value **closest** to `0` in `nums`*. If there are multiple answers, return *the number with the **largest** value.*

Example 1:

Input: nums = [-4,-2,1,4,8]
Output: 1
Explanation:
The distance from -4 to 0 is |-4| = 4.
The distance from -2 to 0 is |-2| = 2.
The distance from 1 to 0 is |1| = 1.
The distance from 4 to 0 is |4| = 4.
The distance from 8 to 0 is |8| = 8.
Thus, the closest number to 0 in the array is 1.

Constraints:

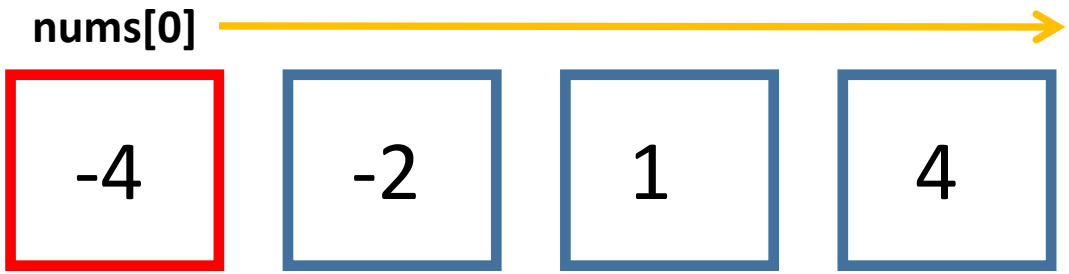
- $1 <= n <= 1000$
- $-10^5 <= nums[i] <= 10^5$

Example 2:

Input: nums = [2,-1,1]
Output: 1
Explanation: 1 and -1 are both the closest numbers to 0, so 1 being larger is returned.

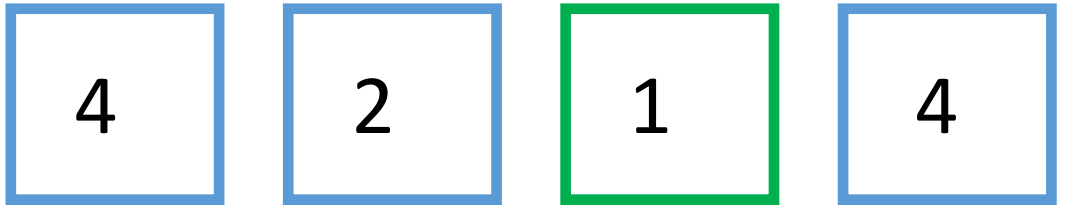
Solution (1)


```
closest = nums[0]
# 1st element in array
```



abs() in python

```
closest = x
# lowest element from 1st element
```



I check also for negative and positive cases

```
if closest >0 and abs(closest) in nums:
        return abs(closest)
    else
        return closest
```

Solution (2)

Data Analytics Lab

```
classSolution:
    deffindClosestNumber(self, nums: List[int]) -> int:
        closest = nums[0]
        for x in nums:
            if abs(x) < abs(closest):
                closest = x
        if closest < 0 and abs(closest) in nums:
            return abs(closest)
        else:
            return closest
```

The time complexity is O(n): #operations

where n is the number of elements in the list nums. This is because I need to inspect each number exactly once.

The space complexity is O(1): #selected 1 array

I am using a constant amount of space (the variable num) regardless of the size of the input list.

Solution (3)

Accepted 227 / 227 testcases passed

Azimjon submitted at Jan 09, 2025 17:49

Solution

Runtime

7 ms | Beats 46.28%

Analyze Complexity

Memory

17.76 MB | Beats 34.49%

Code | Python3

```python
class Solution:
    def findClosestNumber(self, nums: List[int]) -> int:
        closest = nums[0]
        for x in nums:
            if abs(x) < abs(closest):
                closest = x

        if closest < 0 and abs(closest) in nums:
            return abs(closest)
        else:
            return closest
```

Accepted Runtime: 0 ms

• Case 1 • Case 2

Input

nums =

[-4,-2,1,4,8]

Output

1

Expected

1

What I have learned

❖ **Arrays:**

✓I studied arrays and its functions to implement in Python

❖ **Time & Space Complexity:**

✓I learnt how I can solve array problems for time & space in Big O notations.
e.g. Number of operations in O(n), and space ....

I started challenge in 2025 to cover DSA based on ROADMAP : https://algomap.io/

+ I'll be tackling challenges and sharing my progress on **Github** as I work through the roadmap provided by **AlgoMap.io**.

Questions and Answers

Greetings