Sliding Window Median

Try to solve the Sliding Window Median problem.

We'll cover the following

Statement

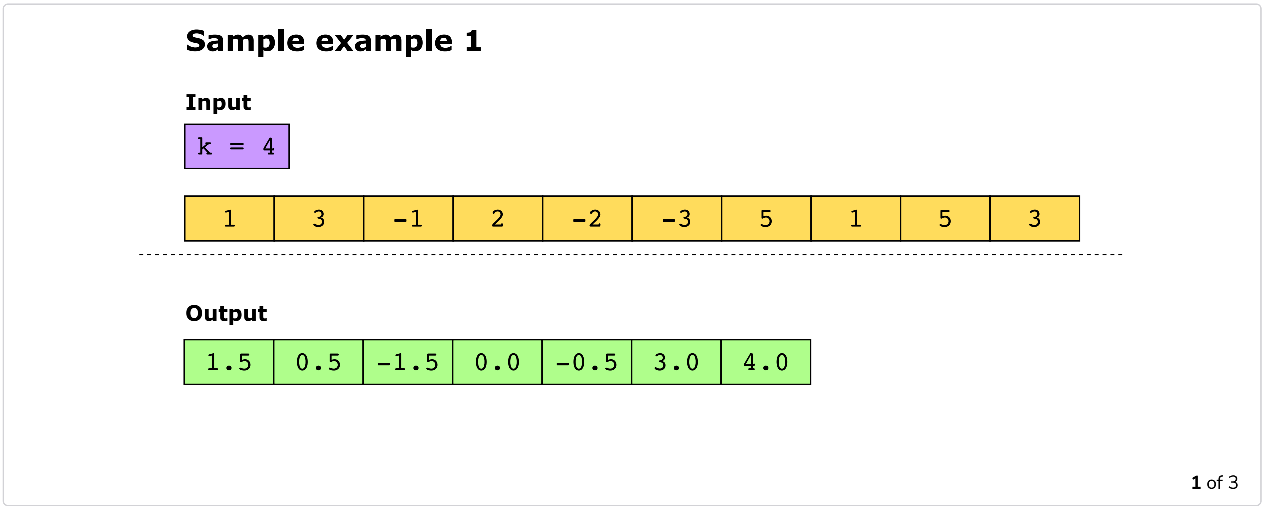
Given an integer array, `nums`, and an integer, `k`, there is a sliding window of size `k`, which is moving from the very left to the very right of the array. We can only see the `k` numbers in the window. Each time the sliding window moves right by one position.

Given this scenario, return the median of the each window. Answers within 10^{-5} of the actual value will be accepted.

Constraints:

- $1 \leq$ `k` $\leq$ `nums.length` $\leq 10^5$
- $-2^{31} \leq$ `nums[i]` $\leq 2^{31} - 1$

Examples



Understand the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps you check if you're solving the correct problem:

Sliding Window Median

1

What should be the output if the following array and value of k are given as input?

nums = [1, 1, 1, 1, 1, 1]

k = 3

A) [1.0, 1.0, 1.0, 1.0]

B) [1.5, 1.5, 1.5, 1.5]

C) [1.0, 1.0, 1.0, 1.0, 1.0]

D) [1.5, 1.5, 1.5, 1.5, 1.5]

Submit Answer

Question 1 of 3
0 attempted

Reset Quiz

Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.

Drag and drop the cards to rearrange them in the correct sequence.

Declare a min-heap and a max-heap to store the elements of the sliding window.

Push k elements onto the max-heap and transfer $\frac{k}{2}$ numbers (the higher numbers) to the min-heap.

Compute the median of the window elements. If the window size is even, it's the mean of the top of the two heaps. If it's odd, it's the top of the max-heap.

Move the window forward and rebalance the heaps.

If the incoming number is less than the top of the max-heap, push it on to the max-heap, else, push it onto the min-heap.

If the outgoing number is at the top of either of the heaps, remove it from that heap.

Repeat the steps to calculate the median, add the incoming number, rebalance the heaps, and remove the outgoing number from the heaps.

Reset Show Solution Submit

Try it yourself

Java

usercode > SlidingWindow.java

```java
import java.util.*;
public class SlidingWindow{
   public static double[] medianSlidingWindow(int[] nums, int k) {
      // Your code will replace this placeholder return statement

      return new double[]{};
   }
}
```

Powered by AI Submit

Test Cases Results

Case 1 Case 2 Case 3

Input #1

```
[1,3,-1,-3,5,3,6,7]
```

Input #2

```
3
```

Sliding Window Median

← Back

Solution: Find Median ...

Next →

Solution: Sliding Wind...

✓ Mark as Completed