Problem 215: Kth Largest Element in an Array

Problem Information

Difficulty: Medium
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

Given an integer array

nums

and an integer

k

, return

the

k

th

largest element in the array

.

Note that it is the

k

th

largest element in the sorted order, not the

k

th

distinct element.

Can you solve it without sorting?

Example 1:

Input:

nums = [3,2,1,5,6,4], k = 2

Output:

5

Example 2:

Input:

nums = [3,2,3,1,2,4,5,5,6], k = 4

Output:

4

Constraints:

1 <= k <= nums.length <= 10

5

-10

4

<= nums[i] <= 10

4

Code Snippets

C++:

```
class Solution {
public:
int findKthLargest(vector<int>& nums, int k) {

}
};
```

Java:

```
class Solution {
public int findKthLargest(int[] nums, int k) {

}
}
```

Python3:

```
class Solution:
def findKthLargest(self, nums: List[int], k: int) -> int:
```

Python:

```
class Solution(object):
def findKthLargest(self, nums, k):
"""
:type nums: List[int]
:type k: int
:rtype: int
"""
```

JavaScript:

```
/**
* @param {number[]} nums
* @param {number} k
* @return {number}
*/
var findKthLargest = function(nums, k) {

};
```

TypeScript:

```
function findKthLargest(nums: number[], k: number): number {

};
```

C#:

```
public class Solution {
public int FindKthLargest(int[] nums, int k) {

}
}
```

C:

```
int findKthLargest(int* nums, int numsSize, int k) {

}
```

Go:

```
func findKthLargest(nums []int, k int) int {

}
```

Kotlin:

```
class Solution {
fun findKthLargest(nums: IntArray, k: Int): Int {

}
}
```

Swift:

```
class Solution {
func findKthLargest(_ nums: [Int], _ k: Int) -> Int {

}
}
```

Rust:

```
impl Solution {
pub fn find_kth_largest(nums: Vec<i32>, k: i32) -> i32 {

}
}
```

Ruby:

```
# @param {Integer[]} nums
# @param {Integer} k
# @return {Integer}
def find_kth_largest(nums, k)

end
```

PHP:

```
class Solution {

/**
* @param Integer[] $nums
* @param Integer $k
* @return Integer
*/
function findKthLargest($nums, $k) {

}
}
```

Dart:

```
class Solution {
int findKthLargest(List<int> nums, int k) {
```

```
}
}
```

Scala:

```
object Solution {
def findKthLargest(nums: Array[Int], k: Int): Int = {

}
}
```

Elixir:

```
defmodule Solution do
@spec find_kth_largest(nums :: [integer], k :: integer) :: integer
def find_kth_largest(nums, k) do

end
end
```

Erlang:

```
-spec find_kth_largest(Nums :: [integer()], K :: integer()) -> integer().
find_kth_largest(Nums, K) ->
.
```

Racket:

```
(define/contract (find-kth-largest nums k)
(-> (listof exact-integer?) exact-integer? exact-integer?)
)
```

Solutions

C++ Solution:

```
/*
* Problem: Kth Largest Element in an Array
* Difficulty: Medium
```

```
* Tags: array, sort, queue, heap
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public:
int findKthLargest(vector<int>& nums, int k) {

}
};
```

Java Solution:

```
/**
* Problem: Kth Largest Element in an Array
* Difficulty: Medium
* Tags: array, sort, queue, heap
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public int findKthLargest(int[] nums, int k) {

}
}
```

Python3 Solution:

```
"""
Problem: Kth Largest Element in an Array
Difficulty: Medium
Tags: array, sort, queue, heap

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
```

```
Space Complexity: O(1) to O(n) depending on approach
"""

class Solution:
def findKthLargest(self, nums: List[int], k: int) -> int:
# TODO: Implement optimized solution
pass
```

Python Solution:

```
class Solution(object):
def findKthLargest(self, nums, k):
"""
:type nums: List[int]
:type k: int
:rtype: int
"""
```

JavaScript Solution:

```
/**
* Problem: Kth Largest Element in an Array
* Difficulty: Medium
* Tags: array, sort, queue, heap
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* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
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*/

/**
* @param {number[]} nums
* @param {number} k
* @return {number}
*/
var findKthLargest = function(nums, k) {

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```

TypeScript Solution:

```
/**
* Problem: Kth Largest Element in an Array
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* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
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*/

function findKthLargest(nums: number[], k: number): number {

};
```

C# Solution:

```
/*
* Problem: Kth Largest Element in an Array
* Difficulty: Medium
* Tags: array, sort, queue, heap
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* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
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*/

public class Solution {
public int FindKthLargest(int[] nums, int k) {

}
}
```

C Solution:

```
/*
* Problem: Kth Largest Element in an Array
* Difficulty: Medium
* Tags: array, sort, queue, heap
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* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
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```

```
*/

int findKthLargest(int* nums, int numsSize, int k) {

}
```

Go Solution:

```
// Problem: Kth Largest Element in an Array
// Difficulty: Medium
// Tags: array, sort, queue, heap
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
// Space Complexity: O(1) to O(n) depending on approach

func findKthLargest(nums []int, k int) int {

}
```

Kotlin Solution:

```
class Solution {
fun findKthLargest(nums: IntArray, k: Int): Int {

}
}
```

Swift Solution:

```
class Solution {
func findKthLargest(_ nums: [Int], _ k: Int) -> Int {

}
}
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Rust Solution:

```
// Problem: Kth Largest Element in an Array
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// Tags: array, sort, queue, heap
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//
// Approach: Use two pointers or sliding window technique
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impl Solution {
pub fn find_kth_largest(nums: Vec<i32>, k: i32) -> i32 {

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Ruby Solution:

```
# @param {Integer[]} nums
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# @return {Integer}
def find_kth_largest(nums, k)

end
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PHP Solution:

```
class Solution {

/**
* @param Integer[] $nums
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object Solution {
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