AlgoExpert Quad Layout JavaScript 12px Sublime Monokai 00:00:00

Prompt Scratchpad Our Solution(s) Video Explanation Run Code

Solution 1

```
1\, // Copyright @ 2020 AlgoExpert, LLC. All rights reserved.
 3 // Best: O(n) time | O(1) space
 4 // Average: O(n) time | O(1) space
 5 // Worst: O(n^2) time | O(1) space
 6 function quickselect(array, k) {
 7 const position = k - 1;
     return quickselectHelper(array, 0, array.length - 1, position);
9 }
10
11 function quickselectHelper(array, startIdx, endIdx, position) \{
12
      while (true) {
       if (startIdx > endIdx) {
13
         throw new Error('Your algorithm should never arrive here!');
14
15
16
        const pivotIdx = startIdx;
        let leftIdx = startIdx + 1;
17
18
        let rightIdx = endIdx;
        while (leftIdx <= rightIdx) {</pre>
19
          if (array[leftIdx] > array[pivotIdx] && array[rightIdx] < array[pivotIdx]) {</pre>
20
21
            swap(leftIdx, rightIdx, array);
22
23
          if (array[leftIdx] <= array[pivotIdx]) {</pre>
           leftIdx++;
24
25
26
          if (array[rightIdx] >= array[pivotIdx]) {
27
           rightIdx--;
28
29
30
        swap(pivotIdx, rightIdx, array);
31
        if (rightIdx === position) {
32
         return array[rightIdx];
        } else if (rightIdx < position) {</pre>
33
34
          startIdx = rightIdx + 1;
35
        } else {
          endIdx = rightIdx - 1;
36
37
38
39 }
40
41 function swap(i, j, array) {
    const temp = array[j];
43
     array[j] = array[i];
     array[i] = temp;
44
45 }
46
47 exports.quickselect = quickselect;
```