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

Prompt Scratchpad Our Solution(s) Video Explanation Run Code

Solution 1

47 } 48

```
1\, // Copyright @ 2020 AlgoExpert, LLC. All rights reserved.
   package main
 5  // Best: O(nlog(n)) time | O(1) space
 6 // Average: O(nlog(n)) time | O(1) space
 7 \ // \ Worst: O(nlog(n)) \ time \ | \ O(1) \ space
 8 func HeapSort(array []int) []int {
     buildMaxHeap(array)
     for endIndex := len(array) - 1; endIndex >= 1; endIndex-- {
11
        swap(0, endIndex, array)
12
        siftDown(0, endIndex-1, array)
13
14
      return array
15 }
16
17 func buildMaxHeap(array []int) {
18
      first := (len(array) - 2) / 2
      for currentIndex := first + 1; currentIndex >= 0; currentIndex-- {
19
20
        siftDown(currentIndex, len(array)-1, array)
21
22 }
23
24 func siftDown(currentIndex int, endIndex int, heap []int) {
25
      \verb|childOneIndex| := \verb|currentIndex| *2 + 1
26
      for childOneIndex <= endIndex {</pre>
27
        childTwoIndex := -1
28
        \textbf{if} \ \texttt{currentIndex*2+2} \ \Leftarrow \ \texttt{endIndex} \ \{
29
          childTwoIndex = currentIndex*2 + 2
30
        indexToSwap := childOneIndex
31
32
         \textbf{if} \ \texttt{childTwoIndex} \ \gt \ \textbf{-1} \ \&\& \ \texttt{heap[childTwoIndex]} \ \gt \ \texttt{heap[childOneIndex]} \ \{ \\
          indexToSwap = childTwoIndex
33
34
        if heap[indexToSwap] > heap[currentIndex] {
35
           swap(currentIndex, indexToSwap, heap)
36
           currentIndex = indexToSwap
37
           childOneIndex = currentIndex*2 + 1
38
        } else {
39
40
          return
41
42
43 }
44
45 func swap(i, j int, array []int) {
46
     array[i], array[j] = array[j], array[i]
```