

Aula Prática 3

ASA 2022/2023

Q1 (CLRS Ex. 6.1-5) Is an array that is in sorted order a min-heap?

Q2 (CLRS Ex. 6.1-6) Is the array with values (23, 17, 14, 6, 13, 10, 1, 5, 7, 12) a max-heap?

Q3 (CLRS Ex. 6.4-1) Illustrate the operation of HEAPSORT on the array:

(5, 13, 2, 25, 7, 17, 20, 8, 4)

Q4 (CLRS Ex. 6.4-3) What is the running time of HEAPSORT on an array, of length n , that is already sorted in increasing order? What about decreasing order?

Q5 (CLRS Ex. 6.5-2) Illustrate the operation of MAXHEAPINSERT(10) on the heap:

(15, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2, 1)

Q6 (CLRS Ex. 6.5-8) The operation HEAP-DELETE(A, i) deletes the item in node (with index) i from heap A . Give an implementation of HEAP-DELETE that runs in $O(\lg n)$ time for an n -element max-heap.