Multiple Choice Questions

Relevel
by Unacademy

1. **Is heap also a binary tree?**

A. True

B. False

1. **Is heap also a binary tree?**

A. True

B. False

Ans: A

2. What is the worst case time complexity for heapify?

A. O(n)

B. O(nlog(n))

C. O(n^2)

D. O(n!)

2. What is the worst case time complexity for heapify?

A. O(n)

B. O(nlog(n))

C. O(n^2)

D. O(n!)

Ans: B

3. What is not true about heaps?

A. Heaps are also binary trees

B. Heap are balanced binary trees

C. Heaps always have the highest node as the root node

D. There are two types of heaps: min-heap and max-heap

3.   What is not true about heaps?

A.   Heaps are also binary trees

B.   Heap are balanced binary trees

C.   Heaps always have the highest node as the root node

D.   There are two types of heaps: min-heap and max-heap

Ans: C

4. When the heap is represented as an array, how do you find the parent node of any given node?

A.   2n+1
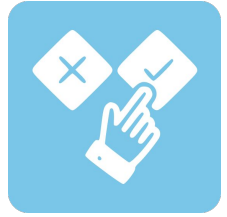
B.   2n+2

C.   Math.floor((n-1)/2)

D.   Math.floor((n-2)/2)

4. When the heap is represented as an array, how do you find the parent node of any given node?

A. 2n+1

B. 2n+2

C. Math.floor((n-1)/2)

D. Math.floor((n-2)/2)

Ans: C

5. **What is the worst-case time complexity to insert an element in heap?**

A.   O(log n)
B.   O(n)
C.   O(n^2)
D.   O(n!)

Relevel
by Unacademy

5. **What is the worst-case time complexity to insert an element in heap?**

A. O(log n)
B. O(n)
C. O(n^2)
D. O(n!)

Ans: A

Problems

Given an input array of unique elements, return a max-heap created out of the same elements. Expected worst-case time complexity. O(n log(n))

Example:

Input : [2,7,26,25,19,17,1,90,3,36]
Output : [90, 36, 17, 25, 26, 7, 1, 2, 3, 19]

Solution:
https://pastebin.com/RFD92P8G

Given a max-heap as an input (represented as an array) and a number k which is greater than 0 and less than total count elements in heap, return k^{th} largest element in heap. O(n log(n))

Eg:

Input :

Heap : [90, 36, 17, 25, 26, 7, 1, 2, 3, 19]

k : 3

Output : 26 (As 26 is the 3rd largest element in heap).

Solution:

https://pastebin.com/hCRK5VPx

THANK YOU