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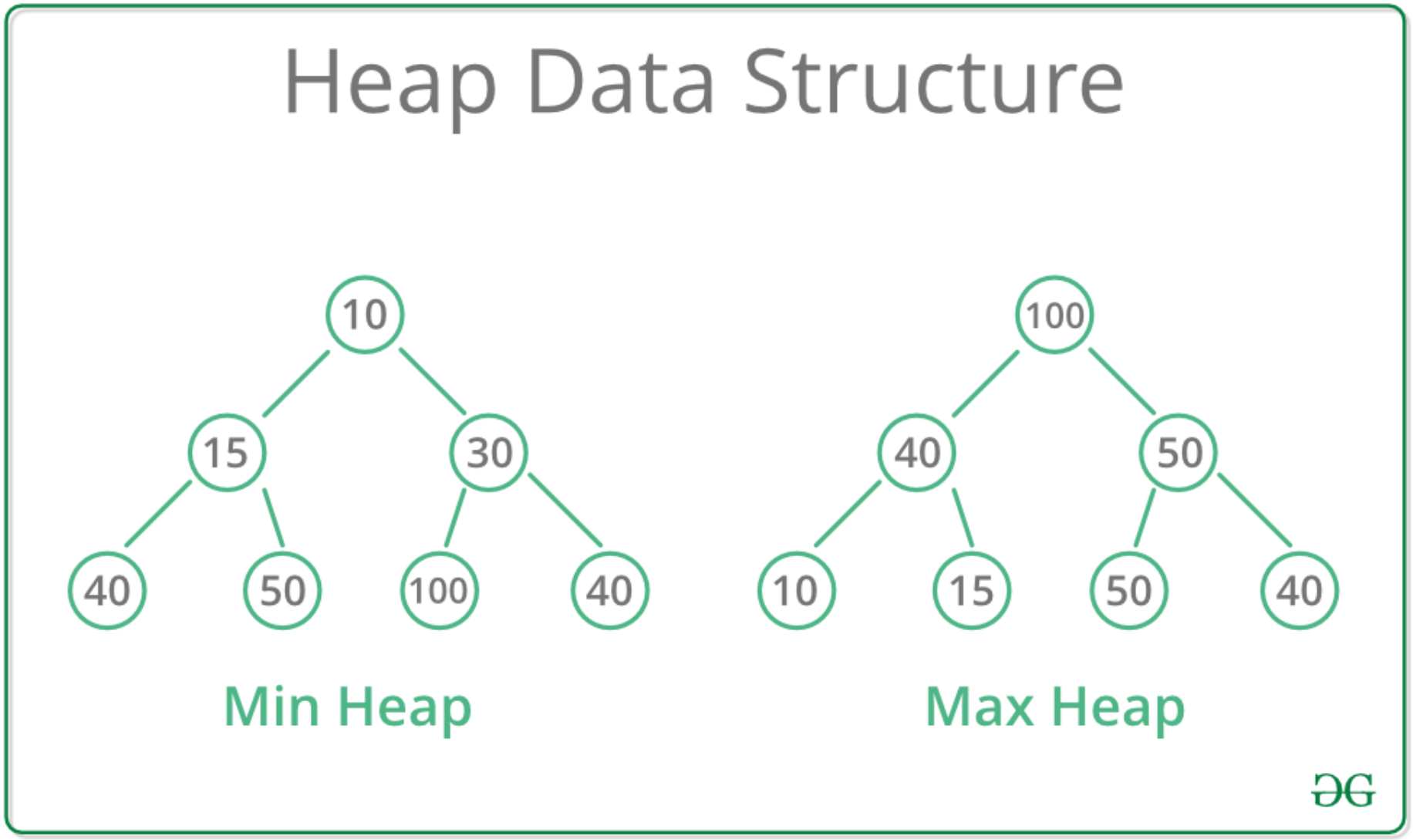
Heap Data Structure

Recent articles on Heap !

A Heap is a special Tree-based data structure in which the tree is a complete binary tree. Generally, Heaps can be of two types:

1. **Max-Heap**: In a Max-Heap the key present at the root node must be greatest among the keys present at all of it's children. The same property must be recursively true for all sub-trees in that Binary Tree.
2. **Min-Heap**: In a Min-Heap the key present at the root node must be minimum among the keys present at all of it's children. The same property must be recursively true for all sub-trees in that Binary Tree.



Popular Articles on Heap :

1. Binary Heap
2. Time Complexity of building a heap
3. Applications of Heap Data Structure
4. Binomial Heap
5. Fibonacci Heap
6. Leftist Heap
7. K-ary Heap
8. Heap Sort
9. Iterative Heap Sort
10. K'th Largest Element in an array
11. K'th Smallest/Largest Element in Unsorted Array | Set 1
12. Sort an almost sorted array/
13. Tournament Tree (Winner Tree) and Binary Heap
14. Check if a given Binary Tree is Heap
15. How to check if a given array represents a Binary Heap?
16. Connect n ropes with minimum cost
17. Design an efficient data structure for given operations

18. Merge k sorted arrays | Set 1
19. Merge Sort Tree for Range Order Statistics
20. Sort numbers stored on different machines
21. Smallest Derangement of Sequence
22. Largest Derangement of a Sequence
23. K maximum sum combinations from two arrays
24. Maximum distinct elements after removing k elements
25. Maximum difference between two subsets of m elements
26. Height of a complete binary tree (or Heap) with N nodes
27. Heap Sort for decreasing order using min heap
28. Print all nodes less than a value x in a Min Heap.
29. Median of Stream of Running Integers using STL
30. Largest triplet product in a stream
31. Find k numbers with most occurrences in the given array
32. Convert BST to Min Heap
33. Merge two binary Max Heaps
34. K-th Largest Sum Contiguous Subarray
35. Minimum product of k integers in an array of positive Integers
36. Leaf starting point in a Binary Heap data structure
37. Why is Binary Heap Preferred over BST for Priority Queue?
38. Convert min Heap to max Heap
39. Given level order traversal of a Binary Tree, check if the Tree is a Min-Heap
40. Rearrange characters in a string such that no two adjacent are same
41. Implementation of Binomial Heap
42. Array Representation Of Binary Heap
43. Sum of all elements between k1’th and k2’th smallest elements
44. Minimum sum of two numbers formed from digits of an array
45. K’th largest element in a stream
46. k largest(or smallest) elements in an array | added Min Heap method
47. Median in a stream of integers (running integers)

48. Sort a nearly sorted (or K sorted) array

Misc :

- Why is Binary Heap Preferred over BST for Priority Queue?
- Heap in C++ STL | make_heap(), push_heap(), pop_heap(), sort_heap(), is_heap, is_heap_until()
- Heap in Python (Using Heapq module)
- Where is Heap Sort used practically?

Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.

AnimeBoy • a year ago

A very useful channel for **programmers** and **machine learning** enthusiasts :)
https://www.youtube.com/cha...

1 | 3 • Reply • Share ›

Shrreya Behll • a year ago

The image pertaining to max heap is incorrect.

7 | 2 • Reply • Share ›

Tolulope Ademilua ➚ Shrreya Behll • 10 months ago

Image is correct for Max heap as: The key of a node is greater or equal to the key of its children

| 2 • Reply • Share ›

Mrinal Dhawan ➚ Shrreya Behll • a year ago

The image is not incorrect. In Min/Max heap, the data for the node's key can also be EQUAL to child node's key.
https://www.cs.cmu.edu/~tco...

| 2 • Reply • Share ›

AAA ➚ Shrreya Behll • a year ago

it would be good to comment as to, why the image is incorrect, to help others

understand.

3 ^ | v • Reply • Share ›

Jyoti Pandey ➚ AAA • a day ago • edited

According to Cormen --
In a max-heap, the max-heap property is that for every node i other than the root, A[Parent(i)] >= A[i], that is, the value of a node is at most the value of its parent.

So all the subtrees should also be a max heap.

The image is correct!

^ | v • Reply • Share ›

Adithya • a year ago

The image itself is wrong.

2 ^ | v 3 • Reply • Share ›

Sudaraka Senavirathne • a year ago

Incorrect example in picture

14 ^ | v 2 • Reply • Share ›

Ashish Mishra • a year ago

Image of max heap is incorrect

4 ^ | v 2 • Reply • Share ›

Ganapathi Naik ➚ Ashish Mishra • a year ago

Please explain, why the image is wrong?

^ | v 1 • Reply • Share ›

V_K_Rawat ➚ Ganapathi Naik • 3 months ago

in max heap 50 have two child left is 50 and right is 40 but generally 50 should right side and 40 should be left side

^ | v 2 • Reply • Share ›

Spoon Liver • a year ago

Spoon Liver • a year ago

I love this UI improvement

^ | v • Reply • Share ›

sachetansabhahit_5499859 • a year ago

The diagram given for MAX heap is incorrect.

6 ^ | v 3 • Reply • Share ›

Spoon Liver ➚ sachetansabhahit_5499859 • a year ago

TY

1 ^ | v 1 • Reply • Share ›