C++

LAUNCHPAD

CODING BLOCKS

Lecture-22
HEAPS

- Priority Queues
- Heaps

Utkarsh Nath

How to find min/max out of some elements?

Implement using unsorted List

1. Min
2. RemoveMin
3. Insert

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Selection Sort?

Implement using sorted List

1. Min
2. RemoveMin
3. Insert

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Insertion Sort?

Any other options?

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Heaps

Heap Data Structure

1. Binary Tree
2. Complete Binary Tree Property
3. Heap Order Property

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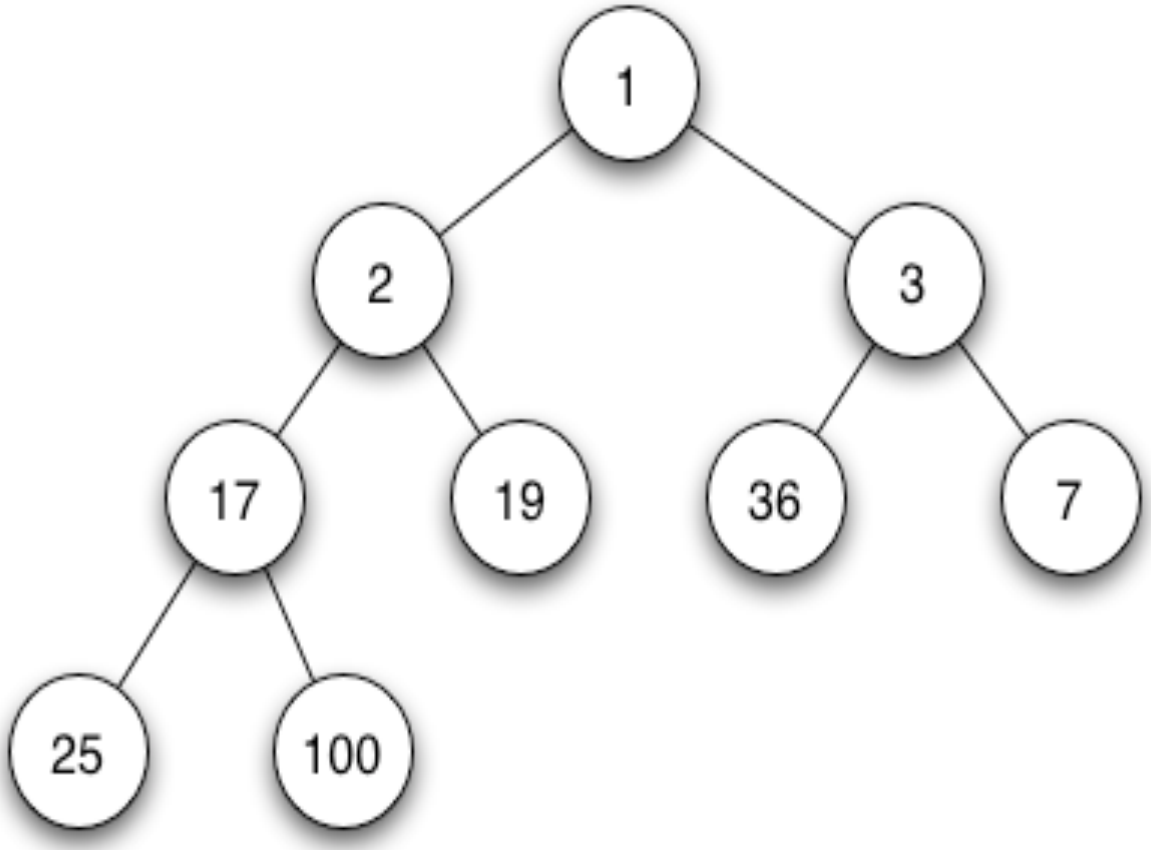

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What is the height of a complete binary tree?

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Complete Binary Tree

1. Add
2. Remove

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Priority Queues

Priority Queues

```
Class PriorityQueue{
    // accessor methods
    int size();
    bool isEmpty();
    T min();
    // update methods
    void insert(int priority, T value);
    void removeMin();
    }
```

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How to implement a complete binary tree

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How to implement Heap using CBT?

1. Min
2. Insertion
3. removeMin

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Heap Sort

Heap Sort is O(nLogN)

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Thank You!

Prateek Narang