

# Priority Queue

ADT

void enqueue (P priority, T value)

T dequeue()

bool is\_empty()

int get\_size()

T peek()

P peek\_prio()

## Implementations

\* List

Dequeue:  $O(1)$

Enqueue:  $O(n)$

\* BST where  $V = \text{List} \langle T \rangle$

Dequeue:  $O(\log n)$

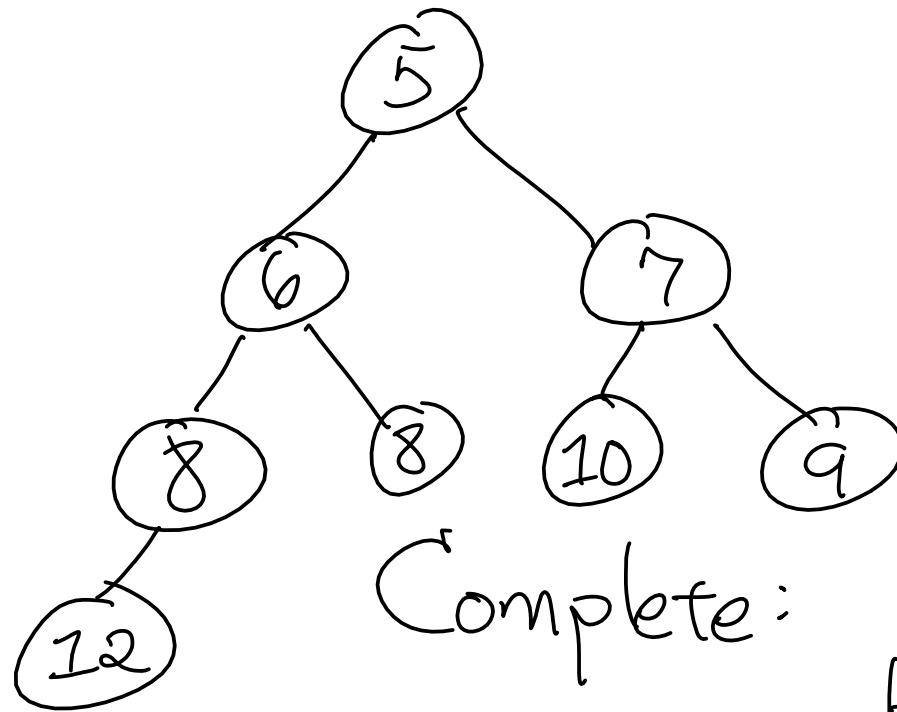
Enqueue:  $O(\log n)$

# Min-Heap

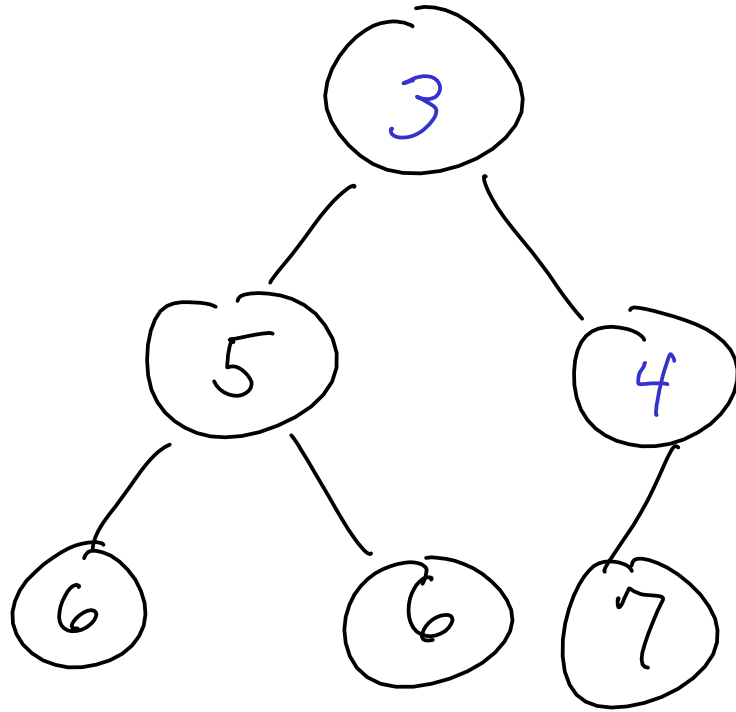
Heap is a tree (binary tree)

Min-Heap invariant: all children are  $\geq$

Heap is  
always  
complete



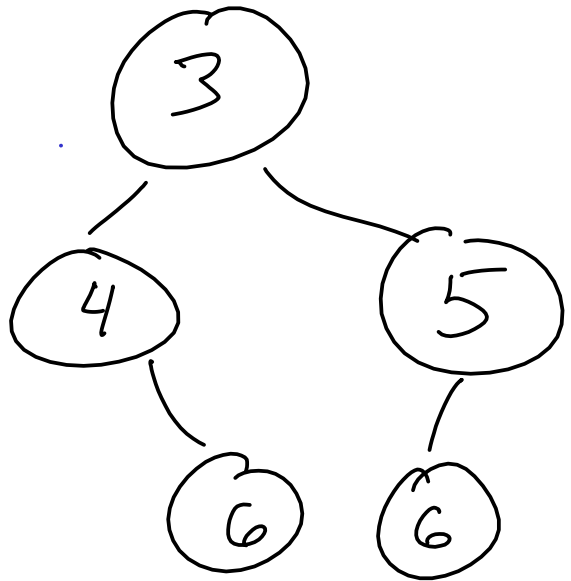
Complete: All levels except  
bottom are full;  
bottom: left-to-  
right



- ✓ add 8
- ✓ add 6
- ✓ add 3
- ✓ add 2

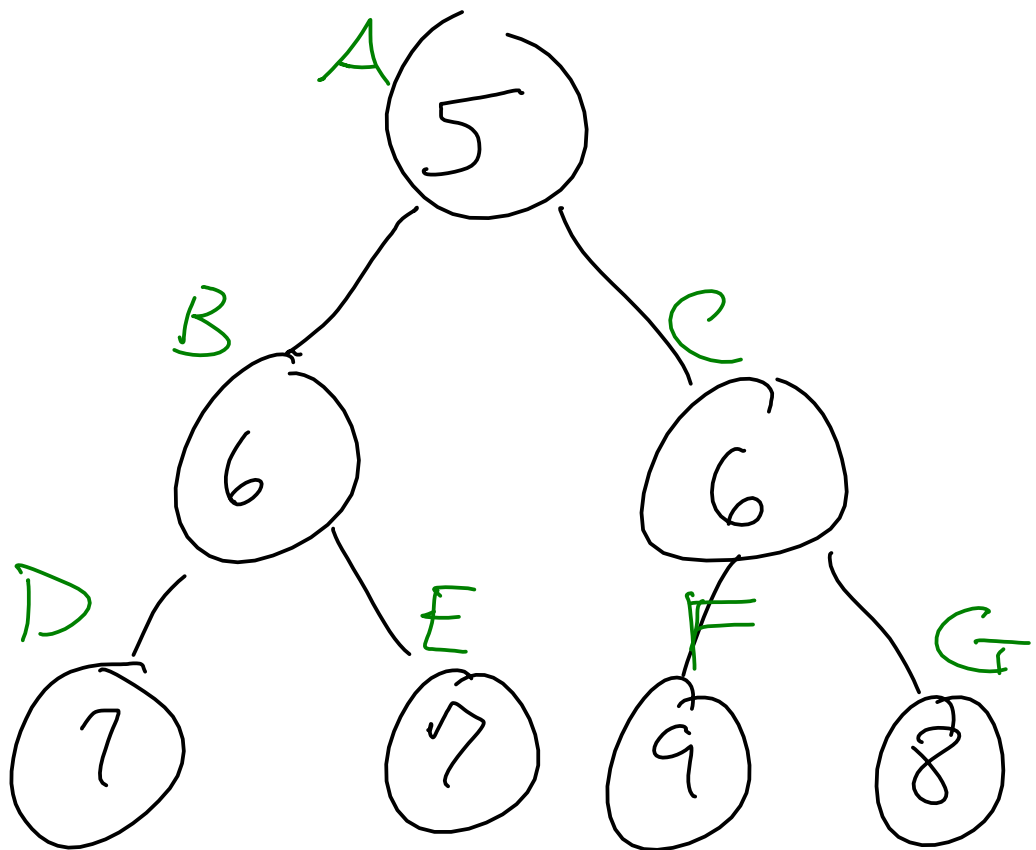
Bubble up(index)

not complete !!



Linked BST

Array Tree



right:  $2i + 2$

