

Computer Science 3A

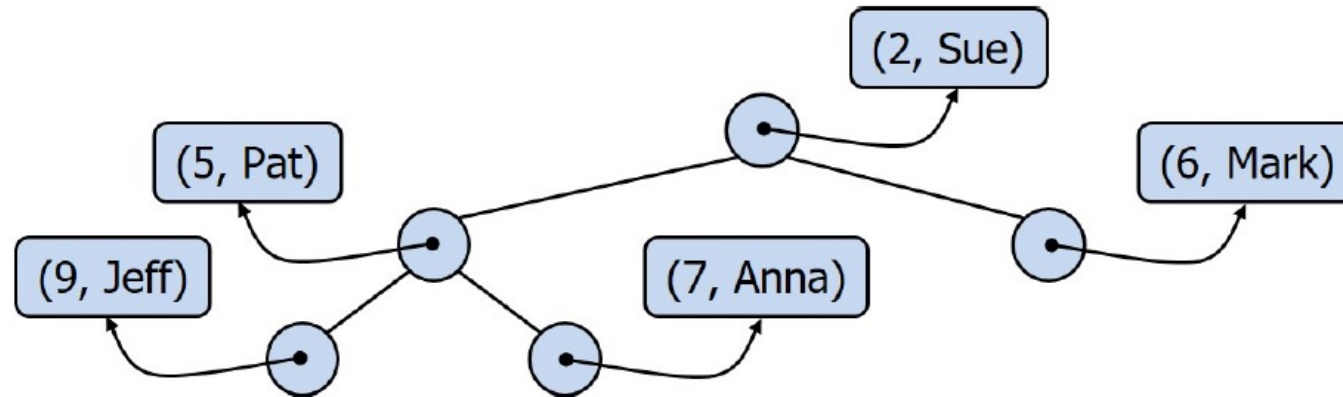
Practical 8



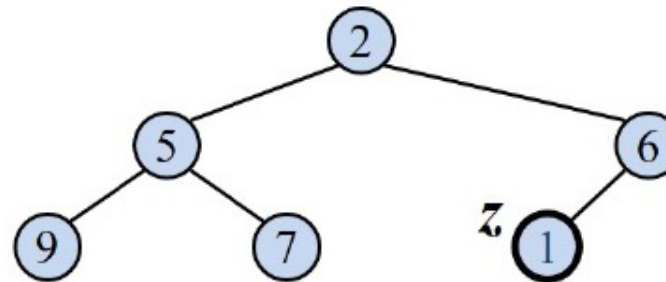
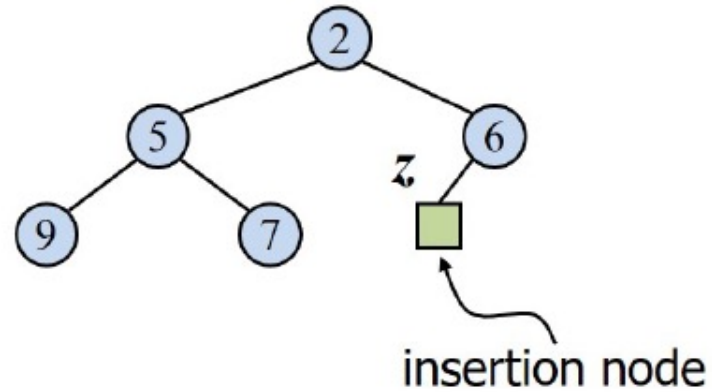
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Heap

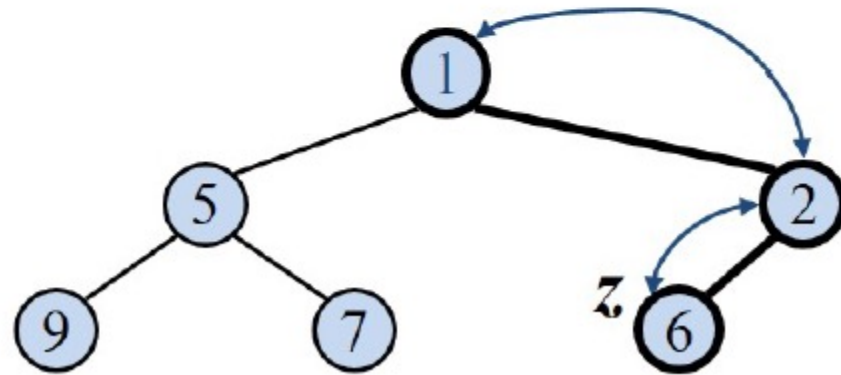
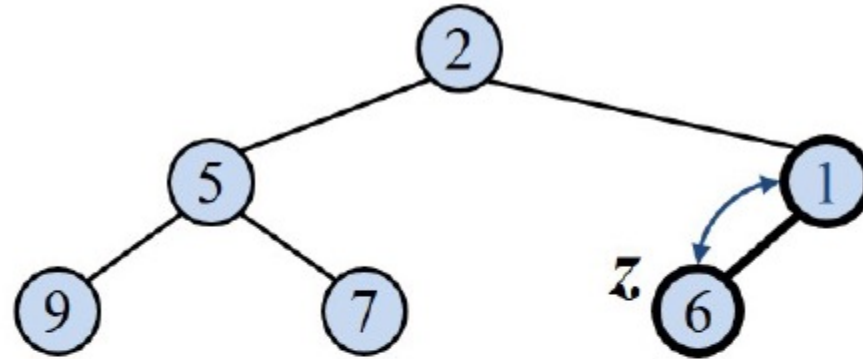
Heap-order property:
 $key(v) \geq key(parent(v))$



Heap Insertion



Upheap



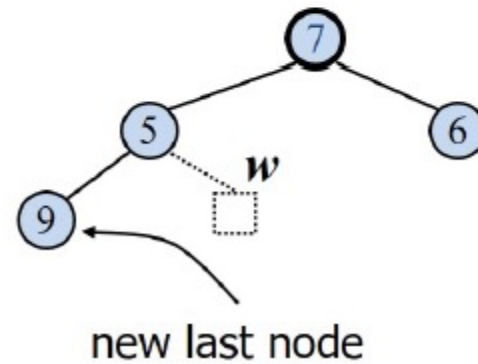
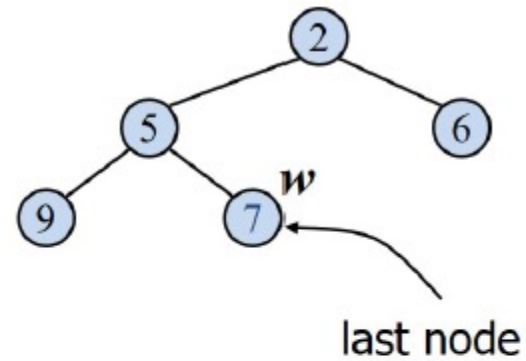
Upheap Algorithm:

Upheap (node):

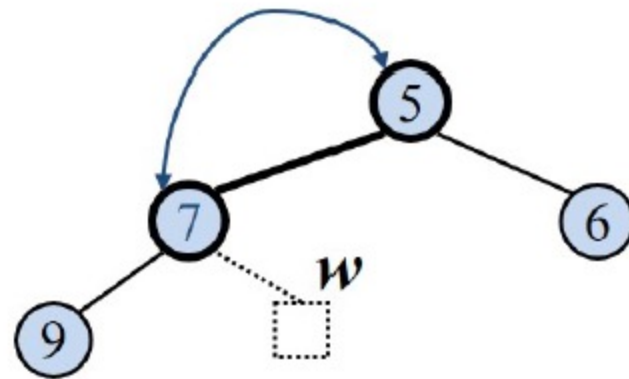
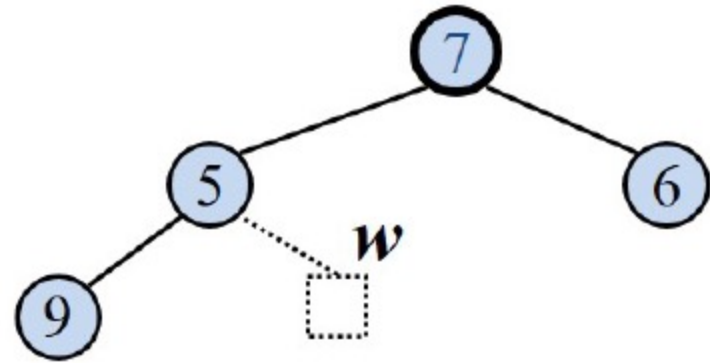
- If node is the root: return
- If node's value > parent's value: return
- Swap the parent and the node
- Recursive call: Upheap (node.parent())



Heap Removal



Downheap



Downheap Algorithm:

Downheap (node):

- If node's children are null: return
- Determine which child is smaller (hint: use compareTo method)
- If node's value is less than smallerChild: return
- Swap the node with the smaller child
- Recursive call: Downheap (smallerChild)



GetLastNodeInsert:

Algorithm provided on the assignment

* Opposite of GetLastNodeRemove

