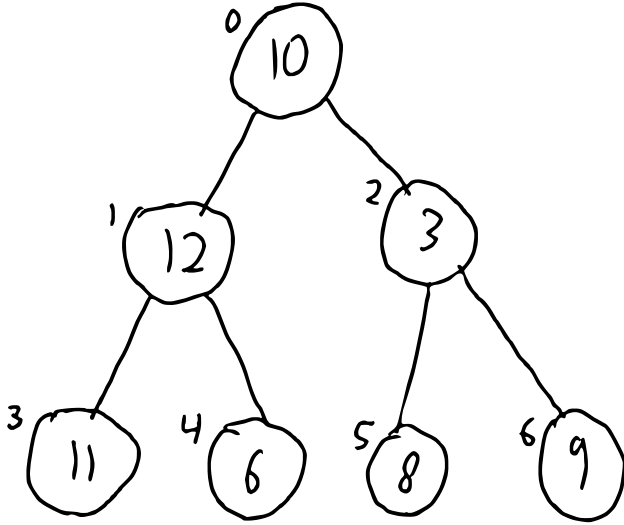


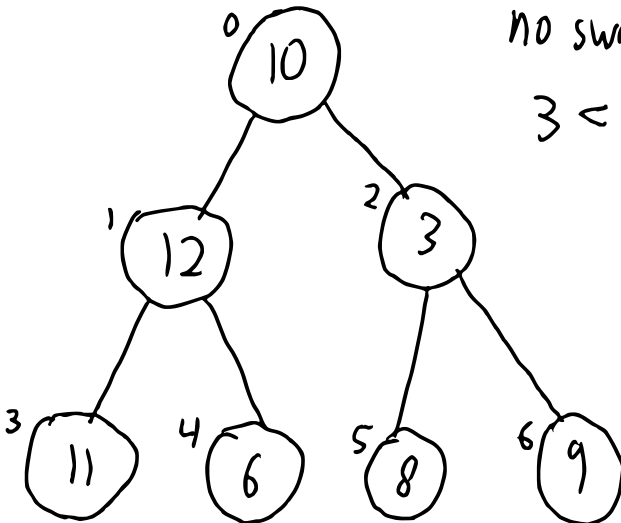
4a. [10, 12, 3, 11, 6, 8, 9]

buildHeap() is called, initial heap structure



child/leaf nodes are already heaps, so call heapify on indexes 2, 1, and 0 in that order

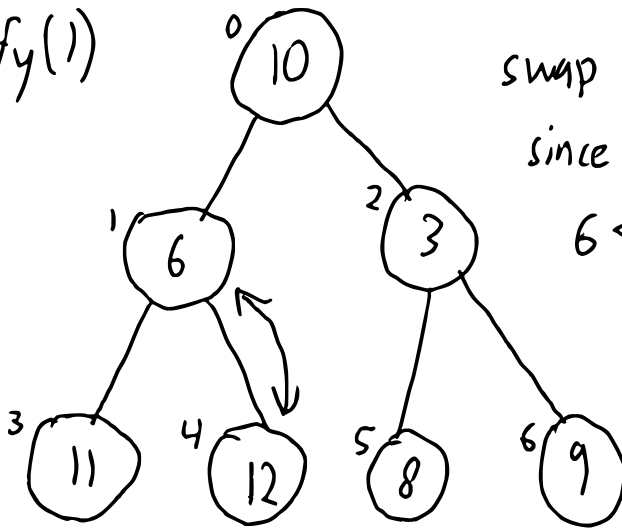
heapify(2)



no swap, since

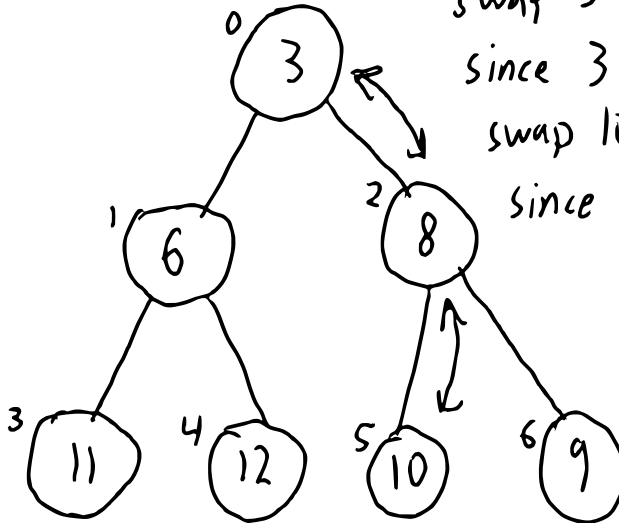
$$3 < 8 < 9$$

heapify(1)



swap 12 and 6  
since  $6 < 11$  and  
 $6 < 12$

heapify(0)

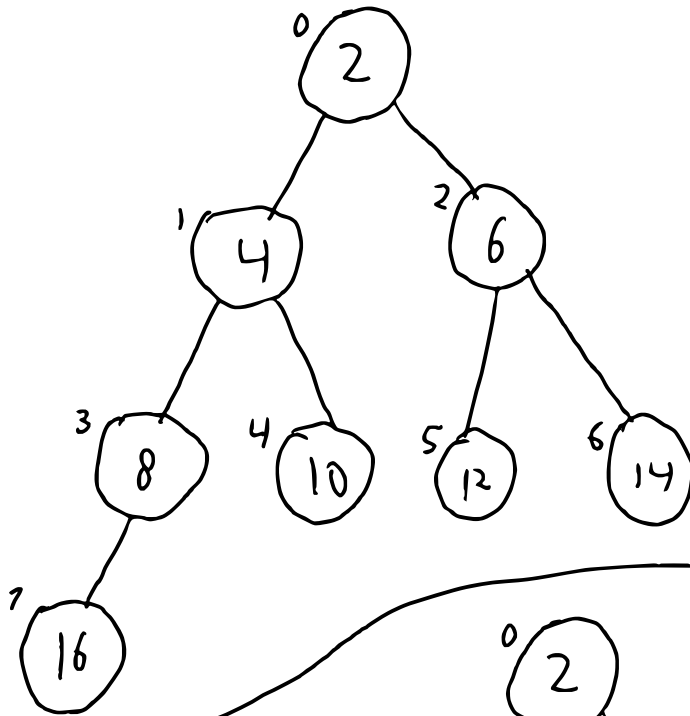


swap 3 and 10  
since  $3 < 10$ , then  
swap 10 and 8  
since  $8 < 9 < 10$

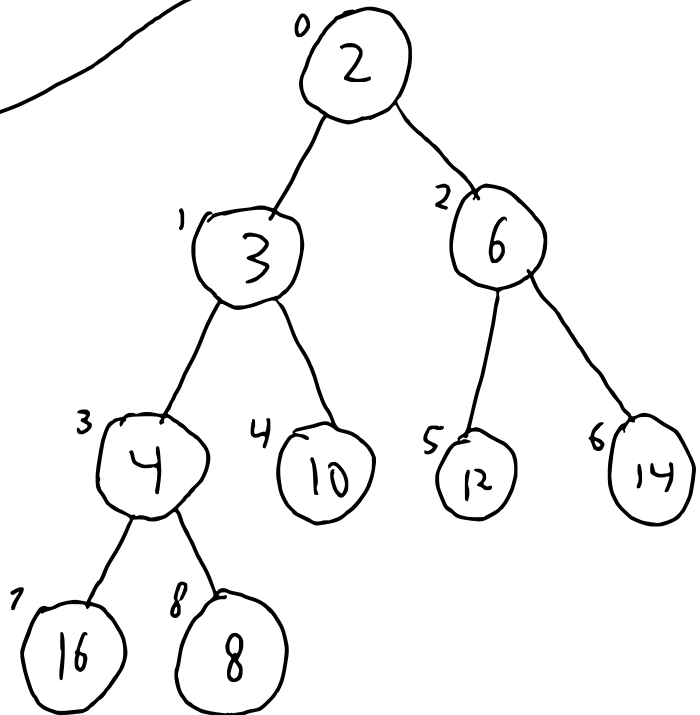
min-Heap Achieved



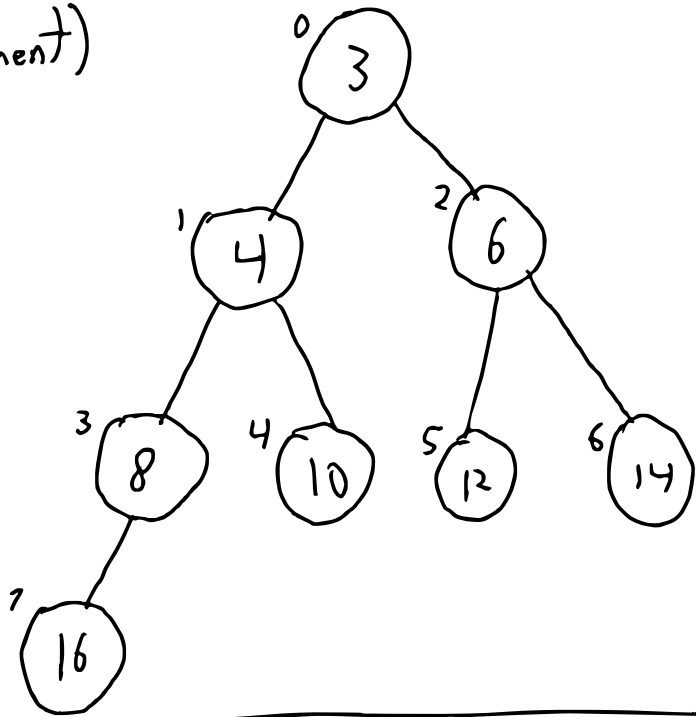
## 4b. Initial Configuration



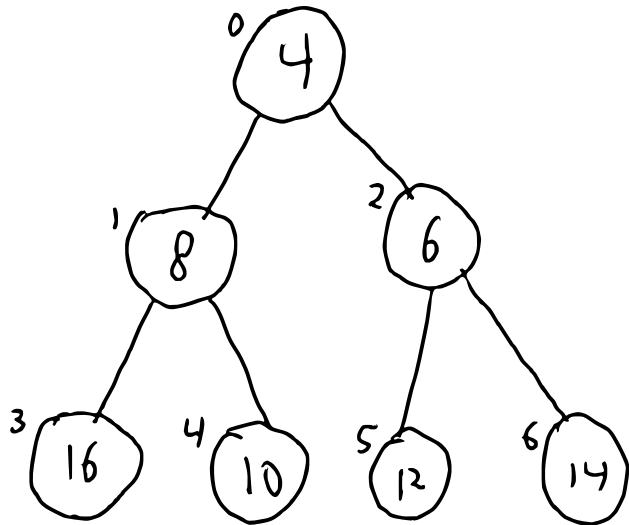
Insert 3



Pop(top element)



Pop(top element)



Insert 5

