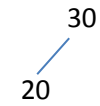
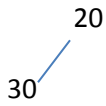
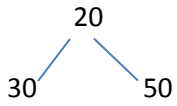
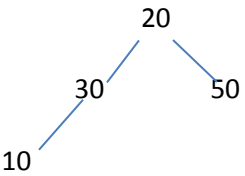
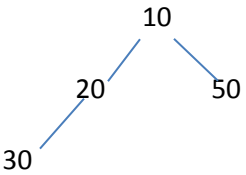
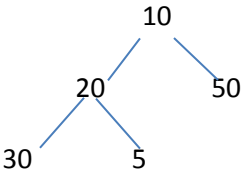
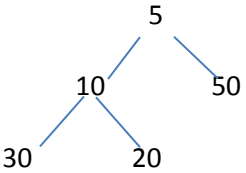
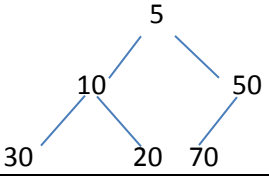
Worksheet: Heap Practice
Group 11

In Preparation: Read Chapter 11 on the Priority Queue ADT and Heaps
Insert the following values, in the order that they are given into a Min Heap. Show the tree after each insertion.

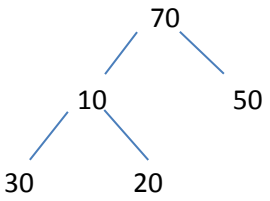
1) 30,20,50,10,5,70

30 is added	30
20 is added Tree is filled from left to right New element is placed in the next available position, then the tree is fixed by percolating up (while new element is less than parent, swap value with the parent)	Element is added  Percolating up 
50 is added Tree is filled from left to right	
10 is added Tree is filled from left to right New element is placed in the next available position, then the tree is fixed by percolating up (while new element is less than parent, swap value with the parent)	Element is added  Percolating up 
5 is added Tree is filled from left to right New element is placed in the next available position, then the tree is fixed by percolating up (while new element is less than parent, swap value with the parent)	Element is added  Percolating up 
70 is added	

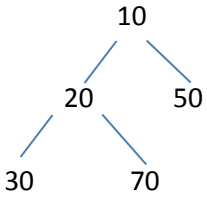
2) Remove Min from the heap

Remove Min is equivalent to removing root

Root is replaced with the element in the last filled position

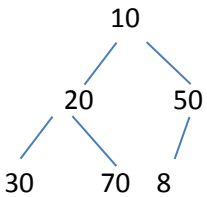


The heap is fixed by percolating down **(while greater than the smallest child, swap with the smallest child)**

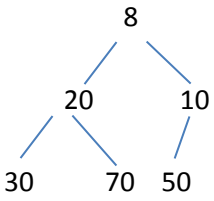


3) Add 8 to the heap

Tree is filled from left to right



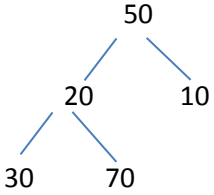
New element is placed in the next available position, then the tree is fixed by percolating up **(while new element is less than parent, swap value with the parent)**



4) Remove Min from the heap

Remove Min is equivalent to removing root

Root is replaced with the element in the last filled position



The heap is fixed by percolating down **(while greater than the smallest child, swap with the smallest child)**