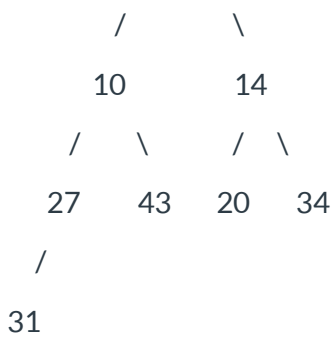
Week 9 Homework 2: Heap Sort and Counting Sort

Que 7) Sort these numbers using Heapsort

14 10 33 27 43 20 34 31

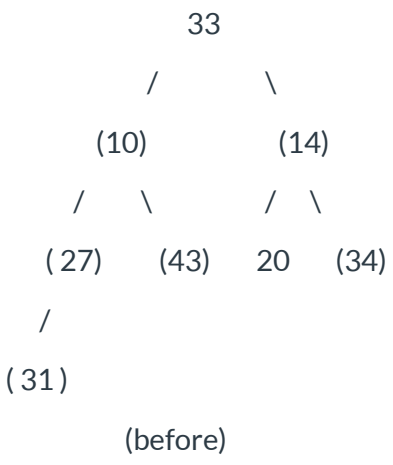
Step 1):

Initial element : 33

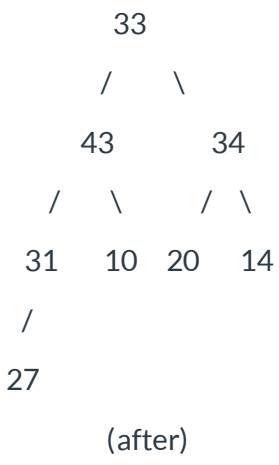


Compare bottom to top node and Shift max number in bracket up) :

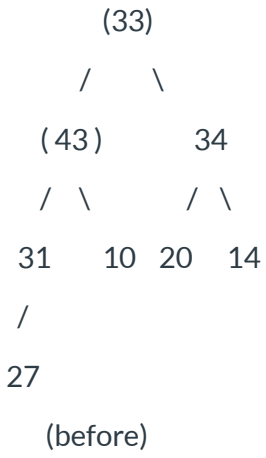
Max Heap) :

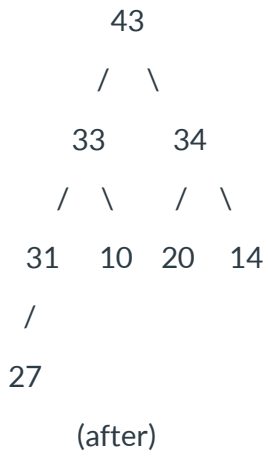


(before)

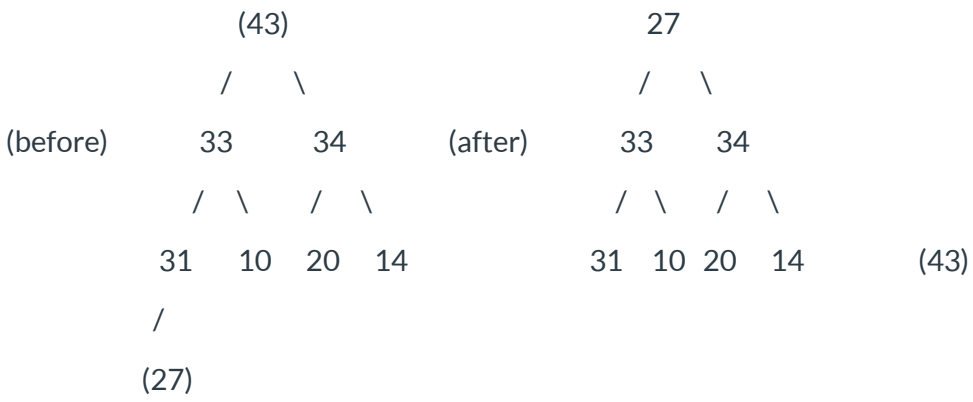


(after)



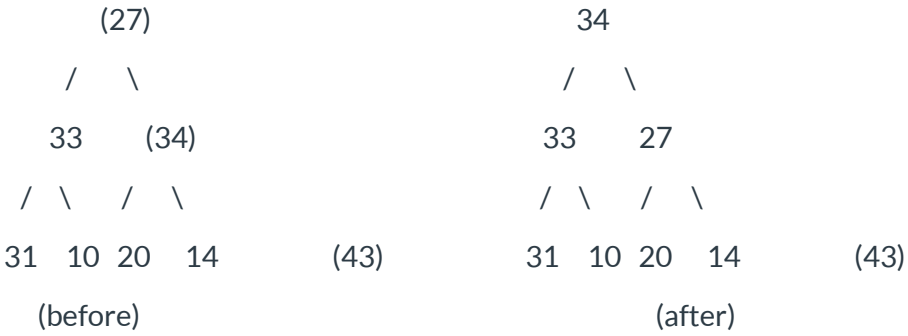


Do Swaping in between both nodes, last node and parent node):

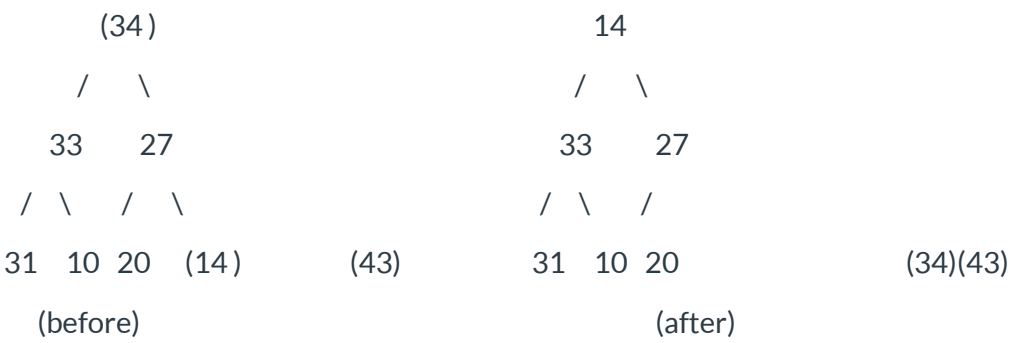


Step 2) :

Max heap (Compare bottom to top node and Shift max number in bracket up) :

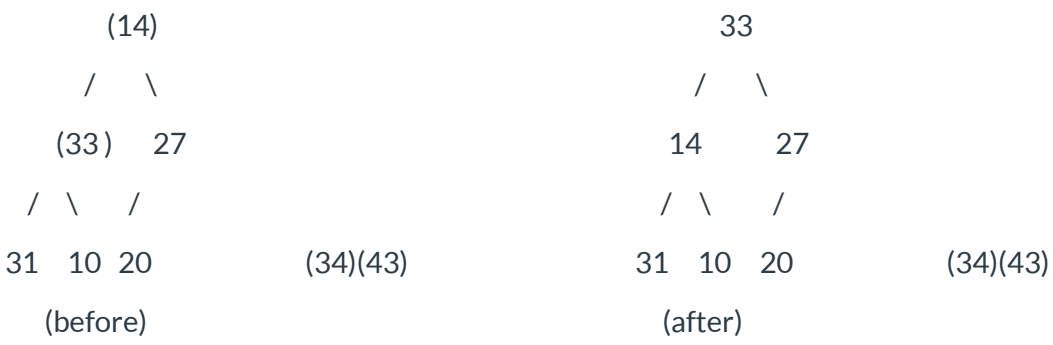


Do Swaping in between both nodes, last node and parent node):

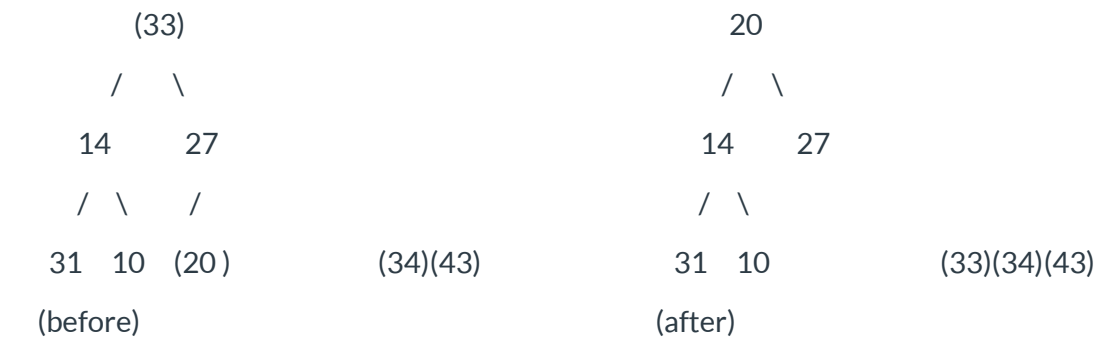


Step 3):

Max heap (Compare bottom to top node and Shift max number in bracket up) :

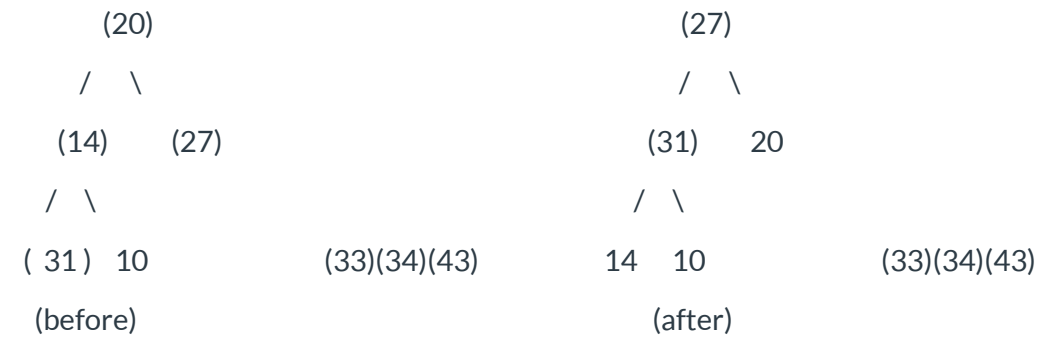


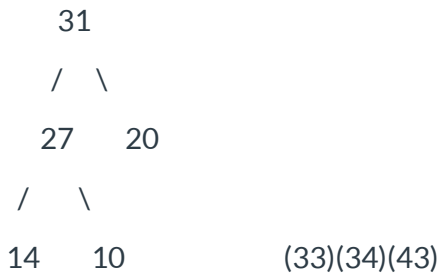
Do Swaping in between both nodes, last node and parent node):



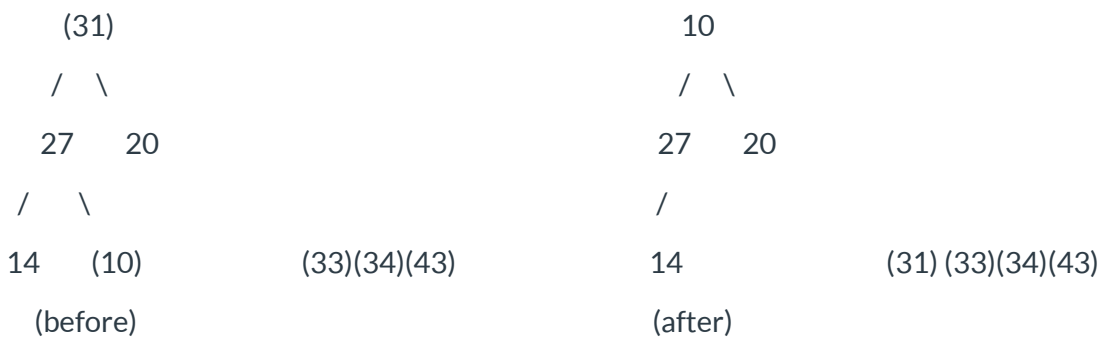
Step 4)

Max heap (Compare bottom to top node and Shift max number in bracket up) :



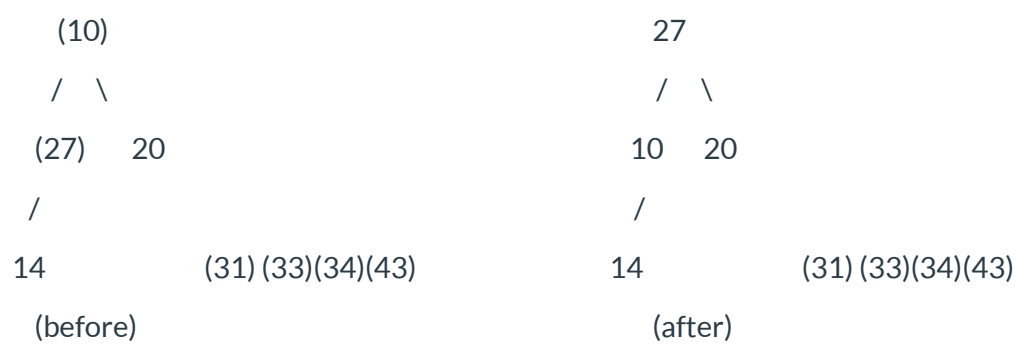


Do Swaping in between both nodes, last node and parent node):



Step 5):

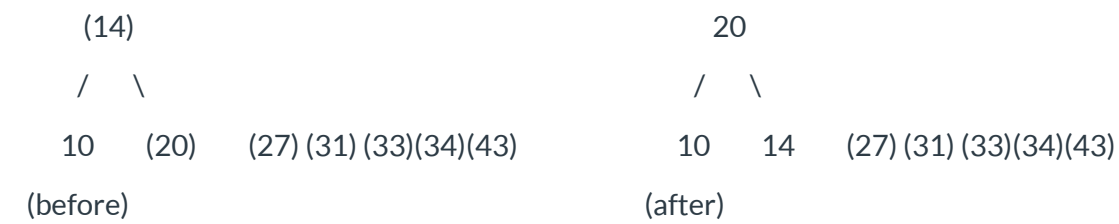
Max heap (Compare bottom to top node and Shift max number in bracket up) :



Do Swaping in between both nodes, last node and parent node):

Step 6):

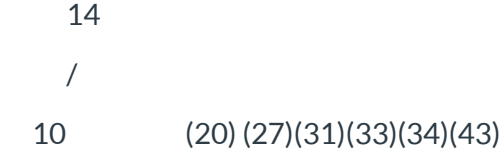
Max heap (Compare bottom to top node and Shift max number in bracket up) :



Do Swaping in between both nodes, last node and parent node):

Step 7):

Max heap (Compare bottom to top node and Shift max number in bracket up) :



Do Swaping in between both nodes, last node and parent node):

(14)

/

(10) (20) (27)(31)(33)(34)(43)

(before)

Sorted list:

(10)(14) (20) (27)(31)(33)(34)(43)

(after)

Que 16) Counting Sort

1, 5, 3, 2

Ans): Assuming the data in the range 0 to 5

Index: 0 1 2 3 4 5

Count: 0 1 1 1 0 1

Sorted list:

[1 , 2, 3, 5]