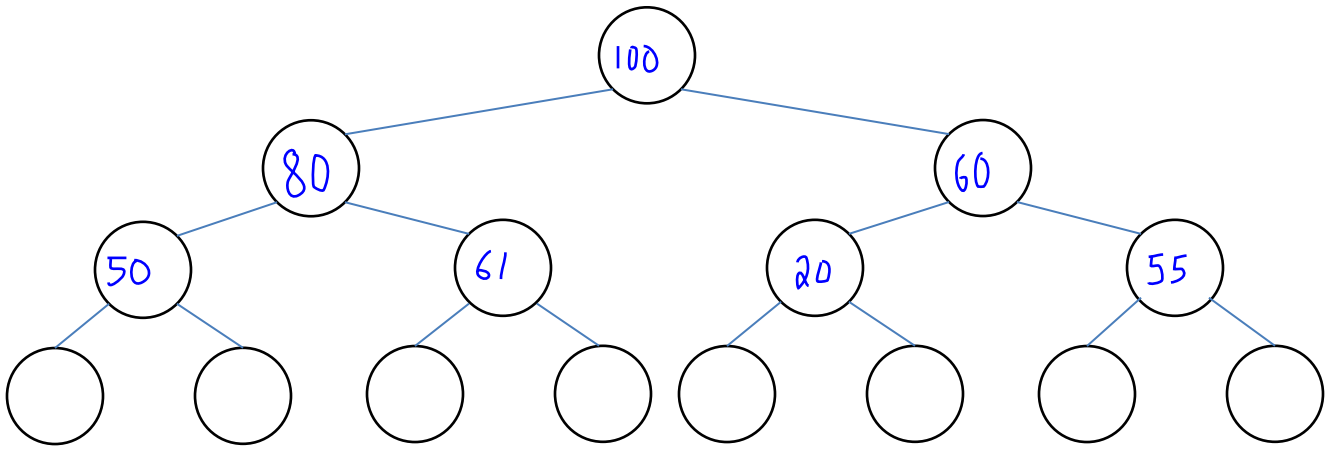
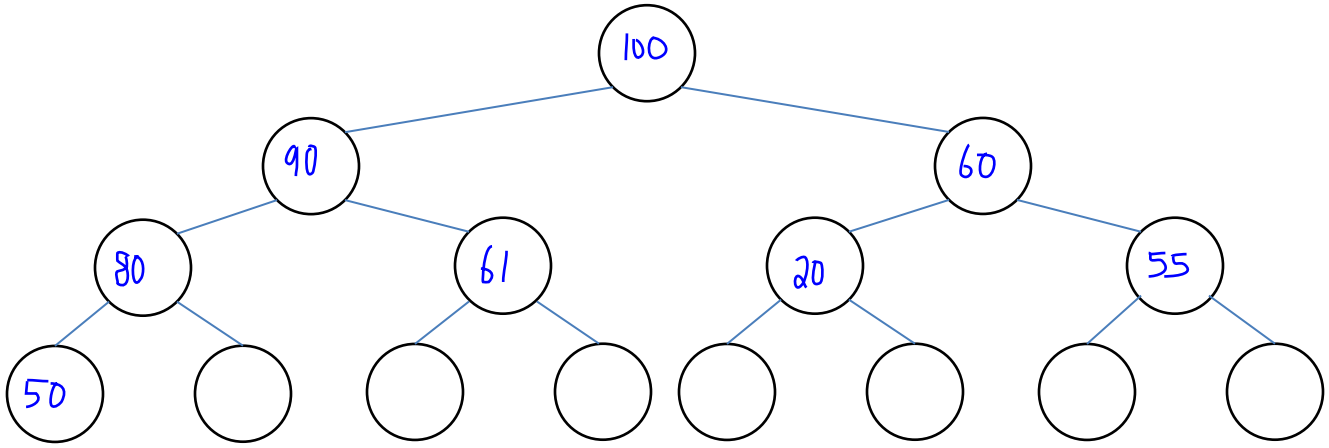
Data Structure and Algorithm
Heap Exercise

Insert the following integers by the following order into a binary **MAX** heap. The following order does not require any bubbling up or down.

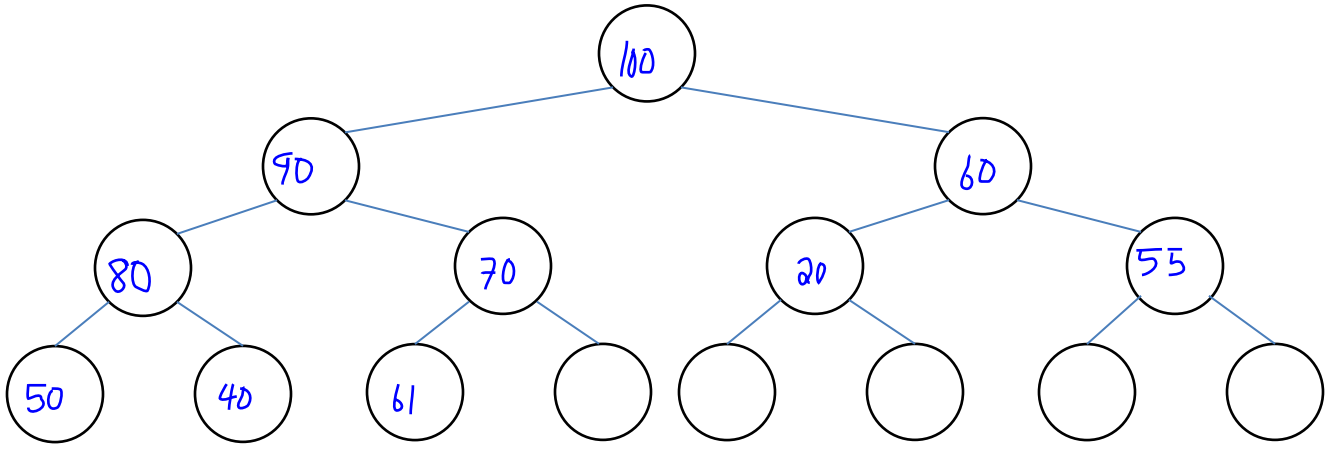
100, 80, 60, 50, 61, 20, 55



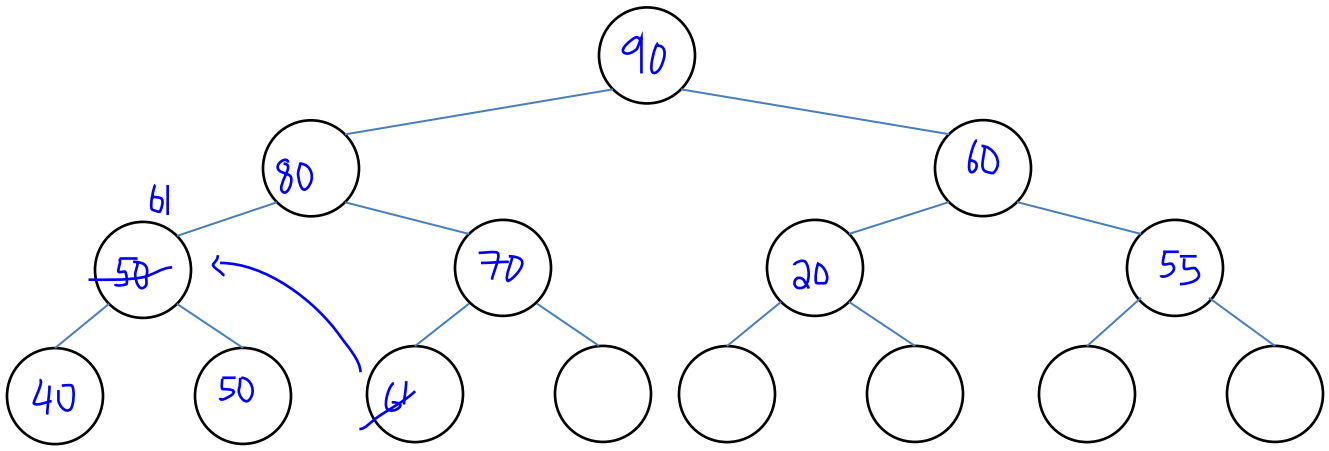
Insert 90, and "bubbling" if necessary, show the final heap below



Insert 40 and 70. Show the final heap



Extract the max from the heap. And show the final heap below



Challenge: If I want to delete 61, think of a case that I need to bubble up the replacement of 61. You may insert more items before deleting 61.

BFS

Array Representation of Heap

Repeat the whole process from the beginning with an array; insert 100, 80, 60, 50, 61, 20, 55

	100	80	60	50	61	20	55					
Array index:	0	1	2	3	4	5	6	7	8	9	10	11

Insert 90

	100	90	60	80	61	20	55	50				
Array index:	0	1	2	3	4	5	6	7	8	9	10	11

Insert 40, then 70

	100	90	60	80	70	20	55	50	40	61		
Array index:	0	1	2	3	4	5	6	7	8	9	10	11

Extract Max:

	90	80	60	61	70	20	55	40	50			
Array index:	0	1	2	3	4	5	6	7	8	9	10	11