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Priority Queue and Heap

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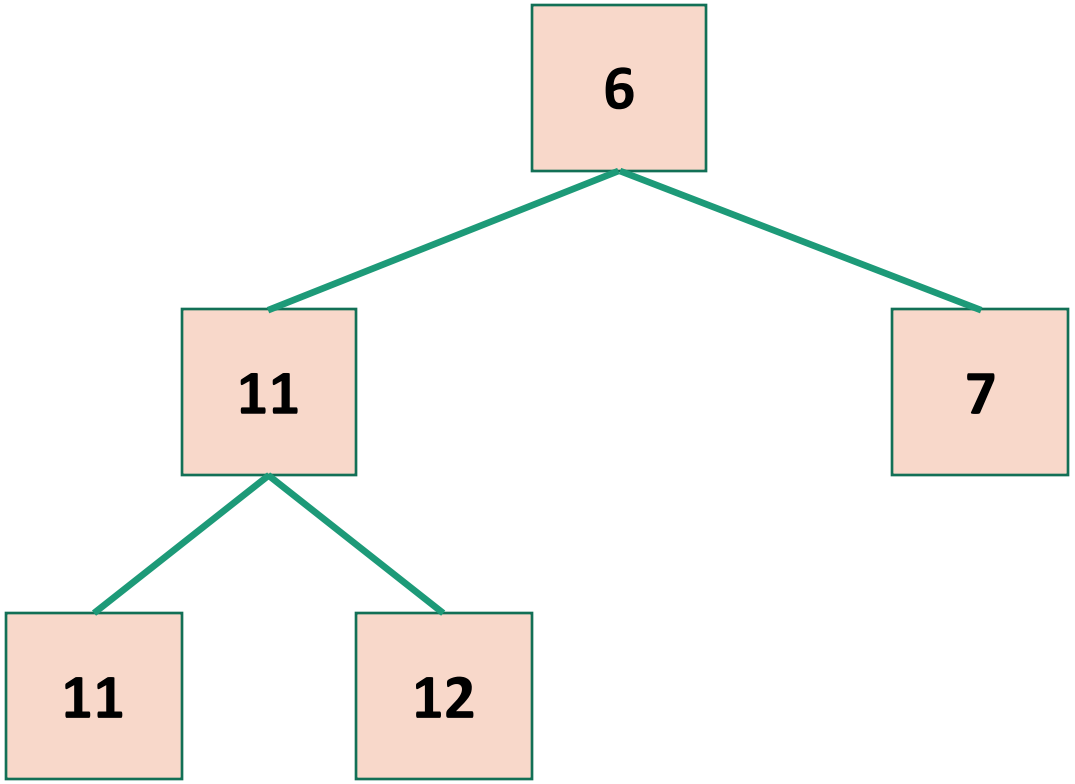
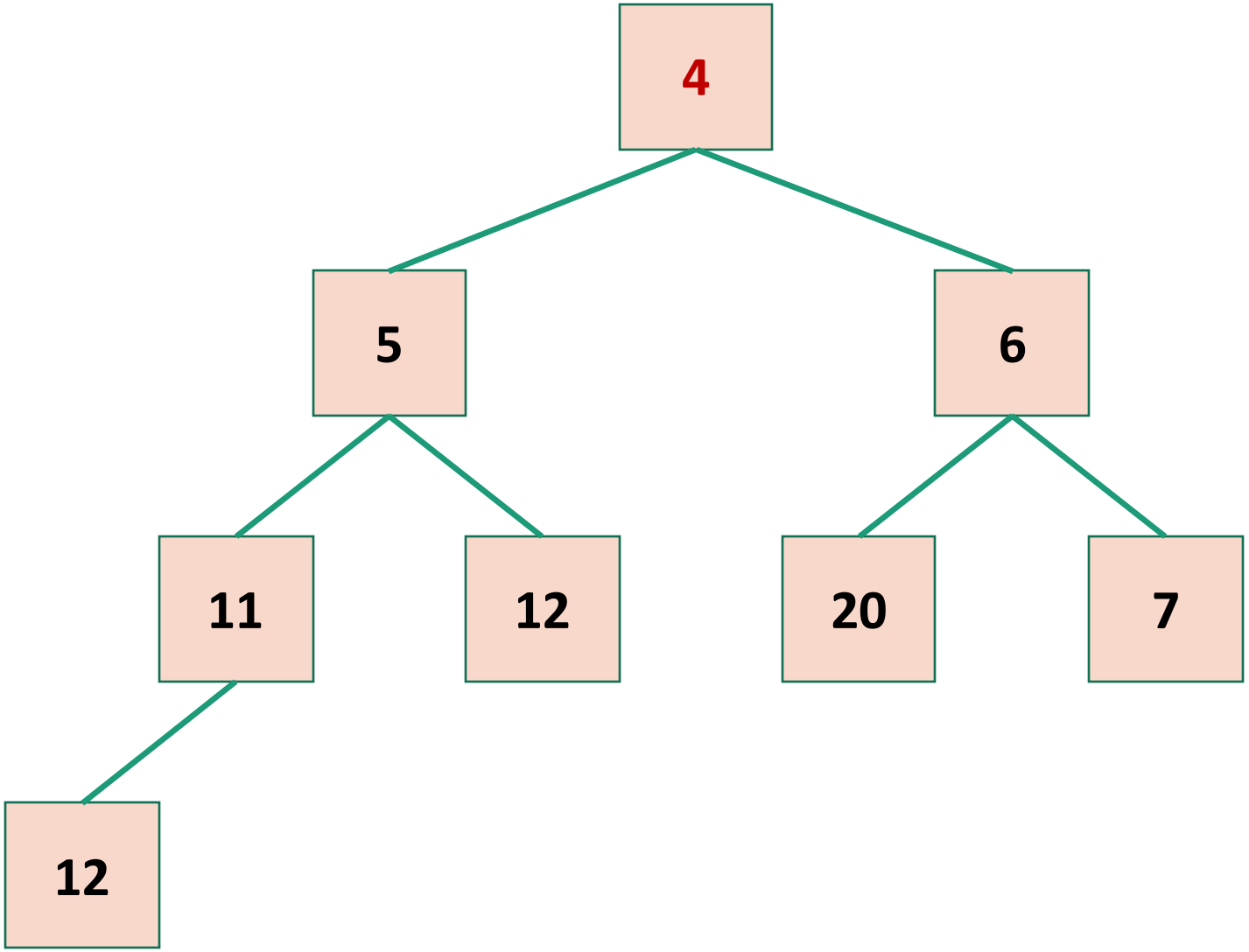
Exercise 1: insert 20, 5, 4



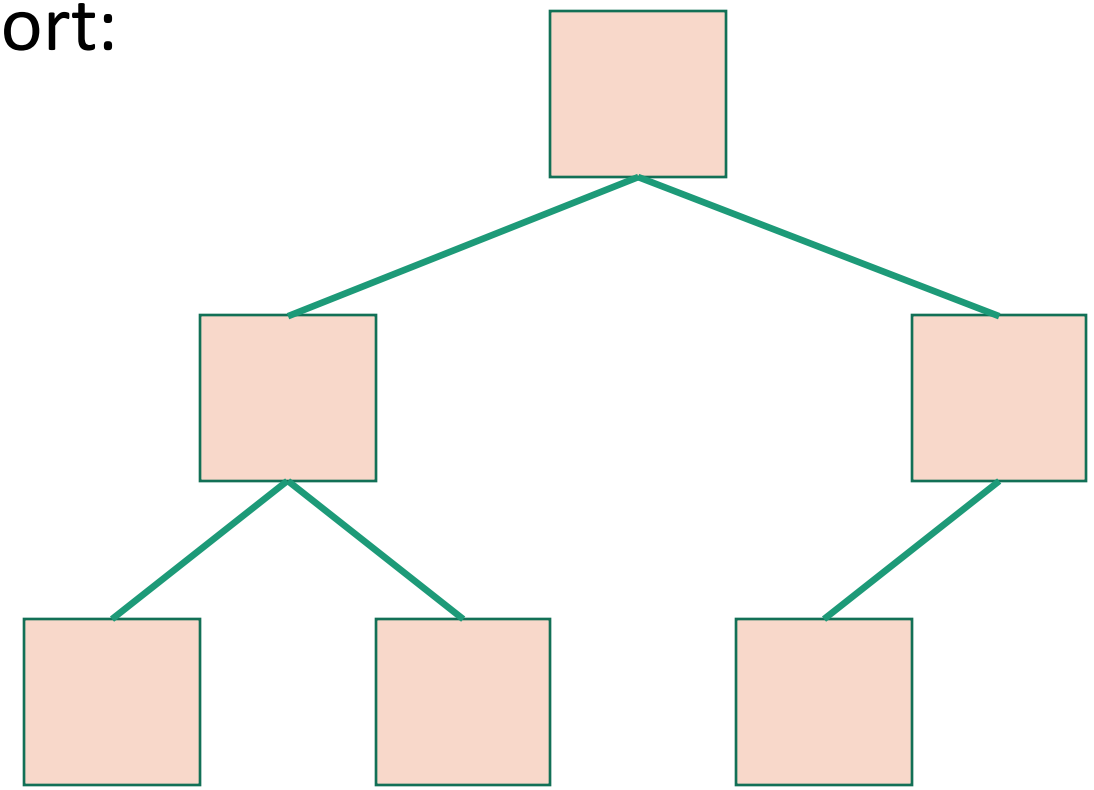
Exercise 2: remove 4



Exercise 3: heap sort

Sort the following sequence in non-increasing order using in-place heap sort:

[3 6 9 2 5 8]



Exercise 4

Illustrate the execution of the selection-sort algorithm on the following input sequence:

(22, 15, 36, 44, 10, 3, 9, 13, 29, 25).

Exercise 5

Illustrate the execution of the insertion-sort algorithm on the following input sequence:

(22, 15, 36, 44, 10, 3, 9, 13, 29, 25).

Exercise 6

Show that the sum $\sum_{i=1}^{n} \log i$, appearing in the analysis of heap-sort, is $\mathrm{O}(n \log n)$.

Exercise 7

Show that the sum $\sum_{i=1}^{n} \log i$, appearing in the analysis of heap-sort, is $\Omega(n \log n)$.