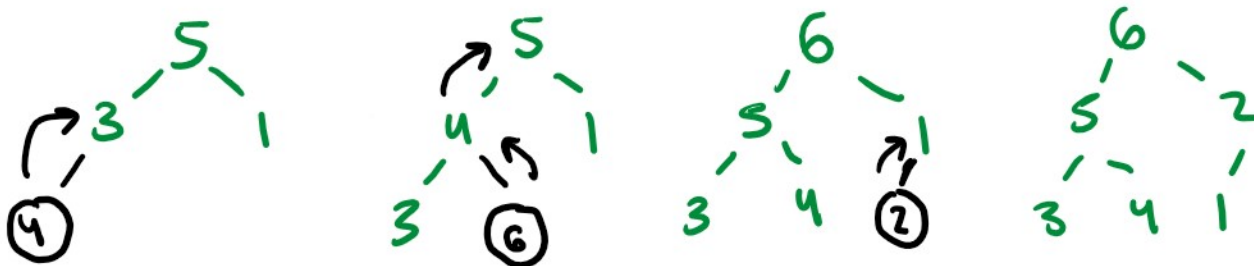


Finishing up heaps

Friday, November 18, 2022 1:17 PM

Insertion and balance



Deletion and balance?



Solution for deletion: move element in rightmost leaf to root and sift down (maintains order AND balance!)

Selection/Insertion sort $O(N^2)$ Insert (first, sorted (rest))
(for those who did the 111 → 255 bridge)

MergeSort $O(N \cdot \log N)$

QuickSort $O(N^2)$

HeapSort

- added elts to heap, one-by-one $N \cdot \log N$

- removed from heap, one-by-one $N \cdot \log N$

$O(N \cdot \log N)$ see bottom of posted heap code!

→ doing as a batch operation is called "heapify" and is $O(N)$