

Algorithms — Homework 4

Heaps

Due October 6.

- 1) Sort the following sequence using heap sort.

22 80 18 9 90 12 22 57 86 36

Show each heap before extracting the maximum.

- 2) Describe an algorithm which deletes an item with index i from an n -element max-heap. Your algorithm should run in $\mathcal{O}(\log n)$ time.
- 3) Show how to implement a first-in, first-out queue with a priority queue. Show how to implement a stack with a priority queue.