CS3 Assignment 3

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1   Problem 3

Design an efficient algorithm for finding for finding and deleting an element of the smallest value in a heap and determine its time efficiency. If the heap is a minimum heap then finding the minimum value would be simple since it would be the root. However to delete it would take a few more moves.

1) Swap root with furthest node/largest node
2) Reduce size of heap by one
3) Sift down value in root position until the heap returns to being a minimum heap.

There are also maximum heaps where the smallest value is the furthest from the root. In this case you could simply work your way down from the root with pointer traversal and delete it straight from the bottom.