

COSC201: Tutorial Week 5

Heaps

1. Insert the following values into a binary heap in the order given. Show the heap after each insertion.

69, 26, 50, 94, 6, 19, 55, 76, 57, 71, 75, 10, 85, 67, 4

2. Remove all the items in the heap from the previous question. Show the heap after each removal.
3. Prove, by induction, that the maximum number of items in a heap of height h is $2^{h+1} - 1$. Remember that the height of a heap is the maximum number of edges in a path from the root to a leaf.