ELEC 278
Fundamentals of Information Structures

Fall 2016
Section 001

Assignment 3
Heaps

Suggested completion date:
Nov 8th 2016

Problem 1

Make a minheap out of the following integers
23, 7, 92, 6, 12, 14, 40, 44, 20, 21
Illustrate the tree and the array representation of the heap after all insertions.

Problem 2

Using withdrawMin, find the 3rd smallest value of the heap in Problem 1. Illustrate the tree and the array after each call of withdrawMin.

Problem 3

Using the same sequence of integer in problem 1, construct a maxHeap. Illustrate the tree and the array representation of the heap after all insertions.

Problem 4

Using withdrawMax, find the 2nd largest value of the heap in Problem 1. Illustrate the tree and the array after each call of withdrawMax.

Problem 5

Write a code to find the kth smallest element in a heap.

Problem 6

Rewrite all heap operations for MaxHeap, which are:

1. ReheapUp
2. ReheapDown
3. Insert
4. WithdrawMax
5. FindMax
6. Heapify