Labwork 8

Your work will be evaluated using Visual Studio 2015. You are not allowed to make any changes to heap.h. Your work should be compiling and running; define member functions but leave them empty if necessary.

Q1 of 2: Implement a min-heap class by defining the functions provided to you in heap.h. Notice that elements are stored in an array, and first element of the heap should be stored in index 0. Functions you should implement are described below:

- percolate_down(int index): Modifies the array in a way that the subtree whose root is the indexth element becomes a min-heap. This method assumes that the subtrees whose roots are chilren of the indexth root are valid min-heaps.

- delete_min(): Deletes the minimum element from the heap while maintaining min-heap property.

- heapify(int index): Modifies the array to turn it into a min-heap.

- print(): Prints the contents of the array.

- heap(int * a, int size): This method creates a copy of the array provided, which has 'size' number of elements. This is the constructor method.

- min(int a, int b): Returns the minimum element among a and b. **Optional**.

- inorder(): Driver function for the recursive version.

- inorder(int index): Traverses and prints the elements in the heap in an inorder fashion.

Q2 of 2: Implement a C++ program which creates and populates an array, and creates a heap from it by using the class described above. After the heap is built, delete all elements one by one and print the contents of the heap at each step.