Lab 6: Priority Queue

Data Structures and Algorithms

This lab is to have you implement heap and implement Priority Queue using your implemented heap. Also, you will have an opportunity to use code from other people for your code.

Your first task: Implement MyMinHeap with the following methods

- void insert(int d)
- int remove()
- int peek()
- boolean isFull()
- boolean isEmpty()
- String toString()

Now, let implement priority queue using our heap.

To do so, we will make use of heap by declare MyMinHeap inside the class MyPQueue. Then, for every priority queue method, we can call corresponding MyMinHeap method to do the work. For example, dequeue() will call remove() to extract and remove the min value from heap to return the value.

Your second task: Implement MyPQueue by calling corresponding MyMinHeap method. You must not reimplement anything. Every method in MyPQueue can be accomplished by calling an appropriate method from MyMinHeap.

Lastly, you will have an opportunity to work with someone else's code.

This lab provides you a java file call FibonacciMinPQ.java. this code is developed by Robert Sedgewick and Kevin Wayne. This lab does not require you to understand their implementation (take a look at your own risk). Here is what you need to know

To create a heap, you can call

FibonacciMinPQ<Integer> heap = new FibonacciMinPQ<Integer>();

The following are corresponding methods

MyMinHeap	**FibonacciMinPQ**
void insert(int d)	int insert(int d)
int remove()	int delMin()
int peek()	int minKey()
boolean isEmpty()	boolean isEmpty()
boolean isFull()	-

Note that since FibonacciMinPQ implemented using Node like a linked list, there is no isFull() implemented.

Your third task: Implement another priority class queue call MyPQueueF by calling the appropriated methods from FibonacciMinPQ. You must not change anything in FibonacciMinPQ.java. Note that there will be a warning for compiling FibonacciMinPQ.java. Please just ignore it for now.

Note: For all the tasks. Please test your code to make sure they are correct.

Hand in your work in MS Team assignment by summitting MyMinHeap.java, MyPQueue.java, and MyPQueueF.java.