Lab 7 Linked Structures

In Lab 5 you created a queue data structure. You will convert it to a priority queue data structure. A priority queue is a sorted queue. When an item is added to the structure it is placed in the correct sequence. You will modify the addBack() function to search for the correct place to insert the new item.

You will need to modify the addBack() function. Will you need to make any other changes to your Lab 5 code? Here is what you should have:

```
Front  // Pointer to the front of the queue
Back   // Pointer to the back of the queue
addBack()  // puts on item at the end of the structure
getFront() // returns the value at the front of the structure
removeFront() // removes the first item in the structure
isEmpty():
```

When you write isEmpty() it should not be counting the nodes. How do you do it?

**TESTING**

You must also write a driver program that uses your priority queue to demonstrate it works correctly. You should prompt the user to enter a series of characters, with some way to indicate they have finished entering values. Just enter each value into your structure, in the correct place. Then you print out the values as you remove them from your structure.

Your code should also generate an error if a user attempts to remove more items than were entered into the structure. Add to your driver program a test to fill the queue and stack with N values and attempt to print N+1.