# CS3305-XL Assignment 8

**Requirements**

The goal of this assignment is to reinforce the concept of heap and implement priority queue as a heap in C++.

For this assignment, use the zip file Priority\_Queue\_Heap.zip provided with this assignment. It includes five files. Compile, and run the files and understand how class heap and the main function work.

Complete the implementation of the template class PQ\_Heap.template. The only **member data** we need for this class is a heap object.

To implement all priority queue functions defined in file PQ\_Heap.h, you may need to include additional functions to files *heap.h* and *heap.template* (provided in the zip file). Do NOT rename these 2 files.

Next, create a new test file testPQH.cpp to test class *PQ\_Heap*. Use a menu system as follows. The menu allows the user to start with option 0 (to select and set the type of queue), then exercise other options.

**0. Enter Queue Type (int or string)**

1. **Enqueue Element**
2. **Dequeue Element**
3. **Check is\_Full**
4. **Check is\_Empty**
5. **Print Size**
6. **Display Front Element**
7. **Print Queue Elements**
8. **Quit program**

For option 7, utilize function *check\_heap()*. Make sure the code gives proper messages for special cases, such as dequeue from an empty queue or enqueue to a full queue, etc. Re-display the menu after each option is fully exercised.

# Submitting Assignment

Submit your assignment zip file through D2L using the appropriate assignment link. Please use the submission guidelines provided in D2L.   
Please submit all five files (heap.h, heap.template, PO\_Heap.h, PQ\_Heap.template, and testPQH.cpp) to the assignment submission folder in D2L bythe due date posted in D2L. **Do NOT submit file main.cpp provided with the assignment.**