CSc 21200 – 2018 Fall
Homework 3
Due October 31st, 2018

You will need to submit a written report with part of your codes and your source code via Blackboard. You also need to bring in a hard copy of the report with part of your codes to the class on the day that this is due.

Name your header file as LastName(3 to 5 letters)_FirstNameInitial_HW4_QX.h and your implementation file as LastName(3 to 5 letters)_FirstNameInitial_HW4_QX.cpp
Note: You can only use iostream, cassert, cmath, cstdio, and cstdlib.

All the following classes are to be implemented as template.
1. Write your own class of stack using Dynamic array with:
   a. The basic functions
   b. A swap member function that swaps two stacks without changing the order
2. Write your own class of queue using Dynamic array with:
   a. The basic functions
   b. A swap member function that swaps two queues without changing the order
3. Write your own class of priority queue using Dynamic array with:
   a. The basic functions
4. Write a class using two stacks of your stack class to simulate a queue and their basic functions.
5. Write a class using two queues of your queue class to simulate a stack and their basic functions.

Example structures of the report:
   1. An overview of this homework
   2. Header file for question 1
   3. Implementation file for question 1
   4. Header file for question 2
   5. Implementation file for question 2
   6. Header file for question 3
   7. Implementation file for question 3
   8. Header file for question 4
   9. Implementation file for question 4
   10. Explain how your simulated queue works
   11. Header file for question 5
   12. Implementation file for question 5
   13. Explain how your simulated stack works
   14. Any improvements, problems, etc. of the class/functions
   15. Code for header file
Code should be Consolas font size 8 to 10.