CS3305 Data Structures

Spring 2021

Assignment No. 2

**For both problems follow the Program Submission guidelines outlined on D2L**

1a. **(40 points)**

Construct a class that will model a quadratic expression (ax2+bx+c). In addition to a constructor creating a quadratic expression, the following operations can be performed:

* query quadratic expression for each coefficient
* evaluate the quadratic expression at a specified value
* determine the number of real zeros (solutions to associated quadratic equation)
* determine the real zeros

Also construct a test program which will test whether your implementation of this class is correct.

Note: the coefficients should be private variables and can be accessed through functions

Check that the program compiles and runs correctly. Submit your assignment in D2L.

2b. **(60 points)**  
Implement the sequence class from chapter 3.2.  
Pay special attention to the documentation on pages 128 and 129 in Figure 3.9 sequence1.h.

Create a program sequence1.cpp that will demonstrate the features of this class. Include comments that describe the expected output in each case. Figure 3.10 on pages 134, 135, and 136 provide a test program sequence\_test.cpp for the sequence class.  
Use the test program to test your class implementation.

Check that the program compiles and runs correctly. Submit your assignment in D2L.