**Lebanese American University**

**Computer Science and Math Department, Byblos**

**CSC/BIF 245 Objects and Data Abstraction**

**Assignment 5**

**Fall 2021**

**Due date: November 13, 2021**

**Question 1 (10 points)** Implement a stack using linked lists. Then, use the implemented class to solve the problem of evaluating a fully parenthesized expression that we have seen in class.

A fully parenthesized expression is an arithmetic expression where each operator is surrounded by two operands and two parentheses. For example, the following are fully parenthesized expressions: ((9+7)\*6), ((5-3)+(9-8)), (((9+8)-(9\*7))-(7+2)). you may assume that all numbers are positive integers and that the expression contains the following operators only: +, -, \*, /, %. Your code should work with all possible integers.

**Question 2 (10 points)** Implement a queue using arrays. The queue should store values of type int.

**What to submit**

Use Blackboard to submit all your .java and .class files as well as any input files that might be required by your code. Make sure to write your name, student id and date of last modification on top of each .java file.

**Plagiarism and Cheating Policy**

Cheating is a serious offense. If a student is found to have copied part or all of the assignment, he or she will receive a zero on the assignment. During exams, if a student is caught cheating, he or she will receive a zero on the exam. This might result in the student getting an F on the course. NO EXCUSES WILL BE ACCEPTED. The same applies to the person providing others with material. The same applies to plagiarism (presenting someone else’s work as being one’s own work).

**Deadline Policy**

Deadlines for submitting assignments will be announced in class or on the assignments. They are firm. Students must respect them. A student failing to meet the deadline will get 5% of the grade deducted per day late. A student cannot replace an assignment with another one. If he or she fails to submit an assignment, a zero will be scored on the missed assignment.

**Important Reminder**

**You cannot do well on the exams unless you do the assignment YOURSELF! Do not Google the solution, do not try to find it in books. This will not help you! It is your decision in the end, your responsibility.**