BIRZEIT UNIVERSITY

Department of Computer Science

COMP2321 (Second Semester - Spring2015/2016)

Project#1 Due Date: To be announced later (along with Project#2)

This project is based on what you have learnt in the lecture room about Linked List. The application you will implement in this project is to perform mathematical operations on **large integers**.

Your program should perform addition, subtraction, multiplication, and division or arbitrarily large integers. Each integer is represented as a list of its digits. For some of the operations above, moving backward through the list is useful; hence **double linked lists** are more appropriate to use than normal linked lists.

Write the multiplication as a standard multiplication where the first multiplicand is multiplied with each digit of the second multiplicand and then added. And write the division as a long division. You might need to implement additional function to determine if the dividend is larger than the divisor in absolute value.

Your program should read a file containing at least two numbers to perform the operations above. The user should be able to select the operations (s)he wants to perform. Also, an option to print the output to a text file.

The user should be displayed a menu with the options necessary to run the functionalities of the program (i.e., read the input file, add, subtract, multiply, divide, print the results to an output file, and exit).

The deadline of this project will be announced along with project2. However, late submissions will not be accepted for any reason. Please make sure that your application is running properly on your laptop before the lecture. Project discussions will take place in the lecture room.

Grading policy and general notes on the projects:

1. Your application should have all functionalities working properly. Twenty marks will be graded for the functionality of the project;
2. The following notes will make up the remaining 10 marks of the grade:
    a. There has to be adequate documentation and comments in the code (i.e., functions, loops, etc.);
    b. Your code should follow the code convention (i.e., spaces, indentations, etc.); and
    c. Your application should contain a menu to allow the user to select which option (s)he would like to run.

Good luck!