In this project, you will implement a *Polynomial ADT using* Linked Lists. You will implement the Multiplication, Addition, and Subtraction operations of polynomials.

Your program should be able to read a file of polynomials called **equations.txt** and store each equation in a doubly-linked list. Once the file is read and equations are loaded into the linked lists, the user should be able to perform mathematical operations on the polynomials (addition, subtraction, and multiplication). Once the user select an operation through a menu, the output should be displayed and then the menu should show again. Another option for the user is to store the results of all operations in a file called **results.txt**. Your application should show an appropriate screen with menu options to inform the user of the available operations to let her/him to choose from.

Example of input file:

```
2x^7+10x^5-10x^3+2x+1
-15x^7-10x^5+90x^2-2
2x^2 + x - 1
```

Upon user selection, the application should show the output of the operation performed (i.e., Addition, Subtraction, or Multiplication). The user then should have an option to enter a value of the variable term in the equation to substitute.

The deadline of this assignment is by the end of Tuesday 13 April 2021. Late submissions will not be accepted for any reason.

Notes and submission instructions:

1. **This is individual work**. It should represent your own efforts. It is fine to discuss your work and to ask your colleagues, but you are not allowed to copy/paste the work of others or give your work to anyone else. You are not allowed to post/copy from other websites and/or social media and this will be considered as cheating.

2. **Document format**. Please submit only the code file (**c** file) containing the code of your project. Please rename it as follows: "**P1_YourStudentID_FirstNameLastName_SectionNo.c**". E.g., P1_1190000_AmmarAhmed_3.c → given this student in section 3.

3. **Input/output file name**. Make sure that the input/output file names are the same as in the specifications.

4. Include your full name, student ID, and section number in the beginning of your file.

5. Please do not compress the file, <u>only the C-file is needed</u>.

6. Files not following the convention in point 2 will not be marked.

Good luck!