# Data Structure HW2

**Problem 1 : Polynomial Calculator**

Adar's assignment involves implementing polynomial addition and subtraction. You will be given polynomial A and polynomial B, along with an operation that instructs you to compute either A + B or A - B. The result should be expressed in polynomial form in descending order.

**Instruction:**

- You will be provided with two polynomials, A and B, and an operation (+ or -).
- Perform the operation and output the resulting polynomial in descending order by degree.
- Combine terms with the same degree.

**Example 1:**

Input: A = 7x^3 + 3x^2 + x + 4, B = 2x^5 + x^6 + 3, Operation: +

```
7x^3 + 3x^2 + x + 4
2x^5 + x^6 + 3
+
```

Output: x^6 + 2x^5 + 7x^3 + 3x^2 + x + 7

```
x^6 + 2x^5 + 7x^3 + 3x^2 + x + 7
```

**Example 2:**

Input: A = -4x^4 + 5x^7 + x^5 + 1, B = 5x^7 + 2x^4 – 6, Operation: -

```
-4x^4 + 5x^7 + x^5 + 1
5x^7 + 2x^4 – 6
-
```

Output:

x^5 - 6x^4 + 7

```
x^5 - 6x^4 + 7
```

**Example 3:**

Input: A = 8x^3 - 5x^8 + x^11 + 2, B = -5x^8 + 8x^3 + x^11 + 2, Operation: -

```
8x^3 - 5x^8 + x^11 + 2
-5x^8 + 8x^3 + x^11 + 2
-
```

Output:

0

```
0
```

**Constraints:**

- Please do not use C++ STL.
- Polynomial A and polynomial B may have terms with the same degree.
  e.g. 5x^8 + x^11 + 5x^8 is valid.
- Polynomials A and B will not be provided in ascending order by degree; the terms will be given randomly.
  e.g. 5x^8 + x^11 + 5x^7
- The degree of a polynomial will not exceed 2147483647 (2^31 - 1).
  e.g. x^2147483648 is not valid.
- Polynomial A and polynomial B will not have negative exponents.
  e.g. x^-3 is not valid.

Program Submission:

- Deadline: 2024/10/30 (三) 23:59
- Submission format: HW2_學號_2.cpp
- Grading: Formosa OJ grading report