Challenging Task 03 (Linked List)

Task 1: Implement Polynomial ADT, overload +, - and * operators. For this ADT create Term instead of Node, a term has coefficient, power & next. Write different constructors like Non-parameterized to create empty Polynomial, where terms can be added later. Write a constructor with three parameters where two parameter are integer arrays having list of coefficients and powers and third parameter is size of array. Inside constructor traverse the array and add terms into Polynomial according to coefficients and power [better use add term function coming ahead.

Write member function to add term with two integer parameters coefficient & power. Inside check if power already exists add coefficient into same term, otherwise add term according to power in sequence of terms.

A **polynomial** is an expression consisting of variables & coefficients that involves only the operations of addition, subtraction, & multiplication. An example of a polynomial is $x^2 - 4x + 7$. This polynomial has three terms, where coefficients are 1, -1, 7 & powers are 2, 1 & 0 respectively. Another example of a polynomial is $2x^8 - 6x^5 - 2x^3 + 8x^2$. This polynomial has four terms, where coefficients are 2, -6, -2, 8 & powers are 8, 5, 3 & 2 respectively.

Hope you know addition, subtraction, & multiplication operation studied in Elementary Mathematics.

Task 2: Write a function to reverse list in a singly loop. You may do some operation before & after the loop.

Task 3: Write a function to merge two ordered lists into a third list in order.