EX 5A

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class Node:
    def __init__(self, coeff, power):
        self.coeff = coeff
        self.power = power
        self.next = None
def insert_term(head, coeff, power):
    new_node = Node(coeff, power)
    if head is None or power > head.power:
        new_node.next = head
        return new_node
    temp = head
    while temp.next and temp.next.power >= power:
        if temp.next.power == power:
            temp.next.coeff += coeff
            return head
        temp = temp.next
    if temp.power == power:
        temp.coeff += coeff
    else:
        new_node.next = temp.next
        temp.next = new_node
    return head
def add_poly(p1, p2):
    result = None
    while p1 and p2:
        if p1.power == p2.power:
            result = insert_term(result, p1.coeff + p2.coeff, p1.power)
            p1 = p1.next
            p2 = p2.next
        elif p1.power > p2.power:
            result = insert_term(result, p1.coeff, p1.power)
            p1 = p1.next
        else:
            result = insert_term(result, p2.coeff, p2.power)
            p2 = p2.next
    while p1:
        result = insert_term(result, p1.coeff, p1.power)
        p1 = p1.next
    while p2:
        result = insert_term(result, p2.coeff, p2.power)
        p2 = p2.next
    return result
def display_poly(head):
     if head is None:
        print("0")
        return
    temp = head
    while temp:
        print(f"{temp.coeff}x^{temp.power}", end=" ")
```

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        if temp.next:
            print("+", end=" ")
        temp = temp.next
    print()
def get_polynomial():
    head = None
    n = int(input("Enter number of terms: "))
    for _ in range(n):
        coeff = int(input("Enter coefficient: "))
        power = int(input("Enter power: "))
        head = insert_term(head, coeff, power)
    return head
print("Enter first polynomial:")
poly1 = get_polynomial()
print("Enter second polynomial:")
poly2 = get_polynomial()
print("\nFirst Polynomial:")
display_poly(poly1)
print("Second Polynomial:")
display_poly(poly2)
sum_poly = add_poly(poly1, poly2)
print("Sum of Polynomials:")
display_poly(sum_poly)
```

OUTPUT

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>>>
========== RESTART
Enter first polynomial:
Enter number of terms: 3
Enter coefficient: 5
Enter power: 2
Enter coefficient: 4
Enter power: 1
Enter coefficient: 3
Enter power: 0
Enter second polynomial:
Enter number of terms: 3
Enter coefficient: 6
Enter power: 2
Enter coefficient: 5
Enter power: 1
Enter coefficient: 4
Enter power: 0

First Polynomial:
5x^2 + 4x^1 + 3x^0
Second Polynomial:
6x^2 + 5x^1 + 4x^0
Sum of Polynomials:
11x^2 + 9x^1 + 7x^0
>>>
```