

LeetCode Linked List Patterns: Add Two Numbers & Merge Two Lists

Problem 1: Add Two Numbers (Linked List)

You're given two non-empty linked lists representing two non-negative integers.

The digits are stored in reverse order, and each of their nodes contains a single digit.

Add the two numbers and return the sum as a linked list.

Example:

Input: l1 = [2,4,3], l2 = [5,6,4]

Output: [7,0,8] (342 + 465 = 807)

Key Code:

- Use a dummyHead to simplify the list-building process
- Traverse both lists with a loop
- Keep track of carry when sum ≥ 10
- Return dummyHead.next to skip the dummy node

Main Pattern:

- Dummy node technique
- Linked list traversal
- Carry handling in digit-based math

Problem 2: Merge Two Sorted Lists (Linked List)

Merge two sorted linked lists and return it as a new sorted list.

Example:

Input: l1 = [1,2,4], l2 = [1,3,4]

Output: [1,1,2,3,4,4]

Key Code:

- Use a dummyHead and a current pointer
- Compare values from both lists and append the smaller one
- At the end, attach the remaining nodes from the list that's not empty
- Return dummyHead.next to skip the dummy node

Main Pattern:

- Dummy node technique
- Two-pointer merging
- Efficient traversal with linked list structure