Problem 1474: Delete N Nodes After M Nodes of a Linked List

Problem Information

Difficulty: Easy
Acceptance Rate: 74.44%
Paid Only: Yes
Tags: Linked List

Problem Description

You are given the `head` of a linked list and two integers `m` and `n`.

Traverse the linked list and remove some nodes in the following way:

* Start with the head as the current node. * Keep the first `m` nodes starting with the current node. * Remove the next `n` nodes * Keep repeating steps 2 and 3 until you reach the end of the list.

Return _the head of the modified list after removing the mentioned nodes_.

Example 1:

Input: head = [1,2,3,4,5,6,7,8,9,10,11,12,13], m = 2, n = 3 **Output:** [1,2,6,7,11,12] **Explanation:** Keep the first (m = 2) nodes starting from the head of the linked List (1 ->2) show in black nodes. Delete the next (n = 3) nodes (3 -> 4 -> 5) show in read nodes. Continue with the same procedure until reaching the tail of the Linked List. Head of the linked list after removing nodes is returned.

Example 2:

Input: head = [1,2,3,4,5,6,7,8,9,10,11], m = 1, n = 3 **Output:** [1,5,9] **Explanation:** Head of linked list after removing nodes is returned.

Constraints:

* The number of nodes in the list is in the range `[1, 104]`. * `1 <= Node.val <= 106` * `1 <= m, n <= 1000`

Follow up: Could you solve this problem by modifying the list in-place?

Code Snippets

C++:

```
/**
* Definition for singly-linked list.
* struct ListNode {
* int val;
* ListNode *next;
* ListNode() : val(0), next(nullptr) {}
* ListNode(int x) : val(x), next(nullptr) {}
* ListNode(int x, ListNode *next) : val(x), next(next) {}
* };
*/
class Solution {
public:
ListNode* deleteNodes(ListNode* head, int m, int n) {

}
};
```

Java:

```
/**
* Definition for singly-linked list.
* public class ListNode {
* int val;
* ListNode next;
* ListNode() {}
* ListNode(int val) { this.val = val; }
* ListNode(int val, ListNode next) { this.val = val; this.next = next; }
```

```
* }
*/
class Solution {
public ListNode deleteNodes(ListNode head, int m, int n) {

}
}
```

Python3:

```
# Definition for singly-linked list.
# class ListNode:
# def __init__(self, val=0, next=None):
# self.val = val
# self.next = next
class Solution:
def deleteNodes(self, head: Optional[ListNode], m: int, n: int) ->
Optional[ListNode]:
```