

# 021. Merge Two Sorted Lists

## 021 Merge Two Sorted Lists

- Linked List
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### Description

Merge two sorted linked lists and return it as a new list. The new list should be made by splicing together the nodes of the first two lists.

**Example:**

**Input:** 1->2->4, 1->3->4  
**Output:** 1->1->2->3->4->4

### 1. Thought line

### 2. Linked List

```
1 /**
2  * Definition for singly-linked list.
3  * struct ListNode {
4  *     int val;
5  *     ListNode *next;
6  *     ListNode(int x) : val(x), next(NULL) {}
7  * };
8  */
9 class Solution {
10 public:
11     ListNode* mergeTwoLists(ListNode* l1, ListNode* l2) {
12
13         ListNode* dummyHead = new ListNode(0);
14         ListNode* ptr = dummyHead;
15
16         while (l1 != nullptr || l2 != nullptr){
17             if (l1==nullptr) {
18                 ptr->next = l2;
19                 break;
20             }
21             if (l2==nullptr) {
22                 ptr->next = l1;
23                 break;
24             }
25             int v1 = l1->val, v2 = l2->val;
26             ptr->next = (v1<=v2)?new ListNode(v1):new ListNode(v2);
27             l1 = (v1<=v2)?l1->next:l1;
28             l2 = (v1>v2)?l2->next:l2;
29             ptr = ptr->next;
30
31         }
32         return dummyHead->next;
33     }
34 };
```