

203. Remove Linked List Elements

```
C ✓ Auto
1 /**
2  * Definition for singly-linked list.
3  * struct ListNode {
4  *     int val;
5  *     struct ListNode *next;
6  * };
7 */
8 struct ListNode* removeElements(struct ListNode* head, int val) {
9     while (head != NULL && head->val == val) {
10         struct ListNode* temp = head;
11         head = head->next;
12         free(temp);
13     }
14
15     struct ListNode* current = head;
16
17     while (current != NULL && current->next != NULL) {
18         if (current->next->val == val) {
19             struct ListNode* temp = current->next;
20             current->next = current->next->next;
21             free(temp);
22         } else {
23             current = current->next;
24         }
25     }
26
27     return head;
28 }
```

**Example 1:**

**Input:** head = [1,2,6,3,4,5,6], val = 6  
**Output:** [1,2,3,4,5]

**Example 2:**

**Input:** head = [], val = 1  
**Output:** []

**Example 3:**

**Input:** head = [7,7,7,7], val = 7

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Sort List - LeetCode

leetcode.com/problems/sort-list/description/?envType=problem-list-v2&envId=linked-list

**Linked List**

Description Editorial Solutions Submissions

**Code**

```
C Auto
1 struct ListNode* merge(struct ListNode* l1, struct ListNode* l2) {
2     if (l1 == NULL) return l2;
3     if (l2 == NULL) return l1;
4
5     struct ListNode* head = NULL;
6     struct ListNode* tail = NULL;
7
8     while (l1 && l2) {
9         struct ListNode* temp = NULL;
10        if (l1->val < l2->val) {
11            temp = l1;
12            l1 = l1->next;
13        } else {
14            temp = l2;
15            l2 = l2->next;
16        }
17
18        if (!head) {
19            head = tail = temp;
20        } else {
21            tail->next = temp;
22            tail = temp;
23        }
24
25        if (!l1) tail->next = l1;
26        if (!l2) tail->next = l2;
27    }
28
29}
```

**Example 1:**

The diagram illustrates the merging of two sorted lists. On the left, a list of nodes with values 4, 2, 1, 3 is shown. An arrow points down to the result on the right, where the nodes are rearranged to have values 1, 2, 3, 4.

**Input:** head = [4, 2, 1, 3]  
**Output:** [1, 2, 3, 4]

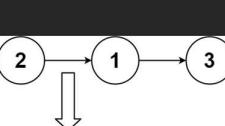
**Example 2:**

The diagram illustrates the merging of two sorted lists. On the left, a list of nodes with values -1, 5, 3, 4, 0 is shown. An arrow points down to the result on the right, where the nodes are rearranged to have values -1, 0, 3, 4, 5.

12.8K 162 Testcase Test Result

Given the `head` of a linked list, return the *list after sorting it in ascending order*.

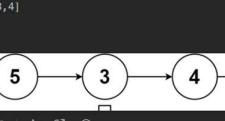
**Example 1:**



```
struct ListNode* sortList(struct ListNode* head) {
    if (head == NULL || head->next == NULL)
        return head;
    struct ListNode* slow = head;
    struct ListNode* fast = head;
    struct ListNode* prev = NULL;
    while (fast && fast->next) {
        prev = slow;
        slow = slow->next;
        fast = fast->next->next;
    }
    prev->next = NULL;
    struct ListNode* left = sortList(head);
    struct ListNode* right = sortList(slow);
    return merge(left, right);
}
```

**Input:** head = [4,2,1,3]  
**Output:** [1,2,3,4]

**Example 2:**



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Sort List - LeetCode

148. Sort List

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Given the head of a linked list, return the list after sorting it in ascending order.

Example 1:

Input: head = [4, 2, 1, 3]  
Output: [1, 2, 3, 4]

Example 2:

Input: head = [-1, 5, 3, 4, 0]  
Output: [0, 4, 3, 5, -1]

Code

```
C // Auto
35
36     return head;
37 }
38 }
```

Saved

Testcase Test Result

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input  
head = [4, 2, 1, 3]

Output  
[1, 2, 3, 4]

Expected  
[1, 2, 3, 4]

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Ln 60, Col 1

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Reverse Linked List - LeetCode

206. Reverse Linked List

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Given the head of a singly linked list, reverse the list, and return the reversed list.

Example 1:

Input: head = [1, 2, 3, 4, 5]  
Output: [5, 4, 3, 2, 1]

Example 2:

Input: head = [1, 2]  
Output: [2, 1]

Code

```
C // Auto
8 struct ListNode* reverseList(struct ListNode* head) {
9     struct ListNode* prev = NULL;
10    struct ListNode* curr = head;
11
12    while (curr != NULL) {
13        struct ListNode* next_temp = curr->next;
14        curr->next = prev;
15        prev = curr;
16        curr = next_temp;
17    }
18
19    return prev;
}
```

Saved

Testcase Test Result

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input  
head = [1, 2, 3, 4, 5]

Output  
[5, 4, 3, 2, 1]

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Ln 20, Col 2

<https://leetcode.com/problems/merge-two-sorted-lists/>

### 21. Merge Two Sorted Lists

You are given the heads of two sorted linked lists `list1` and `list2`.  
 Merge the two lists into one **sorted** list. The list should be made by splicing together the nodes of the first two lists.  
 Return the head of the merged linked list.

**Example 1:**

```

8 struct ListNode* mergeTwoLists(struct ListNode* list1, struct ListNode* list2) {
9     struct ListNode* list;
10    struct ListNode* tail = &list;
11
12    while (list1 != NULL && list2 != NULL) {
13        if (list1->val <= list2->val) {
14            tail->next = list1;
15            list1 = list1->next;
16        } else {
17            tail->next = list2;
18            list2 = list2->next;
19        }
20        tail = tail->next;
21    }
22
23    tail->next = (list1 != NULL) ? list1 : list2;
24    return list.next;
}

```

**Input:** list1 = [1,2,4], list2 = [1,3,4]

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input  
list1 = [1,2,4]

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<https://leetcode.com/problems/linked-list-cycle/>

### 141. Linked List Cycle

Given `head`, the head of a linked list; determine if the linked list has a cycle in it.  
 There is a cycle in a linked list if there is some node in the list that can be reached again by continuously following the `next` pointer. Internally, `pos` is used to denote the index of the node that tail's `next` pointer is connected to. Note that `pos` is not passed as a parameter.  
 Return `true` if there is a cycle in the linked list. Otherwise, return `false`.

**Example 1:**

```

6 */
7 */
8 bool hasCycle(struct ListNode *head) {
9     struct ListNode *slow = head;
10    struct ListNode *fast = head;
11
12    while (fast != NULL && fast->next != NULL) {
13        slow = slow->next;
14        fast = fast->next->next;
15        if (slow == fast) {
16            return true;
17        }
18    }
19
20    return false;
21 }

```

**Input:** head = [3,2,0,-4], pos = 1  
**Output:** true  
**Explanation:** There is a cycle in the linked list, where the tail connects to the 1st node (0-indexed).

**Example 2:**

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input  
head = [3,2,0,-4]

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leetcode.com/problems/linked-list-cycle-ii/?envType=problem-list-v2&envId=linked-list

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142. Linked List Cycle II

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Given the head of a linked list, return the node where the cycle begins. If there is no cycle, return null.

There is a cycle in a linked list if there is some node in the list that can be reached again by continuously following the next pointer. Internally, pos is used to denote the index of the node that tail's next pointer is connected to (0-indexed). It is -1 if there is no cycle. Note that pos is not passed as a parameter.

Do not modify the linked list.

Example 1:

Input: head = [3,2,0,-4], pos = 1  
Output: tail connects to node index 1  
Explanation: There is a cycle in the linked list, where tail

Code

```
C v Auto
16     break;
17 }
18 }
19 if (fast == NULL || fast->next == NULL) {
20     return NULL;
21 }
22 }
23 slow = head;
24 while (slow != fast) {
25     slow = slow->next;
26     fast = fast->next;
27 }
28 return slow;
29 }
30 }
31 }
```

Saved

Testcase Test Result

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input

head = [3,2,0,-4]

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