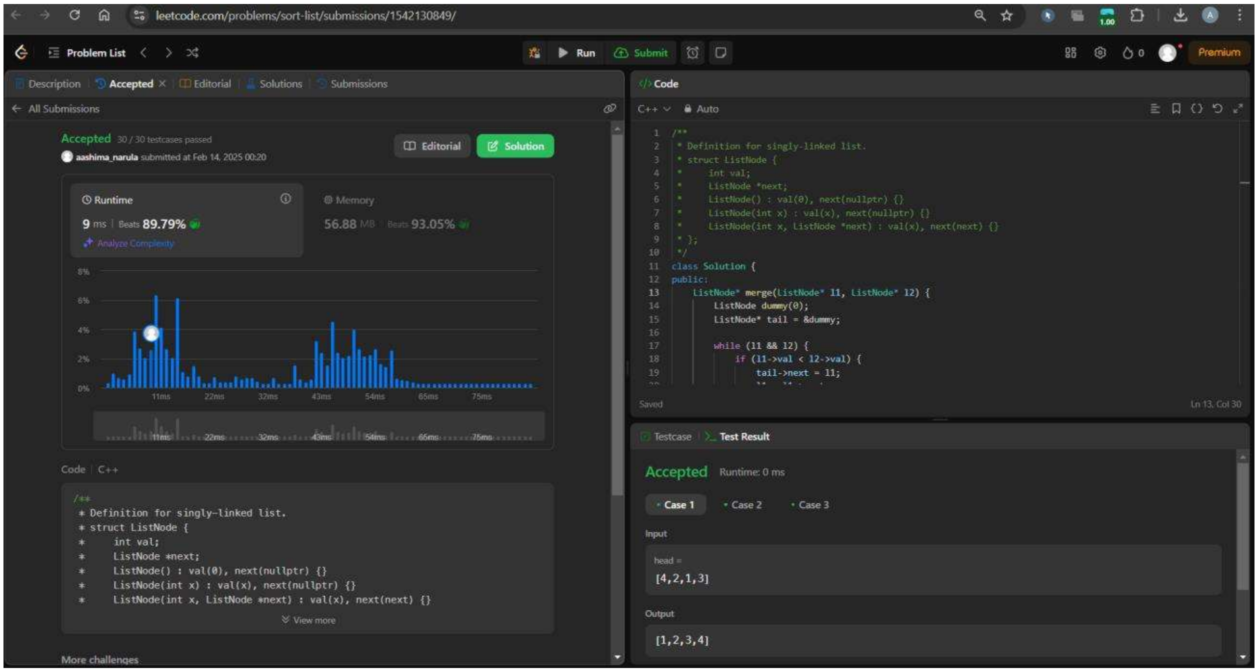
148. Sort List

```
class Solution {
public:
    ListNode* merge(ListNode* l1, ListNode* l2) {
        ListNode dummy(0);
        ListNode* tail = &dummy;

        while (l1 && l2) {
            if (l1->val < l2->val) {
                tail->next = l1;
                l1 = l1->next;
            } else {
                tail->next = l2;
                l2 = l2->next;
            }
            tail = tail->next;
        }
        tail->next = l1 ? l1 : l2;
        return dummy.next;
    }

    ListNode* sortList(ListNode* head) {
        if (!head || !head->next) return head;

        ListNode* slow = head, *fast = head, *prev = nullptr;
        while (fast && fast->next) {
            prev = slow;
            slow = slow->next;
            fast = fast->next->next;
        }
        prev->next = nullptr;

        ListNode* left = sortList(head);
        ListNode* right = sortList(slow);

        return merge(left, right);
    }
};
```



Accepted 30 / 30 testcases passed

aashima_narula submitted at Feb 14, 2025 00:20

Runtime 9 ms | Beats 89.79%

Memory 56.88 MB | Beats 93.05%

Code | 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) {}
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 *     ListNode(int x, ListNode *next) : val(x), next(next) {}
 * };
 */
class Solution {
public:
    ListNode* merge(ListNode* l1, ListNode* l2) {
        ListNode dummy(0);
        ListNode* tail = &dummy;

        while (l1 && l2) {
            if (l1->val < l2->val) {
                tail->next = l1;
```

Accepted Runtime: 0 ms

Input

head =

```
[4,2,1,3]
```

Output

```
[1,2,3,4]
```