

# 082. Remove Duplicates from Sorted List II

## 082 Remove Duplicates from Sorted List II

- Linked List

### Description

Given a sorted linked list, delete all nodes that have duplicate numbers, leaving only *distinct* numbers from the original list.

For example,

Given `1->2->3->3->4->4->5`, return `1->2->5`.

Given `1->1->>1->2->3`, return `2->3`.

### 1. Thought line

To each "distinct element checking loop":

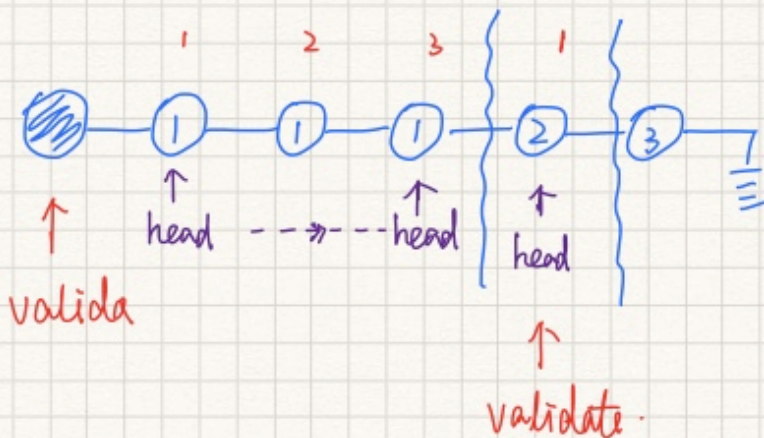
- Count times : countTimes

- If countTimes == 1;

- validatePointer points to this element
- Next "distinct element checking loop":

- If countTimes > 1;

- validatePointer stay
- Next "distinct element checking loop":



NewHead = Head->next

## 2. Linked List

```
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     ListNode *next;
 *     ListNode(int x) : val(x), next(NULL) {}
 * };
 */
class Solution {
public:
    ListNode* deleteDuplicates(ListNode* head) {
        ListNode* dummyHead = new ListNode(0);
        dummyHead->next = head;
```

```

ListNode* validatedPtr = dummyHead;
int actElement = 0;
while(head!=nullptr){
    ++actElement;
    while(head->next!=nullptr && head->next->val == head->val){
        ++actElement;
        head = head->next;
    }
    ListNode* newHead = head->next;
    if (actElement==1){
        validatedPtr->next = head;
        validatedPtr = validatedPtr->next;
    }
    else{
        validatedPtr->next = nullptr;
        head->next = nullptr;
    }
    head = newHead;
    actElement = 0;
}
return dummyHead->next;
}

};

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 * };
 */
class Solution {
public:
    ListNode* deleteDuplicates(ListNode* head) {
        ListNode* dummyHead = new ListNode(0);
        dummyHead->next = head;
        ListNode* validatedPtr = dummyHead;
        int actElement = 0;
        while(head!=nullptr){
            ++actElement;
            while(head->next!=nullptr && head->next->val == head->val){
                ++actElement;
                head = head->next;
            }
            if (actElement==1){
                validatedPtr->next = head;
                validatedPtr = validatedPtr->next;
            }
            /*
             @_: if actElement >1, validatedPtr doesn't move
             @_: dummyHead list is dominated by dummyHead and validatedPtr ONLY.
            */
            head = head->next;
            actElement = 0;
        }
        validatedPtr->next = nullptr;
        return dummyHead->next;
    }
};

```