



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 2

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Subject Name: AP- 2

Subject Code: 22CSP-351

Aim:

- a) Remove duplicates from sorted list
- b) Reverse Linked List
- c) Delete the middle node of linked list

Objective: To learn about linked list.

Code:

```
a)
class Solution {
public:
    ListNode* deleteDuplicates(ListNode* head) {
        if (!head) return nullptr;
        ListNode* current = head;
        while (current->next) {
            if (current->val == current->next->val) {
                ListNode* temp = current->next;
                current->next = current->next->next;
                delete temp;
            } else {
                current = current->next;
            }
        }
        return head;
    }
};
```



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b)

```
class Solution {
public:
    ListNode* reverseList(ListNode* head) {
        ListNode* prev = nullptr;
        ListNode* current = head;
        while (current != nullptr) {
            ListNode* nextTemp = current->next;
            current->next = prev;
            prev = current;
            current = nextTemp;
        }
        return prev;
    }
};
```

c)

```
class Solution {
public:
    ListNode* deleteMiddle(ListNode* head) {
        if (head == nullptr || head->next == nullptr) {
            return nullptr;
        }
        ListNode* slow = head;
        ListNode* fast = head;
        ListNode* prev = nullptr;
        while (fast != nullptr && fast->next != nullptr) {
            prev = slow;
            slow = slow->next;
            fast = fast->next->next;
        }
        if (prev != nullptr) {
            prev->next = slow->next;
        }
        return head;
    }
};
```



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Output:

a)

☒ Testcase | [Test Result](#)

Accepted Runtime: 0 ms

- Case 1
- Case 2

Input

head =
[1,1,2]

Output

[1,2]

Expected

[1,2]

b)

☒ 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]

Expected

[5,4,3,2,1]

c)

☒ Testcase | [Test Result](#)

Accepted Runtime: 0 ms

- Case 1
- Case 2
- Case 3

Input

head =
[1,3,4,7,1,2,6]

Output

[1,3,4,1,2,6]

Expected

[1,3,4,1,2,6]

Learning Outcomes:

- Understand the concept of linked list.
- Learnt about different problem like reverse list, remove duplicates.
- Gain an understanding about the efficiency of linked list.