



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

Experiment 2

Student Name: K.Satwik

UID 22BCS16246

Branch: CSE

Section/Group: IOT_NTPP_602-A

Semester: 6th

Date of Performance: 20-02-25

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;
    }
};
```



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

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;
    }
};
```



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

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.