203.Remove Linked List Elements

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#include <stdio.h>
#include <stdlib.h>

/* Definition for singly-linked list */
struct ListNode {
    int val;
    struct ListNode *next;
};

/* Function to create a new node */
struct ListNode* createNode(int val) {
    struct ListNode* newNode = (struct ListNode*)malloc(sizeof(struct ListNode));
    newNode->val = val;
    newNode->next = NULL;
    return newNode;
}

/* Function to display the linked list */
void displayList(struct ListNode* head) {
    struct ListNode* temp = head;
    while (temp != NULL) {
        printf("%d -> ", temp->val);
        temp = temp->next;
    }
    printf("NULL\n");
}

/* Function to remove all elements with a specific value */
struct ListNode* removeElements(struct ListNode* head, int val) {
    /* Remove nodes from the beginning if they match val */
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    while (head != NULL && head->val == val) {
        struct ListNode* temp = head;
        head = head->next;
        free(temp);
    }

    struct ListNode* current = head;

    /* Traverse the list and remove matching nodes */
    while (current != NULL && current->next != NULL) {
        if (current->next->val == val) {
            struct ListNode* temp = current->next;
            current->next = current->next->next;
            free(temp);
        } else {
            current = current->next;
        }
    }

    return head;
}

/* Function to create a linked list from user input */
struct ListNode* createList(int n) {
    int val;
    struct ListNode *head = NULL, *tail = NULL;

    for (int i = 0; i < n; i++) {
        printf("Enter element %d: ", i + 1);
        scanf("%d", &val);
        struct ListNode* newNode = createNode(val);
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        if (head == NULL) {
            head = tail = newNode;
        } else {
            tail->next = newNode;
            tail = newNode;
        }
    }

    return head;
}

int main() {
    int n, val;

    printf("Enter number of elements in the list: ");
    scanf("%d", &n);

    printf("Enter elements of the list:\n");
    struct ListNode* head = createList(n);

    printf("Original list:\n");
    displayList(head);

    printf("Enter value to remove: ");
    scanf("%d", &val);

    head = removeElements(head, val);

    printf("List after removing %d:\n", val);
    displayList(head);
```

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    return 0;
}
```

OUTPUT: