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WEEK-7

Double linked list, Insert a new node to the left of the node, Delete the contents of the list.

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

struct Node {
    int data;
    struct Node* prev;
    struct Node* next;
};

struct Node* createNode(int data) {
    struct Node* newNode = (struct Node*)
malloc(sizeof(struct Node));
    newNode->data = data;
    newNode->prev = NULL;
    return newNode;
}
void insertLeft(struct** head, struct Node*
  targetNode, int data) {
    if (!targetNode) {
        printf("Error: Target node is NULL\n");
```

```
    return;
}

struct Node* newNode = createNode(data);
if (targetNode->prev != NULL)
    targetNode->prev->next = newNode;
else
    *head = newNode;

newNode->prev = targetNode->prev;
newNode->next = targetNode;
targetNode->prev = newNode;
}

void deleteNode(struct Node** head, int value
{ struct Node* current = *head;

while (current != NULL) {
    if (current->data == value) {
        if (current->prev->next = current->next;
        else
            *head = current->next;
        if (current->next != NULL)
            current->next->prev->current->prev;
```

```
        free(current);
        printf("Node with value %d deleted successfully\n",
            value);
        return;
    }
    current = current->next;
}
printf("Node with value %d not found\n",
    value);
}
void displayList(struct Node* head){
    printf("Doubly linked list: ");
    while (head != NULL) {
        printf("%d -> ", head->data);
        head = head->next;
    }
}
int main() {
    struct Node* head = NULL;
    int choice, data, insertValue, deleteValue;

    do {
        printf("Menu");
        printf("1. Insert a node\n");
        printf("2. Delete a node\n");
```

```
printf("7. display a node\n");
printf("enter your choice:");
scanf("%d", &choice);

switch(choice){
    case 1:
        printf("Enter data for the new node:");
        scanf("%d", &data);
        if(head == NULL)
            head = createnode(data);
        else{
            struct Node* current = head;
            while(current->next != NULL)
                current = current->next;

struct Node* current = head;
while(current->next != NULL)
    current = current->next;
}
break
case 2:
    printf("Enter the value of node to delete:");
    scanf("%d", &deleteValue);
    deleteNode(&head, deleteValue);
```

```
        break;

    case 3:
        displaylist(head);
        break;

    case 4:
        printf("Exiting the program\n");
        break;

    default:
        printf("Exiting the program\n");
        break;
    }
} while (choice != 4);
return 0;
}
```

Output :- Menu :-

1) Insert a node
2) Delete a node
3) Display list
4) Exit

Enter your choice: 1
Enter value: 21

Enter your choice: 1
Enter value: 22

Double linked list: 22 → 21 → NULL

Enter your choice: 2
Enter the value to be deleted: 22
Double linked list: 21 → NULL

Enter your choice: 3
Double linked list: 21 → NULL