

slldeletion.c - Code::Blocks 20.03

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```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 struct Node {
5     int data;
6     struct Node* next;
7 }
8
9 struct Node* head = NULL;
10 void createlist(int n) {
11     struct Node *newNode, *temp;
12     int data, i;
13     for (i = 0; i < n; i++) {
14         printf("Enter data for node %d: ", i + 1);
15         scanf("%d", &data);
16         newNode = (struct Node*)malloc(sizeof(struct Node));
17         newNode->data = data;
18         newNode->next = NULL;
19
20         if (head == NULL)
21             head = newNode;
22         else {
23             temp = head;
24             while (temp->next != NULL)
25                 temp = temp->next;
26             temp->next = newNode;
27         }
28     }
29 }
30 void deleteFirst() {
31     if (head == NULL)
32         printf("List is empty.\n");
33     else {
34         struct Node* temp = head;
35         head = head->next;
36         free(temp);
37         printf("First node deleted.\n");
38     }
39 }
40 void deleteLast() {
41     if (head == NULL)
42         printf("List is empty.\n");
43     else if (head->next == NULL) {
44         free(head);
45         head = NULL;
46         printf("Last node deleted.\n");
47     } else {
48         struct Node *temp = head, *prev = NULL;
49         while (temp->next != NULL) {
50             prev = temp;
51             temp = temp->next;
52         }
53         prev->next = NULL;
54     }
55 }
```

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```
19     temp = temp->next;
20 }
21 prev->next = NULL;
22 free(temp);
23 printf("Last node deleted.\n");
24 }
25 }
26 void deleteSpecified(int value) {
27     struct Node *temp = head, *prev = NULL;
28     if (head == NULL) {
29         printf("List is empty.\n");
30         return;
31     }
32     if (head->data == value) {
33         head = head->next;
34         free(temp);
35         printf("Node with value %d deleted.\n", value);
36         return;
37     }
38     while (temp != NULL && temp->data != value) {
39         prev = temp;
40         temp = temp->next;
41     }
42     if (temp == NULL)
43         printf("Node with value %d not found.\n", value);
44     else {
45         prev->next = temp->next;
46         free(temp);
47         printf("Node with value %d deleted.\n", value);
48     }
49 }
50 void display() {
51     struct Node* temp = head;
52     if (head == NULL) {
53         printf("List is empty.\n");
54         return;
55     }
56     printf("Linked List: ");
57     while (temp != NULL) {
58         printf("%d -> ", temp->data);
59         temp = temp->next;
60     }
61     printf("NULL\n");
62 }
63 int main() {
64     int n, choice, value;
65     printf("Enter number of nodes: ");
66     scanf("%d", &n);
67     createList(n);
68     while (1) {
69         printf("\nMenu:\n");
70         printf("1. Insert at beginning\n");
71         printf("2. Insert at end\n");
72         printf("3. Insert after a node\n");
73         printf("4. Delete specified node\n");
74         printf("5. Display linked list\n");
75         printf("6. Exit\n");
76         printf("Enter your choice: ");
77         scanf("%d", &choice);
78         switch (choice) {
79             case 1:
80                 insertAtBeginning();
81                 break;
82             case 2:
83                 insertAtEnd();
84                 break;
85             case 3:
86                 insertAfter();
87                 break;
88             case 4:
89                 deleteSpecified();
90                 break;
91             case 5:
92                 display();
93                 break;
94             case 6:
95                 exit(0);
96             default:
97                 printf("Invalid choice\n");
98         }
99     }
100 }
```

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```
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void display() {
    struct Node* temp = head;
    if (head == NULL) {
        printf("List is empty.\n");
        return;
    }
    printf("Linked List: ");
    while (temp != NULL) {
        printf("%d ", temp->data);
        temp = temp->next;
    }
    printf("NULL\n");
}
int main() {
    int n, choice, value;
    printf("Enter number of nodes: ");
    scanf("%d", &n);
    createList(n);
    while (1) {
        printf("\nMenu:\n");
        printf("1. Delete first node\n");
        printf("2. Delete last node\n");
        printf("3. Delete specified node\n");
        printf("4. Display list\n");
        printf("5. Exit\n");
        printf("Enter your choice: ");
        scanf("%d", &choice);
        switch (choice) {
            case 1:
                deleteFirst();
                break;
            case 2:
                deleteLast();
                break;
            case 3:
                printf("Enter value to delete: ");
                scanf("%d", &value);
                deleteSpecified(value);
                break;
            case 4:
                display();
                break;
            case 5:
                exit(0);
            default:
                printf("Invalid choice.\n");
        }
    }
    return 0;
}
```

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C:\Users\Admin\Desktop\sldeletion.exe

```
Enter number of nodes: 5
Enter data for node 1: 10
Enter data for node 2: 20
Enter data for node 3: 30
Enter data for node 4: 40
Enter data for node 5: 50
```

```
Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
```

Enter your choice: 1

First node deleted.

```
Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
```

Enter your choice: 4

Linked List: 20 -> 30 -> 40 -> 50 -> NULL

```
Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
```

Enter your choice: 2

Last node deleted.

```
Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
```

Enter your choice: 4

Linked List: 20 -> 30 -> 40 -> NULL

```
Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
```

Enter your choice: 3

Enter value to delete: 30

Node with value 30 deleted.

```
Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
```

Enter your choice: 4

Linked List: 20 -> 40 -> NULL

Menu:

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```
C:\Users\Admin\Desktop\slsdeletion.exe
5. Exit
Enter your choice: 2
Last node deleted.

Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
Enter your choice: 4
Linked List: 20 -> 30 -> 40 -> NULL

Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
Enter your choice: 3
Enter value to delete: 30
Node with value 30 deleted.

Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
Enter your choice: 4
Linked List: 20 -> 40 -> NULL

Menu:
1. Delete first node
2. Delete last node
3. Delete specified node
4. Display list
5. Exit
Enter your choice: 5

Process returned 0 (0x0) execution time : 58.524 s
Press any key to continue.
```



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