

*dll.c - Code::Blocks 20.03

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Start here * dll.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 struct Node {
4     int data;
5     struct Node* prev;
6     struct Node* next;
7 };
8 struct Node* createNode(int data) {
9     struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
10    newNode->data = data;
11    newNode->prev = NULL;
12    newNode->next = NULL;
13    return newNode;
14 }
15 void insertEnd(struct Node** head, int data) {
16     struct Node* newNode = createNode(data);
17     if (*head == NULL) {
18         *head = newNode;
19         return;
20     }
21     struct Node* temp = *head;
22     while (temp->next != NULL)
23         temp = temp->next;
24     temp->next = newNode;
25     newNode->prev = temp;
26 }
27 void insertLeft(struct Node** head, int value, int newData) {
28     struct Node* newNode = createNode(newData);
29     struct Node* temp = *head;
30     while (temp != NULL && temp->data != value)
31         temp = temp->next;
32     if (temp == NULL) {
33         printf("Value %d not found in the list!\n", value);
34         free(newNode);
35         return;
36     }
37     if (temp->prev == NULL) {
38         newNode->next = temp;
39         temp->prev = newNode;
40         *head = newNode;
41         return;
42     }
43     newNode->prev = temp->prev;
44     newNode->next = temp;
45     temp->prev->next = newNode;
46     temp->prev = newNode;
47 }
48 void deleteValue(struct Node** head, int value) {
49     struct Node* temp = *head;
50     while (temp != NULL && temp->data != value)
```

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Start here * *dll.c * singly linked list

```
43     }
44     newNode->prev = temp->prev;
45     newNode->next = temp;
46     temp->prev->next = newNode;
47     temp->prev = newNode;
48 }
49 void deleteValue(struct Node** head, int value) {
50     struct Node* temp = *head;
51     while (temp != NULL && temp->data != value)
52         temp = temp->next;
53     if (temp == NULL) {
54         printf("Value %d not found in the list!\n", value);
55         return;
56     }
57     if (temp->prev != NULL)
58         temp->prev->next = temp->next;
59     else
60         *head = temp->next;
61     if (temp->next != NULL)
62         temp->next->prev = temp->prev;
63     free(temp);
64     printf("Node with value %d deleted.\n", value);
65 }
66 void display(struct Node* head) {
67     struct Node* temp = head;
68     printf("List: ");
69     while (temp != NULL) {
70         printf("%d <-> ", temp->data);
71         temp = temp->next;
72     }
73     printf("NULL\n");
74 }
75 int main() {
76     struct Node* head = NULL;
77     int choice, value, newValue;
78
79     while (1) {
80         printf("\n--- Doubly Linked List Menu ---\n");
81         printf("1. Insert at End\n");
82         printf("2. Insert to the Left of Node\n");
83         printf("3. Delete Node by Value\n");
84         printf("4. Display List\n");
85         printf("5. Exit\n");
86         printf("Enter choice: ");
87         scanf("%d", &choice);
88
89         switch (choice) {
90             case 1:
91                 printf("Enter value to insert: ");
92                 scanf("%d", &value);
93 }
```

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Start here * dll.c singly linked list

```
75
76 int main() {
77     struct Node* head = NULL;
78     int choice, value, newValue;
79
80     while (1) {
81         printf("\n--- Doubly Linked List Menu ---\n");
82         printf("1. Insert at End\n");
83         printf("2. Insert to the Left of Node\n");
84         printf("3. Delete Node by Value\n");
85         printf("4. Display List\n");
86         printf("5. Exit\n");
87         printf("Enter choice: ");
88         scanf("%d", &choice);
89
90         switch (choice) {
91             case 1:
92                 printf("Enter value to insert: ");
93                 scanf("%d", &value);
94                 insertEnd(&head, value);
95                 break;
96
97             case 2:
98                 printf("Enter value of node to insert left of: ");
99                 scanf("%d", &value);
100                printf("Enter new value: ");
101                scanf("%d", &newValue);
102                insertLeft(&head, value, newValue);
103                break;
104
105            case 3:
106                printf("Enter value to delete: ");
107                scanf("%d", &value);
108                deleteValue(&head, value);
109                break;
110
111            case 4:
112                display(head);
113                break;
114
115            case 5:
116                exit(0);
117
118            default:
119                printf("Invalid choice!\n");
120        }
121    }
122
123    return 0;
124
125 }
```

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```
C:\Users\Admin\Desktop\dl.exe
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 1
Enter value to insert: 10
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 1
Enter value to insert: 20
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 1
Enter value to insert: 30
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 2
Enter value of node to insert left of: 20
Enter new value: 50
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 4
List: 10 <-> 50 <-> 20 <-> 30 <-> NULL
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 3
Enter value to delete: 20
Node with value 20 deleted.
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
```

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```
C:\Users\Admin\Desktop\dlle.exe
5. Exit
Enter choice: 1
Enter value to insert: 30
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 2
Enter value of node to insert left of: 20
Enter new value: 50
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 4
List: 10 <-> 50 <-> 20 <-> 30 <-> NULL
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 3
Enter value to delete: 20
Node with value 20 deleted.
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 4
List: 10 <-> 50 <-> 30 <-> NULL
--- Doubly Linked List Menu ---
1. Insert at End
2. Insert to the Left of Node
3. Delete Node by Value
4. Display List
5. Exit
Enter choice: 5
Process returned 0 (0x0)  execution time : 81.922 s
Press any key to continue.
```

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