

```

1  #include<stdio.h>
2  #include<stdlib.h>
3  struct node
4  {
5      int data;
6      struct node *prev;
7      struct node * next;
8  };
9  struct node * start=NULL;
10 struct node * create(struct node * start)
11 {
12     int num;
13     printf("\nenter -1 to stop");
14     printf("\nenter num");
15     scanf("%d",&num);
16
17     while(num!=-1)
18     {
19         struct node * newnode=(struct node * )malloc(sizeof(struct node *));
20         newnode->data=num;
21         if(start==NULL)
22         {
23             start=newnode;
24             newnode->next=NULL;
25             newnode->prev=NULL;
26         }
27         else
28         {
29             struct node * ptr=start;
30             while(ptr->next!=NULL)
31                 ptr=ptr->next;
32             ptr->next=newnode;
33             newnode->next=NULL;
34             newnode->prev=ptr;
35         }
36         printf("enter num");
37         scanf("%d",&num);
38     }
39     return start;
40 };
41
42 struct node * display(struct node * start)
43 {
44     struct node * ptr=start;
45     while(ptr!=NULL)
46     {
47         printf("%d\t",ptr->data);

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47     printf("%d\t", ptr->data);
48     ptr=ptr->next;
49 }
50 return start;
51 };
52
53 struct node * insert_before(struct node * start)
54 {
55     struct node * newnode=(struct node * )malloc(sizeof(struct node *));
56     printf("enter data");
57     int num, val;
58     scanf("%d", &num);
59     newnode->data=num;
60     printf("enter val before u want to insert");
61     scanf("%d", &val);
62     struct node * ptr=start;
63     if(ptr->data==val)
64     {
65         newnode->next=ptr;
66         ptr->prev=newnode;
67         newnode->prev=NULL;
68         start=newnode;
69     }
70     else
71     {
72         while(ptr->data!=val)
73             ptr=ptr->next;
74         newnode->next=ptr;
75         newnode->prev=ptr->prev;
76         ptr->prev->next=newnode;
77         ptr->prev=newnode;
78     }
79     return start;
80 };
81
82
83 struct node * delete_value(struct node * start)
84 {
85     struct node * ptr=start;
86     int val;
87     printf("enter num which has to be deleted");
88     scanf("%d", &val);
89     if(ptr->data==val)
90     {
91         start=ptr->next;
92

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91     start=ptr->next;
92
93     start->prev=NULL;
94     free(ptr);
95
96 }
97 else
98 {
99     while(ptr->data!=val)
100         ptr=ptr->next;
101     if(ptr->next==NULL)
102     {
103         ptr->prev->next=NULL;
104         free(ptr);
105     }
106     else
107     {
108         struct node * temp=ptr->prev;
109         temp->next=ptr->next;
110         ptr->next->prev=temp;
111         free(ptr);
112     }
113 }
114
115 return start;
116 };
117
118 void main()
119 {
120
121     int ch;
122     while(1)
123     {
124         printf("\n1.create\n2.insert_before\n3.delete_value\n4.display\n5.exit");
125         printf("\nEnter choice");
126         scanf("%d",&ch);
127         switch(ch)
128         {
129             case 1 : start=create(start);
130                     break;
131             case 2:
132                 start=insert_before(start);
133                 break;
134             case 3:
135                 start=delete_value(start);
136                 break;
137             case 4:

```

```
137  
138  
139  
140  
141  
142  
143  
144  
145
```

```
case 4:  
    start=display(start);  
    break;  
case 5:  
    exit(1);  
}  
}  
}
```

```
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice1

enter -1 to stop
enter num1
enter num2
enter num3
enter num4
enter num5
enter num-1
```

```
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice4
1      2      3      4      5
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice3
enter num which has to be deleted3
```

```
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice4
1      2      4      5
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice3
enter num which has to be deleted5
```

```
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice4
1      2      4
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice2
enter data6
enter val before u want to insert2
```

```
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice4
```

```
1      6      2      4
```

```
1.create
2.insert_before
3.delete_value
4.display
j.5.exit
enter choice_
```