

```
1  #include<stdio.h>
2  #include<process.h>
3  #include<stdlib.h>
4  struct node
5  {
6      int data;
7      struct node *next;
8      struct node *prev;
9  };
10 struct node *head=NULL;
11 void insert_beg()
12 {
13     struct node *new_node;
14     new_node=(struct node*)malloc(sizeof(struct node));
15     printf("Enter the item\n");
16     scanf("%d",&new_node->data);
17     new_node->next=NULL;
18     new_node->prev=NULL;
19
20     if(head==NULL)
21     {
22         head=new_node;
23     }
24     else
25     {
26         new_node->next=head;
27         head->prev=new_node;
28         head=new_node;
29     }
30 }
31
32
33 void insert_end()
34 {
35     struct node *new_node,*temp;
36     new_node=(struct node*)malloc(sizeof(struct node));
37     printf("Enter the item\n");
```

```
34 {
35     struct node *new_node, *temp;
36     new_node=(struct node*)malloc(sizeof(struct node));
37     printf("Enter the item\n");
38     scanf("%d",&new_node->data);
39     new_node->next=NULL;
40     new_node->prev=NULL;
41     if(head==NULL)
42     {
43         head=new_node;
44     }
45     else
46     {
47         temp=head;
48         while(temp->next!=NULL)
49             temp=temp->next;
50         temp->next=new_node;
51         new_node->prev=temp;
52     }
53 }
54
55 void insert_between()
56 {
57     int listele;
58     struct node *new_node, *temp;
59     printf("Enter the element in the list\n");
60     scanf("%d",&listele);
61     new_node=(struct node*)malloc(sizeof(struct node));
62     printf("Enter the new node data\n");
63     scanf("%d",&new_node->data);
64     new_node->next=NULL;
65     new_node->prev=NULL;
66     if(head==NULL)
67     {
68         printf("Empty list\n"); return;
69     }
70 }
```

```
65 new_node->next=NULL;
66 new_node->prev=NULL;
67 if(head==NULL)
68 {
69     printf("Empty list\n"); return;
70 }
71 temp=head;
72 while(temp->data!=listele)
73 {
74     temp=temp->next;
75     if(temp==NULL)
76     {
77         printf("Element is not in the list");
78         return;
79     }
80 }
81 new_node->next=temp->next;
82 temp->next=new_node;
83 new_node->prev=temp;
84 new_node->next->prev=new_node;
85 }
86 void del()
87 {
88     struct node *temp;
89     int ele;
90     if(head==NULL)
91     {
92         printf("Empty List \n");
93         return;
94     }
95     printf("Enter the element to be deleted\n");
96     scanf("%d",&ele);
97     temp=head;
98     while(temp->data!=ele)
99     {
100         temp=temp->next;
101         if(temp==NULL)
```

```
123 void display()
124 {
125     struct node *temp;
126     temp=head;
127     while(temp!=NULL)
128     {
129         printf("%d\t",temp->data);
130         temp=temp->next;
131     }
132     printf("\n");
133 }
134 int main()
135 {
136     int choice;
137
138     while(1)
139     {
140         printf(" 1. Insert at the beg \n");
141         printf(" 2. Insert at the end \n");
142         printf(" 3. Insert after a given node\n");
143         printf(" 4. Delete \n");
144         printf(" 5. Display\n");
145         printf(" 6. Exit\n");
146         printf("Enter your choice\n");
147         scanf("%d",&choice);
148         switch(choice)
149         {
150             case 1: insert_beg(); break;
151             case 2: insert_end();break;
152             case 3: insert_between();break;
153             case 4: del(); break;
154             case 5: display(); break;
155             case 6: exit(0);
156         }
157     }
158 }
159
```



```
96 scanf("%d",&ele);
97 temp=head;
98 while(temp->data!=ele)
99 {
100     temp=temp->next;
101     if(temp==NULL)
102     {
103         printf("Element is not in the list\n");
104         break;
105     }
106 }
107 if(temp==head)
108 {
109     head=head->next;
110 }
111 else if(temp->next==NULL)
112 {
113     temp=temp->prev;
114     temp->next=NULL;
115 }
116
117 else
118 {
119     temp->prev->next=temp->next;
120     temp->next->prev=temp->prev;
121 }
122 }
123 void display()
124 {
125     struct node *temp;
126     temp=head;
127     while(temp!=NULL)
128     {
129         printf("%d\t",temp->data);
130         temp=temp->next;
131     }
132     printf("\n");
```

```
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
1
Enter the item
11
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
1
Enter the item
13
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
1
Enter the item
2
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
1
Enter the item
43
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
```

```
6. Exit
Enter your choice
1
Enter the item
43
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
1
Enter the item
1
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
5
1      43      2      13      11
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
3
Enter the element in the list
2
Enter the new node data
22
1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit
Enter your choice
```


Enter the element in the list

2

Enter the new node data

22

1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit

Enter your choice

5

1 43 2 22 13 11

1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit

Enter your choice

4

Enter the element to be deleted

43

1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit

Enter your choice

5

1 2 22 13 11

1. Insert at the beg
2. Insert at the end
3. Insert after a given node
4. Delete
5. Display
6. Exit

Enter your choice

4

Enter the element to be deleted

9

Element is not in the list