

code:

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#include<stdio.h>
#include<stdlib.h>
struct node
{
    struct node* previos;
    int data;
    struct node* next;
};
void display(struct node *start)
{
    if(start==0)
    {
        printf("list is empty\n");
        return;
    }
    printf("the nodes in the list are:\n");
    while(start!=0)
    {
        printf("%d ",start->data);
        start=start->next;
    }
    printf("\n");
    return ;
}
struct node* insert_begin(struct node * start)
{
    struct node *n=(struct node * )malloc(sizeof(struct node));
    n->next=0;
    n->previos=0;
    printf("enter an element to be inserted\n");
    scanf("%d",&n->data);
    if(start==0)
    {
        start=n;
        return start;
    }
    start->previos=n;
    n->next=start;
    start=n;
    return start;
}
struct node * delete_after(struct node * start)
{

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printf("enter the node after which the node has to be deleted\n");
int ele;
struct node *p=start;
scanf("%d",&ele);
while (p->next!=0)
{
    if(p->next->next==0 && p->data==ele)
    {
        free(p->next);
        p->next=0;
        return start;
    }
    if(p->data==ele)
    {
        struct node *t=p->next;
        p->next=t->next;
        struct node *x= t->next;
        x->previos=p;
        free(t);
        return start;
    }
    p=p->next;
}

if(p->data==ele)
{
    printf("there is no node after to be delted \n");
    return start;
}
printf("three is no node as %d",ele);

return start;

}
struct node *delete_before(struct node *start)
{
    printf("enter the node before which the node has to be deleted \n");
    int ele;
    scanf("%d",&ele);
    struct node *p=start;
    if(start->data==ele)
    {
        printf("there is node before to be delted\n");
        return start;
    }

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    }
    while (p!=0)
    {
        if(p->next->data==ele)
        {
            if(p==start)
            {
                start=start->next;
                free(start->previos);
                start->previos=0;
                return start;
            }
            p->previos->next=p->next;
            p->next->previos=p->previos;
            free(p);
            return start;
        }
        p=p->next;
    }
    Printf ("not found \n");
    return start;
}

int main()
{
    int n;
    struct node *start=0;
    printf("1-insert begin\n");
    printf("2-delete after a node\n");
    printf("3-delete before a node\n");
    printf("4-display\n");
    printf("Enter another number to exit\n");
    printf("Enter your choise\n");
    scanf("%d",&n);
    while(n>0 && n<5)
    {
        if(n==1)
        {
            start= insert_begin(start);
        }
        else if(n==2)
        {
            start=delete_after(start);
        }
        else if(n==3)

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    {
        start=delete_before(start);
    }
    else if(n==4)
    {
        display(start);
    }
    printf("\n\n1-insert begin\n");
    printf("2-delete after a node\n");
    printf("3-delete before a node\n");
    printf("4-display\n");
    printf("Enter another number to exit\n");
    printf("Enter your choise\n");
    scanf("%d",&n);
}
printf("Exit \n");
return 0;
}

```

input:

```

3
2
1
131
1
12
2
1314
1
33
4
2
33
4
3
33
4
3
131
4
2
131

```

133

output:

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

empty list

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

empty list

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

enter an element to be inserted

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

enter an element to be inserted

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

enter the node after which the node has to be deleted
three is no node as 1314

1-insert begin
2-delete after a node
3-delete before a node
4-display
Enter another number to exit
Enter your choice
enter an element to be inserted

1-insert begin
2-delete after a node
3-delete before a node
4-display
Enter another number to exit
Enter your choice
the nodes in the list are:
33 12 131

1-insert begin
2-delete after a node
3-delete before a node
4-display
Enter another number to exit
Enter your choice
enter the node after which the node has to be deleted

1-insert begin
2-delete after a node
3-delete before a node
4-display
Enter another number to exit
Enter your choice
the nodes in the list are:
33 131

1-insert begin
2-delete after a node
3-delete before a node

4-display

Enter another number to exit

Enter your choice

enter the node before which the node has to be deleted

there is node before to be delted

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

the nodes in the list are:

33 131

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

enter the node before which the node has to be deleted

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

the nodes in the list are:

131

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

enter the node after which the node has to be deleted

there is no node after to be delted

1-insert begin

2-delete after a node

3-delete before a node

4-display

Enter another number to exit

Enter your choice

Exit