

## **//implementation of double linked list**

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
struct node
```

```
{
```

```
    int data;
```

```
    struct node *prev,*next;
```

```
};
```

```
    struct node *head=NULL,*last=NULL;
```

```
    void create();
```

```
    void insert();
```

```
    void delet();
```

```
    void display();
```

```
    void search();
```

```
void create()
```

```
{
```

```
    struct node *temp;
```

```
    temp=(struct node*)malloc(sizeof(struct node));
```

```
    int n;
```

```
    printf("\nEnter an Element:");
```

```
    scanf("%d",&n);
```

```
    temp->data=n;
```

```
    temp->next=NULL;
```

```
    temp->prev=NULL;
```

```
    if(head==NULL)
```

```
    {
```

```
        head=temp;
```

```
        last=head;
```

```
    }
```

```
    else
```

```

    {
        last->next=temp;
        temp->prev=last;
        last=temp;
    }
}
void insert()
{
    struct node *old,*cur,*temp;
    old=NULL;
    cur=head;
    int count=1,pos,ch,n;
    temp=(struct node*)malloc(sizeof(struct node));
    printf("\nEnter an Element:");
    scanf("%d",&n);
    temp->data=n;
    temp->next=NULL;
    temp->prev=NULL;
    printf("\nINSERT AS\n1:FIRSTNODE\n2:LASTNODE\n3:IN BETWEEN
FIRST&LAST NODES");
    printf("\nEnter Your Choice:");
    scanf("%d",&ch);
    switch(ch)
    {
        case 1:
            temp->next=head;
            head->prev=temp;
            head=temp;
            break;
        case 2:
            last->next=temp;
            temp->prev=last;
            last=temp;
            break;
        case 3:

```

```

    printf("\nEnter the Position to Insert:");
    scanf("%d",&pos);
    while(count!=pos)
    {
        old=cur;
        cur=cur->next;
        count++;
    }
    if(count==pos)
    {
        temp->next=old->next;
        cur->prev=temp;
        old->next=temp;
        temp->prev=old;
    }
    else
        printf("\nNot Able to Insert");
    break;

}
}
void delet()
{
    struct node *old=NULL,*cur=head;
    int count=1,pos,ch;
    printf("\nDELETE\n1:FIRSTNODE\n2:LASTNODE\n3:IN BETWEEN
FIRST&LAST NODES");
    printf("\nEnter Your Choice:");
    scanf("%d",&ch);
    switch(ch)
    {
    case 1:
        if(head==NULL)
        {
            printf("\nNot Able to Delete");

```

```

    }
    else
    {
        printf("\nDeleted Element is %d",head->data);
        if(head==last)
        {
            head=last=NULL;
        }
        else
        {
            struct node *temp;
            temp=head;
            head=head->next;
            head->prev=NULL;
        }
    }
    break;
case 2:
    if(head==NULL)
    {
        printf("\nNot Able to Delete");
    }
    else
    {
        while(cur!=last)
        {
            old=cur;
            cur=cur->next;
        }
        if(cur==last)
        {
            printf("\nDeleted Element is: %d",cur->data);
            if(old==NULL)
            {

```

```

        head=NULL;
    }
    else
    {
        old->next=NULL;
        last=old;
    }
}
}
break;
case 3:
printf("\nEnter the Position of Deletion:");
scanf("%d",&pos);
if(head==NULL)
{
printf("\nNot Able to Delete");
}
else
{
while(count!=pos)
{
        old=cur;
        cur=cur->next;
        count++;
    }
if(count==pos)
{
        printf("\nDeleted Element is:%d",cur->data);
        old->next=cur->next;
        (cur->next)->prev=old;
    }
}
break;
}
}

```

```

void display()
{
    struct node *temp=head;
    if(temp==NULL)
    {
        printf("\nList is Empty");
    }
    while(temp!=NULL)
    {
        printf("%d",temp->data);
        printf("-->");
        temp=temp->next;
    }
    printf("NULL");
}

void search()
{
    int value,pos=0;
    int flag=0;
    if(head==NULL)
    {
        printf("List is Empty");
        return;
    }
    printf("Enter the Value to be Searched:");
    scanf("%d",&value);
    struct node *temp;
    temp=head;
    while(temp!=NULL)
    {
        pos++;
        if(temp->data==value)
        {
            flag=1;
            printf("Element %d is Found at %d Position",value,pos);

```

```

        return;
    }
    temp=temp->next;
}
if(!flag)
{
    printf("Element %d not Found in the List",value);
}
}
int main()
{
    int ch;
    while(1)
    {
        printf("\n**** MENU ****");

printf("\n1:CREATE\n2:INSERT\n3:DELETE\n4:SEARCH\n5:DISPLAY\n6:EXIT\n");
        printf("\nEnter Your Choice:");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1:
                create();
                break;
            case 2:
                insert();
                break;
            case 3:
                delet();
                break;
            case 4:
                search();
                break;
            case 5:

```

```
        display();
        break;
    case 6:
        return 0;
    }
}
return 0;
}
```