```
//double linked list
#include <stdio.h>
#include <stdlib.h>

struct node{
   int data;
   struct node *prev;
   struct node *next;
}*first=NULL;
void create(int a[],int n){
   struct node *t,*last;
   first=(struct node *) malloc (sizeof(struct node));
   first->data=a[0];
   first->prev=first->next=NULL;
   last=first;
   for(int i=1;i<n;i++){
      t=(struct node *) malloc (sizeof(struct node));
      t->data=a[i];
      t->next=last->next;
      t->prev=last;
      last->next=t;
      last=t;
   }
}
void insertleft(int val,int pos){
   struct node *t,*ptr;
   int i,loc;
   loc=pos;
   t=(struct node *) malloc (sizeof(struct node));
   if(t==NULL){
      printf("overflow");
   }
   t->data=val;
   if(pos==1){
         t->prev=NULL;
         t->next=first;


         if(first!=NULL){
            first->prev=t;
         }
         first=t;

   }
```

```
    else
    {
            ptr=first;
            for(int i=0;i<loc-2;i++){
                ptr=ptr->next;
            }
            t->next=ptr->next;
            t->prev=ptr;

            if(ptr!=NULL){
                ptr->next->prev=t;
            }
             ptr->next=t;
    }
    printf("node inserted ");

}
void delevalue(int val){
    struct node *ptr;
    int value;
    value=val;
    ptr=first;
    while(ptr!=NULL){
        if(ptr->data==value){
            if(ptr->prev!=NULL){
                ptr->prev->next=ptr->next;
            }
            if(ptr->next!=NULL){
                ptr->next->prev=ptr->prev;
            }
            if(ptr==first){
                first=ptr->next;
            }
            free(ptr);
        printf("value %d deleted",value);
        return;
        }
        ptr=ptr->next;

    }
    printf("%d value not found",value);

}
```

```
void display(struct node *p)
{
   while(p!=NULL){
      printf("%d\t",p->data);
      p=p->next;
   }
   printf("\n");
}
void main(){
   int a[10],n;
   int val,key,loc;
   printf("read n");
   scanf("%d",&n);
   printf("enter the values:");
   for(int i=0;i<n;i++){
      scanf("%d",&a[i]);
   }
   create(a,n);
   display(first);
   printf("enter the value to be inserted:");
   scanf("%d",&val);
   printf("enter the loc  to be inserted at:");
   scanf("%d",&loc);
   insertleft(val,loc);
   display(first);
   printf("enter the key element to be deleted");
   scanf("%d",&key);
   delevalue(key);
   display(first);
}
```

Output

```
read n5
enter the values:10 20 30 40 50
10      20      30      40      50
enter the value to be inserted:4
enter the loc  to be inserted at:2
node inserted 10        4       20      30      40      50
enter the key element to be deleted40
value 40 deleted10      4       20      30      50
```