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/*****SUBHAS NATH*****/
/*****
/*****PROGRAM OF DOUBLE LINKED LIST*****/

#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
#define NULL 0
struct link
{
    struct link *prev;
    int info;
    struct link *next;
};
typedef struct link node;
void main()
{
    node *head;
    clrscr();
    void create(node *);
    void show(node *);
    node *insert_fst(node *);
    node *insert_lst(node *);
    node *del_fst(node *);
    node *del_lst(node *);
    head=(node *)malloc(sizeof(node)); //CREATE STORAGE FOR FIRST NODE
    printf("\n\tCreate the linked list:\n");
    create(head);
    printf("\n\tDisplay the linked list:\n");
    show(head);
    printf("\n\n\tInsertion at 1st position.\n");
    head=insert_fst(head);
    show(head);
    printf("\n\n\tInsertion at last position.\n");
    head=insert_lst(head);
    show(head);
    getch();
    printf("\n\n\tDeletion at 1st position.\n");
    head=del_fst(head);
    show(head);
    getch();
    printf("\n\n\tDeletion at last position.\n");
    head=del_lst(head);
    show(head);
    getch();
}

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/******CREATE LINKED LIST******/
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```
void create(node *temp)
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```
{
    char ans;
    node *p;
    temp->prev=NULL;
    printf("\nEnter the info:- ");
    scanf("%d",&temp->info);
    while(1)
    {
        printf("\nWant Another? ");
        fflush(stdin); //CLEAR THE BUFFER
        ans=getchar();
        if(ans!='y')
            break;
        else
        {
            p=temp;
            temp->next=(node *)malloc(sizeof(node)); //CREATE STORAGE FOR NEXT
            NODE
            temp=temp->next;
            temp->prev=p;
            printf("\nEnter the info:- ");
            scanf("%d",&temp->info);
        }
    }
    temp->next=NULL;
}
```

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/******DISPLAY LINKED LIST******/
```

```
void show(node *temp)
```

```
{
    while(temp->next!=NULL)
    {
        printf("%d<->",temp->info); //DISPLAY UPTO PREVIOUS OF LAST NODE
        temp=temp->next;
    }
    if(temp->next==NULL)
    {
        printf("%d",temp->info); //DISPLAY LAST NODE
    }
    printf("\n");
    while(temp->prev!=NULL)
```

```

{
    printf("%d<->",temp->info); //DISPLAY FROM LAST TO SECOND NODE
    temp=temp->prev;
}
if(temp->prev==NULL)
{
    printf("%d",temp->info); //DISPLAY FIRST NODE
}
}

```

/\*\*\*\*\*\*INSERTION AT FIRST POSITION\*\*\*\*\*\*/

```

node *insert_fst(node * temp)
{
    node * list;
    list=(node *)malloc(sizeof(node));
    list->prev=NULL;
    printf("\nEnter the element:- ");
    scanf("%d",&list->info);
    list->next=temp;
    temp->prev=list;
    temp=list;
    return(temp);
}

```

/\*\*\*\*\*\*INSERTION AT LAST POSITION\*\*\*\*\*\*/

```

node *insert_lst(node *temp)
{
    node *last,*first;
    first=temp;
    while(temp->next!=NULL)
    {
        temp=temp->next;
    }
    if(temp->next==NULL)
    {
        last=(node *)malloc(sizeof(node));
        printf("\nEnter the element:- ");
        scanf("%d",&last->info);
        temp->next=last;
        last->prev=temp;
        last->next=NULL;
    }
    return(first);
}

```

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/******DELETION FROM FIRST POSITION******/
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```
node *del_fst(node * temp)
{
    node * list;
    if(temp==NULL)
        printf("\n\tUNDERFLOW.\n");
    if(temp!=NULL)
    {
        list=temp->next;
        list->prev=NULL;
        free(temp);
        temp=list;
    }
    return(temp);
}
```

```
/******DELETION FROM LAST POSITION******/
```

```
node *del_lst(node *temp)
{
    node *last,*first;
    first=temp;
    while(temp->next->next!=NULL)
    {
        temp=temp->next;
    }
    if(temp->next->next==NULL)
    {
        last=temp->next;
        free(last);
        temp->next=NULL;
    }
    return(first);
}
```