

//Program in C for the following operations on Singly Linked List (SLL)

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#include<string.h>

#include<stdio.h>

#include<stdlib.h>

#include<conio.h>

struct stud
{
    char usn[11],name[15],branch[4],phno[11];

    int sem;

    struct stud *next;
}*f=NULL,*r=NULL,*t=NULL;

void ins(int ch)
{
    t=(struct stud*)malloc(sizeof(struct stud));

    printf("\nEnter USN:");

    scanf("%s",t->usn);

    printf("Enter Name:");

    scanf("%s",t->name);

    printf("Enter Branch:");

    scanf("%s",t->branch);

    printf("Enter Sem:");

    scanf("%d",&t->sem);

    printf("Enter Phno:");

    scanf("%s",t->phno);

    t->next=NULL;

    if(!r)
```

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        f=r=t;
else
{
    if(ch)
    {
        r->next=t;
        r=t;
    }
    else
    {
        t->next=f;
        f=t;
    }
}
}

void del(int ch)
{
    if(!f)
        printf("\nList Empty");
    else
    {
        struct stud *t1;
        if(f==r)
        {
            t1=f;
            f=r=NULL;

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    }
    else if(ch)
    {
        t1=r;

        for(t=f;t->next!=r;t=t->next)

            r=t;

        r->next=NULL;
    }
    else
    {
        t1=f;

        f=f->next;
    }

    printf("\nElement deleted is:\n");

    printf("USN:%s\nName:%s\nBranch:%s\nSem:%d\nPhno:%s\n",t1-
>usn,t1->name,t1->branch,t1->sem,t1->phno);

    free(t1);
}
}

void disp()
{
    if(!f)

        printf("\nList Empty!!!");
    else

        printf("\nList elements are:\n");

    for(t=f;t=t->next)

```

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    printf("\nUSN:%s\nName:%s\nBranch:%s\nSem:%d\nPhno:%s\n",t-
>usn,t->name,t->branch,t->sem,t->phno);
}
void main()
{
    int ch,n,i;
    printf("\n.....Menu.....\n");
    printf("1.Create\n");
    printf("2.Display\n");
    printf("3.Insert at end\n");
    printf("4.Delete at end\n");
    printf("5.Insert at beg\n");
    printf("6.Delete at beg\n");
    printf("7.Exit\n");
    while(1)
    {
        printf("\nEnter choice:");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1: printf("\nEnter no. of nodes:");
                    scanf("%d",&n);
                    for(i=0;i<n;i++)
                        ins(0);
                    break;
            case 2: disp();break;

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        case 3:ins(1);break;

        case 4:del(1);break;

        case 5:ins(0);break;

        case 6:del(0);break;

        case 7:exit(0);

        default:printf("\nInvalid choice!!!!");

    }

}

}

```

Output:

```

.....Menu.....,
1.Create
2.Display
3.Insert at end
4.Delete at end
5.Insert at beg
6.Delete at beg
7.Exit

Enter choice:1

Enter no. of nodes:3

Enter USN:1
Enter Name:ABC
Enter Branch:CE
Enter Sem:5
Enter Phno:7890987654

Enter USN:2
Enter Name:DEF
Enter Branch:ECE
Enter Sem:4
Enter Phno:9876543212

Enter USN:3
Enter Name:EFG
Enter Branch:ME
Enter Sem:7
Enter Phno:6789543234

```