Program 7

Develop a menu driven Program in C for the following operations on Singly Linked List (SLL) of Student Data with the fields: USN, Name, Programme, Sem, PhNo.

a. Create a SLL of N Students Data by using front insertion.
b. Display the status of SLL and count the number of nodes in it
c. Perform Insertion / Deletion at End of SLL
d. Perform Insertion / Deletion at Front of SLL(Demonstration of stack)
e. Exit

Program

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

struct node
{
  char usn[20],name[20],branch[10],phone[11];
  int sem;
  struct node *next;
};

typedef struct node *NODE;
NODE temp, head=NULL;

NODE getnode()
{
        NODE temp;
        temp=(NODE)malloc(sizeof(struct node));
         temp->next=NULL;
         printf("\n Enter USN, Name, branch, phone number and semester :");
         scanf("%s%s%s%s%d",temp->usn,temp->name, temp->branch,
            temp->phone, &temp->sem);
        return temp;
}
```

```
void insert_beg()
{
NODE temp=getnode();
  if(head != NULL)
        temp->next=head;
  head=temp;
}

void create()
{
 int n,i=0;

  printf("Enter the number of students \n");
  scanf("%d",&n);

  for(i=1;i<=n;i++)
        insert_beg();
}

void del_beg()
{
  NODE tt=head;

  if(head==NULL)
        printf("\n No nodes to delete ");
  else
    {
      if(head->next==NULL)
          head=NULL;
      else
          {
            head=head->next;
            free(tt);
          }
    }
}
```

```
void insert_end()
{
  NODE temp=getnode();
  NODE tt;

  if(head==NULL)
          head=temp;
  else
     for(tt=head;tt->next!=NULL;tt=tt->next)
          {       }
      tt->next=temp;
}

void del_end()
{
  NODE tt,p;

  if(head==NULL)
    printf("\n No Nodes to delete \n");
  else
   {
    if(head->next==NULL)
         head=NULL;
     else
       {
          for(tt=head;tt->next->next!=NULL;tt=tt->next)
                 {
                 }
          p=tt->next;
          tt->next=NULL;
          free(p);
       }
    }
}
```

```
void disp()
{
NODE tt;
int c=0;

if(head==NULL)
        printf("the student detail is NULL and count is ZERO");
else
{
        printf("\n USN\t Name\t Branch\t Ph.No \tSem \n");
        printf("\n*********************************************\n");

        for(tt=head;tt!=NULL;tt=tt->next)
       {
                c++;
                  printf("\n %s\t%s\t%s\t%s\t%d",tt->usn,tt->name,tt->branch,
                  tt->phone,tt->sem);
        }
        printf("\n Student count is %d\n",c);
}
}

void main()
{
 int ch;

 while(1)
 {
 printf("\n1.create  2.insert_beg 3.insert_end 4.del_beg 5.del_end 6.Display Any
other key to exit\n");
 printf("\n\nEnter Your Choice: ");
 scanf("%d",&ch);

         switch(ch)
          {
        case 1:create();
                break;
```

```
        case 2:insert_beg();
                break;
        case 3: insert_end();
                break;
        case 4: del_beg();
                  break;
        case 5:del_end();
                break;
        case 6:disp();
                break;
        default: exit(0);
          }
  }
}
```