Laboratory Program 5: Design, develop and Implement a menu driven Program in C for the following operations on Singly Linked List 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
e. Exit

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

  struct node
  {
  int usn;
  char name[10];
  char prog[10];
  int sem;
  long int mno;

  struct node *link;
  }; typedef struct node * NODE;

//********** Function to Insert at begining *********

  NODE insfront(NODE first)
  {
  NODE newnode;
  newnode = (NODE)malloc(sizeof(struct node));
  printf(" Enter the USN Name Program Semester Mobile No of student \n");
  scanf("%d%s%s%d%ld", &newnode->usn, newnode->name, newnode->prog,
                              &newnode->sem, &newnode->mno);
  newnode->link = first;
  first = newnode;
  return first;
  }
//********** Function to Insert at the End of List *********
  NODE insend(NODE first)
  {
  NODE newnode,temp;
  newnode = (NODE) malloc(sizeof(struct node));
  printf(" Enter the USN Name Program Semester Mobile No of student \n");
  scanf("%d%s%s%d%ld", &newnode->usn, newnode->name, newnode->prog,
                              &newnode->sem, &newnode->mno);
  newnode->link = NULL;

  temp = first;
  while(temp->link != NULL)
  temp = temp->link;

  temp->link = newnode;
  return first;
  }
```

```
//********** Function to Delete Node from begining *********
NODE delfront(NODE first)
{
NODE temp;

if( first == NULL)
printf(" The List is Empty, deletion cannot be possible\n");
else
{
temp =  first;
first = first ->link;
free(temp);
}
return first;
}
//********** Function to Delete Node at End of List *********
NODE delend(NODE first)
{
NODE prev,pres;

if( first == NULL)
{
printf(" The List is Empty, deletion cannot be possible\n");
return first;
}

if(first->link == NULL)
{
pres = first;
first = NULL;
free (pres);
return first;
}

printf("The USN Name Program Semester Mobile No of student \n");
pres =  first;

while(pres->link != NULL)
{
prev = pres;
pres = pres->link;
}

prev->link = NULL;
free(pres);
return first;
}
```

```
//********** Function to Delete Node from begining *********

  void display(NODE first)
  {
  NODE temp;
  if( first == NULL)
  printf(" The List is Empty\n");
  else
  {
  temp =  first;
  printf("The USN Name Program Semester Mobile No of student \n");
  while(temp != NULL )
  {
  printf("%d\t%s\t%s\t%d\t%ld\n", temp->usn, temp->name, temp->prog, temp->sem,
                                                                    temp->mno);
  temp  = temp->link;
  }
  }
  }

// Main Program
void main()
        {

        NODE first = NULL;
        int ch;

        clrscr();

     for(;;)
     {
     printf(" 1:Ins Front 2:Ins End 3:Del Front 4:Del end 5: Display\n");
     scanf("%d",&ch);

  switch(ch)
  {
  case 1: first = insfront(first);
            break;
  case 2: first = insend(first);
            break;
  case 3: first = delfront(first);
            break;
  case 4: first = delend(first);
            break;
  case 5: display(first);
            break;
  default: exit(0);
  }
  }
  }
```