

6. Design, Develop and Implement a menu driven Program in C for the following operations on Singly Linked List (SLL) of Student Data with the fields: USN, Name, Branch, 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

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

int count=0;

struct node
{
    int sem,phno;
    char name[20],branch[20],usn[10];
    struct node *next;
}*first=NULL,*last=NULL,*temp=NULL,*temp1=NULL;

void create()
{
    int sem,phno;
    char name[20],usn[10],branch[20];
    temp=(struct node *)malloc(sizeof(struct node));

    printf("Enter the details \n");
    printf("Name,USN,Branch,Sem,Phone_Number\n");
    scanf("%s%s%s%d%d",name,usn,branch,&sem,&phno);
    strcpy(temp->usn,usn);
    strcpy(temp->name,name);
    strcpy(temp->branch,branch);
    temp->sem=sem;
    temp->phno=phno;
    temp->next=NULL;

    count++;
}

void deletefront()
{
    temp=first;
    if(first==NULL)
    {
        printf("\n list is empty");
        return;
    }
}
```

```

    }
    if(temp->next==NULL)
    {
        printf("The deleted node is \n");
        printf("%s\t%s\t%s\t%d\t%d",temp->name,temp->usn,temp->branch,temp->sem,temp->phno);
        free(temp);
        first=NULL;
    }
    else
    {
        first=temp->next;
        printf("The deleted node is \n");
        printf("%s\t%s\t%s\t%d\t%d",temp->name,temp->usn,temp->branch,temp->sem,temp->phno);
        free(temp);
    }
    count--;
}

void deleteatend()
{
    temp=first;
    if(first==NULL)
    {
        printf("\n list is empty");
        return;
    }
    if(temp->next==NULL)
    {
        printf("The deleted node is \n");
        printf("%s\t%s\t%s\t%d\t%d",temp->name,temp->usn,temp->branch,temp->sem,temp->phno);
        free(temp);
        first=NULL;
    }
    else
    {
        while(temp->next!=last)
            temp=temp->next;
        printf("The deleted node is \n");
        printf("%s\t%s\t%s\t%d\t%d",last->name,last->usn,last->branch,last->sem,last->phno);
        free(last);
        last=temp;
        last->next=NULL;
    }
    count--;
}

void insertatfirst()
{

```

```

        create();
        if(first==NULL)
        {
            first=temp;
            last=first;
        }
        else
        {
            temp->next=first;
            first=temp;
        }
    }
void insertatlast()
{
    create();
    if(first==NULL)
    {
        first=temp;
        last=first;
    }
    else
    {
        last->next=temp;
        last=temp;
    }
}
void display()
{
    if(first==NULL)
    {
        printf("\n list is empty");
    }
    else
    {
        temp=first;
        printf("The node is \n");
        while(temp!=NULL)
        {
            printf("%s\t%s\t%s\t%d\t%d--->",temp->name,temp->usn,temp->branch,temp->sem,temp-
>phno);
            temp=temp->next;
        }
    }
}
void main()

```

```

{
    int ch,i,n;
    while(1)
    {
        printf("\n1.Insert n details student ");
        printf("\n2.Insert at beginning");
        printf("\n3.Insert at last");
        printf("\n4.Delete from begining");
        printf("\n5.Delete from last");
        printf("\n6.Display");
        printf("\n7.Exit");
        printf("\nEneter your choice : ");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1 : printf("\nEnter the value of n ");
                     scanf("%d",&n);
                     for(i=0;i<n;i++)
                     insertatfirst();
                     break;
            case 2 : insertatfirst();
                     break;
            case 3 : insertatlast();
                     break;
            case 4 : deletefront();
                     break;
            case 5 : deleteatend();
                     break;
            case 6 : display();
                     break;
            case 7 : exit(1);
            default: printf("\n Wrong Input, try again");
        }
    }
}

```

Output:

```

1.Insert n details student
2.Insert at beginning
3.Insert at last
4.Delete from begining
5.Delete from last
6.Display
7.Exit
Eneter your choice : 1

```

```

Enter the value of n 1

```

Enter the details

Name,USN,Branch,Sem,Phone_Number

Ramya 123 ise 3 9999999

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from begining

5.Delete from last

6.Display

7.Exit

Eneter your choice : 6

The node is

Ramya 123 ise 3 9999999--->

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from begining

5.Delete from last

6.Display

7.Exit

Eneter your choice : 2

Enter the details

Name,USN,Branch,Sem,Phone_Number

Bhavya 222 ise 3 8888888

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from begining

5.Delete from last

6.Display

7.Exit

Eneter your choice : 6

The node is

Bhavya 222 ise 3 8888888--->Ramya 123 ise 3 9999999--->

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from begining

5.Delete from last

6.Display

7.Exit

Eneter your choice : 3

Enter the details

Name,USN,Branch,Sem,Phone_Number

Kavya 333 ise 3 77777

- 1.Insert n details student
- 2.Insert at beginning
- 3.Insert at last
- 4.Delete from begining
- 5.Delete from last
- 6.Display
- 7.Exit

Eneter your choice : 6

The node is

Bhavya 222 ise 3 8888888---Ramya 123 ise 3 9999999--->Kavya

- 2.Insert at beginning
- 3.Insert at last
- 4.Delete from begining
- 5.Delete from last
- 6.Display
- 7.Exit

Eneter your choice : 4

The deleted node is

Bhavya 222 ise 3 8888888

- 1.Insert n details student
- 2.Insert at beginning
- 3.Insert at last
- 4.Delete from begining
- 5.Delete from last
- 6.Display
- 7.Exit

Eneter your choice : 6

The node is

Ramya 123 ise 3 9999999--->Kavya 333 ise 3 77777--->

- 1.Insert n details student
- 2.Insert at beginning
- 3.Insert at last
- 4.Delete from begining
- 5.Delete from last
- 6.Display
- 7.Exit

Eneter your choice : 5

The deleted node is

Kavya 333 ise 3 77777

- 1.Insert n details student
- 2.Insert at beginning
- 3.Insert at last
- 4.Delete from begining
- 5.Delete from last

6.Display

7.Exit

Enter your choice : 6

The node is

Ramya 123 ise 3 9999999--->

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from beginning

5.Delete from last

6.Display

7.Exit

Enter your choice : 5

The deleted node is

Ramya 123 ise 3 9999999

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from beginning

5.Delete from last

6.Display

7.Exit

Enter your choice : 6

list is empty

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from beginning

5.Delete from last

6.Display

7.Exit

Enter your choice : 4

list is empty

1.Insert n details student

2.Insert at beginning

3.Insert at last

4.Delete from beginning

5.Delete from last

6.Display

7.Exit

Enter your choice :